PROTECTED SPECIES OBSERVER FINAL REPORT INCIDENTAL HARASSMENT AUTHORIZATION ISSUED TO VINEYARD NORTHEAST LLC JULY 27, 2022 – JULY 26, 2023

Prepared for: Vineyard Northeast, LLC

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Report Reviewer	
Name	Date of Review
Kathryn Roy	September 8th, 2023

Final Report Approval	
Name	Jason Dean
Title	Senior Environmental Project Manager
Signature	DocuSigned by: Jason Dean C89DBC7CC9FA49A...
Date	Oct 24, 2023

Prepared by:

RPS

20 Park Place
Boston, MA
02118

T 617-880-1444
E sara.davis@RPSgroup.com

Prepared for:

Vineyard Northeast, LLC

200 Clarendon Street
Boston, MA
02116

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

AMP – Alternative Monitoring Plan

BOEM – Bureau of Ocean Energy Management

CPA – Closest Point of Approach

DMA – Dynamic Management Area

EOL – End of Line

EZ – Exclusion Zone

GSS – Geo SubSea

HRG – High-resolution geophysical

IHA – Incidental Harassment Authorization

kts - Knots

m - Meter

NARW – North Atlantic right whale

NOAA – National Oceanic and Atmospheric Administration

NMFS - National Marine Fisheries Service

OCS-A – Outer Continental Shelf Area

OECC – Offshore Export Cable Corridor

PSO – Protected Species Observers

RPS – RPS Group Inc

SOL – Start of Line

SBP – Sub Bottom Profiler

VNE – Vineyard Northeast, LLC

VSA - Vessel strike avoidance

1 EXECUTIVE SUMMARY

This Final Protected Species Observer (PSO) Report is prepared in accordance with Condition 6 of the Incidental Harassment Authorization (IHA) issued on July 27, 2022 to Vineyard Northeast LLC (VNE). The IHA authorizes take of marine mammals incidental to HRG survey activities (the “Survey”) as described in VNE’s application and requires the employment of National Marine Fisheries Service (NMFS)-approved PSOs to monitor and report PSO effort and observations. These surveys were conducted in accordance with the Leases and survey plans for OCS-A 0522 and OCS-A 0544 approved by Bureau of Ocean Energy Management (BOEM).The Survey was conducted on behalf of VNE by Fugro USA Marine, Inc (Fugro) and TDI-Brooks within lease areas OCS-A 0522 and OCS-A 0544 and associated offshore export cable corridors.

This report covers the protected species monitoring and mitigation undertaken by PSOs that were provided by RPS and deployed to each HRG survey vessel that undertook HRG operations, specifically when certain acoustic sources such as impulsive boomers and/or sparkers or non-impulsive: non-parametric sub-bottom profilers were operated, as defined in Section 4(a) of the IHA.

Survey vessels were in operation from July 2022 to January 2023 and April to July 2023.Teams of one to seven PSOs were deployed per vessel to undertake visual observations and implement mitigation to support both the day and night survey operations Mitigation protocols for the survey included the establishment of mitigation zones for marine protected species, visual monitoring, and vessel strike avoidance mitigation measures. Daytime and nighttime visual observations were conducted by PSOs for a total of 12,733 hours and 19 minutes.

A total of 1,114 visual detection events of protected species were made during the survey. Additionally, there was one dead dolphin observed, while the vessel was in transit and was not related to survey operations.

In accordance with stipulations set forth in the IHA, a total of 46 sound source mitigation actions were implemented which included 36 delays to source activation and 10 shutdowns of the HRG equipment for incursions of whales and dolphins. Vessel strike avoidance (VSA) measures were implemented on 794 occasions during the Survey; along with eight occasions when precautionary VSA measures were requested.

During HRG operations, there were 482 detections of protected species, consisting of 4579 individuals, observed within 141 meters of the active sparker (Level B Harassment Zone). The majority of those detections were species exempt from shutdown mitigation per IHA condition 4(e)(iv). While there were animals observed within the Level B Harassment Zone, no behaviors were documented that suggested adverse impacts had occurred to any protected species encountered that can be attributed to the survey activities undertaken.

2 INTRODUCTION

This Final Protected Species Observer (PSO) Report is prepared in accordance with Condition 6 of the Incidental Harassment Authorization (IHA) issued on July 27, 2022 to Vineyard Northeast LLC (VNE) (see Appendix A). The IHA authorizes take of marine mammals incidental to HRG survey activities (the "Survey") as described in VNE's application and requires the employment of National Marine Fisheries Service (NMFS)-approved PSOs to monitor and report PSO effort and observations. These surveys were conducted in accordance with the Leases and survey plans for OCS-A 0522 and OCS-A 0544 approved by Bureau of Ocean Energy Management (BOEM).

Under contract to VNE, Fugro and TDI-Brooks conducted high-resolution geophysical (HRG) surveys off the coast of New York and New Jersey within lease areas OCS-A 0522 and OCS-A 0544 and associated offshore export cable corridors (OECCs). Survey vessels used by Fugro and TDI-Brooks are described in Section 3.1 and acquisition instrumentation used is described in Section 3.2 of this report. Under contract to VNE, Geo SubSea (GSS) served has field program manager to coordinate vessel activity, data transfer and PSO coverage.

VNE contracted PSOs through a third-party provider, RPS, to conduct monitoring and mitigation for protected species, including marine mammals, during HRG survey activities. Protected species monitoring was conducted in accordance with the IHA issued on 27 July 2022. Monitoring and mitigation procedures that were implemented during the surveys are described in Section 4 of this report.

2.1 NMFS Reporting Requirements

This report summarizes the information required by the IHA as outlined in Table 1. An Environmental Management Plan (EMP), inclusive of NMFS issued IHA and BOEM approved Alternative Monitoring Plan (AMP), was prepared for the survey and is included in Appendix A.

Table 1 Reporting requirements per the Vineyard Northeast IHA and location in this technical report.

Required Content	Source Reference	Location Addressed in Technical Report
Reporting – Vineyard Northeast must submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammal sightings (dates, times, locations, activities, associated survey activities). The draft report must also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines must include points recording any change in acoustic source status (*e.g.,* when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files must be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates must be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data must be made available. A final report must be submitted within 30 days following resolution of any comments on	IHA section 6	This report satisfies this reporting as detailed further below.

Required Content	Source Reference	Location Addressed in Technical Report
the draft report.		
If a North Atlantic right whale is observed at any time by any project vessels, during surveys or during vessel transit, Vineyard Wind Northeast must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.	IHA section 6(d)(i) and 6(d)(ii)	Section 4.5.2, Appendix G
Discovery of injured or dead marine mammal – In the event that personnel involved in the survey activities covered by the authorization discover an injured or dead marine mammal, Vineyard Northeast must report the incident to the Office of Protected Resources (OPR) (301-427-8401), NMFS and to the New England/Mid-Atlantic Regional Stranding Coordinator (866-755-6622) as soon as feasible. The report must include the following information: Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable); Species identification (if known) or description of the animal(s) involved; Condition of the animal(s) (including carcass condition if the animal is dead); Observed behaviors of the animal(s), if alive; If available, photographs or video footage of the animal(s); and General circumstances under which the animal was discovered	IHA section 6(e)(i)	Section 4.5.1, Appendix I
Vessel Strike – In the event of a ship strike of a marine mammal by any vessel involved in the survey activities, Vineyard Northeast must report the incident to NMFS OPR and the NMFS Office of Protected Resources and the NMFS New England/Mid-Atlantic Stranding Network by phone (866-755-6622) and by email (*nmfs.gar.stranding@noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*) as soon as feasible but within 24 hours. The report must include the following information: Time, date, and location (latitude/longitude) of the incident; Species identification (if known) or description of the animal(s) involved; Vessel's speed during and leading up to the incident; Vessel's course/heading and what operations were being conducted (if applicable); Status of all sound sources in use; Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures	IHA section 6(e)(ii)	N/A – no instances of vessel strike

Required Content	Source Reference	Location Addressed in Technical Report
were taken, if any, to avoid strike; Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike; Estimated size and length of animal that was struck; Description of the behavior of the marine mammal immediately preceding and following the strike; If available, description of the presence and behavior of any other marine mammals immediately preceding the strike; Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and To the extent practicable, photographs or video footage of the animal(s).		

3 PROJECT OVERVIEW

VNE conducted surveys to collect data that will be used to develop ground models for the Lease Areas and OECCs, to ensure the seabed is clear of obstructions, and to start detection of any buried archaeological features. Survey activities were conducted in accordance with the BOEM-approved survey plans and the Guidelines for Submission of Spatial Data for Atlantic Offshore Renewable Energy Development Site Characterization Surveys (May 27, 2020).

The *R/V Go Explorer, R/V Go Discovery, R/V Westerly and R/V Go Pursuit* began data acquisition for the OCS-A 0522 Offshore Development Area on July 27, 2023, while the *R/V Brooks McCall* began data acquisition on November 1, 2022. For the OCS-A 0544 Offshore Development Area survey, the *R/V Go Discovery* began data acquisition on August 4, 2022. The *Brooks McCall* began data acquisition on April 14, 2023, and the *R/V Bella Marie* started on June 14, 2023. Throughout both campaigns, the vessels periodically returned to ports in Connecticut, Massachusetts, New Jersey, and New York. Each vessel concluded operations on different dates that can be found in Table 2.

Vessel and the location of their operations is summarized in Table 2. A high-level overview of survey events for the vessels is outlined in Table 3.

Table 2 Survey summary of vessels, locations, and scope of work for the HRG Survey.

Parameter	Dates on Project		
Vessel Name	**Location**	**OCS-A 0522**	**OCS-A 0544**
R/V Go Explorer	OCS-A 0522	27 July 2022 – 31 January 2023	-
R/V Go Discovery	OCS-A 0522 / OCS-A 0544	27 July 2022 – 4 August 2022	4 August 2022 – 30 December 2022
R/V Go Pursuit	OCS-A 0522	27 July 2022 – 12 January 2023	-
R/V Westerly	OCS-A 0522	27-28 July 2022	-
R/V Brooks McCall	OCS-A 0522 / OCS-A 0544	1 November 2022 – 19 January 2023	14 April 2023 – 26 July 2023
R/V Bella Marie	OCS-A 0544	-	14 June 2023 – 15 July 2023

Table 3 Summary of key survey events, by vessel, during the Survey.

Event	*R/V Go Explorer*	*R/V Go Pursuit*	*R/V Go Discovery*	*R/V Westerly*	*R/V Brooks McCall*	*R/V Bella Marie*
PSO team mobilizes	20 July 2022	18 July 2022	24 July 2022*	24 July 2022	27 July 2022	14 June 2023*
Kick-off meetings (KOM)	20 July 2022	13 May 2022	08 / 28 July 2022	28 May 2022	25 October 2022 / 14 April 2023	18 June 2023
Vessel departs dock. PSO effort begins.	27 July 2022	27 July 2022	27 July 2022 / 4 August 2022	27 July 2022	1 November 2022 / 17 April 2023	14 June 2023*
Data acquisition complete. PSO monitoring complete	31 January 2023	12 January 2023	4 August 2022 / 30 December 2022	28 July 2022	19 January 2023 / 26 July 2023	15 July 2023

*Dates before KOM are due to vessel transfer and equipment testing.

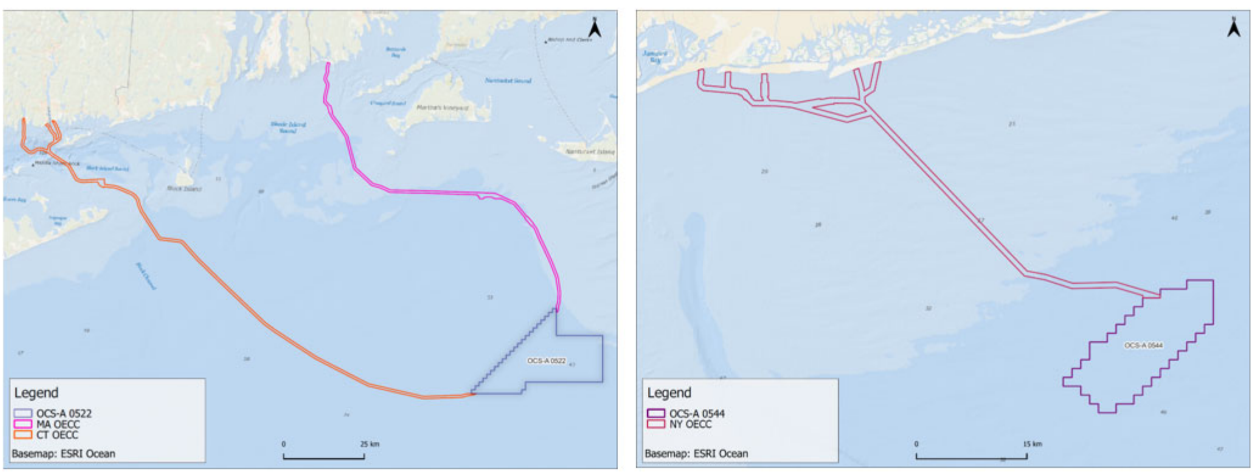

Figure 1: Survey Locations

3.1 Vessel Summary

The survey vessels utilized for the 2022 and 2023 HRG Surveys were the *R/V Go Discovery, R/V Go Pursuit, R/V Go Explorer, R/V Westerly, R/V Brooks McCall,* and the *R/V Bella Marie* (Figure 2, Appendix B). The survey vessels were operated by Fugro and TDI-Brooks; vessel specifications are provided in Table 4.

Table 4 Vessel specifications for HRG operations

Vessel	Length Meters (m)	Width (m)	Speed	Vessel Configuration Description
R/V GO Pursuit	84	17.6	10 kts (Max) 3 – 5 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V Go Explorer	51	11	9 kts (Max) 4 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V Go Discovery	51	11	9 kts (Max) 4 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V Westerly	14	5	12 kts (Max) 3 – 5 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V Brooks McCall	48.46	12	10 kts (Max) 3 – 5 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V Bella Marie	10	5	12 kts (Max) 3 – 5 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas
R/V GO Pursuit	84	17.6	10 kts (Max) 3 – 5 kts (Survey)	Multi-role survey vessel for coastal and offshore survey areas

3.2 Summary of HRG Survey Equipment Used

As specified in the IHA, certain HRG equipment and operations are subject to protected species monitoring, mitigation, and reporting. These activities include the use of a non-impulsive: non-parametric sub-bottom profilers (SBP) and impulsive boomers or sparkers.

The HRG equipment that operated on each vessel that were subject to the protected species protocols are summarized in Table 5

Table 5 HRG survey equipment operated on each survey vessel

Vessel	Operation	Equipment Specification	Description of Operations
R/V GO Pursuit	HRG Data acquisition	Innomar Medium 100 SBP, Geo-Spark 2 KJ Ultra Hi-res sparker	Operations were to tow HRG equipment for data acquisition
R/V Go Discovery	HRG Data acquisition	Innomar Medium 100 SBP, GeoMarine survey systems sparker	Operations were to tow HRG equipment for data acquisition
R/V Go Explorer	HRG Data acquisition	Innomar Medium 100 SBP, GeoMarine survey systems sparker	Operations were to tow HRG equipment for data acquisition
R/V Westerly	HRG Data acquisition	Geo-Spark 2 KJ Ultra Hi-res sparker	Operations were to tow HRG equipment for data acquisition
R/V Brooks McCall	HRG Data acquisition	Geo-Spark Sparker, Sparker 400 TIPS	Operations were to tow HRG equipment for data acquisition
R/V Bella Marie	HRG Data acquisition	Single Channel Seismic (S-UHRS), GMSS Geo-spark 200 LW (or equivalent) with 8 element Geo-Sense Streamer	Operations were to tow HRG equipment for data acquisition

Figure 2: Survey vessels

4 MONITORING AND MITIGATION PROGRAM

This section describes the protected species monitoring and mitigation measures established to meet the requirements of the July 27, 2022 IHA. Mitigation measures were designed to minimize potential impacts of the survey activities on marine mammals, and other protected species of interest.

The following monitoring protocols were implemented to meet these objectives, and each are described in detail in a sub-section below:

- Visual observations were conducted day and night to provide real-time sighting data, allowing for the implementation of mitigation procedures as necessary.
- Species-specific exclusion zones (EZs) were established around the regulated sound sources, where delays to initiation and shutdowns of active sources were implemented when protected species were detected inside their respective EZ.
- Species-specific separation distances were established around the vessel, where strike avoidance maneuvers were implemented, if safe to do so, when protected species were observed inside the specific separation distances.

4.1 Monitoring: Protected Species Observers

There were trained and experienced PSOs onboard the survey vessel during the Survey to conduct the monitoring for protected species, record and report detections, and request mitigation actions in accordance with the established regulatory requirements and monitoring plan.

RPS, the PSO Provider, was responsible for ensuring that each PSO deployed met the minimum requirements set forth in the IHA and BOEM Lease stipulations. Additionally, NMFS reviewed and approved each PSO prior to their deployment as an offshore wind farm PSO in the U.S Atlantic, as per the IHA. Both BOEM and NMFS PSO requirements include training in protected species identification and behavior in addition to field experience in protected species observation in the Atlantic Ocean and/or the Gulf of Mexico.

The PSO Provider was responsible for:

- Providing training certifications and curriculum vitaes to be reviewed and approved by VNE and NMFS prior to deployment on the vessel.
- Providing the PSOs with vessel and survey contractor-specific training.
- Coordinating attendance of PSOs at Environmental Project Inductions and training specific to VNE and provided by RPS, Fugro, and TDI-Brooks during project kick-off meetings held prior to the start of survey operations and scheduled crew changes.

All certified PSOs deployed during the 2022 and 2023 Surveys are listed in Appendix D.

4.2 Visual Monitoring: Protocols and Methods

To meet the monitoring requirements of each survey vessel, teams of one to seven PSOs were deployed as outlined in Table 6. PSOs monitored while the vessel was in transit, prior to, and during all HRG operations conducted by the vessel. Visual monitoring was also conducted during all downtime between survey activities to collect additional protected species data and to implement vessel strike avoidance monitoring. PSOs rotated monitoring shifts as needed to maximize concentration and to meet the watch requirements of the Lease and IHA (watch periods not to exceed four hours without a minimum two-hour break and a maximum duration of 12 hours in a 24-hour period).

Visual monitoring locations on the vessel were selected in consideration of the following factors:

1. To afford PSOs a 360-degree viewpoint around the vessel and acoustic sources, such that the EZs around the sound sources and the strike avoidance separation distances could be simultaneously monitored,
2. Provide the highest vantage point possible to allow for monitoring out to the greatest distances ahead and around the vessel,
3. Provide shelter from inclement weather, as needed,
4. Provide real-time communication with vessel and other project vessels as necessary.

PSOs conducted their visual monitoring by actively scanning with the naked eye out to the furthest observation points visible, methodically sweeping areas closer to the vessel and focusing on the EZs and ahead of the vessel. PSOs conducted regular sweeps of the surrounding areas using magnification devices as described below. PSOs monitored for cues that might indicate the presence of protected species including but not limited to splashing, footprints, blows, and presence of other marine species (diving seabirds, fish feeding activity).

Table 6 Visual monitoring methodology on each HRG vessel

	Go Discovery	*Go Explorer*	*Go Pursuit*	*Westerly*	*Brooks McCall*	*Bella Marie*
Total Number of PSOs	7	7	7	4	5	2
Number of PSOs on Watch - Day	2	2	2	2	1	1
Visual monitoring equipment-Day	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras	Reticle binoculars, 10x50 & 7x50 magnification; DSLR cameras
Range Estimation	Calibrated reticle binoculars, by eye, by relating to object at known distance	Calibrated reticle binoculars, by eye, by relating to object at known distance	Calibrated reticle binoculars, by eye, by relating to object at known distance	Calibrated reticle binoculars, by eye, by relating to object at known distance	Calibrated reticle binoculars, by eye, by relating to object at known distance	Calibrated reticle binoculars, by eye, by relating to object at known distance
Primary Monitoring Location-Visual	Bridge & bridge wings	Bridge & bridge wings	Bridge & bridge wings	Bridge & bridge wings	Bridge & bridge wings	Bridge & bridge wings

Displays inside the bridge showed current information about the vessel (e.g., position, speed, heading, etc.), sea conditions (e.g., water depth, sea temperature, etc.), and weather (e.g., wind speed and direction, air temperature, etc.). Environmental conditions, along with vessel and acoustic source activity, were recorded at least once an hour, during line change, and when PSOs changed shifts, or every time there was a change of one or more of the variables.

4.2.1 Daylight Visual

The PSOs on board were equipped with 7x50 reticle binoculars as well as DSLR cameras with 200mm and 800mm zoom lens to aid in visual monitoring watches conducted during the day. PSO teams used field notebooks to record data while on watch and laptops were used to enter data.

Range estimates were made by comparison to object of known distance, as well as with reticle binoculars. Reticle binoculars were calibrated whenever possible to ensure accuracy of distance data. These reticle calibration tables are provided in Appendix F.

4.2.2 Night-time and Reduced Visibility Visual Observations

Aboard the vessels that were conducting 24-hour operations, two PSOs conducted visual monitoring during all nighttime operations whenever the vessel was not in port or at anchor.

If visibility became reduced (the largest mitigation zone was not fully visible), then no mitigated equipment could be deployed. Additionally, the operation of that equipment could not be continued if already in use when visibility was lost.

PSOs were equipped with night vision goggles and handheld infrared thermals. Specifications for the visual night monitoring equipment can be found in Appendix E.

4.3 Monitoring: Data Collection

During or immediately after each sighting event, the PSOs recorded the detection details in a standardized detection datasheet provided to them by RPS. Excel data forms included tabs for project data, monitoring effort data, geotechnical operations data, and protected species detection data. RPS supplied a set of standardized variables for specific data fields that were to be implemented on the data form provided to their PSOs.

Each sighting event was linked to an entry on an effort datasheet where specific environmental conditions and vessel activity were logged.

Species identifications were made whenever the distance of the animal(s), length of the sighting, and visual observation conditions allowed. Whenever possible during detections, photographs were taken with DSLR cameras that had telephoto lenses. Marine mammal identification manuals were consulted, and photos were examined during observation breaks to confirm identifications.

4.3.1 Data Collection Requirements & Methods

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PSOs collected data in handwritten notepads or on portable / tablet devices during watches. During watch breaks and at the end of daylight hours, data was compiled in proprietary data forms on laptop computers and backed up on portable hard drives. Excel data sheets of monitoring effort, mitigable source activity, and detections of protected species during the Survey are provided in Appendix G.

4.3.2 Methods of Cross-Vessel Detection Coordination

Protected species detections were communicated to other ships on the project by email and by portable device messenger applications. RPS project managers coordinated these communications between vessel teams and monitored them in real time throughout the project, assisting in disseminating the information when necessary.

4.3.3 North Atlantic Right Whale External Sighting Monitoring Protocol

PSOs monitored the Dynamic Management Areas (DMA) and Right Whale Slow Zones in their permitted survey area and surrounding areas regularly:

1. Lead PSOs checked the NMFS website for new DMAs and Right Whale Slow Zones at the start of each day.
2. PSOs used mobile devices to check the web application Whale Alert.
3. RPS project managers were signed up to receive automatic notifications of DMAs, Right Whale Slow Zones, and NARW sightings throughout survey operations.

4.4 Mitigation Measures & Methodology

The PSO monitoring and mitigation program implemented on the HRG vessels was established to meet the requirements set forth in the IHA to minimize the potential impacts of the survey activities on marine mammals.

These mitigation measures include implementing mitigation zones, visual monitoring by approved PSOs, search periods of clearance zones prior to the commencement of HRG operations, ramp-up of survey equipment, delays to initiation and shutdown of HRG operations for protected species detections, and vessel strike avoidance procedures. Specific source mitigation and vessel strike avoidance procedures can be found in the AMP (Appendix B).

4.5 Reporting

The IHA requires that a final survey report be prepared detailing operations, PSO effort, and detection of protected species. Reporting of dead/injured protected species during survey operations is also a requirement of the IHA.

4.5.1 Injured or Dead Protected Species

Any injured or dead marine mammal observed either by a PSO on watch or by a crew member was required to be reported as described in Table 1. Reporting requirements included a phone notification to NMFS and local stranding networks made by shore based PSO Provider.

The Lead PSO would also prepare a written report in accordance with standard reporting guidelines and using the template provided by RPS for submittal to the agencies.

There was one dead protected species observed during the campaign. A deceased dolphin was observed while the vessel was in transit; not related to survey activities.

4.5.2 NARW Sightings

Reporting of NARW sightings to external monitoring resources was conducted as required and described in the Lease and IHA:

1. The RPS PSO Project Manager would inform the GSS Project Manager
2. The GSS Project Manager would report the sighting to the NMFS North Atlantic Right Whale Sighting Advisory System on behalf of Vineyard wind as required by IHA condition 6(d)(i)(ii).
3. The vessel’s Captain would report the sighting to the United States Coast Guard on channel 16.

4. PSOs would then prepare a sighting report including a description of the detection event, including date, time, distance to vessel, vessel and HRG equipment activity, observed behaviors, and any photographs or screenshots taken during the sighting.

There were ten NARW detections during the Surveys. Details of the detection are described Appendix G.

4.5.3 Final Report

RPS have prepared this technical report to meet the NMFS reporting requirements outlined in Table 1 of this report. The required elements of final PSO reporting are addressed within the appropriate sections in this report.

5 DATA RECORDS AND ANALYSIS METHODS

5.1 Operation Activity

PSOs collected the regulated equipment's operational status each day that they were deployed on each of the vessels.

The vessels recorded the start of line (SOL) times and the end of line (EOL) times for the equipment during acquisition. The vessels also recorded the status of the equipment while acquisition occurred by noting full power or shutdowns due to mitigation actions. These entries were made for each regulated source or for combinations of regulated sources (for example, the non-impulsive, non-parametric Sub-Bottom profiler and sparker operating at frequencies below 180kHz).

During the R/V *Bella Marie* campaign, extended vessel transits between sites while the sparker remained active occurred on four occasions. Measures were implemented to ensure such instances do not recur during future surveys.

5.2 Monitoring Effort

PSOs recorded monitoring effort by entering start of watch and end of watch times into data sheets where the vessel position and environmental data was also documented for that duration.

Total monitoring effort was calculated by summing the durations of each watch period. Each monitoring effort entry also indicated the equipment's operational status for that monitoring period.

Visual monitoring while the acoustic source was off included monitoring conducted during transit to survey sites and any other recorded silent periods (mitigation action, equipment downtime, or weather standby time).

5.2.1 Summary of Environmental Conditions

Environmental conditions that were present during each PSO watch were recorded on data sheets. Environmental variables were recorded every 30 to 60 minutes or when conditions changed.

Beaufort Sea state was recorded for each monitoring period using the accepted scale (Table 7):

Table 7 Beaufort Sea state scale

Beaufort number	Description	Wave height (m)	Sea conditions
0	Calm	0	Sea like a mirror
1	Light air	0–0.3	Ripples with appearance of scales are formed, without foam crests
2	Light breeze	0.3–0.6	Small wavelets still short but more pronounced; crests have a glassy appearance but do not break
3	Gentle breeze	0.6–1.2	Large wavelets: crests begin to break; foam of glassy appearance; perhaps scattered white horses
4	Moderate breeze	1–2	Small waves becoming longer; fairly frequent white horses
5	Fresh breeze	2–3	Moderate waves taking a more pronounced long form; many white horses are formed; chance of some spray
6	Strong breeze	3–4	Large waves begin to form; the white foam crests are more extensive everywhere; probably some spray
7	High wind	4–5.5	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind; spindrift begins to be seen

8	Gale	5.5–7.5	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well-marked streaks along the direction of the wind
9	Severe gale	7–10	High waves; dense streaks of foam along the direction of the wind; sea begins to roll; spray affects visibility
10	Storm	9–12.5	Very high waves with long overhanging crests; resulting foam in great patches is blown in dense white streaks along the direction of the wind; on the whole the surface of the sea takes on a white appearance; rolling of the sea becomes heavy; visibility affected
11	Violent storm	11.5–16	Exceptionally high waves: small- and medium-sized ships might be for a long time lost to view behind the waves; sea is covered with long white patches of foam; everywhere the edges of the wave crests are blown into foam; visibility affected
12	Hurricane force	>14	The air is filled with foam and spray; sea is completely white with driving spray; visibility very seriously affected

Swell heights in meters (m) were recorded by all the vessel PSO teams. The swell heights were categorized as less than 2 m, 2 to 4 m, and greater than 4 m.

PSOs categorized visibility during visual monitoring effort in kilometers (km) and/or meters (m) as less than 500 m, 500 m to 1 km, 1 to 2 km, 2 to 5 km and greater than 5 km.

5.3 Visual Sightings of Protected Species

PSOs used standardized reporting forms provided by RPS to record all detections of marine mammals made during survey operations. These records were completed any time a sighting was made, regardless of distance, not just for detections where mitigation was implemented.

Sighting ID or detection event numbers were assigned chronologically for all protected species observed on a vessel throughout that vessel's survey activity. A new detection number was assigned for a new species sighting or when enough time had passed between observations of animals of the same species such that PSOs could not be certain that they were observing the same animals previously documented. A standard duration of time was to be applied between observations: 15 minutes for delphinid and pinniped detections and 30 minutes for large whales. If there were multiple species in a single detection, the same sighting ID or detection event was used.

Protected species movement relative to the vessel, pace, and initial and subsequent behavior states were recorded for each protected species sighting where standardized categories for each were provided as controlled fields in the provided data form.

5.3.1 Closest point of approach

All PSOs recorded the closest point of approach (CPA) of all protected species detections to the vessel and the source, and the equipment's operational status at the time of the closest point of approach.

5.3.2 Detection rate

Detection rate was calculated using the number of protected species events per hour of monitoring effort.

5.4 Level B Take / Exposure Estimation

Under the Marine Mammal Protection Act (MMPA) 16 United States Code (USC) 1362, 'Take' is defined as " "to harass, hunt, capture, or kill, or attempt to harass, hunt capture or kill."

The MMPA further defines that 'harassment' refers to acts that have the potential to injure or disturb a marine mammal or marine mammal stock in the wild. Disturbing can be caused by disrupting behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

NMFS considers exposure of marine mammals exposed to received sound levels of 160 dB (rms) to be potentially disturbing, and therefore classifies the exposure as a Level B take.

5.5 Monitoring Tools Efficacy and Comparisons Assessment

The PSO team was equipped with multiple monitoring tools to support daytime visual monitoring and nighttime visual monitoring. A comparison of the efficacy of utilized monitoring tools will be conducted by examining the detection rates of each method (Section 6.7).

5.6 Mitigation Measures Implemented

Mitigation measures were implemented on the vessel as previously described. The onboard PSO team communicated requested mitigation in real time to survey operators that controlled the operation of the regulated sound sources or to the vessel crew operating the vessel, depending on the type of action required. Communications were conducted in person or via handheld radio.

Implemented mitigation actions were recorded on PSO data sheets in the detection data form and in the operations activity logs.

5.7 Data Quality Control

The RPS data analysts reviewed all the PSO data sets received and conducted QC as described in Table 8.

Table 8 Quality control editing performed by RPS on PSO datasets by data field

Data type	Data field	Corrections made
Monitoring effort	Start of watch / End of watch	• Times were corrected or added where errors were evident, typically by inconsistency with adjacent times
	Daytime vs. Night-time	• Failures to adjust the time to UTC were corrected. • Times were corrected when the end of effort overlapped with the start of subsequent effort
Source operations	Testing	• Testing status was not used as a separate category. Based on the survey days and monitoring effort times, testing was either added to the "on" status or not included in operations totals.
Protected species detections	Position	• Positions that plotted out of place were corrected using effort positions or vessel track line positions of corresponding times, where available
	Combining Unidentified categories	• Unidentified mysticetes/delphinids/pinnipeds were combined within an Unidentified category for data analysis

6 RESULTS

This section of the report details HRG operations, protected species monitoring effort, environmental conditions during monitoring effort and distribution, and sighting data inside and outside the Lease Area and cable corridors, during source operation and source silence, and during transits to and from port during the Survey.

The monitoring effort, HRG operations and protected species detections for each vessel are provided as an Excel dataset in Appendix G.

6.1 Operation Summary

Survey operations began with the vessel conducting source calibrations at the dock and then in the survey area before proceeding to acquisition, according to the survey plan. Survey operations were briefly suspended when necessary for weather, crew changes and equipment maintenance.

The dates of operation, total days of survey activity and hours of regulated source operations by survey vessel are provided in Table 9.

Each vessels' port calls and transit times are summarized in Appendix C.

Table 9 Summary of regulated sound source operations on each survey vessel

Vessel	Dates of Operation	Total Survey Days	Total Hours of Regulated Source Operations (HHHH.HH)
Go Discovery	OCS-A 0522 27 July 2022 – 4 August 2022 OCS-A 0544 4 August 2022 – 30 December 2022	8 / 149	1363.07
Go Explorer	OCS-A 0522 27 July 2022 – 31 January 2023	189	1340.82
Go Pursuit	OCS-A 0522 27 July 2022 – 12 January 2023	170	1087.18
Westerly	OCS-A 0522 27 July 2022 – 28 July 2022	2	16.00
Brooks McCall	OCS-A 0522 1 November 2022 – 19 January 2023 OCS-A 0544 14 April 2023 – 26 July 2023	80 / 104	1821.48
Bella Marie	OCS-A 0544 14 June 2023 – 15 July 2023	32	114.80
Total		734	5743.35

6.2 Monitoring Effort

Visual monitoring effort for all survey vessels during the Survey is summarized in Table 10 and 11, shown by survey vessel, by HRG activity status and by monitoring conducted during day and night. Visual monitoring while the HRG equipment was not operating included monitoring conducted during transit to survey sites and other activities including equipment deployment and retrieval, equipment downtime, or weather standby time.

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Table 10 Total monitoring effort, visual, during day and night by HRG operational status

Monitoring Effort	Day (HH:MM)			Night (HH:MM)		
	Total	Active	Inactive	Total	Active	Inactive
Visual monitoring only	6605:16	3203:01	3402:15	6128:03	2540:20	3587:43

Table 11 Summary of monitoring effort, visual, by vessel and by source activity status (HH:MM)

Monitoring	*Brooks McCall*	*GO Discovery*	*GO Explorer*	*GO Pursuit*	*Bella Marie*	*Westerly*
Effort	Visual	Visual	Visual	Visual	Visual	Visual
HRG operations active	1821:29	1363:04	1340:39	1087:11	114:48	16:00
HRG operations inactive	1269:50	1970:30	2063:30	1591:47	88:47	05:34
Daytime	1630:58	1684:58	1697:03	1367:08	203:35	21:34
Night-time	1460:21	1648:36	1707:16	1311:50	00:00	00:00
Total	**3091:19**	**3333:34**	**3404:19**	**2678:58**	**203:35**	**21:34**

6.3 Environmental Conditions

Environmental conditions can have an impact on the probability of detecting protected species in a survey area. The environmental conditions present during visual observations undertaken during this survey program are presented in the tables below.

Visibility

Visibility was classified as ‘excellent’ if it extended to five kilometers or greater, ‘moderate’ if it was between two to four kilometers, and ‘poor’ if it was less than two kilometers. Visibility conditions were favorable for 43.62% of the overall visual monitoring effort (Table 12). Visibility of less than two kilometers was recorded during 50.30% of the overall monitoring effort, these reduced visibility periods included nighttime hours, fog, and rain showers.

Table 12 Summary of visibility during visual monitoring effort

Visibility	Duration (HH:MM)	% of Overall Monitoring Effort
Greater than 5 km	5554:59	43.62%
2 to 5 km	774:18	6.08%
Less than 2 km	6404:02	50.30%

Beaufort State

Monitoring effort was conducted in Beaufort Sea states ranging from Level 0 through Level 9. Visual observations at Level 4 Beaufort Sea State or below were considered favorable conditions for protected species detections and accounted for 89.28% of the total visual monitoring effort (Table 13).

Table 13 Summary of Beaufort Sea state during visual monitoring during the survey

Beaufort Sea State	Duration (HH:MM)	% of Overall Monitoring Effort
B0	36:02	0.28%
B1	696:30	5.47%
B2	2795:14	21.95%
B3	4820:19	37.86%
B4		23.72%
B0 through B4	**11368:27**	**89.28%**
B5	1181:25	9.28%
B6	175:27	1.38%
B7	07:37	0.06%
B8	00:14	0.00%
B9	00:09	0.00%
B5 through B9	**1364:52**	**10.72%**

Swell

Swell heights during visual observations were generally low, with swells of less than two meters recorded for 92.89% of visual monitoring effort (Table 14). Swells exceeded four meters for a minimal amount of time of the overall survey.

Table 14 Summary of Swell Height during visual monitoring during the survey

Swell Height	Duration (HH:MM)	% of Overall Monitoring Effort
Less than 2 meters	11824:20	92.86%
2 to 4 meters	906:53	7.12%
Greater than 4 meters	02:06	0.02%

6.4 Protected Species Detection Data

6.4.1.1 Visual Sightings

This section of the report summarizes visual sightings of protected species (marine mammals) made during the Survey. There was a total of 1114 protected species detection events with 166 whale detections, 905 dolphin detections and 43 pinniped detections.

Of the 1114 detection events, 95.15% (1060 events) were identified to the species level, while the remaining 54 were of animals identified to a family level or a higher taxonomic level (classified as unidentified baleen whale, unidentified whale, unidentified dolphin, or unidentified seal).

A table of all protected species detections is provided as part of an excel datasheet attachment in Appendix G.

Photographs of the identified protected species visually detected during the survey are provided in Appendix H.

Table 15 Detection records collected for each protected species detected during the survey program shows the total number of detection records and the number of individuals detected for each protected species during the survey program.

A map of the distribution of the protected species detected during the survey is provided in Figure 3 below with additional maps provided per species.

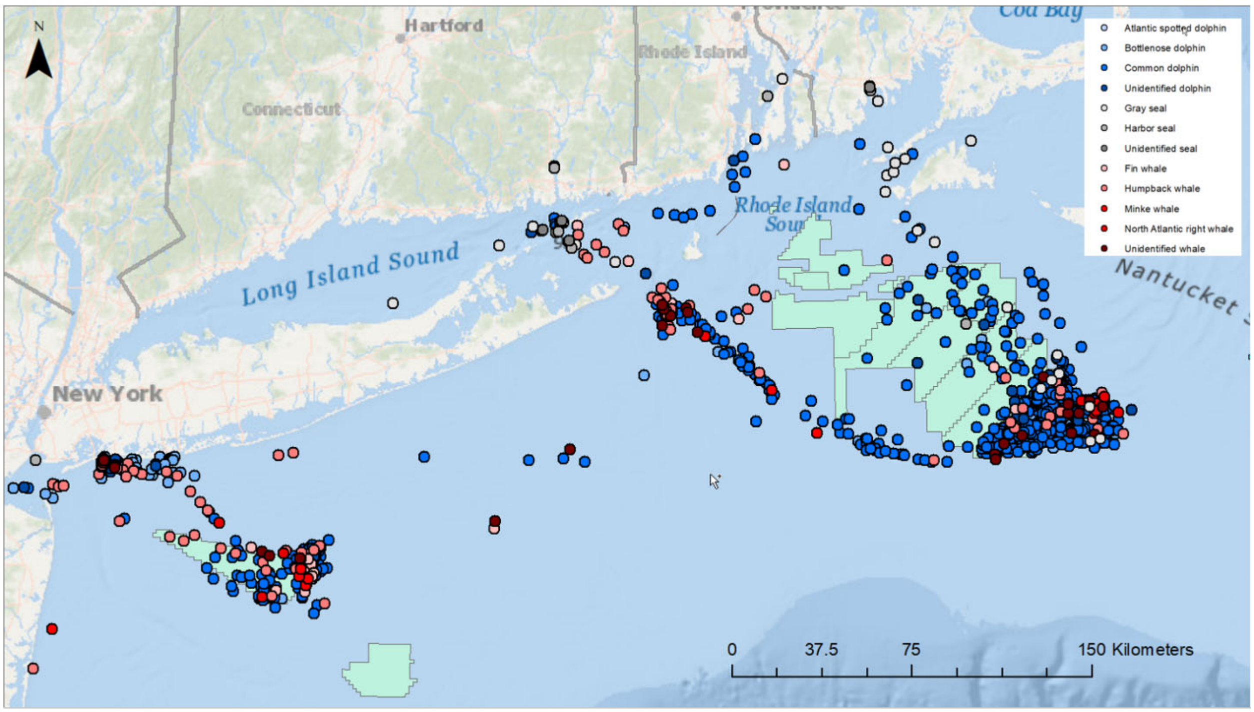


Figure 3: Distribution of marine mammals detected during the survey program

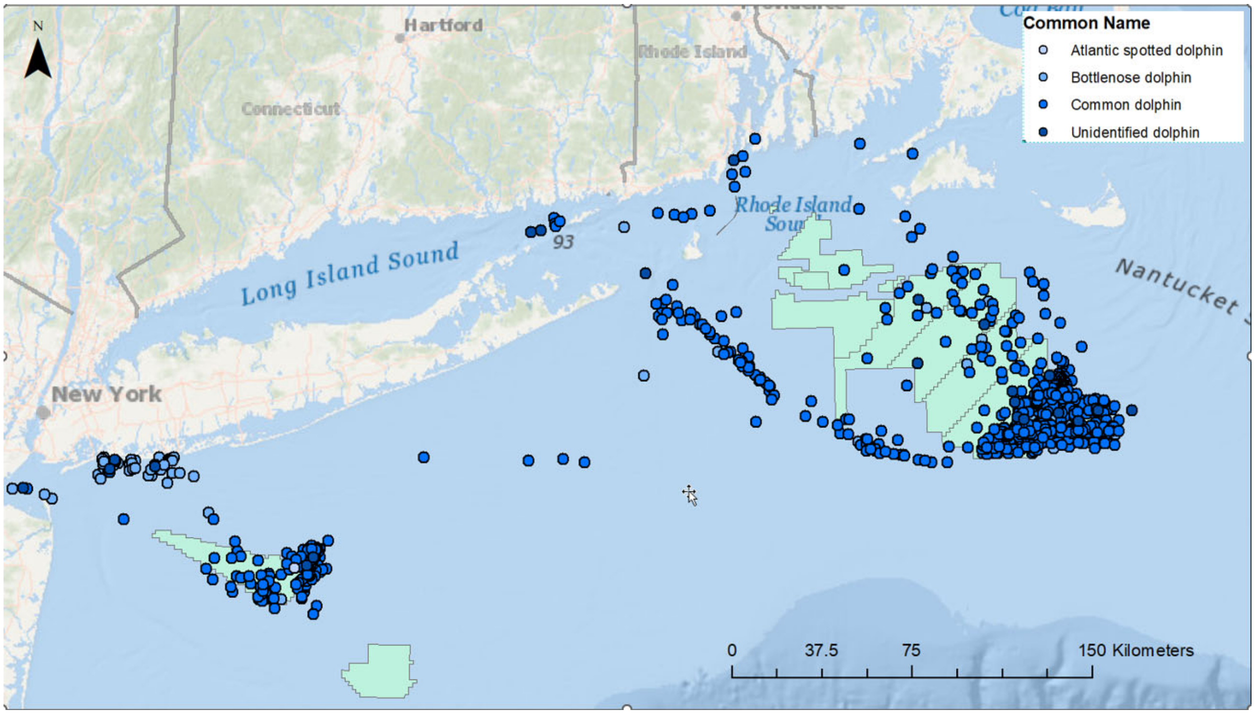


Figure 4: Distribution of delphinid detections during the survey

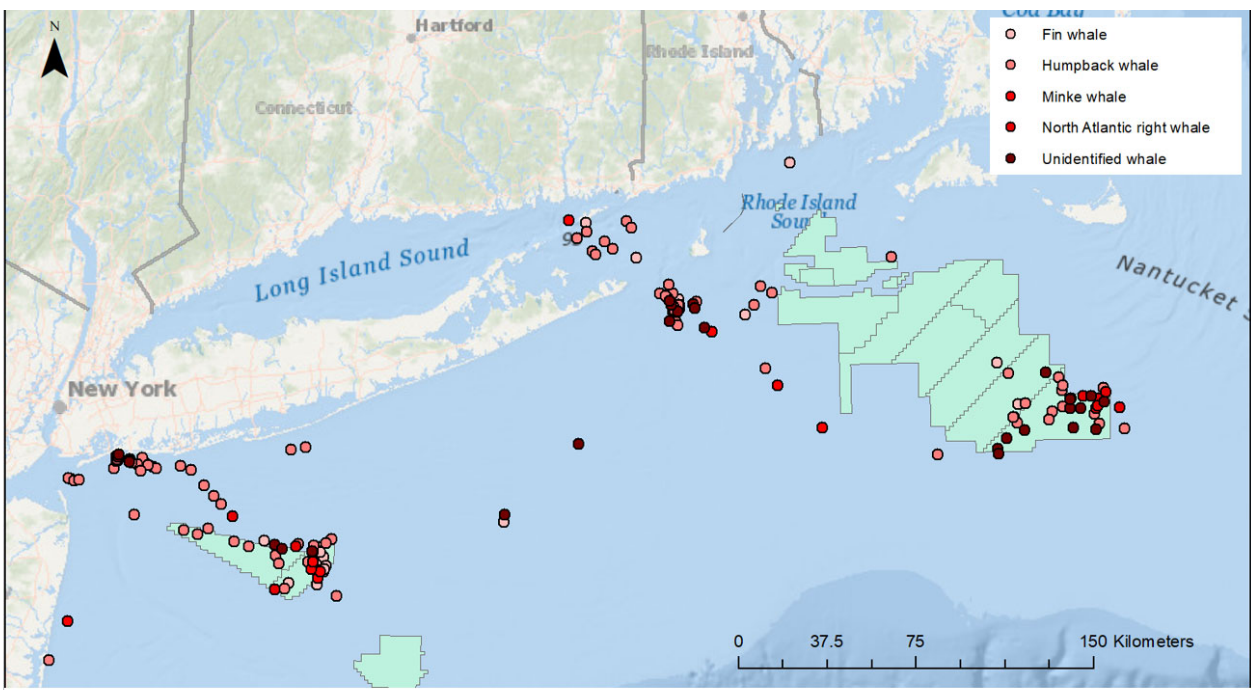


Figure 5: Distribution of whale detections during the survey

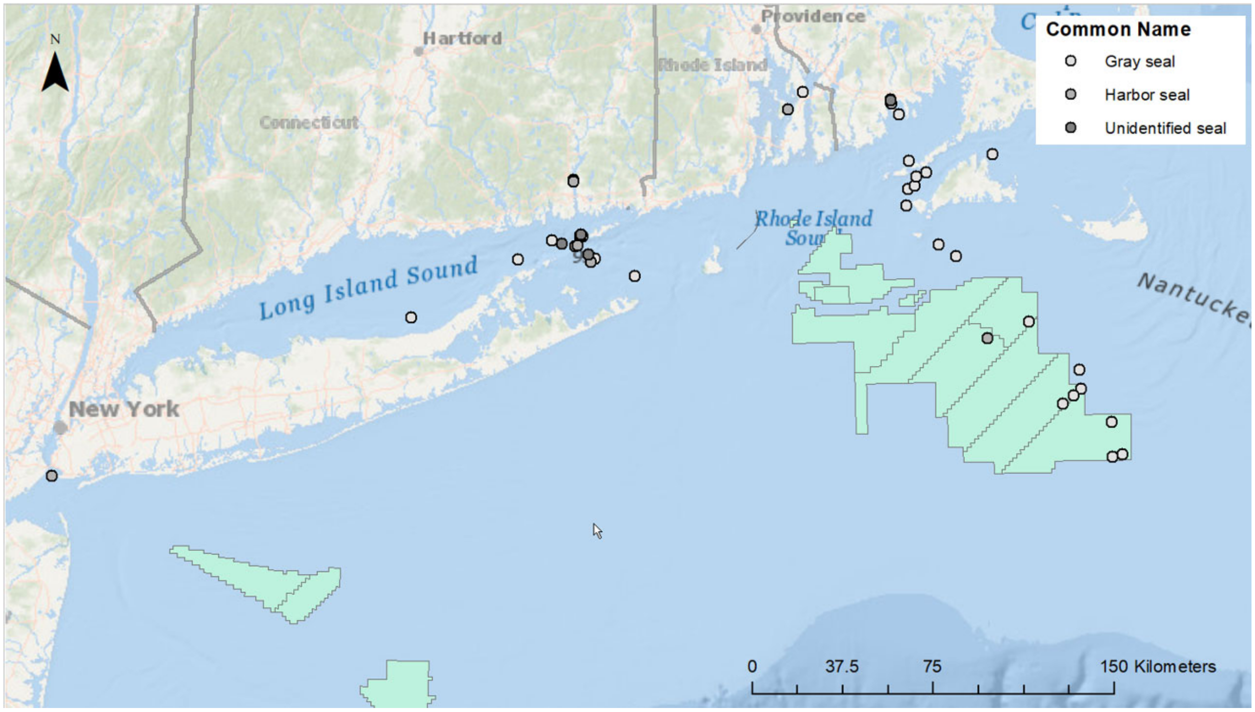


Figure 6: Distribution of pinniped detections during the survey

Table 15 Detection records collected for each protected species detected during the survey program

Species	Total Number of Detection Records	Total Number of Animals
Dolphins		
Common dolphin	766	9027
Unidentified dolphin	23	105
Bottlenose dolphin	115	934
Atlantic Spotted dolphin	1	25
Whales		
Humpback whale	94	176
Fin whale	25	46
Minke whale	10	11
Unidentified whale	19	20
Unidentified baleen whale	8	8
North Atlantic right whale	10	13
Pinnipeds		
Gray seal	26	29
Harbor seal	13	14
Unidentified seal	4	4
Total	**1114**	**10412**

6.4.2 Detection and Distance Summaries

The number of detection events, approximate number of animals observed, mean group size and detection rate for each species detected over the course of the Survey is provided in Table 16 through Table 18

Four species of whales were identified, as summarized in Table 16. Humpback whales were the most recorded (n=94), while also having the largest mean group size for whale detections (n=1.87). Minke whale had the closest mean initial detection distance at 717 meters. Fin whales had the second closest mean initial detection distance at 1136 meters.

Table 16 Visual detection summary of whales

Whales	Humpback whale	Fin whale	Minke whale	Unidentified whale	Unidentified baleen whale	North Atlantic right whale
Number of detection records	94	25	10	19	8	10
Estimated # of individuals detected	176	46	11	20	8	13
Mean group size	1.87	1.84	1.10	1.05	1.00	1.30
Mean distance (m) at first detection	1372	1136	717	1551	1274	1837
Detection rate	0.0074	0.0020	0.0008	0.0015	0.0006	0.0008

Three species of dolphins were identified during the Survey (Table 17). Common dolphins were the most recorded (n=766), while the Atlantic spotted dolphin had the largest mean group size for dolphin detections (n=25). Most delphinid detections had mean initial detection distances of less than 700 meters, with the exception of the Atlantic spotted dolphins which was 2319 meters.

Table 17 Visual detection summary for dolphins

Dolphins	Common dolphin	Unidentified dolphin	Bottlenose dolphin	Atlantic Spotted dolphin
Number of detection records	766	23	116	1
Estimated # of individuals detected	9027	105	942	25
Mean group size	11.78	4.57	8.12	25.00
Mean distance (m) at first detection	162	661	376	2319
Detection rate	0.0602	0.0018	0.0090	0.0001

The gray seal was the most detected species of pinniped during the Survey (Table 18). The mean detection distance for all species of pinnipeds was less than 300 meters.

Table 18 Visual detection summary for pinnipeds

Pinnipeds	Gray Seal	Harbor Seal	Unidentified seal
Number of detection records	26	13	4
Estimated # of individuals detected	29	14	4
Mean group size	1.12	1.08	1.00
Mean distance (m) at first detection	146	140	228
Detection rate	0.0020	0.0010	0.0003

The sample sizes for detected species were too small to compare CPA to HRG sources by species and operational status. When comparing species groups, whales and dolphins had larger mean CPAs while HRG operations were active, and only pinnipeds had a larger CPA while HRG operations were inactive (Table 19).

Table 19 Average closest observed approach (m) of protected species to active and inactive HRG operations

Species Detected	HRG Operations Active		HRG Operations Inactive	
	Number of detections	Mean closest observed approach to source	Number of detections	Mean closest observed approach to source
Humpback whale	51	961.6	8	743.1
Fin whale	19	799.4	1	738.0
Minke whale	7	664.7	2	215.0
Unidentified whale	14	1569.4	3	1888.3
Unidentified baleen whale	4	1025.0	2	790.0
North Atlantic right whale	8	1790.9	2	1317.0
All whale species	**103**	**1060.98**	**18**	**944.00**
Common dolphin	483	93.8	62	64.1
Unidentified dolphin	10	734.5	1	90.0
Bottlenose dolphin	69	195.4	19	231.7
Atlantic Spotted dolphin	1	5.0	-	-
All delphinoid species	**563**	**117.43**	**82**	**103.26**
Gray seal	3	183.3	-	-
Harbor seal	4	266.0	1	130.0
Unidentified seal	1	421.0	1	340.0
All pinniped species	**8**	**254.4**	**2**	**235**

*Sightings that occurred while the source was not deployed are not included in Table 19

6.4.3 Protected Species Level B Harassment

For the HRG equipment used during the Survey (Geo Sparkers), the Level B Harassment Zone is 141 meters of the active sound source. Within this zone, animals detected are considered exposed and that exposure can be considered potential harassment or categorized as Level B Harassment. The following section is a summary of the potential Level B Harassments that took place during the Survey.

There were 482 detections (4579 individuals) observed within the 141-meter zone around the sound source (Table 20). Of those detections, 99% (4565 individuals) were small delphinid and pinniped species for which shutdown mitigation was not required per IHA condition 4(e)(iv). While there were animals observed with the Level B Harassment Zone, no behaviors were documented that suggested adverse impacts had occurred to any protected species encountered because of the Survey activities undertaken.

During the detections, PSOs would take note of potential changes that could be considered atypical behavior for each species. Changes in behavior could include the animals changing course, rapid swimming, surfacing quickly followed immediately by diving to move away. However, other factors could account for changes in behaviors of the different species such as vessel traffic, fishing gear, heat runs, and weather.

Of the 482 detections within the Level B Harassment Zone, most animals were observed blowing, bow-riding, fast traveling, porpoising, and swimming at or below the surface. Further details of each detection can be found in Appendix G of this report.

Table 20 Potential Level B Harassment Detections

Species	Total Number of Detection Records	Total Number of Animals
Dolphins		
Common dolphin	437	4280
Bottlenose dolphin	34	257
Atlantic Spotted dolphin	1	25
Unidentified dolphin	2	6
Pinnipeds		
Gray seal	2	2
Harbor seal	1	1
Whales		
Humpback whale	1	1
Fin whale	3	6
Unidentified whale	1	1
Total*	**482**	**4579**

**IHA 4(e)(iv) exempts all pinniped species as well as small delphinid species from the genera: Delphinus, Lagenorhynchus, Stenella or Tursiops. If there was uncertainty regarding the identification of a marine mammal species (i.e., whether the observed marine mammal(s) belonged to one of the delphinid genera for which shutdown is waived), PSOs used their best professional judgment in making the decision to call for a shutdown.*

6.4.4 Protected Species Incident Reporting

The PSO team on the *Bella Marie* observed a single dead marine mammal during the course of this survey.

On July 4, 2023, the PSO on watch observed an unknown object approximately 700 m off the vessel starboard bow. Upon first observations the object was white with a bird standing on top of it. As the vessel moved closer (approximately 200 m) it became apparent that it was a deceased animal, possibly a dead dolphin. A positive ID was not possible due to the animal's advanced state of decomposition. The carcass remained as the vessel continued on a survey line.

More information of the observation can be found in Appendix I.

6.5 Summary of DMAs

During the Survey period (27 July 2022 through 26 July 2023), there were 19 DMAs established within or near the survey area due to North Atlantic right whale sightings (Table 21).

Table 21: DMAs and NARW reported observations in the Vineyard Northeast Renewables Lease Area during survey operations

	Effective Start Date	Reason for DMA	General Location	Restrictions
DMA	28 October 2022	As Notified by NMFS	Southeast of Atlantic City, NJ	Voluntary vessel speed restriction zone
DMA	16 November 2022	As Notified by NMFS	East of Ocean City, MD	Voluntary vessel speed restriction zone
DMA	17 November 2022	As Notified by NMFS	Southeast of New York City, NY	Voluntary vessel speed restriction zone
DMA	19 November 2022	As Notified by NMFS	East of Portsmouth, NH	Voluntary vessel speed restriction zone
DMA	27 November 2022	As Notified by NMFS	Southeast of Atlantic City, NJ	Voluntary vessel speed restriction zone
DMA	1 December 2022	As Notified by NMFS	East of Portland, ME	Voluntary vessel speed restriction zone
DMA	8 December 2022	As Notified by NMFS	Southeast of Atlantic City, NJ	Voluntary vessel speed restriction zone
DMA	10 December 2022	As Notified by NMFS	East of Ocean City, MD	Voluntary vessel speed restriction zone
DMA	13 December 2022	As Notified by NMFS	Southeast of Portsmouth, NH	Voluntary vessel speed restriction zone
DMA	16 December 2022	As Notified by NMFS	Southeast of New York City	Voluntary vessel speed restriction

				zone
DMA	24 December 2022	As Notified by NMFS	Southeast of Atlantic City, NJ	Voluntary vessel speed restriction zone
	Effective Start Date	Reason for DMA	General Location	Restrictions
DMA	28 December 2022	As Notified by NMFS	Southeast of New York City	Voluntary vessel speed restriction zone
DMA	25 January 2023	As Notified by NMFS	SE of New York City, NY	Voluntary vessel speed restriction zone
DMA	16 January 2023	As Notified by NMFS	SE of New York City, NY	Voluntary vessel speed restriction zone
DMA	16 January 2023	As Notified by NMFS	SE of Atlantic City, NJ	Voluntary vessel speed restriction zone
DMA	6 January 2023	As Notified by NMFS	SE of Atlantic City, NJ	Voluntary vessel speed restriction zone
DMA	6 January 2023	As Notified by NMFS	SE of New York City, NY	Voluntary vessel speed restriction zone
DMA	22 February 2023	As Notified by NMFS	New York City, NY	Voluntary vessel speed restriction zone
DMA	22 February 2023	As Notified by NMFS	SE New York City, NY	Voluntary vessel speed restriction zone

6.6 Monitoring Efficacy and Comparison Assessment

During the Survey, two different monitoring methods were utilized to detect protected species. Each method is discussed in Section 4.

1) Daytime unaided eye where PSOs made regular and frequent sweeps of the surrounding area with reticle binoculars and/or big-eye reticle binoculars.
2) Night-time unaided eye where PSOs made regular and frequent sweeps of the surrounding area with Night Vision Devices (NVDs)s that were equipped with thermal clips.

PSOs documented the monitoring method used to first detect protected species' presence. Initial detection method for the 1114 observations is displayed in Table 22.

Table 22 Monitoring effort, protected species detections and detection rate for each monitoring method used during the Survey

	Visual Monitoring-Unaided eye with sweeps using binoculars	Visual Monitoring-Unaided eye with sweeps using NVD and thermal
Monitoring effort (hours)	6605:16	6128:03
Number of marine mammal detections	678	431
Detection rate for marine mammals	0.10265	0.07033

*Note: Four thermal detections occurred during daytime overlap monitoring and were not considered in total number of detections for the above calculation. One binocular originated night detection occurred during overlap monitoring and was not considered in total number of detections for the above calculation.

6.6.1 Effectiveness of Unaided Eye (day and night)

A larger number of the detection events were made by the unaided eye, with more detections occurring during the daylight than during the night (432 nighttime sightings as compared to 682 daytime sightings for marine mammals).

PSOs considered monitoring with the unaided eye to be the most effective method for making initial detections of all protected species where binoculars or NVD with thermal could be used to confirm the presence of an animal following a sighting cue or to confirm species identification. The effectiveness of the unaided eye in initial detections was attributed to the wide field of view that could be scanned as compared to the narrow view afforded by either a reticle binocular or an NVD.

The NVDs efficacy was further limited in areas like the side and stern of the vessel where there were frequently bright lights that would interfere with the view, but which were necessary for back deck operations to continue safely.

6.7 Summary of Mitigation Measures Implemented

Mitigation was implemented as described over the course of the Survey to prevent adverse impacts to protected species from physical interactions with vessels and / or towed equipment, through strike avoidance mitigation, or from exposure to potentially harmful levels and frequencies of sound, through delays and shutdowns of HRG activities.

During the course of the Survey, mitigation from regulated sound sources was implemented during 46 detection events: activation of regulated sound sources was delayed on 36 occasions and regulated sources were shut down as a result of incursions into exclusion zones by protected species on 10 occasions (Table 23).

Table 23 Summary of mitigation actions implemented during the survey

Mitigation Action	Dolphins	Whales	Pinnipeds	All Species
	Number	Number	Number	Number
Delay to Initiation of Operation	33	3	0	36
Shutdown of Operation	2	8	0	10
Total Mitigation Actions	**35**	**11**	**0**	**46**

There were a total of 798 strike avoidance measures undertaken throughout the Survey. During the Survey there were various combinations of Vessel Strike Avoidance (VSA) measures applied and further reference to these measures can be found in Appendix G. Table 24 below provides a general overview of VSA per species group.

Table 24 Summary of strike avoidance maneuvers undertaken.

	Strike avoidance maneuver Not Required	Strike avoidance maneuver Required
Dolphins	143	762
Whales	137	29
Pinnipeds	32	11

7 SUMMARY

7.1 Interpretation of the Results

All the marine mammal species that were detected during the Survey were species that occur commonly in the region and are regularly observed by PSOs during HRG and other types of survey operations. All marine mammal species that were detected during the HRG survey were authorized for Level B take under the approved IHA. Each species detected was observed within its predicted range with no species encounters occurring outside the normal range of that species.

For most marine mammal species groups, the mean distance at initial detection and at closest approach was greater when the regulated sound sources were on, apart from the North Atlantic right whale, common dolphins, and unidentified dolphins. No behaviors were documented that suggested adverse impacts had occurred to any protected species encountered as a result of the survey activities undertaken.

Behavior states like swimming and approaching a vessel were exhibited in the expected species such as common dolphins. There were also sightings of blows, surfacing, and acrobatic behavior displayed by delphinids. Whales were sighted exhibiting similar behaviors consisting of blows, diving with flukes, and diving without visible flukes. All are expected actions for the sighted marine mammals.

There were 482 detections of protected species consisting of 4579 individuals observed within 141 meters of the active sparker (Level B Harassment Zone). Of those, 475 detections (4565 individuals) were small delphinid and pinniped species for which shutdown mitigation was not required per IHA condition 4(e)(iv). While there were animals observed with the Level B Harassment Zone, no behaviors were documented that suggested adverse impacts had occurred to any protected species encountered that can be attributed to the survey activities undertaken.

7.2 Effectiveness of all monitoring tasks

In order to minimize the potential impacts to marine protected species, PSOs onboard all survey vessels were prepared to implement mitigation measures whenever protected species were detected approaching, entering, or within the designated exclusion zones. Mitigation actions for regulated sound sources were implemented successfully during the 46 detection events that required mitigation. PSOs searched the monitoring and clearance zones prior to activation of regulated sound sources and survey crew confirmed that clearance zones were clear prior to activating the regulated sound sources, which was then done gradually in ramp-up form wherever possible.

There were 802 strike avoidance maneuvers initiated during the survey. A general overview of VSA can be found in Table 24 and a complete list of the various combinations of VSA can be found in Appendix G. The vessel strike mitigation occurred on all vessels involved in the survey.

In the event that an injured or dead protected species was discovered during the course of the survey program, the incident was to be immediately reported. There was one sighting of a dead protected species which was reported in a timely manner, in accordance with the stipulations laid out in the IHA.

Visual observations yielded a total of 1,114 protected species detections both inside and outside the Lease Area and during vessel transits to and from port. The environmental conditions present during visual monitoring were generally good (visibility greater than 5 kilometers and sea state of less than B4) for detecting protected species, especially inside the exclusion zone.

The monitoring and mitigation measures implemented during the survey appear to have been an effective means to prevent potential impacts to the protected species encountered during survey operations.

8 LITERATURE CITED

National Marine Fisheries Service (NMFS) Incidental Harassment Authorization (IHA) (July 27, 2022)

United States Fish and Wildlife Service (USFWS). 2019. Marine Mammal Protection Act (MMPA). 16 U.S.C. 1392

Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development of the Outer Continental Shelf (OCS-A 0522)

Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development of the Outer Continental Shelf (OCS-A 0544)

Bureau of Ocean Energy Management (BOEM) Guidelines for Submission of Spatial Data for Atlantic Offshore Renewable Energy Development Site Characterization Surveys (May 27, 2020)

Appendix A: Environmental Management Plan

ENVIRONMENTAL MANAGEMENT PLAN

Lease OCS-A 0522 & 0544

Vineyard Offshore

Prepared by:
Geo SubSea LLC
437 Main Street, Second Floor
Middletown, CT 06457

Table of Contents

List of Figures

List of Tables

Appendices

EMP Plan History and Revision Record

Any revisions or amendments to this EMP shall be recorded below.

Revision Number	Revision Date	Pages and/or Sections Affected	Name of Person Making Changes (First and Last)	Description of Revision	Revision Made in All Copies (Y/N)
0	03/18/22	Not applicable (N/A)	N/A	Initial Issue	Y
1	08/01/22	1.1, 2.1, 5.0, 5.1	Megan McManus	Update with new IHA and Marine Debris protocols	Y
2	5/22/23	Appendix	Megan McManus	Insert new IHA and Survey Plan Update	Y

1.0 Introduction

Vineyard Offshore has prepared this Environmental Management Plan (EMP or "Plan") for offshore site characterization activities, including benthic, geological and high-resolution geophysical (HRG) surveys associated with Vineyard Northeast (the "Project") and proposed future Vineyard Offshore projects. HRG survey activities will occur within the survey area highlighted in **Figure 1**, which includes Lease Areas OCS-A 0522 and 0544, and associated potential offshore export cable corridors (OECCs). Site characterization surveys will encompass the area of potential effect where any bottom disturbance activities may occur. An overview map of the survey area is provided in **Figure 1**.

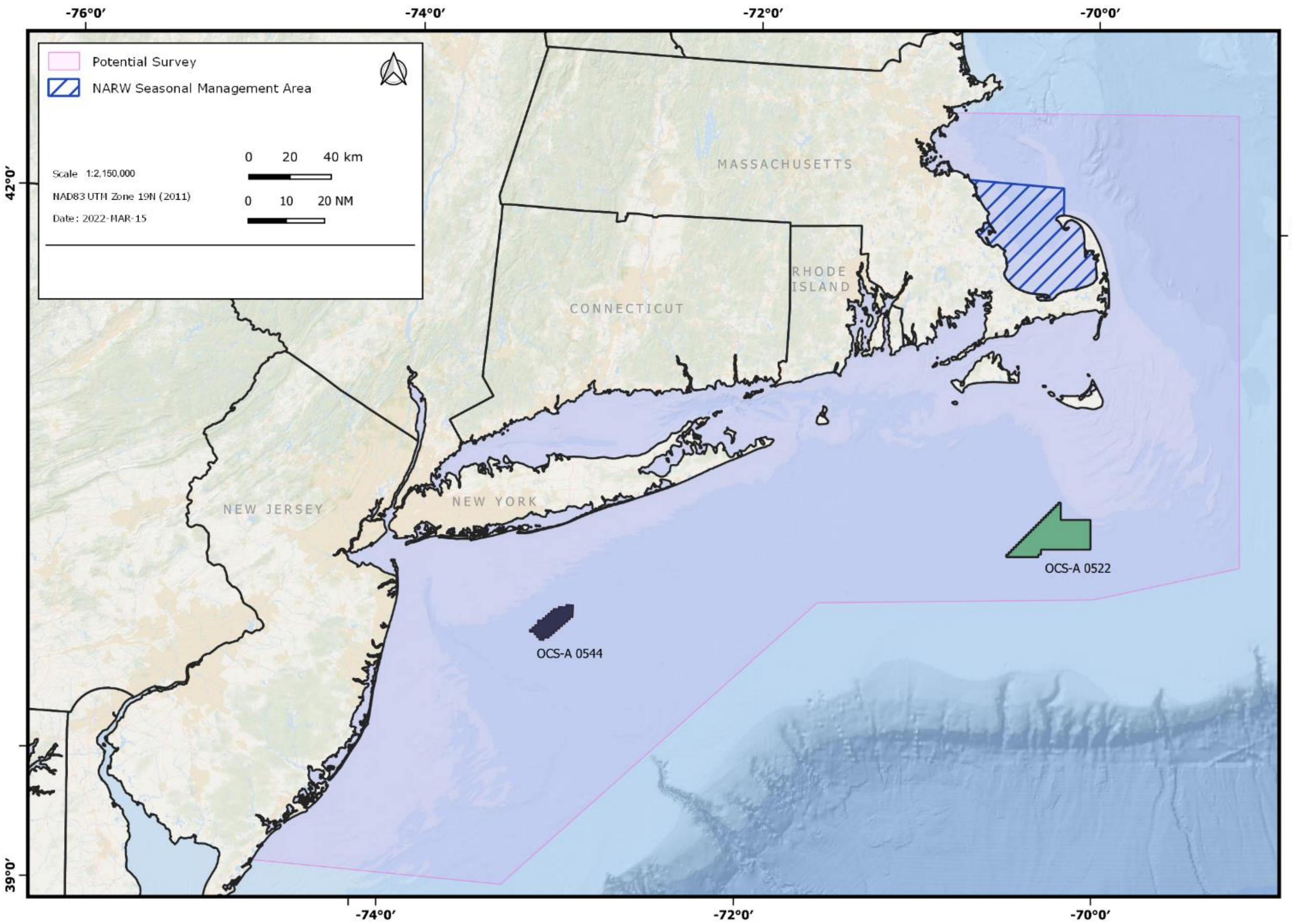


Figure 1: Offshore site characterization survey area

This EMP shall serve as a resource and basic field reference for survey personnel and Protected Species Observers (PSOs) engaged in HRG and other survey activities for the Project. This Plan details the key environmental and archaeological compliance obligations contained within permits, consents, and approvals. It also provides contact information for relevant personnel, describes the communication procedures to be followed during survey activities, and outlines what to do in certain situations (e.g., vessel strike, archaeological discovery, etc.).

This EMP shall be kept up to date, shall not be copied or destroyed, and shall be retained following completion of the survey activities. Updates to this EMP shall be made in the following instances:

- to incorporate additional Project information for each phase of surveys;
- as dictated by Project permits, approvals, authorizations, or agreements;
- to update any changes to contact information;
- to reflect any changes in work conditions or procedures; or
- to include any other change requiring a Plan update as determined by Vineyard Offshore or the contracted survey provider.

The 2022-2023 Vineyard Offshore Geophysical, Geotechnical, and Environmental Site Characterization Campaign Survey Plans (Survey Plan) are provided in **Appendix A.**

1.1 Permits and Approvals

The permits, approvals, authorizations, agreements, and required documentation that have been secured for Vineyard Offshore and apply to this EMP are summarized below and detailed in **Appendix B**:

- Lease OCS-A 0522
- Lease OCS-A 0544
- Alternative Monitoring Plan
- Vineyard Northeast HRG Incidental Harassment Authorization (IHA)
- Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection (Offshore Wind PDC & BMPs)
- National Marine Fisheries Service Offshore Wind Site Assessment Programmatic ESA Consultation
- BSEE NTL No. 2015-G03
- Atlantic Reference Guide (species identification)
- Communication Protocol
- BOEM’s Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development
- US Coast Guard Private Aids to Navigation Requirements
- Visual Observer Log
- Bureau of Safety and Environmental Enforcement (BSEE)-approved material regarding North Atlantic Right Whale (NARW) Seasonal Management Areas, sightings information, and reporting
- Vineyard Offshore Induction Training Slide Deck

Vineyard Offshore, and their contractors, shall ensure full compliance with the permits, approvals, authorizations, agreements, and all conditions cited in Project permits, approvals, authorizations, and agreements. If changes to any approved Project plans result in updates/modifications to existing permits, approvals, authorizations, or agreements, such updates/modifications, including revised permits/approvals and/or consultations, shall be included in **Appendix B**, as appropriate.

All survey vessels must maintain copies of the relevant permits, authorizations, agreements, consultations, references, and logs as outlined below and included in **Appendix B**.

2.0 Project Contacts and Communication Procedures

2.1 Project Contacts

A list of relevant contacts for HRG survey activities is provided in **Table 1**. Contact lists for geotechnical and environmental surveys will be issued in an addendum prior to the start of survey activities. During survey activities, **all communication with Federal, State, Regional, and Local agencies will be coordinated by Vineyard Offshore.**

Table 1: Vineyard Offshore HRG Survey Contact List

Vineyard Offshore HRG Survey Contact List			
Name	**Project Title**	**Company**	**Contact Number**
Martin Christensen	Survey Manager	Vineyard Offshore	610-505-1324
Geoff Neild	HSE Manager	Vineyard Offshore	407-616-4160
Geri Edens	Director of Permitting	Vineyard Offshore	240-271-1334
Laura George	Permitting Manager	Vineyard Offshore	215-407-2041
Nate Mayo	Director of Public Affairs	Vineyard Offshore	617-840-4045
Crista Bank	Fisheries Manager	Vineyard Offshore	508-525-0421
Jeannot Smith	Marine Liaison Officer	Vineyard Offshore	904-613-0134
Laura Giaimo	Environmental Project Manager	Geo Subsea	507-250-3995
Trish Souder	Environmental Project Manager	Geo Subsea	417-543-0810
Megan McManus	Senior Environmental Project Manager	Geo Subsea	724-493-9860
Kathryn Roy	Senior Environmental Specialist	RPS Group	508-524-5556
James Pearl	Marine HSE Advisor	Geo Subsea	281-594-4356

2.2 Fisheries Communication Plan

Vineyard Offshore has developed a Fisheries Communications Plan (FCP) to guide communication with fishermen potentially affected by the development of offshore wind projects, to improve project design and avoid gear interaction and conflicts. The FCP is a living document that is updated regularly and available online at wwww.vineyardwind.com/fisheries and in **Appendix C**.

The FCP includes offshore communication protocols to ensure fishermen are aware of Vineyard Offshore's offshore activities. As part of these protocols, Notices to Mariners are sent to the U.S. Coast Guard (USCG), and Offshore Wind Mariner Updates (OWMUs) are issued on public fora to inform the commercial and recreational fishermen, as well as other interested stakeholders, about survey activities. The OWMUs include a survey vessel picture, vessel contact information, a chart showing the location and approximate duration of vessel activity, and relevant contact information. Vineyard Offshore also posts the OWMUs on the company's primary social media channels – LinkedIn, Facebook, Twitter, and Instagram. Additional information is available in the FCP.

3.0 Environmental Management Plan Distribution

The EMP, whether hard-copy or electronic, shall be located on all survey vessels for easy reference and use if available, the on-vessel copy of the EMP shall not be removed, destroyed, or copied. The Vineyard Offshore Compliance Team will distribute copies of this EMP to the contracted survey provider, Vineyard Offshore Survey Team (including all client representatives), and the Vineyard Offshore Environmental Affairs Department (electronic).

4.0 Field Crew Induction / Training / Orientation

Induction/Training /Orientation for all survey crews will be performed prior to the initiation of survey activities, when new personnel are introduced to the survey team, and when a change in the anticipated plan of work or site conditions warrant follow-up training. Inductions will, at a minimum, include the following:

- Health, Safety, Environmental Training;
- Vineyard Offshore Environmental Awareness Training (inclusive of Marine Trash & Debris Prevention); and
- Vineyard Offshore Species Identification Training.

5.0 Marine Protected Species

The OCS-A 0522 and 0544 Leases contain monitoring and mitigation requirements that apply to marine mammals, sea turtles, and other protected species. Additionally, HRG surveys are subject to conditions contained within the National Oceanic and Atmospheric Administration Incidental Harassment Authorization (IHA), issued pursuant to Section 101(a)(5) of the MMPA (16 U.S.C. 1371(a)(5)(D)), which is valid from July 27, 2022, through July 26, 2023.

HRG survey activities shall therefore be conducted in accordance with the measures stipulated in the IHA. While acquiring data within Lease areas, Lease provisions (inclusive of BOEM Lease waivers) apply. **Appendix D**, *Protected Species Monitoring & Mitigation Plan* contains instructions for survey activities that consider all relevant permits. New permit documents and updated plans will be published in an EMP addendum as they become available.

5.1. Protected Species Observers

Protected Species Observers must be present and on duty on each HRG survey when CHIRP subbottom profilers, boomers and sparkers are operating. In addition to source mitigation, PSOs will monitor permit-specified zones to minimize vessel interactions with protected species. All PSOs must be provided by a third party. For Lease OCS-A 0522, Vineyard Offshore must submit a list of NMFS-approved PSOs and their relevant certifications and resumes to BOEM and NMFS no later than 7 calendar days prior to the scheduled start of survey activities. For Lease OCS-A 0544, Vineyard Offshore is required to submit PSO names and certifications to NMFS prior to the start of survey activities and upon request of BOEM.

PSOs must have completed a commercial PSO training program for the Atlantic with an overall examination score of 80 percent or higher

PSOs must have no Project-related tasks other than to monitor permit-specified zones, communicate and initiate mitigation to relevant vessel crew when required, and collect and report data regarding the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards). PSOs must not be on watch for more than four consecutive hours and must be granted a break of no less than two hours after a four-hour watch. PSOs must not work for more than 12 hours in any 24-hour period unless an alternate schedule is authorized in writing by BOEM. All visual monitoring must occur from a vantage point, on the associated operational platforms, that allows for 360-degree visual coverage around a vessel.

PSO equipment must include binoculars, range-finding equipment, a digital camera, and electronic data recording devices (e.g., a tablet) to adequately monitor the distance of the clearance and shutdown zones, to determine the distance to protected species during surveys, to record sightings and verify species identification, and to record data.

Table 2: PSO Required Equipment

General Equipment	Citation
Global Positioning System (hand-held or vessel)	IHA Section 5(k)
Reticulated Binoculars (as appropriate)	IHA Section 5(k)
Binoculars with the ability to estimate distances or rangefinders	IHA Section 5(k), Offshore Wind PDC & BMPs Section 7.5.2
Night-vision equipment (i.e., night-vision goggles and infrared technology)	IHA Section 5(k) & 5(h)
Digital Camera	IHA Section 5(k), Lease OCS-A 0522 Section 4.3.5

5.2. Crew Lookout

For projects where PSOs are not required for source mitigation, a crew lookout must be posted during all times to avoid interactions with an Endangered Species Act (ESA)-listed species when a vessel is underway. Crew lookouts monitoring the vessel strike avoidance zones may be third-party observers (i.e., PSOs) or vessel crew members, provided that vessel crew members responsible for these duties have sufficient training. If the trained lookout is a vessel crew member, this must be their designated role and primary responsibility while the vessel is transiting. Crew lookouts monitoring vessel strike avoidance zones will fill out a daily log (**Appendix B**).

6.0 Avian and Bat Protection

Any lights used to aid marine navigation by Vineyard Offshore must meet USCG requirements for private aids to navigation and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (**Appendix B**). Additionally, Vineyard Offshore is subject to annual reporting of any dead or injured birds or bats found on vessels or structures.

7.0 Cultural Resources

Leases OCS-A 0522 and 0544 contain stipulations addressing the archaeological survey requirements and the unanticipated discovery of archeological resources.

Pursuant to the Leases, a Qualified Marine Archaeologist (QMA) must be informed and may elect to be present during HRG surveys and bottom disturbing activities to ensure avoidance of potential archaeological resources. In the event that the QMA indicates that they wish to be present, the QMA's presence must be facilitated and provided the opportunity to inspect data quality.

All vessels shall not knowingly impact a potential archaeological resource without prior approval from BOEM. In the event of an unanticipated discovery of a potential archaeological resource, such as the presence of a shipwreck (e.g., a sonar image or visual confirmation of an iron, steel, or wooden hull, wooden timbers, anchors, concentrations of historic objects, piles of ballast rock) or evidence of a pre-contact archaeological site (e.g., stone tools, pottery or other pre-contact artifacts) within the project area, the Post-Review Discovery Clause (OCS-A 0522 Lease Section 4.2.7 and OCS-A 0544 Lease Section 5.3.7) must be followed as outlined in section 7.1.

7.1 Unanticipated Discovery of Cultural Materials

If an unanticipated discovery of potential archaeological resources or evidence of a potential archaeological resource is made while conducting bottom-disturbing activities, the following steps shall be taken:

1) The survey vessel will immediately halt seafloor/bottom-disturbing activities within the area of discovery in accordance with all safety procedures and emergency shut down protocols.
2) The Client Representative and Vineyard Offshore Field Project Manager will be notified.
3) The Vineyard Offshore Field Program Manager will immediately notify Vineyard Offshore and the QMA of the discovery.
4) In coordination with Vineyard Offshore, the QMA will notify BOEM and BSEE of the discovery as soon as practicable but no later than 24 hours after discovery. If the discovery is made within state waters, the Massachusetts Board of Underwater Archaeological Resources (MBUAR) and the Massachusetts Historical Commission (MHC) must also be notified.
5) Vineyard Offshore will notify BOEM in writing within 72 hours of the discovery. If the discovery occurs in state waters, the MBUAR and MHC will also be notified in writing.
6) The location of the discovery will be kept confidential, and no action shall be taken that may adversely affect the archaeological resource until BOEM has made an evaluation and instructed Vineyard Offshore on how to proceed.
7) If needed, Vineyard Offshore will conduct additional investigations as directed by BOEM and BSEE to determine if the resource is eligible for listing in the National Register of Historic Places (30 CRF 585.802(b)).

8.0 Marine Trash and Debris Prevention

8.1 Training

Vessel operators, employees, and contractors engaged in offshore activities pursuant to the Leases must complete annual marine trash and debris awareness training, as described in the BSEE NTL No. 2015-G03 or any NTL that supersedes this NTL (**Appendix B**), except that posting placards onboard the vessel will not be required. The annual marine trash and debris awareness training must consist of two parts:

- Viewing a BSEE marine trash and debris training video or slide show; and
- Receiving an explanation from Vineyard Offshore Compliance Team management that emphasizes their commitment to adhere to the requirements. The training program must also include attendance documentation and recordkeeping for inspection by BSEE.

By January 31 of each year, a report describing the marine trash and debris process and certifying that the training process has been followed for the previous calendar year must be submitted to BOEM and BSEE. Vineyard Offshore, in coordination with the contracted survey provider, will submit this annual report.

8.2 Marking

Durable identification markings must be placed on skid-mounted equipment, portable containers, spools or reels, and drums onboard the vessel. Additionally, materials, equipment, tool containers and other items used in activities conducted on the OCS that are likely to snag or damage fishing devices and could be lost or discarded overboard must be clearly marked with the vessel or facility identification and properly secured to prevent loss overboard. Markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they may be exposed.

8.3 Recovery and Prevention

Marine trash or debris that is lost or discarded overboard must be recovered if it is likely to:

- cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to marine trash or debris that could entangle, or be ingested by, marine protected species; or
- significantly interfere with OCS uses (i.e., because it is likely to snag or damage fishing equipment or presents a hazard to navigation).

If the marine trash or debris is located within the boundaries of a potential archaeological resource/avoidance area or a sensitive ecological/benthic resource area, Vineyard Offshore must receive approval prior to recovery efforts.

A Recovery Plan must be submitted no later than 10 calendar days from the date in which the incident occurred. Recovery should be completed as soon as practicable but no later than 30 days from the date the incident occurred. Steps to prevent similar incidents must be enacted, with a description of these steps provided to Vineyard Offshore in writing. All agency reporting as required by the Offshore Wind PDC & BMPs, BMP Section 3 will be carried out by Vineyard Offshore. Agency reporting includes 48-hour notifications and monthly reporting requirements.

9.0 Spill and Discharge Prevention

The OCS-A 0522 and 0544 Leases contain an indemnification condition for any loss or damage to natural resources and for the release of any petroleum or Hazardous Materials. No substance should be intentionally discharged from the vessel. In the event of a spill or discharge, the vessel's USCG-approved spill prevention and containment strategy should be followed. Spills or discharges should be reported immediately as outlined in section 10.5, regardless of if the spill or discharge occurs at sea or on land while the vessel is at dock. Hazardous Material is to be defined as:

1. Any substance or material defined as hazardous, a pollutant, or a contaminant under the Comprehensive Environmental Response, Compensation, and Liability Act at 42 U.S.C. §§ 9601(14) and (33);
2. Any regulated substance as defined by the Resource Conservation and Recovery Act ("RCRA") at 42 U.S.C. § 6991 (7), whether or not contained in or released from underground storage tanks, and any hazardous waste regulated under RCRA pursuant to 42 U.S.C. §§ 6921 et seq.;
3. Oil, as defined by the Clean Water Act at 33 U.S.C. § 1321(a)(l) and the Oil Pollution Act at 33 U.S.C. § 2701(23); or
4. Other substances that applicable Federal, state, tribal, or local laws define and regulate as "hazardous."

10.0 Reporting

10.1 Marine Protected Species Reporting

As a first measure, survey vessel captains or the Client Representative should provide a cell phone number to Vineyard Offshore's Marine Liaison Officer, Jeannot Smith (jsmith@vineyardwind.com), to gain access to the WhatsApp channel for Vineyard Offshore's Marine Coordination chat. All port arrivals and departures must be reported via this chat.

As a second measure, prior to departure, survey vessel captains should also provide a cell phone number to Kathryn Roy (kathryn.roy@rpsgroup.com), RPS Senior Environmental Specialist, to gain access to the WhatsApp channel for Vineyard Offshore's Protected Species vessel chat prior to departure. Any visual detections of ESA-listed marine mammals and sea turtles should be communicated in near real-time to other survey vessel captains associated with the Project via Vineyard Offshore's Protected Species vessel chat on WhatsApp.

Project vessels must immediately report all NARW sightings to Vineyard Offshore's Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860), who will then immediately inform the appropriate authorities. The NARW sighting report to the authorities must include the time, location, and the number of animals sighted, all of which shall be included in the initial report to Vineyard Offshore.

Project vessels must immediately report all potential takes, strikes, or dead or injured protected species to Vineyard Offshore's Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860), who will then immediately inform the appropriate authorities.

Project vessels must immediately report all dead or injured marine mammals and sea turtles to Vineyard Offshore's Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860), who will then immediately inform the appropriate authorities.

10.2 Avian and Bat Reporting

Project vessels must report all dead or injured birds or bats within 24 hours to Vineyard Offshore's Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860). Reports should utilize the Bird/Bat Injury or Mortality Reporting Form provided by Vineyard Offshore.

10.3 Cultural Resource Reporting

If a Project vessel discovers any potential archaeological resource, Vineyard Offshore's Field Program Manager, Donnie Brouillette (dbrouillette.geosubsea@gmail.com) or Ben Williams (bwilliams.geosubsea@gmail.com), and Vineyard Offshore's Senior Environmental Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860), must be notified immediately so they can inform the QMA and appropriate authorities.

10.4 Marine Trash and Debris Reporting

Project vessels must report all marine debris to Vineyard Offshore's Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860) within 24 hours, who will then inform the appropriate authorities within 48 hours of the incident. Reports should utilize the Marine Trash and Debris Reporting Form provided by Vineyard Offshore.

10.5 Spill and Discharge Reporting

Project vessels must immediately report all spills or discharges to Vineyard Offshore's Marine HSE Advisor, James Pearl (GSS-HSE@geosubseaconsulting.com), Environmental Project Managers, Laura Giaimo or Trish Souder (522EnvCompliance@geosubseaconsulting.com / 544EnvCompliance@geosubseaconsulting.com or 507-250-3995 / 417-543-0810), or Senior Project Manager, Megan McManus (mmcmanus@geosubseaconsulting.com or 724-493-9860), who will then immediately inform the appropriate authorities.

11.0 On-Going Conditions

Vineyard Offshore's Survey Manager shall consult with the Vineyard Wind Environmental Compliance Team at the conclusion of HRG survey activities to ensure that conditions of permits, approvals, authorizations, and agreements that extend beyond the last day of acquisition are adequately addressed.

12.0 Record and Documentation Control

Amendments to this EMP shall be recorded in the EMP Plan History and Revision Record included at the beginning of this document after the Table of Contents.

APPENDIX A

2022-23 Vineyard Offshore Geophysical, Geotechnical, and Environmental Site Characterization Campaign Survey Plans

Vineyard Mid-Atlantic LLC*
Lease OCS-A 0544

Survey Plan

Geophysical, Geotechnical, and Environmental Site Characterization Campaign in Support of a Construction and Operations Plan

Submitted: May 4, 2022
Revised: June 13, 2022
Revised: July 13, 2022
Revised: July 25, 2022
Revised: August 4, 2022

*The OCS-A 0544 lease is held by Mid-Atlantic Offshore Wind LLC. Mid-Atlantic Offshore Wind LLC has changed its name to Vineyard Mid-Atlantic LLC with both the Delaware Secretary of State and the Bureau of Ocean Energy Management (BOEM). Vineyard Mid-Atlantic LLC is a Vineyard Offshore LLC affiliate.

Table of Contents

Appendices

LIST OF TABLES

TECHNICAL ACRONYMS

Acronym	Description
CMECS	Coastal and Marine Ecological Classification Standard
CPT	cone penetration testing
CPTU	cone penetration testing with pore pressure
G&G	geological and geophysical
HRG	high resolution geophysical
MLLW	mean lower low water
MBES	multibeam echosounder
MCS	multi-channel seismic
SPI/PV	sediment profile and plan view imagery
SSS	side scan sonar
SCS	single-channel seismic
SIMOPS	simultaneous operations
SV	sound velocity
SBP	subbottom profiler
USBL	ultra-short baseline

I. Introduction

Vineyard Mid-Atlantic LLC (Vineyard Mid-Atlantic), an affiliate of Vineyard Offshore, submits this Survey Plan (Plan) in accordance with Lease OCS-A 0544 (Lease 544) Addendum C, stipulation 2.1 to support the submission of a Site Assessment Plan (SAP) and/or Construction and Operations Plan (COP) for development of Lease 544. This Plan includes geophysical, geotechnical, and environmental investigations that are expected to begin in 2022 and extend into subsequent years until all necessary data to support a COP are obtained. The scope of work covered under this Plan includes geophysical surveying and geotechnical sampling, as well as environmental sampling and remote sensing, which collectively serve the following purposes:

1. Inform cable routing to select the most suitable path(s) between the offshore wind farm and a mainland landfall position(s),
2. Inform cable design and assessment of burial techniques for the given site conditions,
3. Inform foundation design and wind turbine generator (WTG) siting in Lease 544,
4. Inform of site conditions, particularly sensitive environmental areas and potential cultural resources, and the avoidance and mitigation of impact to those areas,
5. Provision of scientific information in support of SAP and/or COP submittals, and
6. Provision of scientific information for engineering and design efforts associated with project and installation planning.

A highly qualified team of experts will support each campaign from start to finish, including professional marine geophysical, geotechnical, and environmental consultants, qualified marine archaeologists (QMAs), federal and state permitting specialists, and other senior-level experts who have extensive experience in the offshore renewables industry.

II. Government Guidelines

Table 1 identifies the guidelines applicable to the coastal and offshore surveys conducted under this Plan. In accordance with Lease 544 stipulation 3.1.2.3 (Agency Communication Plan [ACP]), the relevant state agencies will be consulted for the portions of the site characterization campaigns that occur in state waters.

Table 1 Agency Guidelines and Publications

BOEM Guidelines
Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP)
Guidelines for Information Requirements for a Renewable Energy Site Assessment Plan (SAP)
Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (BOEM G&G)
BOEM Publication No. 2018-054, Data Gathering Process: Geotechnical Departures for Offshore Wind Energy, DNV GL Doc No. 10071328-HOU-01, September 2018
Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 (Section 106 of the National Historic Preservation Act and National Environmental Policy Act)

BOEM Guidelines
Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585
Guidelines for Providing Information on Fisheries Social and Economic Conditions for Renewable Energy Development on the Atlantic OCS Pursuant to 30 CFR Part 585

III. Background

Lease Area OCS-A 0544, within the New York Bight, is a 43,056-acre site located approximately 37 kilometers (km) south of Long Island, New York in water depths of 40 – 46 meters (m) on the Outer Continental Shelf (OCS; Figure 1). Geophysical, geotechnical, and environmental surveys are planned to be conducted throughout Lease 544 and along potential cable routes.

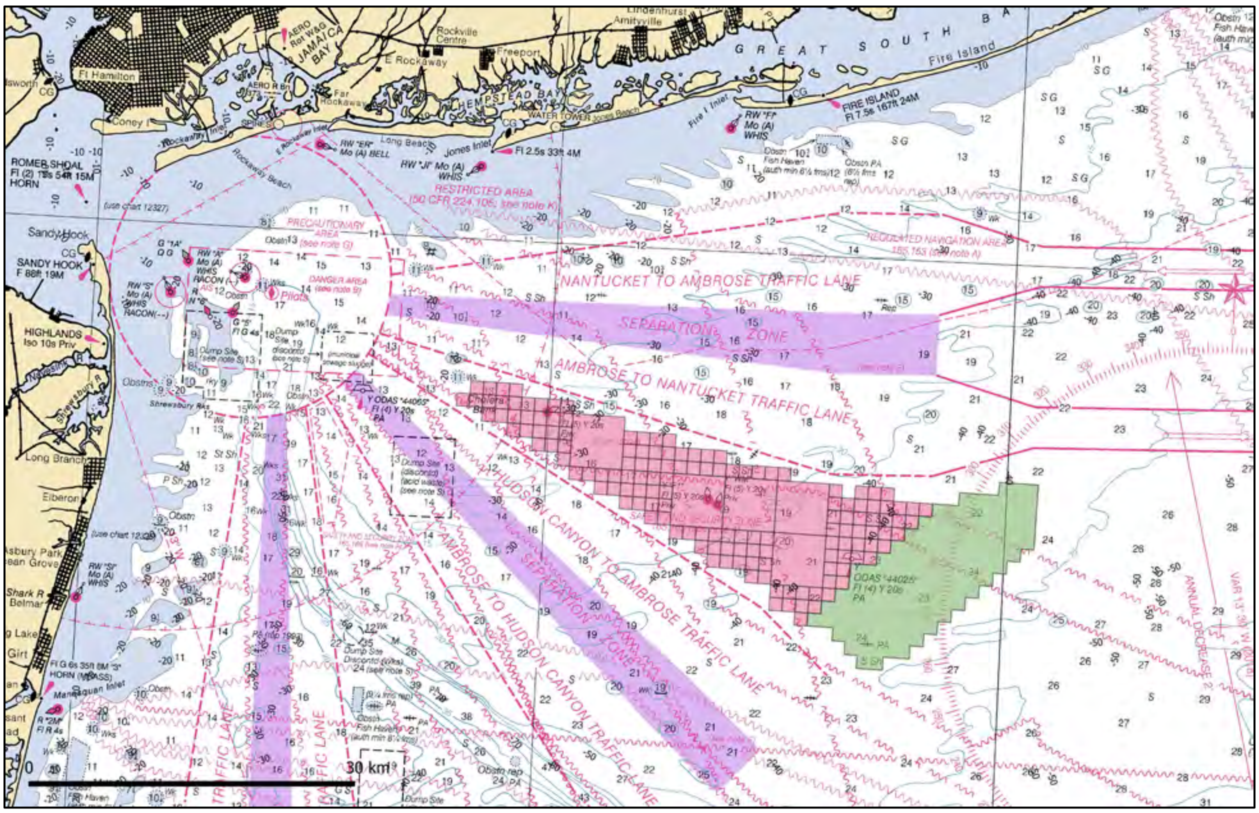


Figure 1: Location of Lease Area OCS-A 0544 (shaded green) in the New York Bight Wind Energy Area. Empire Wind Lease Area OCS-A 0512 (pink shading) is adjacent to the west. Nautical chart 12300 in the background (soundings in fathoms).

Several potential offshore export cable corridors (OECCs) that could connect Lease 544 to landfall locations along the north Atlantic coast are included within this Plan. Due to the sensitive and proprietary nature of this information, the OCS regions and coastal waters where OECCs may occur, and over which surveys described in this Plan will be conducted, are broadly depicted (Figure 2). Siting feasibility for

OECC landfalls is being performed at this time, with potentially viable options located along the south shore of Long Island, the New Jersey coastline, and north up into New York Harbor.

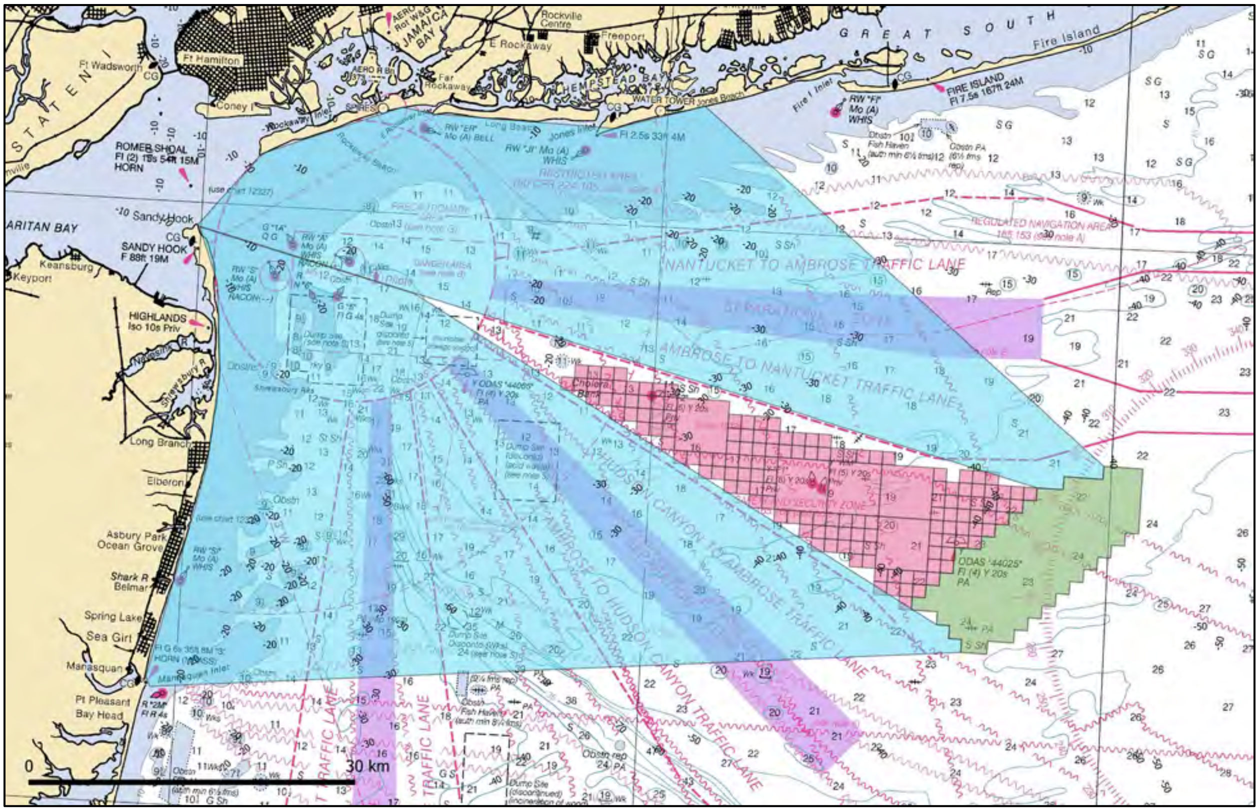


Figure 2: Proposed geophysical, geotechnical, and environmental site characterization campaign area including Lease OCS-A 0544 and potential OECCs (cyan shading) to bring power ashore from Lease 544.

Previous Surveys:

Two site-specific survey datasets were found to exist in the Lease 544 area: the New York State Energy Research and Development Authority (NYSERDA) 2017 Multibeam Echosounder and Benthic Survey dataset and the Hudson North SubArea A 2020 Gardline dataset.

The NYSERDA 2017 Multibeam Echosounder and Benthic Survey was a large-scale bathymetric survey that included some Sediment Profile and Plan View Imagery (SPI/PV) stations performed by Inspire Environmental and subcontractors. As the line spacing for this survey was 3.5 km, this dataset would only be used to provide generalized information of the area. The survey was located east of Lease 544, with the project extents subdivided into four areas (100, 200, 300, 400); Area 200 has minimal overlap with Lease 544 (Figure 3).

The survey produced bathymetric as well as backscatter data from the multibeam echosounder (MBES) system acquisition. SPI/PV is a benthic sediment imaging camera setup. A total of 300 stations were occupied in the survey area.

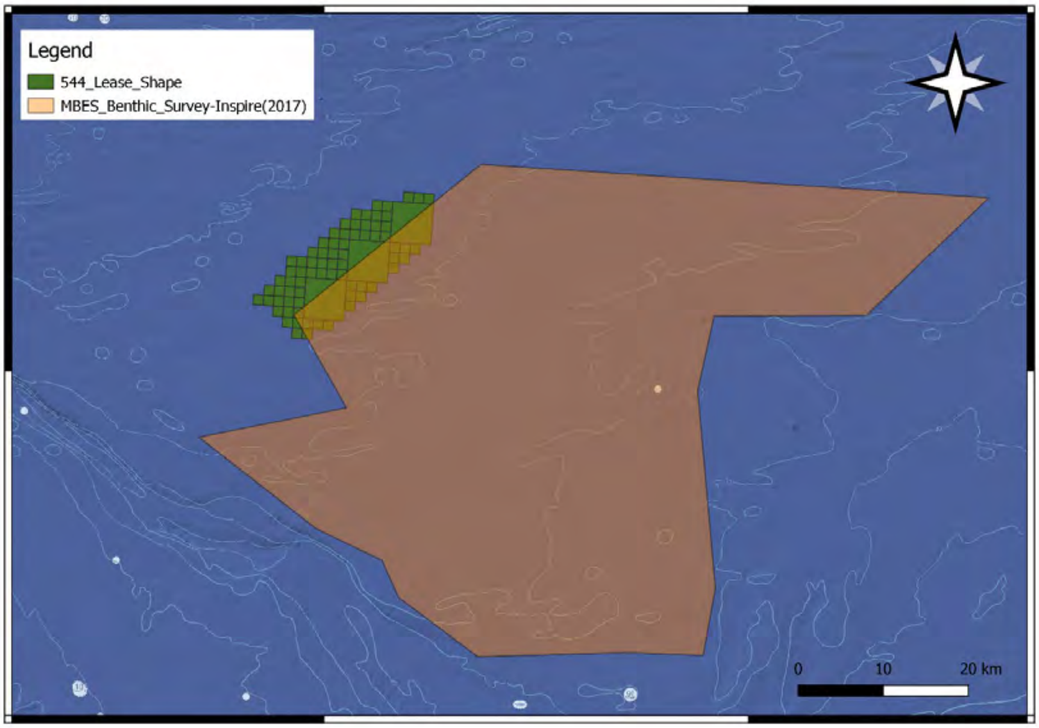


Figure 3: Inspire 2017 survey area 200 coverage (brown shaded area).

The Hudson North Subarea A 2020 Gardline survey was a full geophysical suite reconnaissance investigation. The survey acquired MBES, side scan sonar (SSS), gradiometer, subbottom profiler (SBP), and Ultra High Resolution Seismic data. The primary grid line spacing was 900 m with 4,500-m cross lines (Figure 4) providing reconnaissance level coverage of the original wind energy call area issued by NYSERDA. This dataset could be used to reduce the number of geophysical lines that would be needed for an initial agency submittal.

IV. Survey Plan Details

Surveys will be conducted in accordance with the BOEM Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (May 27, 2020), Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 (May 27, 2020), and other relevant guidelines identified in Table 1. The Plan includes geophysical, geotechnical, and environmental surveys in Lease 544 and along potential OECCs.

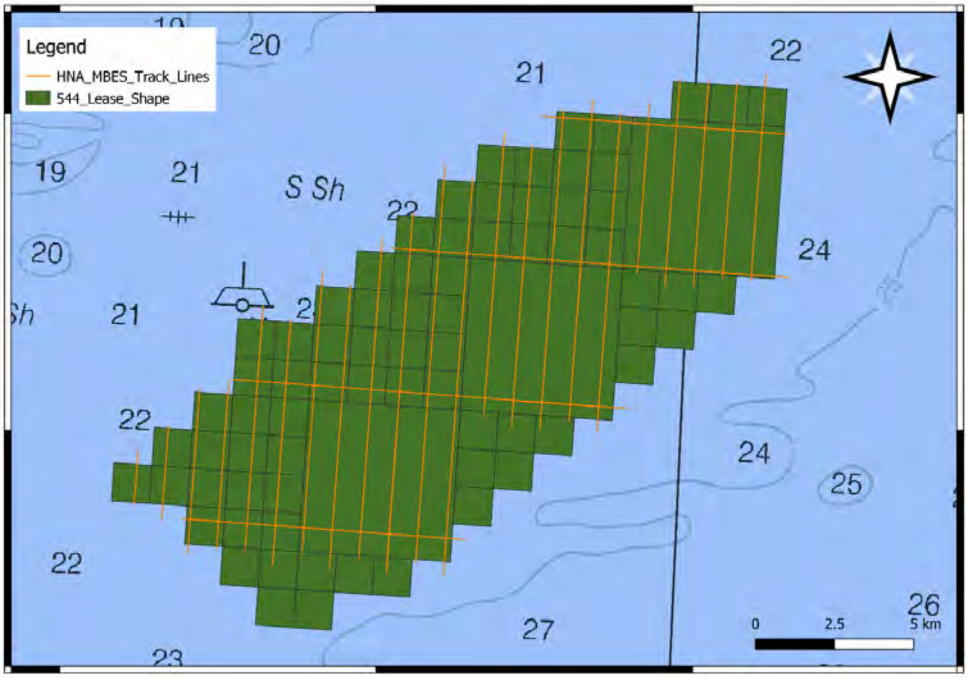


Figure 4: Hudson North Subarea A Gardline reconnaissance survey tracks (2020).

The data acquired in 2022 and beyond will be used to support the preparation of a SAP and/or COP. A full suite of geophysical instrumentation, including multi-channel seismic (MCS), shallow and medium penetration subbottom profilers, MBES, SSS, and gradiometer, as well as geotechnical and benthic sampling equipment (deep boreholes, Cone Penetration Testing [CPT], vibratory corer and grab sampler), and other support systems, may be utilized under this Plan. A final Area of Potential Effect (APE) is not currently known for the project as detailed site data have not been acquired and examined to know the engineering constraints and requirements for the anticipated Project Design Envelope (PDE). Surveys will cover all areas of expected seafloor and subsurface disturbance. Using experience from previous projects as a guide, Vineyard Mid-Atlantic will incorporate conservative lateral and horizontal data coverage to ensure the APE is suitably assessed. Commonly this includes wide corridors (180-700 m) covering component positioning (export and inter-array cables, WTGs, ESPs, landfalls, other construction areas), as well as vertical coverage associated with the same items (cables ~1.5-3 m depths, WTGs-ESPs 40-60 m depths). The APE values will be established as part of the COP submittal in the future.

Note that the surveys described in this Plan will begin in 2022, and will extend as necessary into subsequent years to complete site characterization in support of a COP. The proposed and optional surveys under this Plan include those listed in Table 2.

Table 2 Proposed Surveys[1]

Survey Type	Area to be Surveyed	Anticipated Timeline
Geophysical surveys	Lease 544	August – December 2022
Geophysical surveys	Potential OECCs	August – December 2022 or Spring/Summer 2023
Deep geotechnical reconnaissance investigations	Lease 544	September – December 2022 or Spring 2023
Shallow geotechnical and benthic investigations	Lease 544	August – December 2022 and/or Spring/Summer 2023
Shallow geotechnical and benthic investigations	Potential OECCs	August – December 2022 and/or Spring/Summer/Fall 2023
Unexploded ordnance surveys (optional)	Lease 544 and OECCs	Spring/Summer 2024 – 2025
Full campaign deep geotechnical	Lease 544	Spring/Summer 2024 or 2025

The following sub-sections detail the aim/objective and scope for each survey type. The site characterization campaign for Lease 544 will include multiple vessel mobilizations as required to accommodate the timing of critical tasks (e.g., geotechnical investigations only after the QMA has reviewed geophysical data and cleared) and to complete the full scope of services envisioned for 2022 and beyond.

A. Geophysical Surveys Within Lease 544

The planned geophysical scope in Lease 544 includes full seafloor coverage and data density (line and point spacings) to meet BOEM requirements.

Table 3 General Survey Scope – Geophysical Surveys in Lease 544

Survey Type/Equipment	Description
Geophysical Surveys (systems listed below)	• Full geophysical suite coverage of Lease 544 • 30-m line spacing acquiring all systems on all lines throughout Lease 544

[1] Additional surveys could be required based on results obtained from data collection. Such surveys could include boulder assessment, survey infill and reshoots, compliance studies, etc.

Geotechnical site clearance surveys	• 30-m line spacing centered on proposed sample locations • Minimum 120-m square box for seabed coverage around geotechnical locations • Performed early in the campaign to expedite QMA assessment
Hydrographic Multibeam Echosounder	• Minimum beam width of 120 degrees (60 degrees on each side, system dependent) • Minimum 120-m box covered around geotechnical locations
Side Scan Sonar	• 50-m swath on each side of the centerline • Minimum 120-m box covered around geotechnical locations
Gradiometer survey to identify possible ferrous objects	• Maximum altitude of 6 m • Noise <3 nT to allow picking targets ≥5 nT peak-to-trough
Subbottom Profiling and Single-Channel Seismic	• High frequency, shallow penetration system (e.g., SBP-type or pinger- or chirp-type instrument) • Lower frequency, medium penetration system (e.g., single-channel seismic [SCS] type, boomer, or sparker source instrument) ➢ Suitable for mapping geological horizons and archaeological items of potential interest beneath the OECCs to a minimum depth of 10 m below the seafloor ➢ Suitable for mapping deeper horizons in support of stratigraphic mapping WTG foundation design and engineering, >70m below the seafloor
Multi-Channel Seismic (sparker source; OPTIONAL)	• Suitable for mapping deep geological horizons to >70 m below the seafloor • Ability to resolve beds ~2 m-thick at the greatest depth of interest • Additional lines infilling the 2020 reconnaissance grid may be completed to supplement the SCS data

B. Deep Geotechnical Survey Within Lease 544

The proposed deep geotechnical investigations will be comprised of boreholes, downhole CPTs, and optional seabed CPTs positioned at the WTG locations. The geotechnical data will be used to support ground model development and provide specific engineering properties critical for WTG foundation design.

A subset of the below quantities will be conducted first to provide early deep geotechnical information to support an initial ground model. The initial sampling will be conducted on some WTG locations if they are known at the time. If not, they will be conducted on Lease 544 corners and spread out within the area based on the MCS 2020 data that informs Vineyard Mid-Atlantic of the general subsurface stratigraphy and features present.

Table 4 General Anticipated Survey Scope – Deep Geotechnical in Lease 544

Survey Type/Equipment	Description

Boreholes	• Stations up to 100-m depth with P-S logging, shallower depth at some stations
	• ASTM soil classification standards (or similar recognized standard) will be used
	• Minimum soil disturbance
	• Minimum sample diameter of 70 millimeters (mm)
	• Maximum vertical data gap of 0.2 m
	• Only seawater can be used as drilling fluid unless alternatives are approved
	• Potential sampling and oversampling methods, listed in order of preference:
	  • Piston thin wall sampler
	  • Push thin wall sampler
	  • Push thick wall
	  • Hammer sampler
	  • Rotary coring
	• Storage and transport of soil and rock samples must be in accordance with ASTM D 4220-95(2000) and ASTM D 5079-02
	• Optional near-continuous cone penetration testing with pore pressure (CPTU)
	• 0 – 40 m below seafloor: Maximum data gap = 0.20 m
	• >40 m below seafloor: Next CPTU started from nearest 0.50 m mark from refusal depth of the previous push/test (maximum data gap = 0.50 m)

Continuous piezocone penetration testing (down the hole CPTU)	• Tests up to 100 m depth, shallower depth at some stations
	• Measures tip resistance, sleeve friction, and pore pressure
	• Minimum penetration of 15 m
	• If the 10-m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements
	• 10 and 15 square centimeters (cm^2) cones will be used
	• Tests carried out in accordance with ISO 22476-1:2012
	• Only class 2 or higher will be assessed in-class and accepted
	• Filter stones will be fully saturated
	• Test stopped if:
	  • Capacity of cone is reached
	  • Inclination of 10 degrees
	  • Sudden jump in inclination or tip resistance is observed

Optional continuous seabed CPTU	• Tests up to 40 m depth • Measures tip resistance, sleeve friction, and pore pressure

Survey Type/Equipment	Description

	• Minimum penetration of 10 m
	• If 10 m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements
	• 10 or 15 cm^2 cones will be used
	• Tests carried out in accordance with ISO 22476-1:2012
	• Only class 2 or higher will be assessed in-class and accepted
	• Filter stones will be fully saturated
	• Test stopped if:
	  • Capacity of cone is reached
	  • Inclination exceeds 10 degrees
	  • Sudden jump in inclination or tip resistance is observed

C. Geophysical Survey Along Offshore Export Cable Corridors

OECC options for linking the offshore wind farm to shore are being considered based on desktop studies (existing research and data publicly available) to assess expected conditions. Figure 2 shows the OCS region where OECCs may be investigated.

An initial geophysical reconnaissance survey designed for mapping seabed and habitat conditions along potential OECC(s) will be conducted. A full corridor geophysical survey along with shallow geotechnical and environmental sampling along the preferred OECCs will be the next step in the survey sequence.

Table 5 General Survey Scope – OECCs

Survey Type/Equipment	Description
Reconnaissance survey along potential OECCs	OECCs connecting Lease 544 to potential landfall locations in New York and/or New Jersey
Full OECC COP detailed high-resolution geophysical surveys (chosen alignment)	• 30-m line spacing federal waters and line spacing consistent with state requirements in state waters • All systems run on every survey line
Geotechnical site clearance surveys	• Seven primary lines at 30-m spacing, and one tie line through the center • Covers a minimum 120-m square box at each geotechnical location
Hydrographic Multibeam Echosounder	• Minimum beam width of 120 degrees (60 degrees on each side, system dependent) • Minimum 120-m box covered around geotechnical locations
Side Scan Sonar	• Reconnaissance = 75-m sweep range (each side of centerline) • Detail surveys = 50-m sweep range

Survey Type/Equipment	Description
	• Minimum 120-m box covered around geotechnical locations
Magnetometer survey to identify possible ferrous objects along the OECCs	• Single magnetometer or gradiometer used for route reconnaissance surveys only • Maximum altitude of 6 m • Noise <3 nT to allow picking targets ≥5 nT peak-to-trough
Gradiometer survey to identify possible ferrous objects	• Multiple magnetometers used for the preferred OECC detailed COP survey • Maximum altitude of 6 m • Noise <3 nT to allow picking targets ≥5 nT peak-to-trough

Subbottom Profiling and Single-Channel Seismic	• High frequency, shallow penetration system (e.g., SBP type or pinger- or chirp-type instrument)
	• Lower frequency, medium penetration system (e.g., SCS-type, boomer, or sparker source instrument)
	    • Suitable for mapping geological horizons and archaeological items of potential interest beneath the OECCs to a minimum depth of 10 m below the seafloor
	    • Suitable for mapping geologic horizons in support of shallow stratigraphic mapping for the QMA pre-contact assessment to >20m below the seafloor

D. Shallow Geotechnical Surveys

Along with the geophysical and benthic habitat survey, the shallow geotechnical data will be used to assess overall OECC feasibility. The geotechnical data will also be used to ground-truth the geophysical data collected for mapping subsurface geological horizons important for archaeological resource evaluation and cable design and burial assessment. The shallow geotechnical data is acquired along the potential OECC and inter-array cable alignments at variable spacings. Often a larger sample spacing is adequate over expansive homogenous seabed areas, whereas closer sample spacings are necessary in higher variability areas. SBP and SCS profile data are reviewed to inform the team of shallow subsurface features of interest for ground truthing, both from an engineering and archaeological assessment standpoint.

All geotechnical sampling is performed after geophysical data have been analyzed and reviewed by the QMA.

Table 6 General Survey Scope – Shallow Geotechnical

Survey Type/Equipment	Description
CPTs/Vibracores	• CPTs and vibracores spaced approximately every 1 – 2 km along one or more OECC and inter-array alignments • Vibracores and/or CPTs collection guided by the QMA and project geologists following preliminary geophysical data review

Vibracores	• Minimum requirements for first attempt
	  • Penetration of at least 3 m
	  • Recovery of >67% required
	• If minimum requirements are not met in the first attempt, a second (and possibly a third) attempt will be performed to try to meet the requirements
	• Vibracores will be cut in 1-m sections, photographed, logged, and torvane and pocket penetrometer testing will be carried out at section ends. The liner will be sealed, capped, taped securely shut, labeled, and carefully stored for further archaeological and geotechnical testing

Piezocone penetration testing	• Measures tip resistance, sleeve friction, and pore pressure • Minimum penetration of 3 m • If the 3-m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements • Only class 2 or higher will be assessed in-class and accepted

E. Environmental Surveys

Grab samples and underwater video will be used to perform benthic habitat mapping along the potential OECCs and in Lease 544. General characterization studies detailed in the BOEM Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic OCS Pursuant to 30 CFR 585 (June 2019) are planned. Benthic habitats and organisms will be identified from the grab samples and underwater imagery. The sediment recovered from the grabs will also be described and subjected to grain size analysis. The grab samples will be used to ground-truth the SSS imagery to help determine the nature of the surficial material and distribution of benthic habitats in the survey area. The latest National Marine Fisheries Service (NMFS) guidelines will be followed (March 2021) for habitat mapping with all benthic classifications based on the Coastal and Marine Ecological Classification Standard (CMECS).

Grab samples and underwater video transects throughout the OECCs and Lease 544 at 1 – 2 km spacing will be obtained. Sampling and video transect locations will be guided by sensitive habitat locations and general seabed conditions. Often a larger sample spacing is adequate over expansive homogenous seabed areas, whereas closer sample spacings are necessary in higher variability areas.

Table 7 General Survey Scope – Environmental Surveys

Survey Type/Equipment	Description

Grab sampling methodology	• Attached underwater camera
	• Replicates as needed
	• Photographed, described, and subsampled on deck
	• Benthic analysis (two subsamples)
	    • 500-micron mesh sieve used for enumerating benthic infauna
	    • Grain size analysis (one subsample)

Underwater video	• Video speed <1 kt • Ultra-short baseline (USBL) in water depths >9 m

V. Survey Equipment

A combination of the following equipment (or equivalent) may be utilized for the geophysical, geotechnical, and environmental site characterization campaign based on prior years' experience and knowledge of the industry-standard systems being offered by the survey contractors. Industry-standard equipment includes but is not limited to the equipment presented in Table 8 (geophysical systems), Table 9 (geotechnical equipment), and Table 10 (environmental).

Table 8 Industry Standard Geophysical Systems

Systems	Full geophysical suite of instruments including multibeam, SSS, magnetometer, shallow (chirp) and medium (sparker) penetration single-channel subbottom profilers, and all support systems (positioning, motion sensor, sound velocity profiler, etc.) • Applanix POS MV with Trimble Nav-Beacon/U.S. Coast Guard (USCG) differential receiver • Sonardyne Scout Pro USBL • Reson 7125 MBES • Odom HydroTrac single beam echosounder • Klein 3900 SSS • Geometrics Transverse Gradiometer with dual G882 magnetometers • Teledyne-Benthos CHIRP III shallow subbottom profiler • GeoMarine Geospark 1000J medium penetration SBP with 200 tip sparker source and 8 element single-channel GeoEel streamer • Teledyne-Oceanscience RapidCAST sound velocity profiler • Generation 3 night-vision goggles (NVG) for Protected Species Observer (PSO) mitigation • Atlas H10 Offshore Corrections Differential Global Positioning System • SBG Ekinox 2-U Motion Sensor • Applanix POSMV M5 • Hemisphere VS330 Global Positioning System Receiver • R2Sonic 2024 MBES system • Knudsen 3212 200 kilohertz (kHz) SBES system • Oceanscience Underway CTD system

	• AML Base-X SVP sensor • Valeport Mini SVP sensor • Applied Acoustics Easytrak Nexus 2 USBL System with AA 1019 mini beacons • Edgetech 4200/4205 dual frequency SSS (300/600/900 kHz) with Edgetech topside processor • Knudsen 3260 2x2 SBP Array (3.5kHz) Pinger • Applied Acoustic Dura-spark 200/400 seismic system with AA CSP-N (2400J) power supply • Geometrics G-882 Cesium Marine Magnetometer • Sonardyne Mini-Ranger 2 USBL system for underwater positioning

Table 9 Industry Standard Geotechnical Equipment

Systems	• Top drive power swivel boring rig with split spoon or wireline push sampler • Wireline CPT tool for downhole piezocone penetration testing • 20-ton Seabed CPT for piezocone penetration testing Twin-derrick GMTR120 geotechnical drill rig, a fully heave-compensated rotary flush marine drill with a 5.5-inch API drill string driven by an EDECO Hydraulic power swivel (or equivalent) Downhole tools: • Hydraulic piston/push sampler, percussion/hammer sampler • WISON-APB Piezocone Penetration Test (PCPT) with 5or 10 cm^2 cones • Rock Coring bit / barrel combination • Seismic Cone Penetration Test with 10 cm^2 cones Manta-200kn seabed PCPT with 10 or 15 cm^2 cones Drilling performed with a standard 5-inch API drill pipe fitted with a five wing drag bit. Bottom Hole Assembly, comprised of standard drill collars plus a specially adapted collar containing a series of landing and latching rings designed to accommodate and allow the use of the various sampling, in situ testing, and non-coring tools. "WISON-APB" push sampler system with a minimal 70 mm inner diameter "Shelby" sampling tube mounted on a sample latching tool. "WISON-APB" downhole PCPT system with 10 or 5 cm^2 electrical cones. PS logger probe <u>Vibratory corer</u>, pneumatic and electric systems; 3.5-4-inch diameter, 3 – 4 m long barrels with cutter heads and core/sediment catcher. Designed for shallow subsurface sampling of unconsolidated materials up to gravel and cobble size. Specifically applicable for cable burial assessment and sediment property suitability for housing power cables. <u>Seabed CPT system</u>, shallow penetration (3 – 10 m), e.g., Neptune 3000-5000; CPTU systems mounted on seabed frames with varying thrust capacity, smaller cone sizes (2 – 10 cm^2). Measure axial load, sleeve friction, pore pressure, tip resistance, axial tilt, and hydrostatic pressure. Complementary system to the vibracore for obtaining information on more sediment properties to help define the variations in material layering.

Table 10 Industry Standard Environmental Survey Equipment

Systems	Modified Day grab sampler, Van Veen power grab, or Smith McIntyre grab sampler, each with attached camera; samplers have 0.1 square meter surface area and retain approximately 15-liter volume of material Gravity BM500 Video Sled with DOER Marine HP Lasers, a DeepSea Power and Light W-Eye Camera and DeepSea Power and Light LED wide lights. SeaRover/DSSI SeaMax MK2 Survey Class ROV with Sony UMC S3CA 4K HD video camera, scaling lasers, powerful thrusters, and LED lighting. Kongsberg/Simrad OE Model Cameras with low light-sensitive lens, LED lighting, auto focus, and software overlay tool. Additional support systems (or equivalent) include: • Applanix POSMV OceanMaster with USCG Differential Corrections and PPK capability • Sonardyne Scout Plus/MiniRanger 2 USBL (35 – 55 kHz) • YSI CastAway CTD, AML SVP

VI. Survey Methods and Activities

A. High Resolution Geophysical (HRG)

Nearshore survey operations will be performed to make optimal use of the tidal conditions and, when applicable, tracklines will be run along preferred orientations with respect to the prevailing currents with tight control of vessel speed. This will help maintain towed sensor positions and help keep the vessel on line when surveying potential OECCs. In the open waters of the Atlantic Ocean found within Lease 544, currents are less severe than some constricted waterways nearshore, but still ever-present and variable; therefore, towed sensor position is tracked accurately with an ultra-short baseline (USBL) system, and vessel steering and line keeping monitored constantly.

Sediment transport is common in the area and is observed in the seafloor geomorphology as bedforms that migrate along the bottom. If there are larger, longer period sand waves present along any routes, towed sensors can be raised and lowered to maintain recommended heights for the SSS and gradiometer given appropriate vessel speed. If the wavelength of the bedforms decreases, typically the sensors stay within the 6-m guideline over the troughs and may be much closer to the seafloor over the crests. Careful planning of the preferred survey direction for the given tidal conditions will assist in meeting these requirements.

Specific attributes of the geophysical systems and methods are discussed below.

1. Navigation and Sensor Positioning

Vessel positioning will be accomplished using industry-standard Global Positioning System (GPS) techniques to achieve a total horizontal uncertainty at the 95% confidence level of 2 m (IHO special order survey requirement, worst-case accuracy). It is expected that more accurate positioning can be achieved offshore. Differential GPS (DGPS) solutions (e.g., U.S. Coast Guard [USCG] or private reference stations) will be utilized to obtain this accuracy interfaced to a sophisticated Global Navigation Satellite System aided inertial navigation system. These systems are the most widely used positioning solution for multibeam data acquisition as they provide integrated DGPS, inertial navigation, motion, and heading to obtain highly accurate position and orientation measurements. Additional post-survey applications afford further position processing to increase horizontal and vertical accuracies even more.

All GPS and associated data strings are imported to the navigation software (e.g., QINSy, Hypack, etc.) for positioning other ancillary devices that are a part of the geophysical instrument suite. These software programs allow full control over positioning and recording external system digital data and provide useful post-survey data review and processing tools for offline work onboard the larger vessels.

For towed sensors, a USBL underwater acoustic positioning system will be used in water depths greater than 9 m. This system is interfaced with the navigation software such that range, azimuth, depth, motion, and supporting USBL data are used to calculate the true x, y position of the USBL beacon attached to the towed sensor. Those coordinates are then exported out of the navigation software to the external geophysical towed system's computers (SSS, magnetometer). In this manner, offset and layback corrected positions are recorded in the towed system digital files in real-time.

2. Multibeam Echosounder and Data

A multibeam bathymetry system will be used to record water depth measurements and backscatter ("snippets") in a swath covering the seafloor. These systems typically utilize 200 – 400 kilohertz (kHz) frequencies over 120 – 200 degree angles to cover usable swath widths of three to five times the water depth. Depth values will be adjusted for sound velocity (SV) using CTD or SV profiler measurements. The systems have an SV probe at the transducer for continuous surface measurements, and frequent CTD/SV casts for the entire water column supplement these surface data. Moving vessel profilers are preferred so the vessel does not have to stop to obtain a sound velocity cast. Precision motion data (heave, pitch, roll, yaw) are also recorded to position the soundings accurately on the bottom. During the survey, vessel speed, ping rate, beam width, and other parameters are closely monitored and controlled to ensure that a suitable quantity of soundings per square meter on the seafloor is achieved.

For vertical control and referencing of the water depths to the mean lower low water (MLLW) datum, PSO data logged during the survey contains GPS altitudes that can be post-processed to achieve a tightly coupled PPK (post-processed kinematic) solution. The resulting NAD83 ellipsoid referenced points can be converted to MLLW using the National Oceanic and Atmospheric Administration's VDatum software by applying the smoothed best estimate of trajectory (SBET) file from the POSPac software. The final processed water depth data will meet IHO S-44 Order 1a requirements.

3. Side Scan Sonar and Imagery

Dual-frequency SSS imagery (e.g., 300/600 kHz, 445/900 kHz) will be acquired to record the acoustic reflectivity of the seafloor. The combination of lower and higher frequency transmissions was designed to satisfy the range and resolution desires of operators. A sonar sweep range of 50 – 75 m will be employed to obtain high-resolution imagery in all survey areas. A 50-m sweep range is used for detailed survey work and the 75-m sweep range is utilized for the reconnaissance lines to cover more area. The towfish is "flown" at a height of 10 – 20% of this range above the bottom to obtain optimal image results. During sea trials, sweep range, pulse length, ping rate, and frequency will be optimized to meet a target size detection criterion of 0.5 m.

In deeper water (i.e., > 9 m), the sonar towfish will be positioned using the USBL system with a beacon either integrated into the towfish or attached just above on the tow cable. Properly corrected towfish geo-referenced positions will be input to the digital sonar files in real-time via the navigation software interface. A position accuracy of 3 – 5 m is estimated for the deeper water depths expected for this survey. For shallow water areas where water column noise can affect the USBL, a cable counter is planned for use to provide towfish layback corrections. Overall, position accuracy increases as water depth decreases.

4. Magnetic Intensity Measurements

A gradiometer system, such as a dual Geometrics G882/Transverse gradiometer, will be utilized to detect ferrous materials on and below the seafloor. The system will include an altimeter to measure and record the height of the sensor above the seafloor, which will be maintained at less than 6 m if possible. Each gradiometer sensor will have a counter sensitivity of <0.004 nT/√Hz rms and an absolute accuracy across the range (20,000 – 100,000 nT) of <2 nT. The data sampling rate will be greater than 4.0 hertz (Hz) to ensure sufficient data point density and is typically up to 10 Hz. Data will be constantly monitored to ensure background noise remains below 3 nT. The magnetic data may be recorded by the navigation software or a separate stand-alone computer package.

The gradiometer will be towed at a distance from the survey vessel to minimize magnetic interference from the vessel. This distance is normally expected to be at least three times the length of the vessel, but shorter distances are acceptable if interference levels can be demonstrated to be acceptably low. If the gradiometer is piggy-backed to other equipment, such as a SSS towfish, sufficient distance to prevent interference from the towfish will be ensured. The gradiometer will be positioned using USBL tracking in water depths <10 m and cable layback in shallower waters. In very shallow waters, the magnetic sensor may be floated on the surface and towed separately to optimize data quality and vessel maneuverability without the use of a USBL.

5. Subbottom Profiling

To gather information on the shallow subsurface, two different seismic reflection-type systems will be utilized: a high frequency, shallow penetration SBP-type system (e.g., pinger or chirp source instruments) and a lower frequency, medium penetration, single-channel seismic (SCS) system (e.g., boomer/sparker source instrument). Chirp and pinger SBPs are optimized to investigate the top 10 m below the seabed, but in areas such as Rhode Island Sound, Nantucket Sound, and elsewhere along the OCS, penetration is often limited to the upper few meters due to the presence of compact sands and coarser deposits. In these geologic settings, a lower frequency system is needed to penetrate and resolve sediment layers up to 10 m below the potential depth of disturbance for cable installation and geotechnical sampling. Boomer/sparker and chirp/pinger systems complement each by providing the resolution and penetration needed to assess the shallow subsurface geology. Chirp/pinger systems, due to their higher frequency content, are capable of resolving 30-centimeter-thick layers in the upper 3 m while the boomer/sparker's lower frequency can achieve resolution of 2 m or less in the upper 10 – 20 m. The SCS system will also be utilized to infill the MCS data coverage and image deeper stratigraphy below the seafloor where possible.

Chirp/pinger SBPs are commonly hull-mounted or towed on a short cable off the side or in a moon pool of the vessel. Boomer/sparker systems consist of a towed catamaran that houses the sound source (an electro-mechanical plate or sparker electrodes) and a towed, eight to 10-element hydrophone single-channel streamer, which records the signal. A boomer system will emit a short duration outgoing pulse and the tow configuration will be optimized to minimize ghosting, which masks real subsurface reflectors. Additionally, the boomer system will be configured so that both the source and streamer are positioned outside the vessel wake and prop wash to minimize unwanted noise on the recording.

6. Multi-Channel Seismic

MCS data may be acquired in Lease 544 to provide the information needed to supplement the subsurface ground model to a depth that is 10 m greater than the maximum depth of disturbance from a potential WTG foundation. The MCS survey will make use of a sparker-type seismic source (~500 – 1,000 joules) that can generate a repeatable, broadband (~0.5 – 4 kHz) signal to penetrate nearly 100 m below the seabed and resolve layers as thin as 2 m. The sparker system will be fired approximately every meter and a calibrated hydrophone will monitor the source signature as well as the tow depths of the source and streamer.

The multi-channel streamer used for the survey will have front end and tail buoys with GPS or radio transponders to monitor streamer feathering. The streamer will be towed at a depth of ~0.5 m to ensure the surface ghost does not degrade the frequency spectrum and reduce the vertical resolution. The group interval will be less than 3.125 m to allow for high horizontal resolution and the length of the streamer will be greater than the maximum target depth to improve velocity analysis and multiple suppression.

B. Shallow Geotechnical

Shallow geotechnical information will be obtained in Lease 544 and approximately every 1 – 2 km along the proposed OECCs using co-located as well as alternating vibracores and CPTs. The total number of locations and type of sampling will be finalized after geophysical data has been analyzed and reviewed by the project geologist and QMA. The number of samples may also be driven by the results of initial geotechnical information results as the field program progresses. Sampling may be reduced in areas that present consistent ground conditions.

This approach is consistent with Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (May 27, 2020). Where possible, geotechnical sample stations will be strategically positioned to sample subsurface features interpreted from the subbottom profile data. This could include potential pre-Holocene intact strata (ravinement surface, possible archaeological significance), possible buried paleofeatures or submerged ancient landforms, or coarse deposits suggesting difficult burial conditions.

The vibratory coring method will recover samples with at least a 70-mm diameter, a minimum penetration of 3 m, and a minimum recovery of 67%. If either the penetration or recovery criteria are not achieved, at least one re-test shall be carried out. If the required penetration is not achieved on the re-attempt, the Offshore Client Representative may instruct a third attempt. Core catchers and drill bits will be available to maximize the penetration and recovery in the expected soils. Upon recovery to the deck, the vibracores will be cut in -m sections, photographed, and geologically logged; the section ends will be subjected to torvane and pocket penetrometer testing. The liner will be sealed, capped, taped securely shut, labeled, and carefully stored for further testing.

Piezocone penetration testing will measure soil properties (tip resistance, sleeve friction, and pore pressure) at the same locations and over the same vertical zone (~3 – 4 m) as the vibracores. The size and capacity of the cones will be agreed upon prior to mobilization to produce the best results given the site conditions along the OECCs. A minimum penetration of 3 m is required. Like the vibracore sampling program, if a 3 m penetration is not achieved in the first attempt, a second (and possibly a third) re-test will be performed.

The tests will be carried out in accordance with ISO 22476-1:2012 Geotechnical investigation and testing – Field testing – Part 1: Electrical cone and piezocone penetration test. Zero readings of all sensors shall be recorded before and after each test. The drift readings shall be calculated, and the class of each data reading calculated in accordance with ISO 22476-1:2012. Only class 2 or higher will be assessed as in-class and accepted. Class 3 or lower will be considered out of class. Continuous deck-to-deck readings will be taken and recorded for all tests and filter stones shall be fully saturated before each test. The test will be stopped if the capacity of the cone is reached, an inclination of 10 degrees is reached or a sudden jump in inclination or tip resistance is observed.

C. Deep Geotechnical

A deep geotechnical campaign may be undertaken initially using a large floating drillship that will most likely hold position using a dynamic positioning system – although there is a possibility that anchors may also be used. A heave compensated drill frame will be used that shall have the option to either undertake downhole CPTs or undertake wireline core drilling. Some basic sample testing will be undertaken on board the vessel, however more extensive and advanced testing will be undertaken at onshore laboratories. P-S logging is planned at all boring locations after continuous sampling has been performed. Continuous CPTs may be acquired using a similar vessel with a seabed mounted CPT rig.

The deep geotechnical campaign will consist of multiple continuous sampling boreholes (up to 100 m depth below the seafloor) with P-S logging and multiple downhole near-continuous CPTs (up to 100 m depth). Downhole near-continuous CPT boreholes will require that the maximum data gap allowed between a push/test that met refusal and a subsequent CPT push/test be less than 0.2 m up to 40 m below the seafloor and 0.5 m at depths greater than 40 m. For soil sampling, several methods are being considered. These methods in order of preference are:

- Piston thin wall sampler
- Push thin wall sampler

- Push thick wall
- Hammer sampler
- Rotary coring

Soil borings, sampling, and handling will be carried out in such a way that there is minimum disturbance to the soil to be sampled or tested. The minimum sample diameter acceptable is 70 mm and the maximum vertical data gap between samples will be 0.2 – 0.5 m depending upon the depth below the seafloor. Only seawater can be used as a drilling fluid unless alternatives are approved. The storage and transport of soil and rock samples must be in accordance with ASTM D 4220-95(2000) and ASTM D 5079–02.

Continuous seabed CPT data will be performed in Lease 544 with the same requirements as the shallow geotechnical CPTs except that the minimum penetration accepted is 10 m. The seabed CPT program will consist of multiple tests up to 40 m below the seafloor.

D. Benthic Sampling and Mapping

Grab samples are collected for benthic analysis and provide ground-truthing of the SSS imagery and other geophysical data needed to perform surficial sediment mapping. The samples will be strategically located to provide material and data to support as many analyses and project tasks as possible. The grab sampler will have an underwater camera attached to the frame or downline to record images of the seafloor at the sample locations. Once on deck, the grab sample will be photographed and three subsamples will be retained (one for grain size analysis and two for benthic analysis). Replicates will be obtained to meet NMFS guidelines when appropriate.

An underwater video system will also be used to aid benthic habitat mapping. The video survey speed will be maintained at less than 1 knot to assure the acquired video footage can be used for organism identification on the seafloor. In water depths greater than 9 m, a USBL will be used to position the video sled. Synchronized time on the video camera and navigation systems will allow time tags to be generated post-survey along the USBL tracklines that will show the camera position correlated directly to the time display on the video recording. The imagery will be used to ground-truth surficial sediment types, delineate benthic habitat areas, and identify benthic communities on the seafloor.

Sampling methodology outlined in the NMFS guidelines (March 2021) will generally be followed, with fewer samples considered over large areas of homogenous seabed and habitat conditions. CMECS will be adhered to for defining sediments from the grabs and estimating visual seabed types from the video analysis.

E. Survey Vessels

Multiple vessels may be performing survey duties simultaneously in different sections of the OECCs and within Lease 544. Simultaneous operations (SIMOPS) between vessels will be coordinated to ensure that any separation distances required to avoid overlapping sound signatures are maintained. The maximum quantity of vessels planned at this time is four: two geophysical, one geotechnical, and one environmental. No more than three vessels will work simultaneously in different portions of the project areas.

Furthermore, to increase survey efficiency and production while reducing project costs, and effectively meet the timing required of the geophysical and geotechnical efforts, the vessels, survey equipment, and scientific crews will be mobilized to the site to conduct work for multiple tasks simultaneously. This will be a highly coordinated effort for program logistics with the intention of minimizing the survey time onsite.

More details on survey resources (quantity of vessels, equipment specification sheets, companies involved) will be provided to BOEM toward the end of the procurement when contractor(s) are selected.

VII. Survey Timeline

Field investigations are expected to begin in the summer of 2022 with the duration of the work ultimately dependent on the final scope of the investigations performed. The survey tasks will likely be completed by up to four vessels (nearshore and offshore), subject to any restrictions imposed by the final Incidental Harassment Authorization (IHA) from NMFS. Survey operational scenarios of 12- and 24-hour days are being considered. Depending on contractor and vessel availability, the field operations may not be performed sequentially. Expected activities by year are presented in Table 2.

The detailed survey timeline for the 2022 mobilization is outlined in Table 11.

Table 11 Proposed 2022 Survey Schedule and Pre-survey Requirements

Work	Approx. Date
Survey Plan submittal to BOEM	May 4, 2022
BOEM pre-survey meeting	TBD (at BOEM's request)
Tribal pre-survey meeting invitations sent out via certified mail	June 10, 2022
Tribal pre-survey meetings	June 27 – July 1, 2022
Estimated submittal of PSO resumes to BOEM for NMFS approval	July 26, 2022
Survey Start Date	August 2, 2022
2022 Survey End Date *	December 31, 2022

Notes:
*The above survey dates are estimates and may change subsequent to receipt of updated information from BOEM and the availability of survey resources. Due to the possibility of poor weather in the fall, unforeseeable project variations, and commercial constraints, the planned 2022 field program may extend into 2023.

VIII. Protected Species Impact Mitigation Plan

In accordance with Lease 544 stipulation 5.2.1, Vineyard Mid-Atlantic will comply with the standards in the Project Design Criteria (PDCs) and Best Management Practices (BMPS) dated November 22, 2021, as well as an Incidental Harassment Authorization (IHA) which requires that PDCs 4, 5, and 7 be followed. The draft IHA is available at https://www.fisheries.noaa.gov/action/incidental-take-authorization-vineyard-northeast-llc-marine-site-characterization-surveys.

Based on coordination with BOEM and NMFS, the specific PDCs that will be followed are:

PDC 3 Marine Trash and Debris Awareness and Prevention
PDC 4 Minimize Interactions with Listed Species during Geophysical Survey Operations
PDC 5 Minimize Vessel Interactions with Listed Species
PDC 7 Protected Species Observers
PDC 8 Reporting

Based on its extensive experience on Vineyard Wind 1, Vineyard Mid-Atlantic has well-established protocols and training modules (slide presentations and videos) to ensure that the PDCs are followed. All vessel crews must attend Vineyard Mid-Atlantic's Offshore Environmental Training Program before deployment. The program covers archeological resources, avian and bat protection, marine debris prevention, discharges and spills, marine mammal exposure mitigation, vessel strike avoidance measures, and basic species identification.

Because survey activities may occur at night or during low-visibility conditions, Vineyard Mid-Atlantic has incorporated an Alternative Monitoring Plan (AMP) as required by BMP 7 under PDC 4. Mitigation measures, including the AMP, specific to listed species are presented in Table 12 - Monitoring and Mitigation Measures Implementing PDCs.

Table 12 Monitoring and Mitigation Measures Implementing PDCs

Monitoring and mitigation measure	Description
Seasonal Restrictions	▪ The monitoring team will consult NOAA Fisheries North Atlantic right whale (NARW) reporting systems for any observed NARWs, and established SMAs, DMAs or Slow Zones throughout survey operations.
Clearance Zone	▪ Clearance zones (CZs) will be monitored around the center of the acoustic sources (CHIRP SBPs, boomers and sparkers) for marine mammals. ▪ CZs will be monitored for all listed species for 30 minutes to ensure that no marine mammals are present before any CHIRP SBPs, boomer or sparker sources are initiated. ▪ The following CZs will be implemented during operations of CHIRP SBPs, boomer or sparker sources: o 500 m (656 ft) for all listed species ▪ The CZ must be visible to the naked eye or using appropriate visual technology during the entire clearance period before commencing operations of CHIRP SBPs, boomers and sparkers. ▪ If any marine mammal is observed within the CZ during the 30-minute clearance period, ramp-up will not begin until the animal(s) is/are observed exiting the CZ, or until an additional time period has elapsed with no further sightings (i.e., 30 minutes).
Ramp-up for HRG sources	▪ Ramp-up will not be initiated during periods of inclement conditions or if the CZ cannot be adequately monitored by PSOs using appropriate visual technology for a 30-minute period. ▪ A ramp-up begins with the powering up of the smallest acoustic HRG equipment at its lowest power output. When technically feasible the power is then gradually turned up and other acoustic sources added such that the source level increases gradually. ▪ PSOs will stand-watch for a minimum of 30 minutes to ensure the CZs are clear of marine mammals prior to commencement of ramp-up procedures. If a marine mammal is observed, ramp-up may not begin until the marine mammal has exited the CZ or until additional time periods have elapsed with no further sightings:
Shutdown zone	▪ Shutdown zones (SZs) will be monitored around the center of the sources for marine mammals. ▪ The following SZs will be implemented during all HRG survey activities: - 500 m (656 ft) for NARW; - 100 m (328 ft) for all other listed species
Shutdowns	▪ An immediate shut down of HRG survey equipment specified in the IHA permit will be required if a marine mammal is detected at or within its respective SZ. ▪ The vessel operator must comply immediately with any call for shutdown by the PSO. ▪ Any disagreement between the PSO and vessel operator should be discussed only after shutdown has occurred. ▪ If a species approaches or enters the Level B harassment zone, shutdowns will occur if a marine mammal authorization has not been granted, or, an authorized species' takes have already been met. ▪ If HRG survey equipment is shutdown longer than 30 minutes while PSOs have been monitoring, clearance followed by ramp-up activities will commence. ▪ If another marine mammal enters a SZ during the shutdown period, the HRG equipment may not restart until that animal is confirmed outside the respective exclusion or until the appropriate time has passed from the last sighting of the marine mammal.

Monitoring and mitigation measure	Description
	▪ After shutdown, ramp-up can be initiated once the SZ are visually clear for the respective clearance timing.
Pauses in HRG sources	▪ If the acoustic source is shut down for reasons other than mitigation (e.g., mechanical difficulty) for less than 30 minutes, it may be re-activated again without ramp-up only if PSOs have maintained constant observation and no detections of any marine mammal have occurred within the respective SZ. ▪ Any shutdown exceeding 30 minutes must be followed by full ramp-up procedures.
Protected Species Observers (PSOs) and AMP	▪ Visual monitoring within the established SZ will be performed by NMFS- approved PSOs. ▪ With prior approval from NMFS, Non-third-party observers may be used on a case-by-case basis (such as when vessel capacity is limited in shallow waters) for limited, specific duties in support of approved, independent PSOs. ▪ One PSO per shift will maintain watch during daylight hours when the sources are active. ▪ PSOs will be responsible for visually monitoring and identifying marine mammals approaching or entering the established zones during HRG survey activities. - It will be the responsibility of the lead PSO on duty to communicate the presence of marine mammals as well as to communicate and enforce the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate. - PSOs will be equipped with reticule binoculars and other suitable equipment observer to adequately perceive and monitor protected marine species and to estimate distances to marine mammals within the SZ. ▪ PSOs may not perform any other duty while on watch. ▪ PSO will coordinate to ensure 360-degree visual coverage around the vessel from an appropriate vantage point without interfering with navigation or operation of the vessel. ▪ A shift schedule for PSOs that may not exceed four consecutive watch hours; must have a minimum two-hour break between watches; and may not exceed combined watch schedule of more than 12 hours in a 24-hour period. ▪ PSOs will record all sightings and positions of marine mammals. Position data will be recorded using a hand-held or vessel GPS system ▪ Prior to initiation of survey work, all crew members will undergo environmental training, a component of which will focus on the procedures for sighting and protection of marine mammals. Alternative Monitoring Plan for Nighttime and Low-Visibility Conditions: In addition to the standard PSO practices identified above, the following measures will be implemented during nighttime and low-visibility conditions: ▪ During HRG survey activities with CHIRP SBPs, boomers, or sparkers operating at <180 kHz, two PSOs will be on duty per source vessel. ▪ Each PSO will be equipped with NVGs, Clip on Thermal Imagers (COTI) and/or handheld infrared light emitting diode spotlights, which are proven technologies for monitoring and ensuring shutdown zones can be maintained during nighttime and low-visibility conditions. PSOs will monitor the exclusion zone and the 500-meter minimum vessel separation distance from the NARW using the night vision technology. ▪ PSOs will monitor the exclusion zone from a platform with no visual barriers. ▪ Monitoring equipment will be calibrated, when possible, throughout the duration of survey and true distances measured using the ships radar will be compared to those measured using visual monitoring equipment.

Monitoring and mitigation measure	Description
Vessel strike avoidance	▪ All vessel operators and crews will maintain a vigilant watch for marine mammals at all times, and slow down or stop their vessel to avoid striking protected species, except under extraordinary circumstances when complying with this requirement would jeopardize the safety of the vessel or crew. ▪ Monitoring for vessel strike avoidance zone may be performed by PSOs or crew members, however, any crew members responsible for monitoring will be trained to broadly identify protected species and marine mammals, such as the NARW or other whale species. ▪ The likelihood of encountering ESA-listed species is very low in the shallow water areas where non-third-party trained PSOs (vessel crew) would also serve as vessel strike avoidance observers. ▪ All vessel operators will reduce vessel speed to 10 knots (5.1 m/s) or less when mother/calf pairs, pods, or larger assemblages of marine mammals are observed near an underway vessel. ▪ All vessel operators will comply with 10 knots (5.1 m/s) speed restrictions in any DMA. ▪ NMFS NARW reporting systems will be monitored from November 1st through July 31th and whenever a DMA is established within any areas vessels operate. ▪ When marine mammals are sighted while a vessel is underway, the vessel shall take action to avoid violating the relevant separation distance (e.g., attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained. North Atlantic right whales and ESA-listed marine mammals: ▪ All vessels will maintain a separation distance of 500 m (1,640 ft) or greater from any sighted NARW and other ESA-listed marine mammals. ▪ The following avoidance measures will be are taken if a vessel comes within 500 m (1,640 ft) of any NARW. - If underway, any vessel will steer a course away from any NARW at 10 knots (5.1 m/s) or less until the 500 m (1,640 ft) minimum separation distance has been established, unless: - If a NARW is sighted within 100 m (328 ft) to an underway vessel, the vessel operator must immediately reduce speed and promptly shift the engine to neutral. The vessel operator must not engage the engines until the NARW has moved beyond 100 m (328 ft), at which point the vessel will steer a course away from any NARW at 10 knots (5.1 m/s) or less until the 500 m (1,640 ft) minimum separation distance has been established. - If a vessel is stationary, the vessel will not engage engines until the NARW has moved beyond 100 m (328 ft), at which point the vessel will steer a course away from any NARW at 10 knots (5.1 m/s) or less until the 500 m (1,640 ft) minimum separation distance has been established. ▪ If a whale is observed that cannot be confirmed to species, the vessel operator must assume that it is an ESA-listed species and take appropriate action. ▪ The requirements listed in this section do not apply if compliance would create imminent and serious threat to a person or vessel.
Reporting	▪ Sightings of injured or dead marine mammals will be reported to NMFS, including the NMFS Northeast Region's Stranding Hotline (866-755-6622 or current), within 24 hours of sighting, regardless of whether the injury/death was caused by the vessel. As requested by NMFS, if the survey vessel was responsible for the injury or death, Vineyard Mid-Atlantic will ensure that the vessel assists with any salvage effort.

Every attempt is made to utilize the most experienced personnel to meet the appropriate compliance for all the surveys. For all Protected Species Observers that will participate in the site characterization campaign, their resumes and company information will be submitted to BOEM at least seven days before the start of the field program.

IX. Archaeology Review and QMA Participation

In accordance with Lease 544 stipulations 2.2 and 5.3, the QMA and any additional Subject Matter Experts identified by BOEM will be present at the BOEM pre-survey meeting, if held, and will attend all pre-survey tribal meetings. The QMA will assume all applicable duties as required for Lease 544 as well as Guidelines for Providing Archaeological and Historic Property Information (May 2021). The QMA will interface with appropriate state historical agencies within the 3-nautical mile limit to ensure their guidelines and requirements are met by the OECC survey.

Prior to geotechnical operations, the QMA will review and assess the geophysical data acquired in the vicinity of each proposed borehole/vibracore and/or CPT location (per Lease 544 stipulation 5.3.4). Unless otherwise allowed by BOEM, potential archeological resources will be avoided by a minimum of 50 m from their maximum discernable extent. Preliminary data processing and results will be generated in the field to support this near real-time review, and will consist of the following products for each proposed geotechnical sample site, a minimum 120 x 120 m square box centered on the location:

- survey vessel/sensor tracklines
- bathymetric color shaded relief/topographic rendering
- SSS mosaic imagery
- magnetic intensity contours/colorized residual gradient
- SSS targets and magnetic anomalies picked, listed, and mapped
- interpreted subbottom profiles along all primary lines
- Excel spreadsheet tracking data, results, and clearance

In accordance with Lease 544 stipulation 5.3.5, Vineyard Mid-Atlantic will afford the QMA the opportunity to be present during HRG surveys and bottom disturbing activities. If the QMA elects to monitor the activities, s/he will be given the opportunity to inspect the data quality.

The QMA will document the archaeological review in writing prior to conducting geotechnical work. Archaeological documentation of geophysical clearance of geotechnical locations will be included in the Marine Archaeological Resource Assessment (MARA) report with the COP. The QMA will certify in the MARA that geotechnical exploration activities did not impact potential historic properties. In the unlikely event that geotechnical exploration activities do impact potential historic properties without BOEM's approval, Vineyard Mid-Atlantic and the QMA will provide a statement documenting the extent of the impacts.

In the event of an unanticipated discovery of a potential archeological resource, Vineyard Mid-Atlantic will adhere to the requirements of Lease 544 stipulation 5.3.7. These include:

- Immediately halting seafloor/bottom disturbing activities
- Notifying BOEM within 24 hours of the discovery;
- Notifying BOEM in writing via report within 72 hours of the discover;
- Maintaining the confidentiality of the discovery;
- Not taking any action that may adversely impact the archeological resource until BOEM has evaluated it and instructed Vineyard Mid-Atlantic on how to proceed; and
- If Vineyard Mid-Atlantic impacts the site, conducting additional investigations as directed by BOEM to determine if the site is eligible for listing on the National Register of Historic Places and implementing any additional mitigation measures proposed by BOEM.

X. Native American Tribes Communication Plan

In accordance with Vineyard Mid-Atlantic's Native American Tribes Communication Plan (Lease 544 stipulation 3.1.2.2), a discussion draft of which is included in Appendix C, open communication and consultation between Vineyard Mid-Atlantic and the Tribes (Absentee-Shawnee Tribe of Indians of Oklahoma, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Mashantucket Pequot Tribal Nation, Mashpee Wampanoag Tribe, Mohegan Tribe of Connecticut, Shawnee Tribe, Stockbridge-Munsee Community Band of Mohican Indians, The Delaware Nation, The Narragansett Indian Tribe, The Shinnecock Indian Nation, and The Wampanoag Tribe of Gay Head [Aquinnah]; herein known as "the Tribes") is a vital and required component to the pre-survey permitting process due to potential historical and pre-contact concerns regarding the proposed offshore activities. Table 13 lists the primary contacts for each federally recognized Tribe in the vicinity of the project survey areas.

Table 13 Tribal Historic Preservation Officer (THPO) Contact Information

Tribe	THPO	Address	Email	Phone
Absentee-Shawnee Tribe of Indians of Oklahoma	Ms. Devon Frazier, Tribal Historic Preservation Officer	Office of the Governor Building 2025 S Gordon Cooper Dr. Shawnee, OK 74801	dfrazier@astribe.com	405-275-4030 ext.6243 405-432-9078
Delaware Tribe of Indians	Susan Bachor	PO Box 64, Pocono Lake, PA 18347	sbachor@delawaretribe.org	610-761-7452
Eastern Shawnee Tribe of Oklahoma	Paul Barton	70500 E, 128 Wyandotte, OK 74370	pbarton@estoo.net	918-238-5151 ext.1833
Mashantucket Pequot Tribal Nation	Michael Kickingbear Johnson	2 Matts Path/ POB 3060 Mashantucket, CT 06338-3202	mejohnson@mptn-nsn.gov	860-396-7575
Mashpee Wampanoag	David Weeden	483 Great Neck Road South, Mashpee, MA 02649	dweeden@mwtribe.com	508-477-0208 ext.102

Tribe	THPO	Address	Email	Phone
Mohegan Tribe of Indians of Connecticut	James Quinn	13 Crow Hill Road Uncasville, CT 06382	jquinn@monheganmail.com	860 -862-6893
Shawnee Tribe	Tonya Tipton	29 South Highway 69A Miami, OK 74355	Tonya@shawnee-tribe.com	
Stockbridge-Munsee Community Band of Mohican Indians	Nathan Allison	65 1st St. Troy, NY 12180	nathan.allison@mohican-nsn.gov	
The Delaware Nation	Erin Paden	PHYSICAL ADDRESS: Delaware Nation 31064 US Highway 281 Building 100 Anadarko, OK 73005 MAILING ADDRESS: Delaware Nation P.O. Box 825 Anadarko, OK 73005	epaden@delawarenation-nsn.go	405-247-2448 ext.1403
Narragansett Indian Tribe	John Brown	4425 S. Country Trail, Charleston, RI 02813	Brwnjbb123@aol.com	401-491-9459
Shinnecock Indian Nation	Deputy THPO Jeremy Dennis	POB 5006 Southampton, NY 11969	jeremynative@gmail.com	631-283-6143
Wampanoag Tribe of Gay Head (Aquinnah)	Bettina Washington	20 Black Brook Road, Aquinnah, MA 02535	Bettina@wampanoagtribe.net	508-645-9265 ext.175

In accordance with Lease 544 stipulation 5.3.3., at least 30 calendar days prior to commencing any survey activities, pre-survey meetings with the above-listed tribes will be held. The purpose of the meetings is for the Lessee and QMA to discuss this Plan and to consider requests by tribal members to monitor portions of the survey activities. Invitations by certified mail (formal request) will be sent to the Tribes at least 15 calendar days prior to the proposed meeting dates. Meetings will be held virtually or at a location and time that affords the participants a reasonable opportunity to participate. The anticipated dates for the invitation mailing and pre-survey meeting are identified in Table 11.

Vineyard Mid-Atlantic will communicate directly with designated Tribal Historic Preservation Officers (THPO). Hard copies of invitation letters will be mailed per the lease and emails will be delivered to the THPOs as well. The QMA will be present at all tribal meetings. Minutes of each meeting held will be recorded. Vineyard Mid-Atlantic will provide BOEM with documentation of compliance with Lease 544 stipulation 5.3.3 prior to commencing surveys.

XI. Fisheries Communication Plan

In accordance with Lease 544 stipulation 3.1.2.1, Vineyard Mid-Atlantic has developed a robust Fisheries Communication Plan (FCP) based on its extensive experience through the Vineyard Wind 1 project conducting outreach to numerous fishery organizations and fishermen to identify potentially affected fisheries and lay out communication methods and tools. Crista Bank, Fisheries Liaison, is a fisheries biologist with a master's degree in fisheries oceanography. A discussion draft of the FCP is attached as Appendix D, which will be updated and refined based on feedback from fishermen and the Tribes.

Vineyard Mid-Atlantic will reach out to fishing organizations and fishermen before surveys commence. Updates on survey activities will be provided via email, text alerts, direct communication, advertising, and list-serve notification. Day-to-day fisheries information will be communicated via the onboard fisheries liaisons (OFLs) who in turn update the project team (email, calls), as well as directly interact with fishermen working in the vicinity of the survey vessels (very high-frequency [VHF] radio, emails). The FCP will be made available to all stakeholders with a website link distributed to area fishermen. "Offshore Wind Mariner Update Bulletins" that contain relevant information for the survey including OFL and Fisheries Representative contact details and survey vessel information will be distributed to fishermen. The company website will be updated as needed to help spread information to the fishermen regarding the survey schedules and progress.

Current key company personnel for contact regarding fisheries:

Fisheries Representative: Crista Bank Mobile: 508-525-0421 cbank@vineyardwind.com

XII. Pre-Survey Meeting

In accordance with Lease 544 stipulation 2.2, at BOEM's request, Vineyard Mid-Atlantic will hold a pre-survey meeting with BOEM to discuss this Plan prior to commencement of survey activities.

XIII. Reporting

Regarding the geotechnical clearance, preliminary data processing and results will be expedited to support near real-time review of geophysical data and coverage of proposed geotechnical sample stations (vibracores, borings, and CPTs). Plots of processed data and results will be delivered to the QMA for review and progress will be tracked as the field work and clearance is conducted. A final clearance tracking spreadsheet documenting the conditions at each geotechnical sampling location, and whether the site is clear of cultural resources, will be issued to Vineyard Mid-Atlantic and the survey contractor prior to any seafloor and subsurface disturbance activity. Final memos will be included with the MARA in the COP submission.

The full COP site characterization campaign data package will be analyzed, mapped, and reported to provide information on the seafloor structures, bathymetry, subsurface features, and any natural and man-made hazards that may affect the WTG foundation design, cable routing, design, or installation operations. A final site characterization report will be generated in accordance with BOEM guidelines and submitted as part of the COP. Similarly, a detailed SAP report will be submitted in support of any planned floating LiDAR buoy deployments in Lease 544.

In addition, pursuant to Lease 544 stipulation 3.1.3, progress in executing the survey activities will be included in the progress reports submitted in accordance with Lease 544 stipulation 3.1. Any modifications to the survey schedules will be included in the reports.

Separately, Vineyard Mid-Atlantic will comply with all reporting requirements in any applicable IHA.

Finally, in accordance with Lease 544 stipulation 5.4.4, Vineyard Mid-Atlantic will report any dead or injured birds or bats found during conduct of its activities under this plan. The first report will be submitted within 6 months of the start of the first survey, e.g., around January 2023, and thereafter submitted annually.

XIV. Communication

In compliance with Lease 544 stipulation 4.2.4, which states that the Lessee must inform the Lessor of persons/officers to be contacted in order to implement Lease 544 stipulations 4.2.2 and 4.2.3 requiring suspension of activities due to national security reasons, we provide the following contact information:

Rachel Pachter	**Jeff Gardner**
Chief Development Officer	Field Program Manager
Vineyard Mid-Atlantic LLC	Geo SubSea LLC
Mobile: 508-680-6455	Mobile: 860-682-7093
Email: rpachter@vineyardoffshore.com	Email: jeff@geosubseaconsulting.com

In accordance with Lease 544 stipulation 4.2.5, the contractor will contact U.S. Navy Fleet Forces, Command Headquarters in order to avoid or minimize the potential to conflict with any military operations being conducted in or near Lease 544. The contractor will submit all required information to the U.S. Navy, including but not limited to, the schedule of field activities and contact information in case of an emergency or short notice of U.S. Navy operations.

Open communication is maintained with the USCG and other personnel who are frequently out on coastal waterways so that these organizations are aware of Lease 544 activities. Vineyard Mid-Atlantic will coordinate with the USCG to prepare a Notice to Mariners for the offshore activities anticipated during the site characterization campaign. Survey contractors will assist with USCG coordination to provide vessel-specific information, employee contact information for key personnel, and communication protocols.

SIMOPS will be closely monitored by all vessels and masters, as well as program managers onshore, to maintain appropriate marine safety zones and coordinate activities in all project areas. All shore-based field management personnel and key vessel crew members and staff (Master, Party Chief, Client Rep) will be connected on multiple communications platforms for reporting survey progress, plans for the next 24 hours, and specific vessel movements and activities so the entire fleet is up to date. Direct communications via marine VHF radio will be used when vessels are working in the same area.

Appendix A

Geophysical, Geotechnical, and Environmental

Survey Equipment Specification Sheets

EdgeTech

4200 SERIES
SIDE SCAN SONAR SYSTEM

FEATURES
- Optional Multi-Pulse (MP) technology for high speed surveys
- Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Stainless steel towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

APPLICATIONS
- Cable & Pipeline Surveys
- Geological/Geophysical Surveys
- Mine Countermeasures (MCM)
- Geohazard Surveys
- Channel Clearance
- Search and Recovery
- Archeological Surveys

The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.

One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classification ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Definition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best configuration for the specific job type.

All EdgeTech 4200 systems are comprised of a topside system and a reliable stainless steel towfish. A choice of dual simultaneous frequency sets are available to the user and topside processors come in a choice of configurations from portable to rack mounted units. In addition, an easy-to-use GUI software is supplied with every unit.

EdgeTech

4200 SERIES

SIDE SCAN SONAR SYSTEM

KEY SPECIFICATIONS

SONAR SPECIFICATIONS	STANDARD	WITH OPTIONAL MP TECHNOLOGY
Frequency	Choice of either 100/400, 300/600 or 300/900 kHz dual simultaneous	
Operating Range (meters/side)	100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m	
Horizontal Beam Width:	100 kHz: 1.5°, 300 kHz: 0.5°, 400 kHz: 0.4°, 600 kHz: 0.26°, 900 kHz: 0.2°	In High Speed Mode: 100 kHz: 1.26°, 300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°, 900 kHz: 0.3° In High Definition Mode: 100 kHz: 0.64°, 300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°, 900 kHz: 0.2°
Resolution Along Track	100 kHz: 5 m @ 200 m 300 kHz: 1.3 m @ 150 m 400 kHz: 0.6 m @ 100 m 600 kHz: 0.45 m @ 100 m 900 kHz: 18 cm @ 50 m	High Definition Mode: 100 kHz: 2.5m @ 200m 300 kHz: 1.0m @ 200m 400 kHz: 0.5m @ 100m 600 kHz: 0.45m @ 100m 900 kHz: 18 cm @ 50m HIgh Speed Mode: 100 kHz: 4.4m @ 200m 300 kHz: 1.9m @ 200m 400 kHz: 0.7m @ 100m 600 kHz: 0.6m @ 100m 900 kHz: 26 cm @ 50m
Resolution Across Track	100 kHz: 8 cm, 300 kHz: 3 cm, 400 kHz: 2 cm, 600 kHz: 1.5 cm, 900 kHz: 1 cm	
Vertical Beam Width	50°	
Depression Angle	Tilted down 20°	

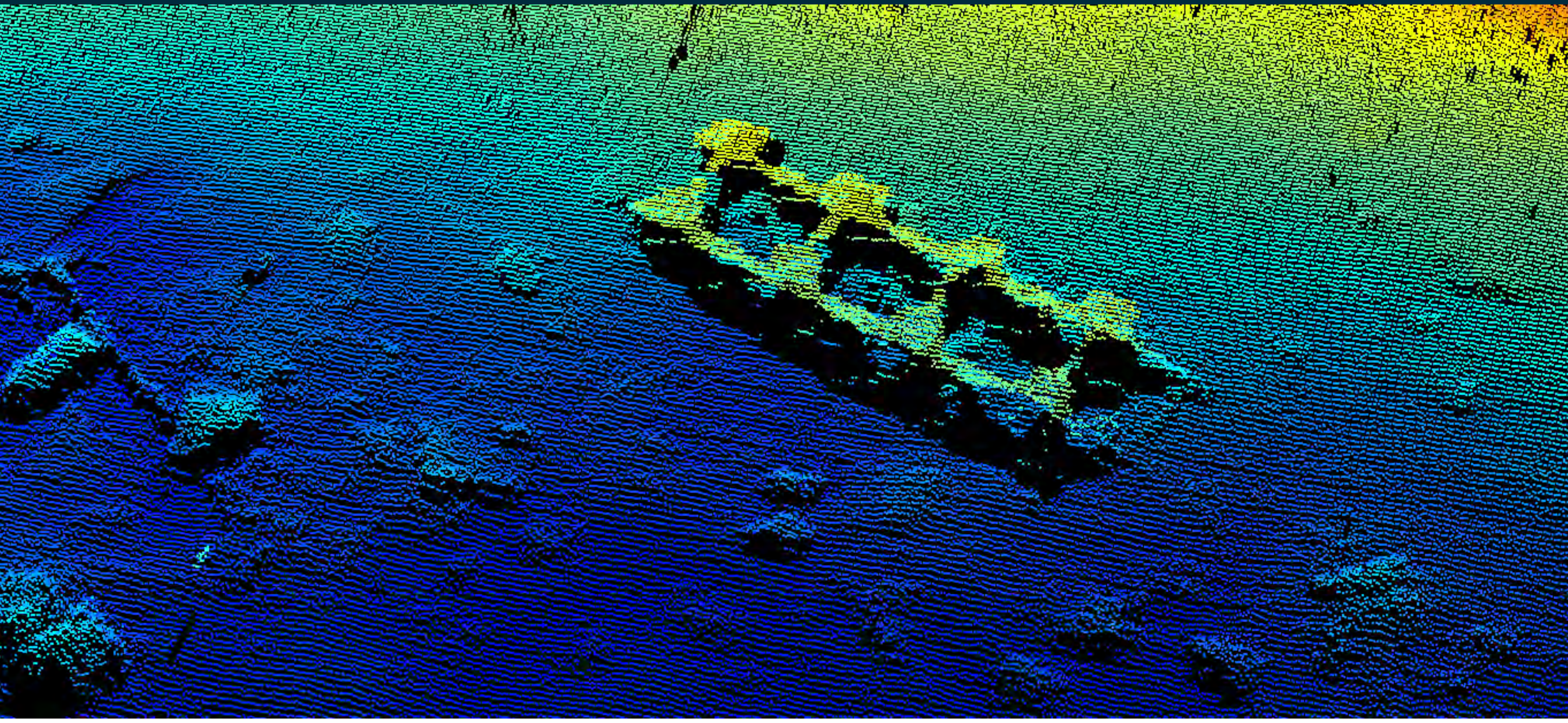
TOWFISH	STAINLESS STEEL
Diameter	11.4 cm (4.5 inches)
Length	125.6 cm (49.5 inches)
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)
Depth Rating (Max)	2,000m
Standard Sensors	Heading, pitch & roll
Optional Sensor Port	(1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors

TOPSIDE PROCESSOR	4200-P	4200	701-DL INTERFACE
Hardware	Portable splash-proof case	19" rack mount computer	19" rack mount interface
Display & Interface	Splash-proof laptop	21" flat panel monitor, keyboard & trackball	Customer-supplied
Power Input	20-36 VDC or 115/230 VAC	115/230 VAC	115/230 VAC
Operating System	Windows© XP Pro		
File Format	Native JSF or XTF		
Output	Ethernet		

TOW CABLE	
	Coaxial Kevlar or double-armored up to 6,000m, winches available

EM® 2040

KONGSBERG



MULTIBEAM ECHO SOUNDER

The EM2040 is a true wide band high resolution shallow water mutibeam echosounder, an ideal tool for any high resolution mapping and inspection application. It has a modular design, allowing the user to tailor the beamwidths and coverage to the operational requirements. The system fulfils and even surpasses the IHO-S44 special order and the more stringent LINZ specification.

Key facts
The EM 2040 receiver is 0.7 degrees, two transmitters are available: 0.4 and 0.7 degrees. The transmit fan is divided into three sectors pinging simultaneously at separate frequencies. This ensures a very strong and beneficial dampening of multibounce interference. The EM 2040 has dual swath capability, allowing a sufficient sounding density alongtrack at a reasonable vessel speed.

The operating bandwidth available on the EM 2040 is 200 to 400 kHz. Due to the very large operating bandwidth available, the system will have an output sample rate up to 60 kHz. The system can effectively operate with very short pulse lengths. The shortest pulse is 14 microseconds, which gives a raw range resolution (cт/2) of 10.5 mm. For maximum range and high resolution FM chirp is used.

The standard depth rating of the EM 2040 subsea parts is 6000 m. The system is ideal for operation on subsea vehicles such as ROVs or AUVs.

Components
The basic EM 2040 has four units, a transmit transducer, a receive transducer, a processing unit, and a workstation.

The EM 2040 is a modular system, fully prepared for upgrading to cater for more demanding applications. The transmit transducer has an angular coverage of 200º (±100º) as standard, allowing a coverage of 5.5 times water depth when matched with a single receive transducer. Adding a second receive transducer allows surveying to the water surface or up to 10 times water depth on flat bottoms. With two sets of transmit and receive transducers it is possible to avoid having a transducer at the keel. Also for pipeline inspections a dual TX and RX configuration gives the possibility to inspect the pipe from two different angles. The transducers are separate units with titanium housings.

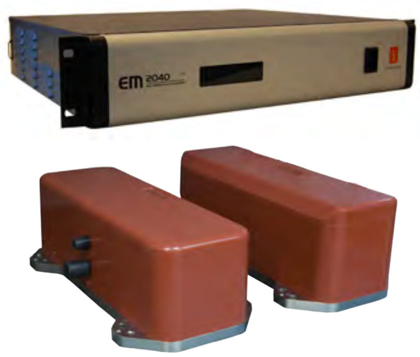
Operational modes
The EM 2040 has a frequency range of 200-400 kHz. The single transmitter configuration with either one or two receivers has three standard modes. 300 kHz is used for normal operation, giving an optimum balance between high resolution, depth capability and tolerance of detrimental factors such as water column sediments. 200 kHz is available for meeting requirements to operate at the standard hydrographic single beam frequency, but also to achieve the best depth capability. 400 kHz is provided for inspection work with the utmost resolution.

The specialised dual transmitter and receiver configuration has a mapping mode with two frequency coded sectors and user selectable frequency in steps of 10 kHz from 200 to 400 kHz.

FEATURES

- High resolution
- Wide frequency range
- FM chirp
- Roll, pitch and yaw stabilisation
- Nearfield focusing - both on transmit and receive
- Short pulse lengths, large bandwidth
- Water column display
- Seabed image
- Depth rated to 6000 m
- Easy to install

Options:
- Water column logging
- Extra detections
- Dual swath
- Dual RX
- Dual TX



TECHNICAL SPECIFICATIONS

Coverage example for EM 2040 with bottom type rock (BS = - 10 dB), NL = 45 dB, FM mode						
Operating mode	**Cold ocean**			**Cold fresh water**		
EM 2040-04:	**Max depth**	**Max coverage single RX**	**Max coverage dual RX**	**Max depth**	**Max coverage single RX**	**Max coverage dual RX**
200 kHz	635 m	920 m	980 m	1360 m	1990 m	2110 m
300 kHz	480 m	670 m	760 m	740 m	1100 m	1270 m
400 kHz	315 m	410 m	430 m	430 m	570 m	610 m
EM 2040-07:						
200 kHz	600 m	880 m	930 m	1300 m	1870 m	2000 m
300 kHz	465 m	640 m	725 m	700 m	1050 m	1200 m
400 kHz	300 m	385 m	410 m	375 m	540 m	570 m

Pulse lengths	**200 kHz mode**		**300 kHz mode**		**400 kHz mode**	
	CW	**FM**	**CW**	**FM**	**CW**	**FM**
Normal mode	38, 108 and 324 µs	3 and 12 ms	38, 108 and 324 µs	2 and 6 ms	27, 54 and 108 µs	N/A
Single sector mode	19, 38 and 81 µs	1.5 ms	19, 38 and 81 µs	1.5 ms	14, 27 and 54 µs	N/A
	200 - 400 kHz CW in 10 kHz step			**200 - 400 kHz FM in 10 kHz step**		
Dual TX model	14, 27, 54, 135, 324 and 918 µs			3 and 12 ms		

Max no. of soundings per ping	**Single swath**	**Dual swath**
Single RX	400	800
Dual RX	800	1600

Beamwidth				**Physical dimensions (excluding connectors and mounting arrange-ments)**	
	200 kHz	300 kHz	400 kHz	Dimensions	Weight
Tx EM 2040-04	0.7 deg	0.5 deg	0.4 deg	727 x 142 x 150 mm (LxWxH)	45 kg
Tx EM 2040-07	1.5 deg	1 deg	0.7 deg	407 x 142 x 150 mm (LxWxH)	23 kg
Rx	1.5 deg	1 deg	0.7 deg	407 x 142 x 136 mm (LxWxH)	22 kg
Processing Unit (2U 19” rack)*				482.5 x 424 x 88.6 mm (WxDxH)	10.5 kg

Laptop, HWS and monitor can be delivered on request.

332644 /M September 2017

Specifications subject to change without any further notice.

KONGSBERG MARITIME
Switchboard: +47 815 73 700
Global support 24/7: +47 33 03 24 07
E-mail sales: km.sales@km.kongsberg.com
E-mail support: km.support@kongsberg.com

km.kongsberg.com

KONGSBERG

SERVICE FLYER

FUGRO
BACK2BASE™

Back2Base™ is a set of technologies and processes which enable survey data to be reliably and economically transferred between work locations including survey vessels to the terrestrial reporting office, via an internet link such as satellite or mobile broadband and Wi-Fi.

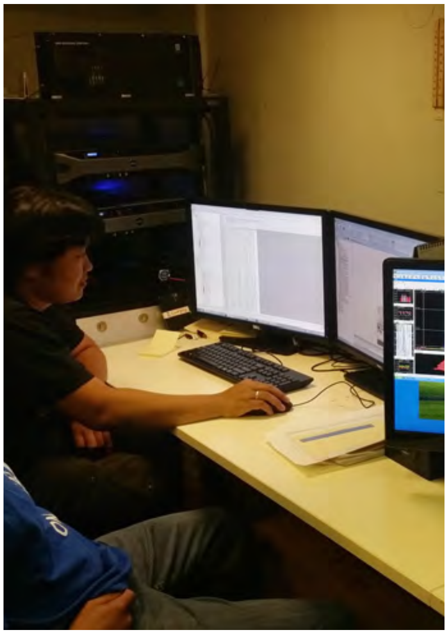
Getting information back from the field and onto the client's desk in a timely manner has always been one of the most challenging aspects of survey work. With internet and communication costs reducing as rapidly as bandwidth increases, Fugro have developed a service to deliver survey data to the client in a swift and cost-effective manner.

This data transmission technique enables close liaison with shore-based client personnel and Fugro experts in any location, not only in the field. Peer reviewed decisions can be taken in near real time that may modify the survey on the basis of observed conditions onsite or to investigate areas of particular interest. Experts can review data from multiple projects. Full processing and reporting can be started earlier resulting in faster information delivery.

THE PROCESS

The key to the Back2Base operation is in the packaging – data compression on its own is simply not enough …

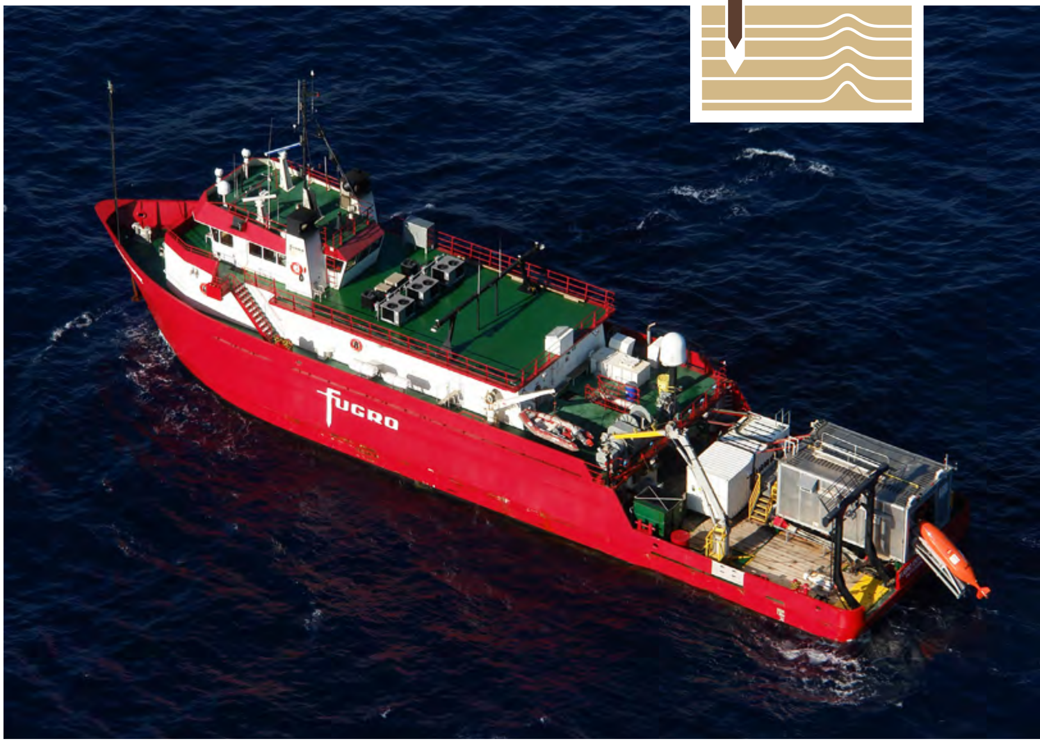
For example, a typical MBES survey will need to transfer the MBES, attitude and position data back to the office for processing



Survey data processed in the field.

SERVICE FLYER

- MBES @ 20Hz, 512 beams/ping
- Single beam echo sounding
- Attitude @100 Hz (pitch, roll, heave, heading)
- Position @1 Hz
- Raw RINEX on mobile + base for PPK processing
- Auxiliary files (SVP, tides, logs etc.)
- Side scan sonar .xtf files
- SEGY seismic files



Survey vessel.

PACKAGING EXAMPLES

The example below shows the reduction in file size typically obtained from the Back2Base procedure for MBES survey data:

Example Dataset	Size
Raw Data (5 mins MBES Calibration line)	680 MB
Packaging	49.4 MB
Compression	4.8 MB

TRANSFER PROCESS

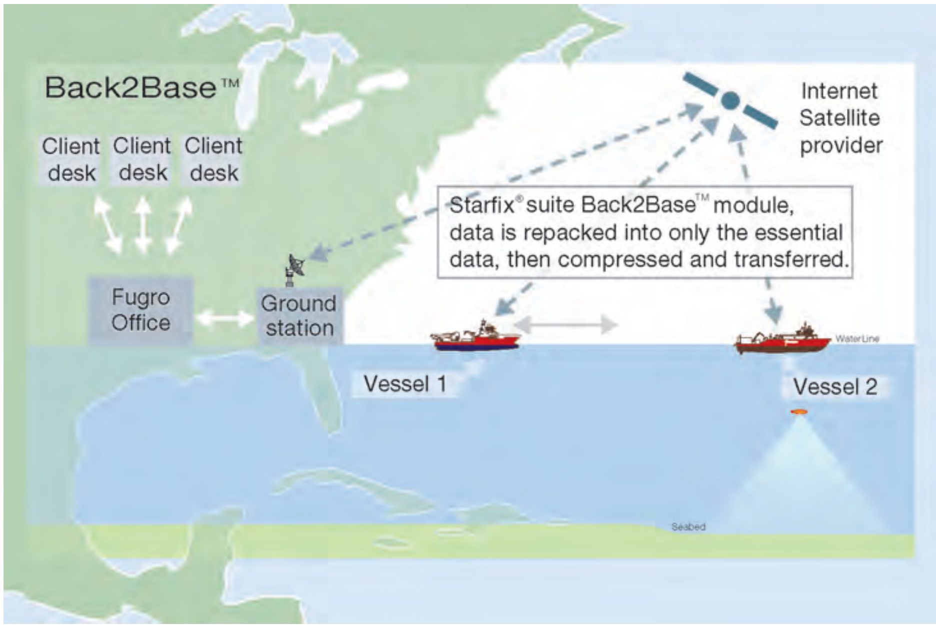
- The data to be sent is organised into a directory structure.
- Using the Starfix Suite Back2Base module, SBES/MBES, XTF and SEGY data is repackaged into only the essential data and then compressed.
- Transmission then takes place by the most efficient means – VSAT (C-band, Ku-band or Ka-band), 4G, 3G or Wi-Fi as available.
- Uploading of data does not compromise other internal or external tasks on the vessel network, such as email traffic; Back2Base transmission is prioritized to only use bandwidth when it is available.
- In the destination location, the data is decompressed and made available for processing using industry standard products.

SECURITY

Back2Base uses open SSL communications for data transfer. All data is protected using AES-128 encryption. The Back2Base security model uses session encryption, secure authentication and on-the-fly data encryption with integrity verification for each transmitted data block. Back2Base server access is through secure username and password. The Back2Base client can operate on a HTTPS certificate URL, essentially a secured web browser.

REAL WORLD EXAMPLES

Back2Base has been used for various survey types including special order nearshore surveys, AUV surveys, deep water pipeline route geophysical / geotechnical surveys, the search for MH370 and high-resolution site survey work.



SEAPATH® 380 SERIES

KONGSBERG

THE ULTIMATE HEADING, ATTITUDE AND POSITIONING SENSOR

The Seapath 380 series uses a state-of-the-art dual frequency GNSS receiver, inertial technology and processing algorithms to provide surveyors with the best possible accuracy in position, attitude and timing. All available GPS, GLONASS, Galileo, Beidou and QZSS satellites are used in the position solution.

Function
The advanced Seapath navigation algorithms integrate RTK GNSS data with the inertial sensor data from the MRU. This gives the Seapath 380 unique advantages compared to stand- alone RTK products. The Seapath product's accurate roll, pitch and heading measurements allow the RTK antenna position to be referenced to any point on the vessel where accurate position and velocity are required. All data from Seapath have the same time stamp and the output is in real-time. Subdecimetre position accuracy can be achieved through download of satellite orbit and clock data from the internet and by post processing of satellite and IMU data.

Product range
The Seapath 380 series is delivered in the following product range:

	Roll/Pitch [RMS]	Heading [RMS]	
		2.5m baseline	4m baseline
Seapath 380-3	0.08°	0.07°	0.05°
Seapath 380-H	0.03°	0.07°	0.04°
Seapath 380-5	0.02°	0.04°	0.03°
Seapath 380-5+	0.008°	0.04°	0.02°

Note: The MRU 3 model part of Seapath 380-3 has to be mounted in a fixed direction relative to the vessel and with the connector pointing up or down. Otherwise the performance of the Seapath 380-3 will be degraded.

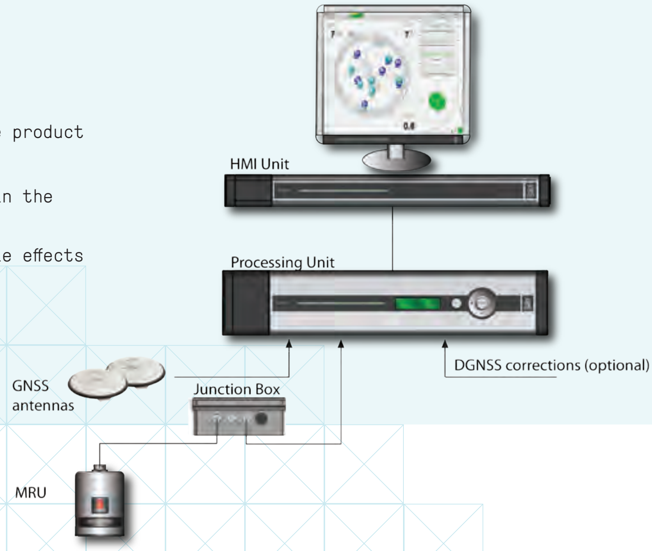
System configuration
This Seapath series is a two-module solution with a processing unit and a HMI unit connected via Ethernet. The processing unit run all critical computations independent from user interface on the HMI unit to ensure continuous and reliable operation. Multiple HMI units can be connected to the same processing unit in a networked architecture. The HMI units present the vessel motion in a clear and easy-to-understand format. The Seapath is operated through the operator software installed on one or several HMI units. This software is used for performance monitoring, configuration and troubleshooting of the system.

Interfaces
The processing unit has eight RS-232/422 serial lines, four Ethernet LANs and three analog output channels. This makes distribution of Seapath data to various users onboard almost endless. DGNSS corrections of various quality and sources are input on a configurable RS-232/422 serial line or Ethernet.

Applications
By using standard DGNSS, Fugro XP2/G2/G4/G4+ and RTK corrections, the Seapath 380 is a unique solution for hydrographic surveying and dredging work demanding the most comprehensive and accurate surveying data available.

FEATURES

- 0.008° to 0.08° roll and pitch accuracy depending on model
- 2 cm heave accuracy by use of the PFreeHeave® algorithms
- Meets IHO special order requirements
- Robust against GNSS dropouts due to the inertial sensor part of the product
- 555-channel dual frequency GPS/GLONASS/Galileo/Beidou receiver
- All available GPS/GLONASS/Galileo/Beidou/QZSS satellites are used in the positioning solution
- Includes ionospheric compensation methods to reduce Sunspot 24 cycle effects
- Fugro XP2/G2/G4/G4+ corrections and RTK supported
- RTK corrections format RTCM and CMR supported
- Includes SBAS corrections (WAAS, EGNOS, MSAS, GAGAN)
- All data have the same time stamp and to an accuracy of 0.001 s to the actual measurement time
- Logging of raw satellite and IMU data possible



TECHNICAL SPECIFICATIONS

SEAPATH 380 SERIES

PERFORMANCE

Heave accuracy (real-time)	5 cm or 5 % whichever is highest
Heave accuracy (delayed signal)	2 cm or 2 % whichever is highest
Heave periods (real-time), except Seapath 380-3	1 to 25 seconds
Heave periods (real-time), Seapath 380-3	0 to 18 seconds
Heave periods (delayed signal)	1 to 50 seconds
Position accuracy DGNSS/GLONASS	0.5 m RMS or 1 m 95% CEP
Position accuracy SBAS	0.5 m RMS or 1 m 95% CEP
Position accuracy Fugro XP2/G2/G4/G4+	0.1 m RMS or 0.2 m 95% CEP
Position accuracy RTK (X and Y)	1 cm + 1 ppm RMS
Position accuracy RTK (Z)	2 cm + 1 ppm RMS
Velocity accuracy	0.03 m/s (RMS)
Range to RTK reference station	10 km
UHF radio frequencies (radio not included in standard package)	430 to 470 MHz 390 to 430 MHz (optional)

DATA OUTPUTS

Communication ports	8 serial RS-232/RS-422 lines and 16 Ethernet UPD/IP ports
Data output interval	Programmable in 0.005-se steps and 1PPS pulse
Data update rate	Up to 200 Hz
Analog output	3 user configurable channels, +/- 10 Volt
1PPS signal accuracy	220 nsec

POWER SPECIFICATIONS

Processing Unit	100 to 240 V AC, 75 W (max)
HMI Unit	100 to 240 V AC, 40 W (max)
Monitor	100 to 240 V AC, 23 W (max)
IMU	24 V DC from Processing Unit
GNSS antenna	5 V DC from Processing Unit

WEIGHTS AND DIMENSIONS

Processing Unit	5.4 kg, 89 x 485 x 357 mm
HMI Unit	3.8 kg, 44 x 485 x 330 mm
Monitor	3.8 kg, 383 x 380 x 170 mm
IMU	2.2 kg, 140 x Ø105 mm
GNSS ante nna	0.5 kg, 69 x 185 mm

ENVIRONMENTAL SPECIFICATIONS

Operational temperature range

Processing and HMI Unit	-15 to +55 °C
Monitor	+5 to +40 °C
IMU	-5 to +55 °C
GNSS antenna	-40 to +85 °C

Storage temperature range

Processing and HMI Unit	-20 to +70 °C
Monitor	-20 to +60 °C
IMU	-25 to +70 °C
GNSS antenna	-55 to +85 °C

Enclosure protection

Processing and HMI Unit	IP 21 (rear)
Monitor	IP 21 (rear)
IMU	IP 66
GNSS antenna	IP 66
Cables	IP 67
Connectors	IP 67

Mechanical

Vibration	IEC 60945/EN 60945

Electromagnetic compatibility

Compliance to EMCD, immunity/emission	IEC 60945/EN 60945

PRODUCT SAFETY

Compliance to LVD, standard used	IEC 60950-1/EN 60950-1

Specifications are valid without multipath, without shadowing of antennas and with vessel in motion.

Specifications subject to change without any further notice.

December 2018

KONGSBERG SEATEX
Switchboard: +47 73 54 55 00
Global support 24/7: +47 33 03 24 07
E-mail sales: km.seatex.sales@km.kongsberg.com
E-mail support: km.support.seatex@kongsberg.com
km.kongsberg.com/seatex

KONGSBERG

GEOMETRICS
Innovation • Experience • Results

G-882TVG CESIUM MAGNETOMETER & TRANSVERSE GRADIOMETER

- **Marine Search Applications for UXO, pipelines, lost objects with Multi-Sensor Array Capability**
- **High Sensitivity — 0.004 nT/sq-rt-Hz RMS with dual CM−221 Larmor Counters**
- **Very Low Heading Error — ±0.25nT over 360° equatorial and polar spins**
- **Versatility — CM-221 counter includes 8 channel 12 bit A to D converters for real time internal diagnostics, digital data stream concatenation, and short, long or telemetry over coax options**
- **Reliability and Ruggedness – Cesium magnetometers never need be returned to factory for calibration or tuning. Designed for tough environmental conditions and high "G" loads**
- **Gradiometer arrays offering simultaneous operation of up to 8 separate sensors using the designed-in multi-sensor data concatenation of the CM-221 internal counter**
- **Geometrics offers complete turnkey systems including tow cables, gradiometer wing, digital data acquisition systems with real time anomaly detection, GPS navigation and post acquisition data processing software and training.**

The Geometrics Model G-882TVG Transverse Gradiometer system mates the well- proven high-performance cesium sensor with dual high sensitivity and high speed CM-221 Larmor Counters. This advanced integrated magnetometer system provides unmatched versatility in performance, with a wide sensor separation for maximum target detection efficiency and survey cost effectiveness.

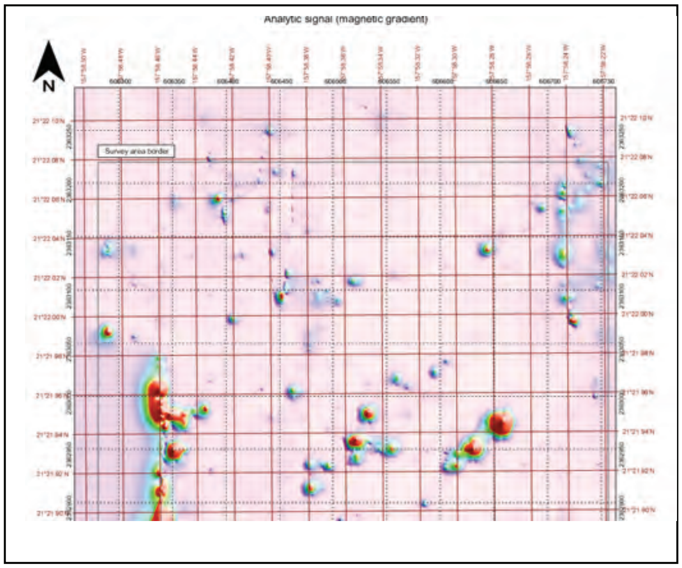
The system comprises a transverse wing and two G-882 Cesium Vapor magnetometer fish with stabilizer weights and fins. Tow cables may be up to 150m in length with standard power supply or up to 700m with a high capacity voltage sense supply. Depth sensors provide gradiometer attitude and depth information to the operator depth and an echo-sounder altimeter provides height above sea floor for proper system flight control.

Dual sensors are synchronized to 1ms sampling and data is transmitted via RS-232 for recording by any standard PC computer using our industry standard MagLogLite software. High sample and data transmission rates (up to 40 samples per second) are standard.

The G-882G provides sensitivities of 0.004 nT/√Hz RMS or approximately 0.01 nT P−P at 10 Hz, selectable via software command for detection of the smallest anomalies. MagLog software computes the transverse difference for display and analysis in real time, using the customer supplied GPS for interpolation and target positioning.

The system's high performance is excellent for the detection and delineation of cables, pipelines, environmental, archaeological or military UXO and EOD targets.

Software
Geometrics supplies MagMap2000 and MagPick with each system for analysis and interpretation of total field and gradient data. Analytical signal is computed from the transverse gradient, longitudinal time gradient and computed vertical gradient to give a time-variation free data set for contouring and plotting of anomaly targets. Simultaneous dual inversion routines in MagPick produce a located target worksheet with models including object latitude-longitude position and depth of burial. Download ftp://geom.geometrics.com/pub/mag/Software/Posters.zip for more information



MODEL G-882TVG MARINE CESIUM GRADIOMETER SPECIFICATIONS

OPERATING PRINCIPLE:	Self-oscillating split-beam cesium vapor (non-radioactive)
OPERATING RANGE:	20,000 to 100,000 nT
OPERATING ZONES:	The earth's field vector should be at an angle greater than 10° from the sensor's equator and greater than 10° from the sensor's long axis. Automatic hemisphere switching.
SENSITIVITY WITH CM-221 COUNTER:	<0.004 nT/sq-rt-Hz RMS. Typically 0.01 nT P-P at a 0.1 second (10 Hz) sample rate (90% of all readings falling within the P-P envelope)
SAMPLE RATE:	Up to 40Hz in 100ms increments
HEADING ERROR:	<0.25 nT over entire 360° equatorial and polar spins
ABSOLUTE ACCURACY:	<3 nT throughout range
OUTPUT:	Cycle of Larmor frequency = 3.498572 Hz/nT, RS-232 data at 115K baud, concatenated data streams from 2 to 8 sensors depending on sample rate
MECHANICAL:	Total weight including 70kg (155 lbs) including two fish, wing and tow cable. Sensor separation is 1. 5m for maximum gradient
CABLES:	Vectran Reinforced multi-conductor tow cable. Breaking strength 3,600 lbs, 0.48 in OD, 500 ft standard maximum. Up to 2100 ft with variable voltage supply. 200 ft (60m) weighs 17 lbs (7.7 kg).
OPERATING TEMPERATURE:	-30°F to +122°F (-35°C to +50°C)
STORAGE TEMPERATURE:	-48°F to +158°F (-45°C to +70°C)
ALTITUDE:	Up to 30,000 ft (9,000 m)
DEPTH RATING:	Depth rated to 4,000 psi (2,700m)
POWER:	115/220 VAC, 60 watts at turn-on and 40 watts thereafter
ACCESSORIES:	
Standard:	Power/RS-232 multiconductor cable (electronics to power/data junction box with 9 pin RS-232 connector and power lugs), lengths to be specified, operation manual and reusable shipping and storage containers
Optional:	
Logging Software	MagLog (Logs GPS and Mag, shows trackplot, mag profile, other data)
Processing software	MagMap2000, MagPick

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE **05/09**

GEOMETRICS
Innovation • Experience • Results

GEOMETRICS INC. 2190 Fortune Drive, San Jose, California 95131, USA
Tel: 408-954-0522 – Fax: 408-954-0902
Email: sales@geometrics.com

GEOMETRICS EUROPE
20 Eden Way, Pages Industrial Park, Leighton Buzzard LU7 4TZ, UK
Tel: 44-1525-383438 – Fax: 44-1525-382200
Email: chris@georentals.co.uk

GUICE OFFSHORE

170 CLASS DP-1 SUPPLY VESSEL
M/V GO DISCOVERY

HULL SPECIFICATIONS

Length:	170’
Beam:	36’
Depth:	12’
Draft Max:	10’ 2”
Clear Deck:	112’ x 30’

CAPACITIES

Deck Cargo:	400 LT
Potable Water:	13,460 usg
Fuel:	54,824 usg / 125,660 usg*
Ballast Water:	92,328 usg
Liquid Mud:	1,700 bbl
Methanol:	N/A

*Fuel capacity when utilizing Liquid Mud tanks

PROPULSION

Main Engines:	2 x Cummins K38M Tier 2
Total HP:	2,000HP
Reduction Gears:	Twin Disc
Generators:	2 X 300kW
Bow Thruster:	450 HP, Diesel Driven

SPECIAL EQUIPMENT

Fire Monitor:	6” Crane Deming, 2200GPM
Capable of Zero Discharge:	Yes

ACCOMMODATIONS

Certified to Carry:	32
Cabins / Berths:	8 / 32
Walk in Cooler:	Yes
Walk in Freezer:	Yes
Double Fridge	Yes
Double Freezer	Yes
Ice Maker	Yes
Washer / Dryer	Yes x 2
Galley Seating	32

ELECTRONICS

Radars:	2 x Furuno
Auto Pilot:	Beier Radio
GPS (Navigation):	Yes x 1
Echo Sounder:	Yes x 1
VHF Radios:	Yes x 2
Dynamic Positioning:	Beier Radio, DP-1
DP Reference System:	RADASCAN, 2 x DGPS,
Electronic Plotter:	Yes
Sat Communication:	Vsat / Direct TV

DOCUMENTATION

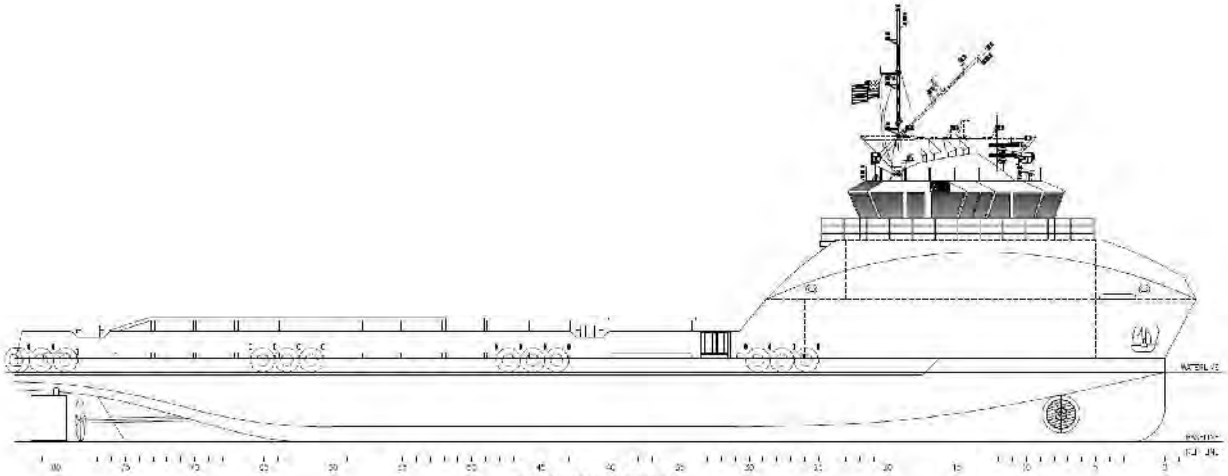
Flag:	USCG, ON 1250337
Class:	ABS Loadline Only, Sub “L”&"I"
Yard:	New Generation Builders
Build Date:	2014

GUICE OFFSHORE

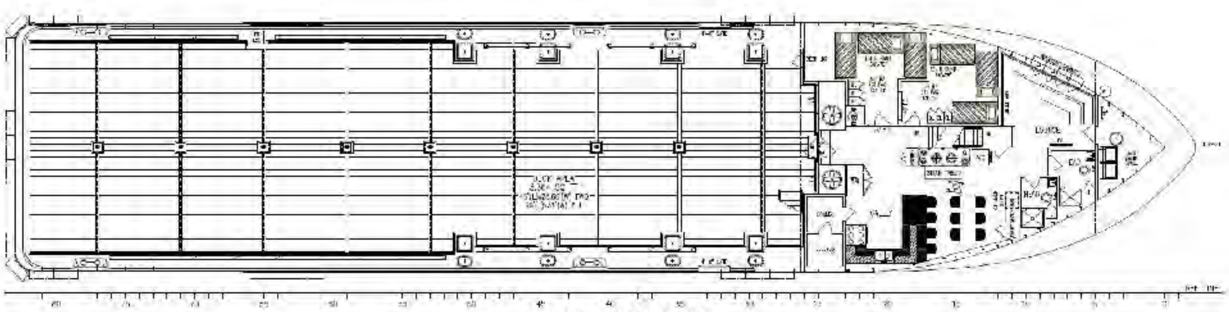
www.GuiceOffshore.com
Sales 985-273-2769 / Operations 337-889-0220

GO GUICE OFFSHORE

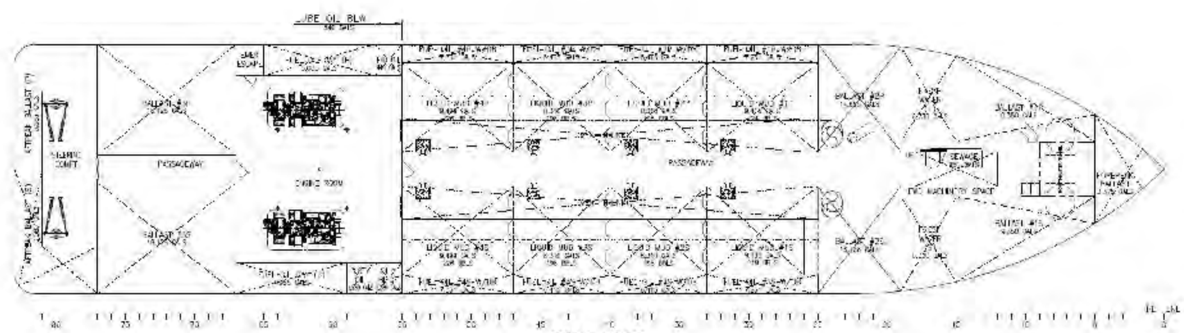
170 CLASS DP-1 SUPPLY VESSEL
M/V GO DISCOVERY



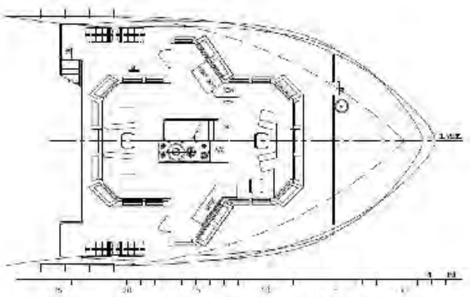
OUTBOARD PROFILE



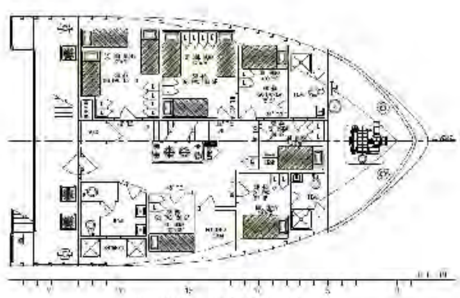
MAIN DECK ARRANGEMENT



HOLD PLAN



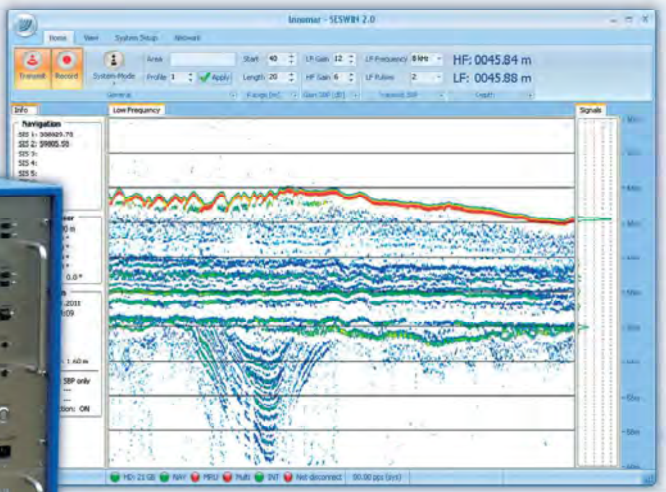
BRIDGE DECK ARRANGEMENT



01 DECK ARRANGEMENT

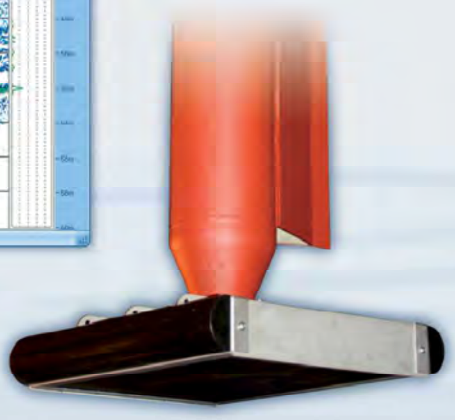
www.GuiceOffshore.com
Sales 985-273-2769 / Operations 337-889-0220

Top-side unit



Screenshot of the operating software

Transducer



Performance
- water depth range: 2 – 2,000 m
- penetration: up to 70 m, depending on sediments
- layer resolution: up to 5 cm
- motion compensation: heave, roll
- beam width @ 3 dB: ±1 ° / footprint < 3.5 % of water depth for all frequencies

System Components
- transceiver unit 19 inch / 12 U (WHD: 0.52 m x 0.58 m x 0.40 m; 56 kg)
- transducer incl. 30 m cable (WHD: 0.50 m x 0.12 m x 0.50 m; 60 kg)
- system control: internal PC
- KVM remote control

SES-2000 medium-100
Parametric Sub-bottom Profiler

Transmitter
- primary frequencies: approx. 100 kHz (band 85 – 115 kHz)
- secondary low frequencies: 4, 5, 6, 8, 10, 12, 15 kHz (band 2 – 22 kHz)
- primary source level: > 247 dB//µPa re 1 m
- pulse width: 0.07 – 2 ms
- pulse rate: up to 40/s
- multi-ping mode
- pulse type: CW, Ricker, LFM (chirp)

Software
- SESWIN data acquisition software
- SES Convert SEG-Y/XTF data export
- SES NetView remote display
- ISE post-processing software

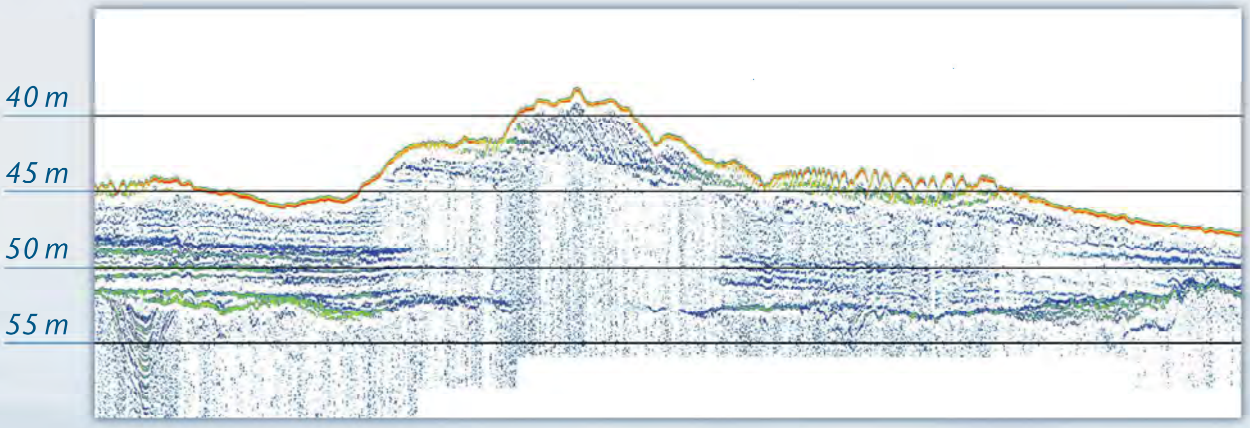
Acquisition
- primary frequency (echo sounder, bottom track)
- secondary low frequency (sub-bottom data, multi-frequency mode)
- sample rate 96 kHz @ 24 bit

Power Supply Requirements
- 100 – 240 V AC / 50 – 60 Hz
- power consumption: < 700 W

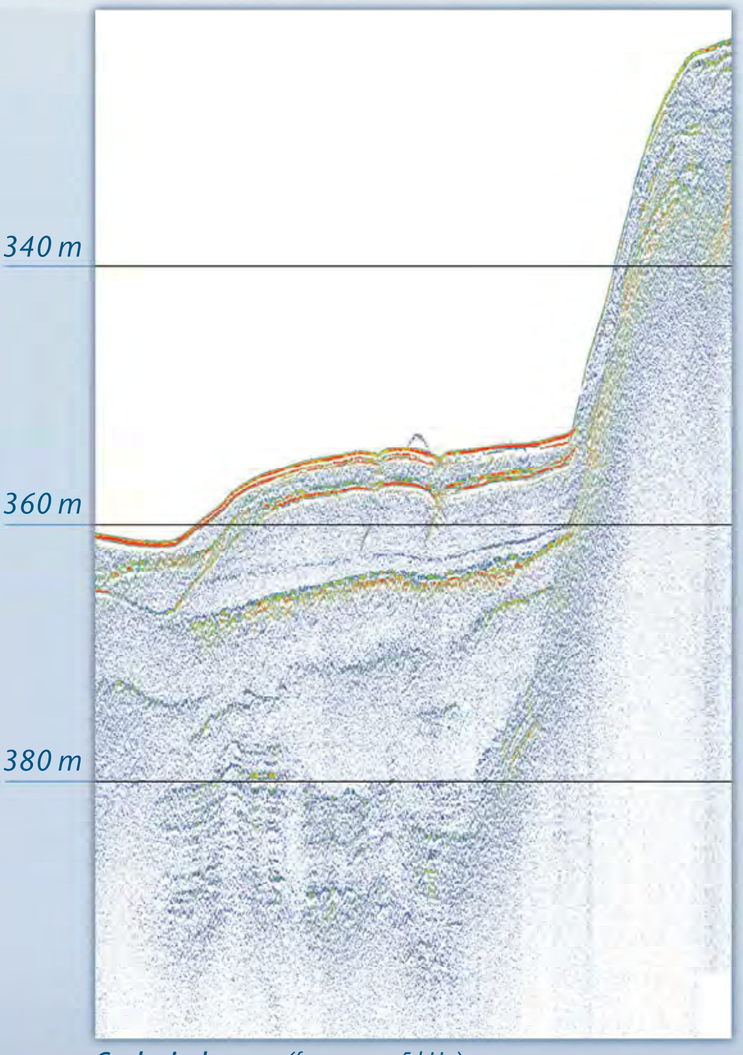
Innomar

www.innomar.com

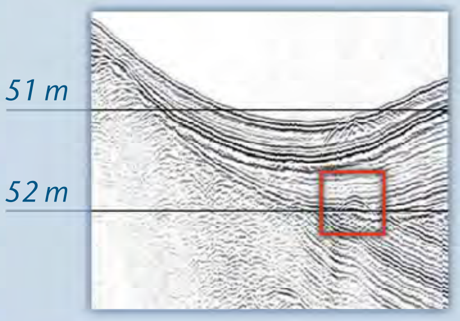
Survey examples of SES-2000 medium-100



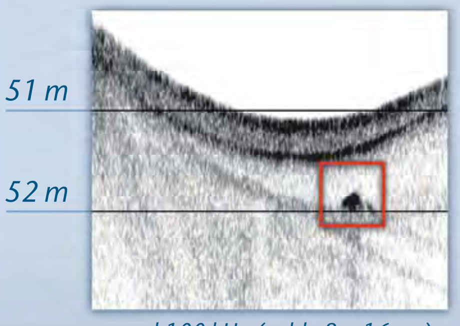
Geological survey *(frequency 8 kHz)*



Geological survey *(frequency 5 kHz)*



Cable burial depth survey *15 kHz*



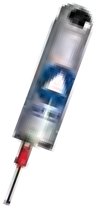
... and 100 kHz (cable 8 x 16 cm)

Innomar Technologie GmbH

Schutower Ringstraße 4
D-18069 Rostock
Phone (Fax) +49 381 44079-0 (-299)
E-Mail info@innomar.com

Innomar

www.innomar.com



GAPS

FOURTH-GENERATION USBL ACOUSTIC POSITIONING SYSTEM

The **iXBlue** fourth-generation pre-calibrated **GAPS** combines high performance ultra-short baseline (USBL) and a fiber-optic inertial navigation system (INS) in the same housing to provide accurate position of any subsea object, in diverse and challenging environments. Its performance ranges from extremely shallow water to deep sea. Its compact and all-in-one design allows both portable and permanent installations. One of **GAPS** key new features is support of dynamic positioning (DP).

FEATURES

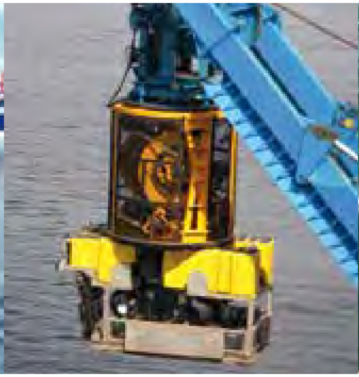
- Integrates USBL, high-grade INS, real-time positioning and GPS
- Position accuracy: 0.06% x slant range
- Advanced signal processing and 3D acoustic antenna for range and accuracy performance
- Powerful dynamic positioning (DP) mode (L/USBL/INS)

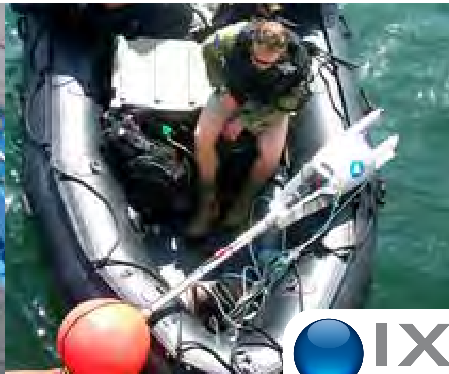
BENEFITS

- Cost- and time-saving deployment: flexible, portable, pre-calibrated, rapid, and simple
- Robust performance in very shallow water (10 m depth) to long range (> 4000 m depth)
- Deployment options, from surface buoy, side pole, moon pool or hull mounted
- Universal utilization

APPLICATIONS

• Offshore, AUV and ROV navigation • Underwater survey and inspection • Drilling • Dynamic positioning (DP) • Structure placement • Pipeline and cable deployment • Diver tracking • Seismic • Ocean science • Defense • Renewable energy industries





IXBLUE
DEEP INSIGHT. SHARPER SENSES.

GAPS
TECHNICAL SPECIFICATIONS

PERFORMANCE

Subsea positioning	
Position accuracy (CEP50)	0.06 % of the slant range [1]
Nominal range	4 000 m [2]
Antenna coverage	200 deg hemispherical
Surface positioning	
Heading accuracy	0.01 deg x secant latitude
Roll / pitch accuracy	0.01 deg

COMPATIBLE TRANSPONDERS AND SENSORS

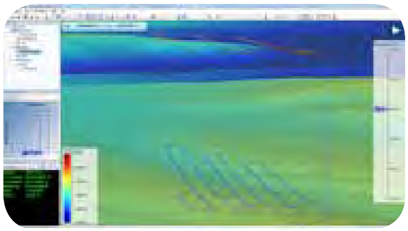
iXBlue mini transponders	OCEANO MT8 x 2, OCEANO MT9 x 2, OCEANO MTA x 2
iXBlue midi transponders	OCEANO ETA62 and releasable OCEANO RTA62
Third party wide band transponders	Optional
iXBlue inertial-acoustic solution integration	PHINS, ROVINS, RAMSES

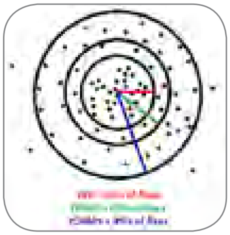
OPERATING / ENVIRONMENT / MECHANICAL

Power supply / consumption	24 – 36 VDC or 110 – 230 VAC / 50 W
Weight in air / water	15 kg / -7 kg (positive buoyancy)
Dimensions (Ø x H)	295 mm x 638 mm
Array depth rating	20 m (100 m survival)
Operating / storage temperature	-5°C to 35°C / -40°C to 70°C

INTERFACES

Control command	Standard iXBlue web-based user interface
Input / output	Quad RS232 / RS485 / Ethernet
	Trigger I/O pulse port and PPS / Sync ports
Protocols	Library of NMEA protocols (standard telegrams for all DPs)



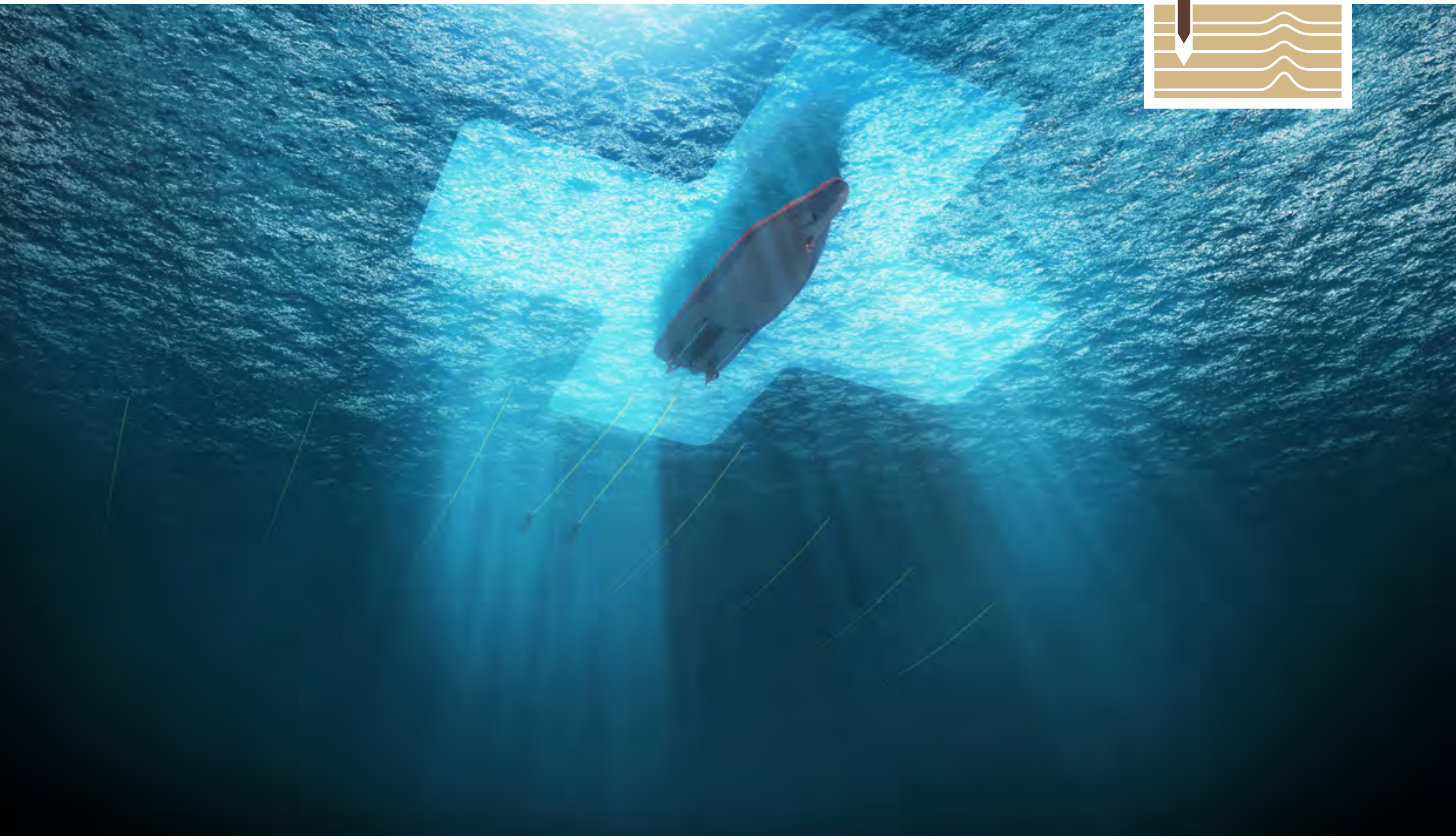


1 signal to noise ratio > 40 dB, in vertical conditions
2 noise level < 65 dB / √Hz @ 1 m ref µPa

2014-02-PS-GAPS

www.ixblue.com • EMEA: +33 1 30 08 88 88 • AMERICAS: +1 888 600 7573 • APAC: +65 6747 4912

IXBLUE
DEEP INSIGHT. SHARPER SENSES.



STARFIX. G2+
AN ULTRA HIGH ACCURACY SERVICE FOR OFFSHORE APPLICATIONS

Starfix.G2+ is a further advancement in the field of GNSS augmentation, which delivers ultra-high accuracy positioning to our customers.

The Starfix.G2+ is a further advancement in the field of GNSS augmentation, which delivers ultra-high accuracy positioning to our customers.

This new positioning service is based on advanced Integer Ambiguity Resolution (IAR) technology which is a further development of Precise Point Positioning (PPP). The basis of the IAR technique is the derivation an additional set of carrier-phase corrections from the Fugro reference station network (known as Uncalibrated Phase Delays or UPD).

The implementation of the UPD corrections in the Fugro StarPack software results in the carrier-phase ambiguities being resolved (fixed to integer values) resulting in a positioning accuracy at the centimetre level.

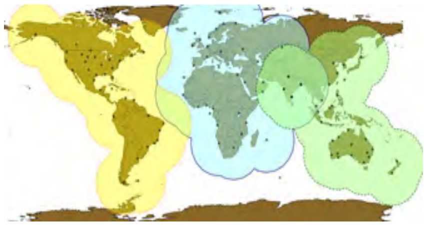
When the Starfix.G2+ service is enabled, the Fugro StarPack software will compute a centimetre Starfix.G2+ position. If for some reason the carrier-phase ambiguities cannot be resolved then the solution will fall back to a standard decimetre PPP solution.

The Starfix.G2+ corrections are supplied to our customers via L-Band satellite links to give global coverage.

The UPD Corrections are generated for 3 geographical regions as these provide significantly better results when compared to a single global set of corrections. These regions are:

1. North and South America
2. Europe, Africa and Middle East
3. Asia and Australia

Although the corrections are divided into regions, our customers do not need to be inside the region in order for the service to work, but should always choose the region closest to their work location.



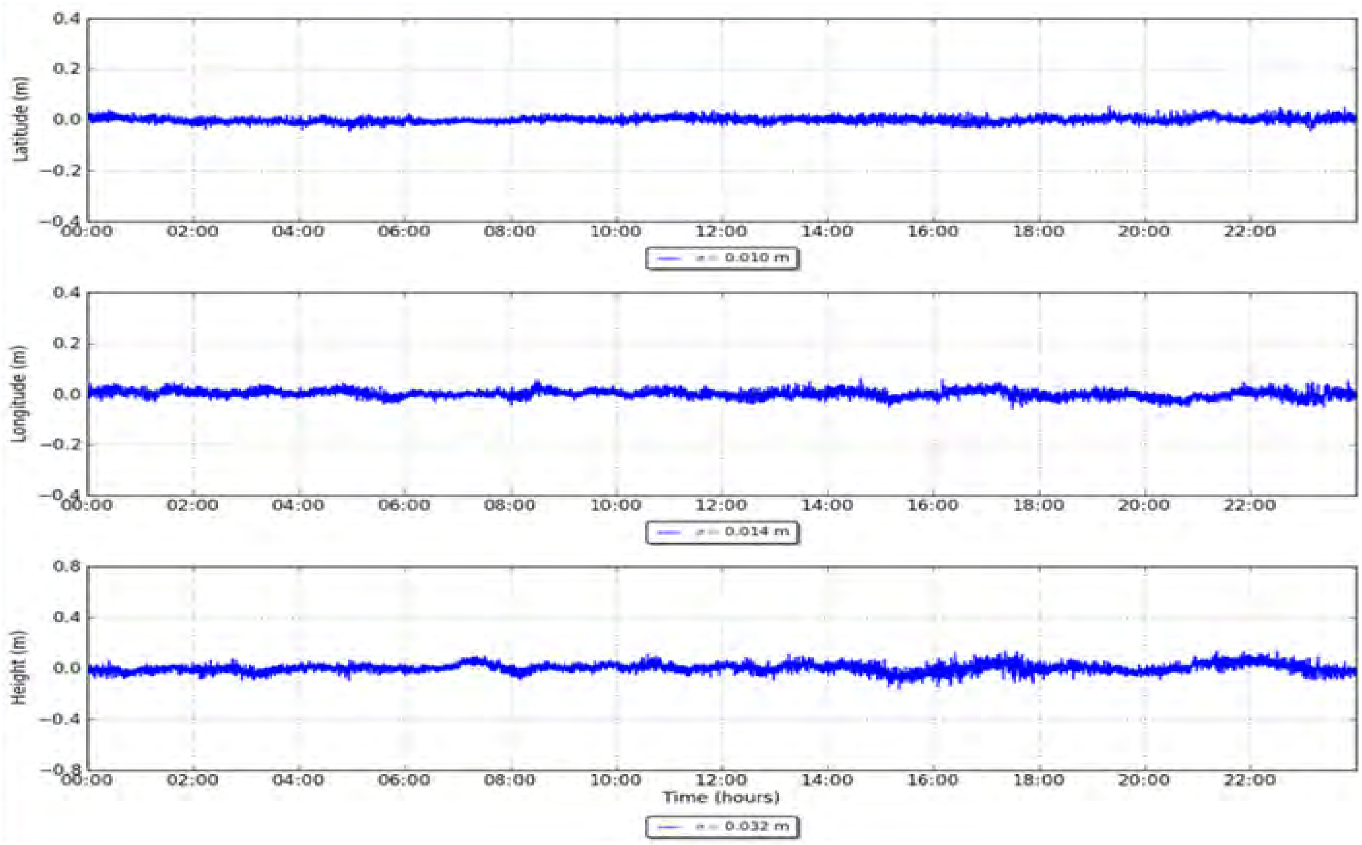
FUGRO SATELLITE POSITIONING

Solution accuracy; the following table illustrates Starfix.G2+ accuracy over 24 hours over 2 days from four locations

	E (SD)	N (SD)	H (SD)
Bergen (14/03/2015)	0.014 m	0.010 m	0.032 m
Bergen (15/03/2015)	0.016 m	0.013 m	0.034 m
Brownsville (14/03/2015)	0.012 m	0.011 m	0.037 m
Brownsville (15/03/2015)	0.011 m	0.010 m	0.027 m
Houston (14/03/2015)	0.013 m	0.011 m	0.032 m
Houston (15/03/2015)	0.011 m	0.010 m	0.029 m
Leidschendam (14/03/2015)	0.013 m	0.010 m	0.028 m
Leidschendam (15/03/2015)	0.014 m	0.012 m	0.032 m

The Starfix.G2+ service is currently available to customers using Fugro's StarPack GNSS systems.

Starfix.G2+ performance plots for Bergen, on 14th March 2015.



Fugro Survey AS
Nygaardsviken 1,
N-5165 Laksevaag, Norway
Telephone: +47 55 34 94 00
Email: starfix@fugro.no
www.starfix.com

StarPack - High precision GNSS positions, heading and time from a single platform

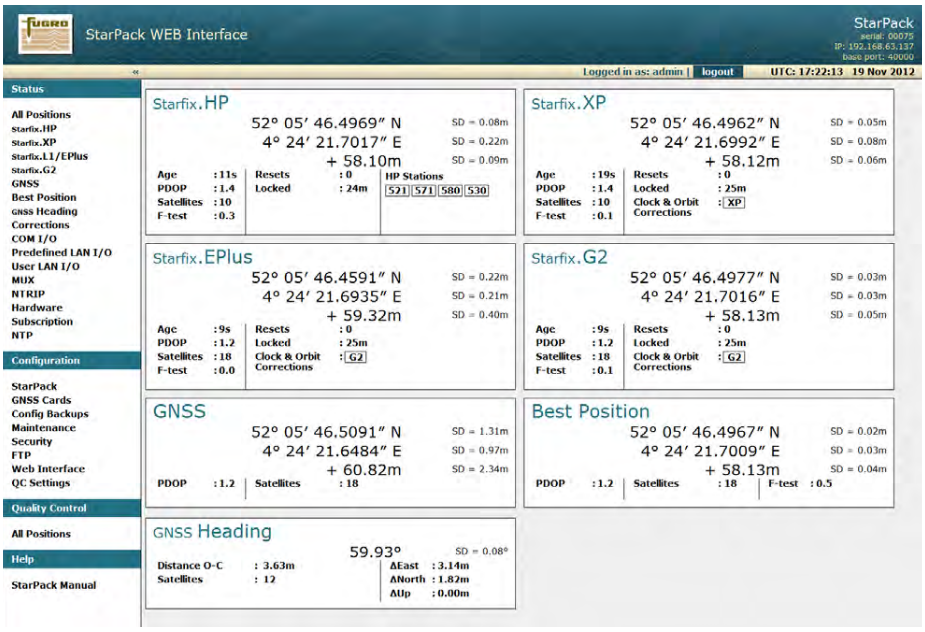
The StarPack is Fugro's answer to increasing market demand for precise, redundant GNSS positioning solutions, including extensive QC and accurate time, from a single, easy to use platform.

StarPack platform

The StarPack unit consists of a survey grade GNSS combined L-band receiver and powerful processor, running Linux multitasking operating system. The receiver is capable of tracking all current satellites (GPS, GLONASS) and is Galileo ready. StarPack can be extended with a second GNSS card (in the same unit), to provide accurate, GNSS derived heading. In addition to GNSS observations, the second card provides also L-band functionality, creating an independent source of corrections for backup.

The combination of receiver and processor provides robust multiple simultaneous precise position calculations and extensive QC. For maximum system reliability, the internal software is embedded on a flash memory. System can be controlled and configured via the front panel, web interface or a serial port.

The StarPack is equipped with four serial ports on the rear panel and LAN interface to provide a multitude of outputs to the user and to read multiple correction sources (in addition to those from the integrated receiver(s)). Raw GNSS data and corrections are continuously logged internally and can be exported to RINEX to enable high quality support and back-up. User can download this data and send it to Fugro's development centers for re-processing. Additional user defined output can be configured for automatic logging. Firmware can be upgraded using the web interface or using a USB stick at the front panel.



Positioning and Heading solutions

The embedded processing software of the StarPack GNSS receiver provides multiple configurable simultaneous precise positioning solutions, including G2.

- Four independent correction sources
  - o Starfix.G2
  - o Starfix.XP
  - o Starfix.HP
  - o Starfix.L1
- Five solutions: Starfix.G2, Starfix.XP, Starfix.HP, Starfix.EPlus and Starfix.L1
- New "Best Position" solution, combining all available solutions in to one, using proper weighting. "Best Position" provides increased availability and better accuracy.
- A Heading solution between two GNSS antennae, in combination with a second GNSS card (in the same or another receiver).

StarPack applications

- Accurate height for tidal corrections and heave compensation
- Accurate position for seabed mapping surveys
- Accurate vertical reference for out of straightness pipeline surveys
- Accurate (instantaneous) heading source (in combination with a second GNSS card)
- Stable position for station keeping on DP vessels
- Accurate relative positioning of structures
- Automated vessel guidance

NTP support

The StarPack contains an NTP (Network Time Protocol) server, providing a time accuracy of 500 µs or better with a convergence time after power-on within several minutes.

NTRIP client

The StarPack contains also NTRIP (Networked Transport of RTCM via Internet Protocol) client. When internet connection is available StarPack can be connected to Fugro's (or third-party) corrections servers providing additional, independent from L-Band, corrections backup.

Quality control

Extensive quality control is provided through StarPackQC, a stand alone PC based application, or on web interface, Quality control parameters indicating precision, reliability and availability can be visualized for estimated positions as well as for corrections and individual satellites.

Technical specifications

GNSS hardware engine

- Trimble BD982 with two antenna inputs: 220 channel GPS/GLONASS, Galileo/BeiDou available with software option upgrade
- Single or dual NovAtel OEMV- 3: 72 channel GPS/GLONASS board (no longer manufactured, but serviceable)
- Trimble BD960: 72 channel GPS/ GLONASS board (no longer manufactured, but serviceable)

Corrections	Integrated receiver for Starfix differential and orbit/clock corrections
Processor	Intel Pentium III, embedded Linux operating system
Data rate	1 Hz - 5Hz
Data storage	10 days, raw and correction data (1 Hz) on internal disk
Size	245 x 60 x 195 mm (W x H x D)
Weight	2 kg
Input voltage	80 – 250 VAC, 40 – 60 Hz
Input/output	4 RS232 ports, LAN with more than 30 configurable ports, 1 PPS
Operating temperature	-20°C – +50°C
Storage temperature	-40°C – +85°C
Humidity	95% non-condensing
Compliant	EMC 2004/108/EC (EN60945:2002) 2011/65/EU(RoHS 2)

Service/ solution	Accuracy (hor. 95%)	System	Correction data	Coverage
Starfix.G2	0.1m	GPS GLONASS	Clock and orbit corrections	Global
Starfix.XP	0.1m	GPS	Clock and orbit corrections	Global
Starfix.HP	0.1m	GPS	Ionosphere-free carrier phase corrections from multiple reference stations	Regional <1000km*
Starfix.EPlus	1m	GPS GLONASS	Clock and orbit corrections	Global
Starfix.L1	1.5m	GPS	L1 pseudo range corrections from multiple reference stations	Regional <500km*
Best Position	0.1m	GPS GLONASS	All available correction data	Global
Heading	Better than 0.1° for baselines longer than 3m	GPS GLONASS	-	Global

** distance to reference station*

SKYFIX-XP

SkyFix-XP (Decimetric Differential GPS)

SkyFix-XP is a GPS positioning system that is based on clock and orbit corrections supplied by NASA's Jet Propulsion Laboratory (JPL). SkyFix-XP is a Precise Point Positioning (PPP) technology, which distinguishes itself from the traditional differential approach as satellite errors are not lumped together but estimated per source, per satellite; it is also known as a *'State Space solution'*. The GPS clock and orbit corrections are computed independently, free of ionospheric and tropospheric effects.

Key Features:

- Capable of 10cm accuracy in horizontal and 20cm in vertical domain.
- Truly global coverage with no range restrictions from stations
- Dual delivery satellite beams – high power and low power
- Extensive QC monitoring in line with UKOOA standards
- Real-time system performance information available on-line
- Compatible with existing SkyFix hardware
- Truly independent of Starfix systems

SkyFix-XP Technology

Traditional Differential GPS services use the fixed location of a single reference station to measure the ranges to all GPS satellites in view. These measurements are then compared to the computed ranges at that location and the resulting differences in the observations are transmitted as pseudo-range corrections. This technique introduces some inaccuracies as the distance from the reference station grows.

SkyFix-XP removes this range limitation by using a completely new technique known as Satellite Differential GPS (SDGPS). Orbit and clock corrections are determined for each satellite continuously utilizing Fugro's global network of reference stations. These corrections are then broadcast to the user and can be used at any location, regardless if the distance to any reference station, making the system truly global.

The orbit and clock corrections are contained in a set of proprietary RTCM messages, which can be received using the existing SkyFix decoders. Users require dual-frequency DGPS receiver as well as the MultiFix 5 positioning and QC software. The high accuracy is obtained by new processing techniques within MultiFix 5 that correct, estimate and /or eliminate the common GPS error sources (orbits, clocks, troposphere, ionosphere, multi-path and noise).

Local tropospheric and ionospheric errors are corrected at the user end by using a dual GPS frequency receiver. Multipath and receiver noise are addressed by using carrier phase observations within the XP calculation.

Advantages of SkyFix XP

- A single set of corrections per satellite valid independent of the geographic location.
- Independence from the existing Fugro reference station network
- Simplicity for the user

Direct comparisons with competing providers' capabilities and performance show that Fugro continues to lead in accuracy and robustness of solution.

Quality Control and Verification

SkyFix-XP data is rigorously checked for accuracy, advanced statistical testing is performed using UKOOA recommendations. SkyFix-XP utilises MultiFix 5, Fugro's latest version of its GPS QC software. MultiFix 5 can also be configured with a number of back-up solutions for the primary SkyFix-XP calculation to provide optimum redundancy. This allows the system to switch automatically to an alternative DGPS solution such as SkyFix or SkyFix Premier. These back-up processes are performance (rather than availability) based, giving the operator maximum confidence in the system.

Standard DGPS vs. SkyFix-XP

To provide a confirmation of accuracy, Fugro has installed regional monitoring systems located at key oil and gas hot spots around the world. These provide real-time system performance information via the Starfix website (www.skyfix.com).

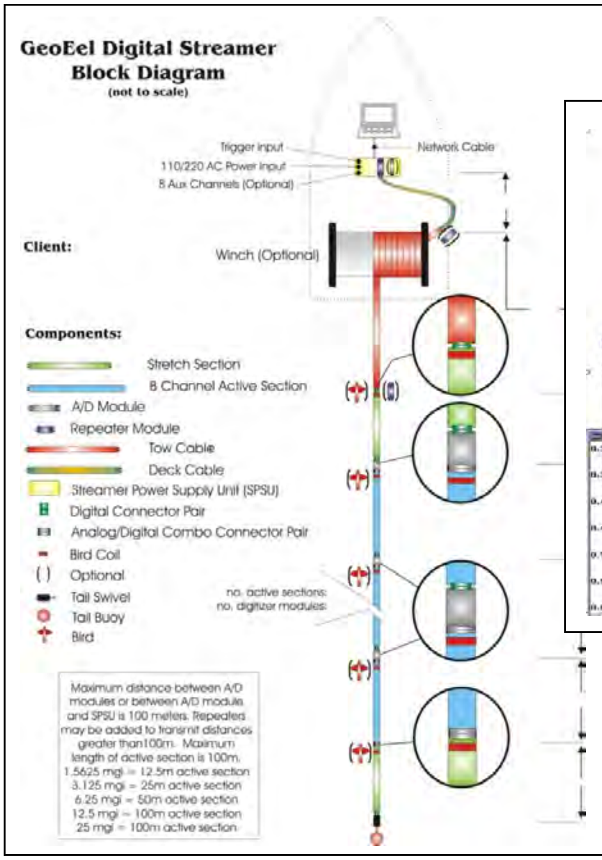
System Overview

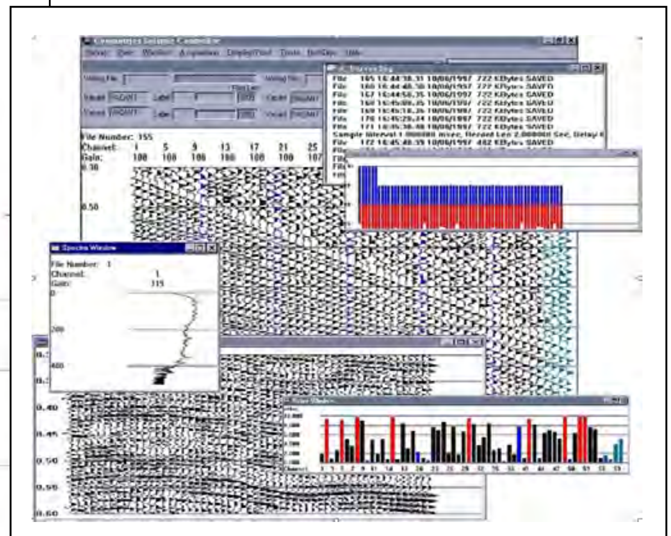
The hardware configuration for SkyFix-XP is similar is similar to that of the standard SkyFix system, it is possible to share hardware or upgrade an existing system with the addition of a dual frequency GPS receiver and the new MultiFix 5 software.

Typical SkyFix-XP system configuration:

The additional SkyFix-XP correction messages can be received with all existing SkyFix decoders. MultiFix 5 is compatible with most leading GPS receivers including units produced by Thales, Trimble and Novatel.

EQUIPMENT SHEET OFFSHORE SURVEY



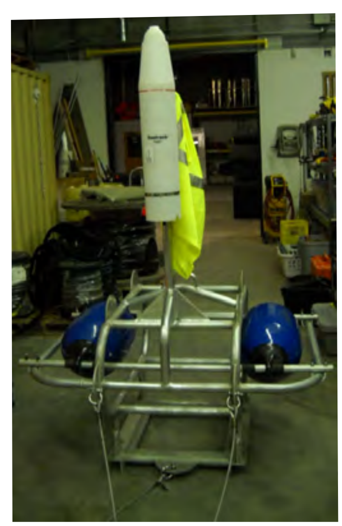


FUGRO
SEISMIC PROFILER - GEOMETRICS GeoEeL

The Geometrics GeoEel digital towed hydrophone streamer is the first narrow diameter array meeting the performance standards of larger systems. With a diameter of only 41 mm, the GeoEel is easy to deploy, easy to transport, and can be shipped by air. Separate 8 channel modules coupled with unique slim active-section design yield noise levels under 5 microbars and make the GeoEel immune from the electronic interference, leakage, and ground loops that plague the installation of analog streamers.

GeoEel active sections are filled with inert silicone oil, making them environmentally safe and non-flammable. A 1/8-inch thick abrasion resistant polyurethane makes the streamer extremely rugged but still flexible enough to deploy on small boats. Acquisition is controlled with PC-based Geometrics CNT-2 software.

Features include: multiple shot and gather windows, bar graph noise displays, windows for shot timing, gun energy, brute stack, tape status, spectral analysis; sure-save software that protects against data loss even with total storage device failure; sequentially-ordered file saving; auto-switching between storage device, dual tape writing; multiple printer support; parameter change logs; and integrated navigation, gun, and bird parameters into an SEG-D, SEG-Y or SEG-2 header.



GPS Tail Bouy

EQUIPMENT SHEET OFFSHORE SURVEY

SEISMIC PROFILER - GEOMETRICS GeoEel

A/D Converter Canister Specifications

Channels Per A/D Canister	8
Sample Rates	1/16, 1/8, 1/4, 1/2, 1, 2, 4 ms
Bandwidth	5 Hz to 8 kHz
Programmable Gain	0 dB, 6 dB, 18 dB, 30 dB, 42 dB
Anti-Alias Filter	set by sample interval, down 135 dB at stop band
Maximum Input Range	±2.25V
Resolution	24 bits including sign
Input Impedance	126.8 K Ohms, paralleled by 2.4 nF
Dynamic Range	120 dB Typical @ 1ms
Common Mode Rejection	>110 dB
Record Length	Up To 40 sec in shot synch mode
Dead Time	100 ms
Continuous Recording Mode	Enabled with GPS synchronization
Noise Floor	0.1 uV at 2 ms
QC Tests	Leakage and capacitance of hydrophone elements, noise, offset, harmonic distortion and gain similarity
Power Consumption	Approximately 100 mA at 48 VDC
Calibration Oscillator	10 Hz to 2 kHz, 1 ?V to 100 mV AC RMS
Dimensions	44 mm diameter x 33 cm long (1.75” by 11”)
Weight	900 grams (2.0 lbs)
Packaging Material	Titanium body
Connectors	Waterproof high density stainless steel, 41 pin

Stretch and Vibration Isolation Section Specifications

Length Construction	10, 25 or 50 meters standard
Outer Diameter	Similar to active section
Stretch Ratio	41 mm (1.6 inches)
Compass/Bird Coil	Approximately 15% for stretch section
Break Strength	I/O Model 587, isolation section Only
Depth Transducer	over 2200 kg (5000 lbs), Vectran strain members
	Available only on isolation section

Hydrophone Section Specifications

Number of Channels	8 per section
Hydrophones per group	16 typical at 12.5m
Hydrophone Type	Benthos RDA Geopoint, or AQ-1
Jacket Material	Clear polyurethane, 70 Duro, 3.18 mm (1/8 inch) wall thickness
Outer Diameter	41 mm (1.6 inches)
Ballast Fluid	Inert, non-polluting silicone oil, 100 cSt
Weight	~135 kg (300 lbs) / 8 channels @12.5 mg
Break Strength	over 2200 kg (5000 lbs), Vectran strain members
Maximum Tow Speed	~8 knots recording, ~10 knots steaming, depending on configuration and sea state
Minimum Bend Radius	75 cm (30 inches)
Compass/Bird Coil	IO Model 587
Depth Transducer	One per section (optional)

Fugro GeoServices, Inc.

200 Dulles Dr.
Lafayette, LA 70506
USA
Telephone: +1 337-237-2636
Email: info-fgsi@fugro.com
www.fugro.com

6100 Hillcroft
Houston, TX 77081
USA
Telephone: +1 713-369-5837

EQUIPMENT SHEET OFFSHORE SURVEY

SEISMIC PROFILER - GEOMETRICS GeoEel

Streamer Power Supply Unit Specifications

Power Requirements	115/230 VAC, 3/1.5 Amp max, 50/60 Hz
Voltage to Streamer	36- 72 VDC
I/O Communications	100 Base TX Fast Ethernet, IEEE 802.3 compliant
Trigger Requirements	Isolated Input, Positive or Negative TTL, software selectable
Testing	Cable leakage and resistance, Ethernet for faults and collisions
Optional Auxiliary Inputs	8 analog channels with 24-bit resolution
Ethernet Connection	RJ-45
Trigger Connection	BNC

Tow Cable Specifications

Electrical conductors Weight	10 twisted pair shielded
Strain member	~ 25 kg (55 lbs) for 50 meters
Break strength	Kevlar
Diameter	over 2200 kg (5000 lbs)
	20 mm

GeoEel Convertible Acquisition Channel Specifications

Maximum Channels	240 per chassis
Channel per card set	8
Sample Rates	1/16, 1/8, 1/4, 1/2, 1, 2, 4 ms
Bandwidth	5 Hz to 8 kHz
Programmable Gain	0 dB, 6 dB, 18 dB, 30 dB, 42 dB
Anti-Alias Filters	et by sample interval, down 135 dB at stop band
Maximum Input Range	±2.25V
Resolution	24 bits including sign
Input Impedance	126.8K Ohms, paralleled by 2.4 nF
Dynamic Range	120dB Typical @ 1ms
Common Mode Rejection	>110 dB
Record Length	Up to 40 sec

Charge Amplifier

Configurations	24 to 120 channels in groups of 24
Frequency response	5 Hz to > 300 Hz, by streamer capacitance
Output Impedance	1000 ohms
Dimensions	7U 12.5"hx19"Chassis wx14"d
Power Consumption	115/220 VAC, 50/60 Hz, 1 Amp
Weight	33.5 lbs
Operating Temperature	-10 to +40 degrees C
Relative Humidity	80% max, non-condensing
Input Impedance	virtual ground
Transducers	piezoelectric ceramic element
Channel Output D.C. Offset Channel	3mV (Differential) nominal
Maximum Output	4V P-P open circuit
Channel Dynamic Range	>100dB
Channel Output Distortion	< 0.005% THD
Channel Output Sensitivity Precision	+/- 2%
Channel Low Frequency Cutoff	4Hz
Common Mode Rejection	>40 dB (Balanced Input)
Communication Interface (Option)	10/100 Base T Ethernet

Fugro GeoServices, Inc.

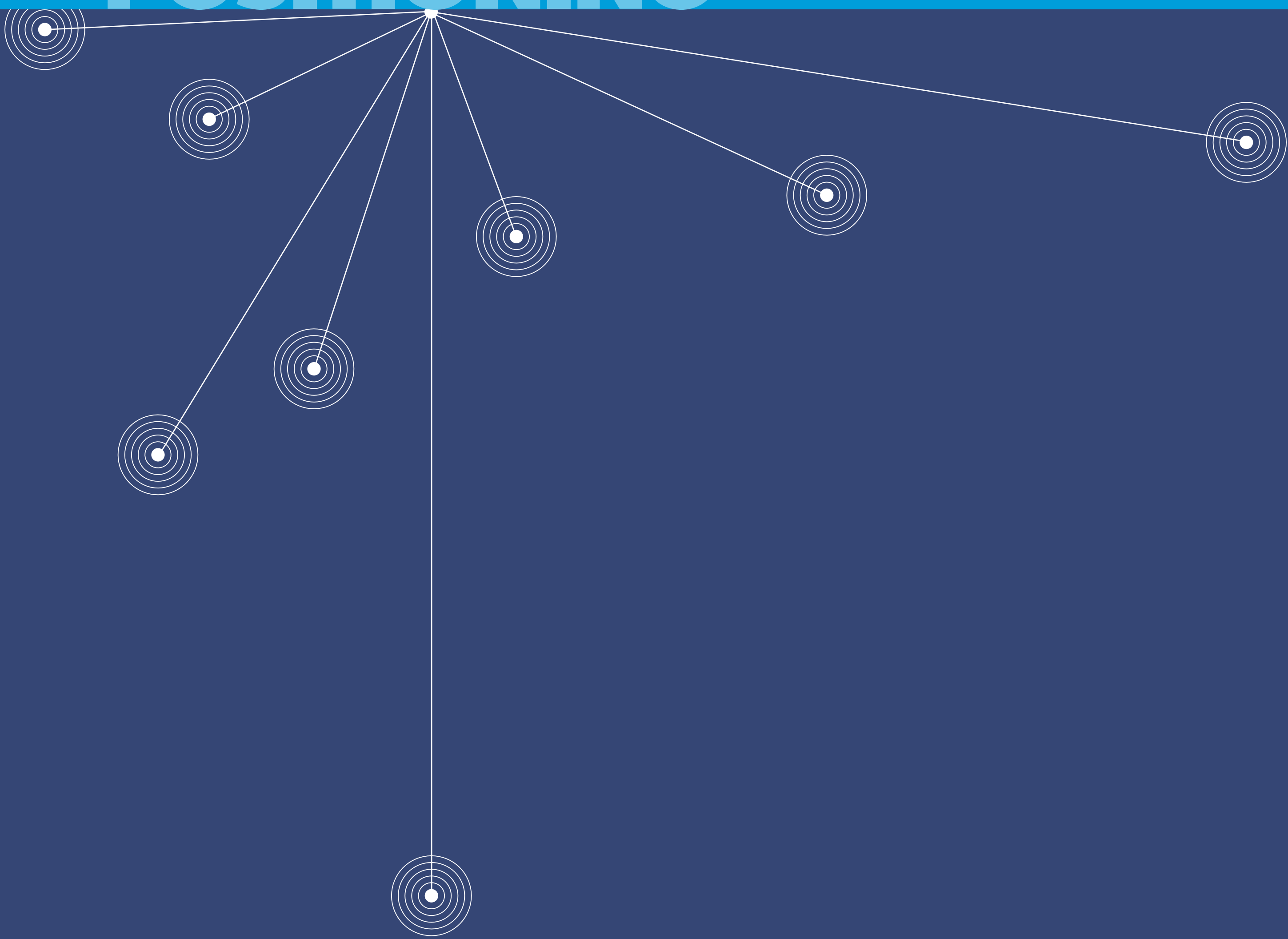
200 Dulles Dr.
Lafayette, LA 70506
USA
Telephone: +1 337-237-2636
Email: info-fgsi@fugro.com
www.fugro.com

6100 Hillcroft
Houston, TX 77081
USA
Telephone: +1 713-369-5837

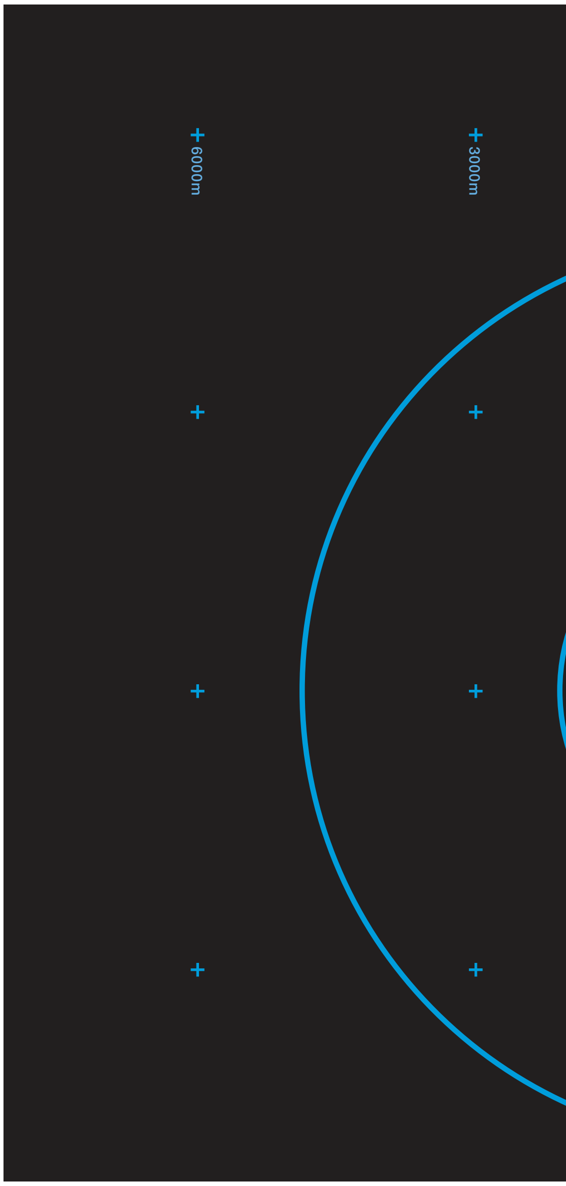
Sonardyne
SOUND IN DEPTH

SUBSEA TECHNOLOGY

RANGER 2 USBL
UNDERWATER TRACKING AND POSITIONING



POSITIONING
NAVIGATION
COMMUNICATION
MONITORING
IMAGING



RANGER 2 USBL

TRACK EVERYTHING, IN ANY DEPTH, FROM ANY VESSEL.

TRACK A TOWFISH, POSITION AN ROV, DP YOUR VESSEL, SEARCH THE SEABED OR NAVIGATE AN AUV. WHEN YOU NEED TO INVEST IN ULTRA-SHORT BASELINE (USBL) ACOUSTIC TECHNOLOGY TO SUPPORT YOUR UNDERWATER OPERATIONS, RANGER 2 HAS THE PERFORMANCE YOU NEED, AT THE INVESTMENT LEVEL YOU CAN AFFORD TO GET THE PROJECT COMPLETED FASTER AND MORE EFFICIENTLY THAN ANY OTHER SYSTEM ON THE MARKET.

ENGINEERED LIKE NO OTHER

All USBL systems calculate position by measuring the range and bearing from a vessel-mounted transceiver to an acoustic transponder fitted to a moving target or placed on the seabed. But not all USBL systems do it with the accuracy and precision offered by Ranger 2.

We've taken everything that made our original Ranger system so effective and advanced it to the next level. That next level is our award-winning 6G (sixth generation) acoustic hardware platform and Sonardyne Wideband® 2 digital signal architecture which work seamlessly together to deliver the best possible USBL positioning performance and operator experience.

Vessel and vehicle hardware is easy to install and configure. It can track your equipment to beyond 7,000 metres and update its position every second. It's engineered for shallow water, deep water, high elevation and multi-user operating scenarios. And if your vessel's fitted with a DP system – regardless of what make it is – Ranger 2 can interface with it.

THE ONLY USBL YOU'LL NEED

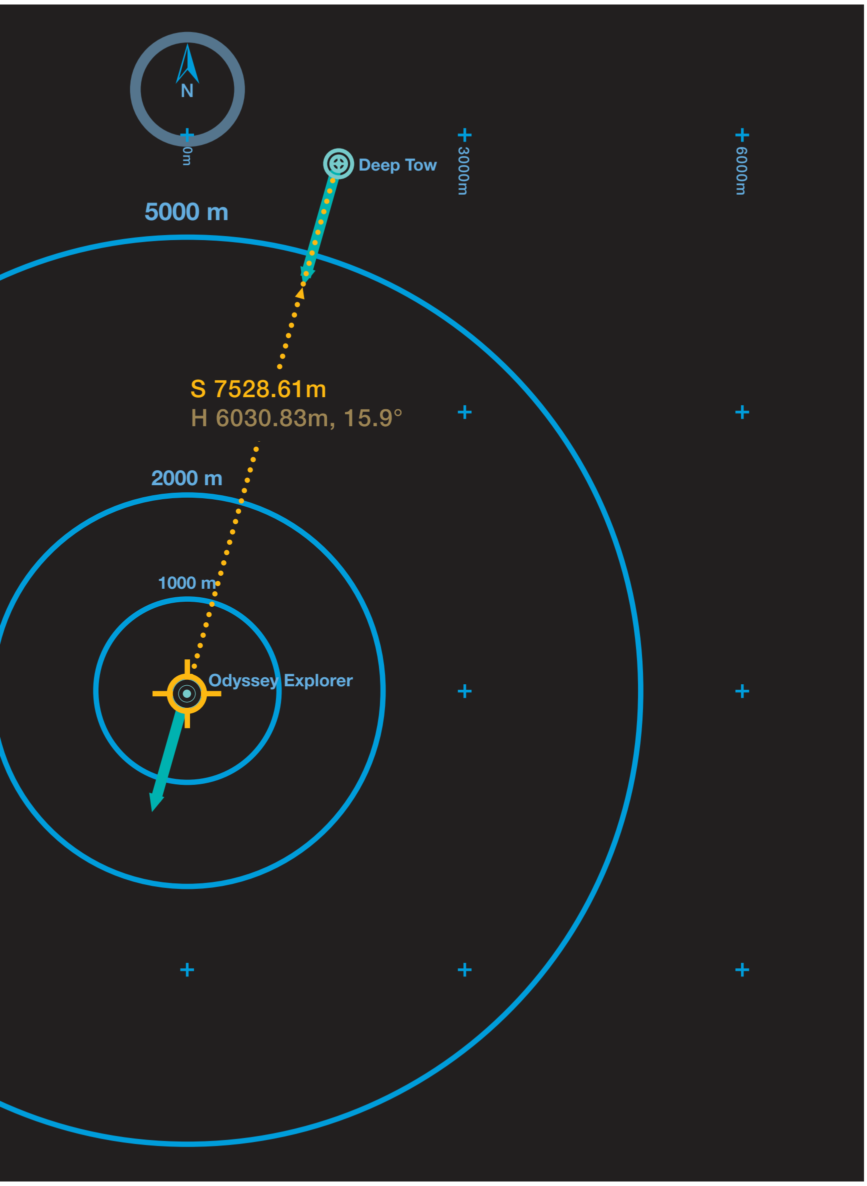
Every survey, ocean science, DP and seismic exploration project is different; different water depths, different vessels and different targets to position. But that shouldn't mean you need a different USBL system for each one.

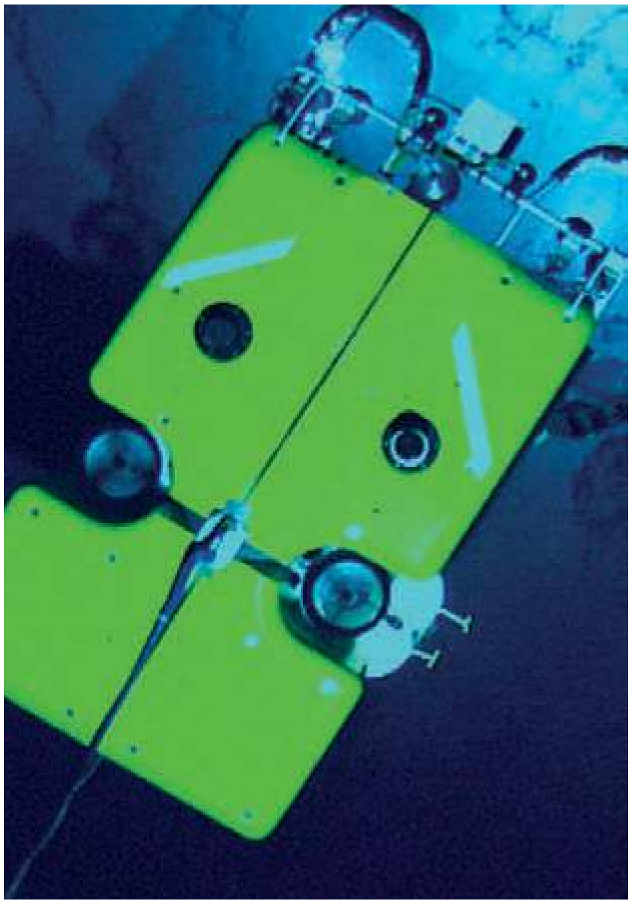
Ranger 2 comes with an impressive list of standard features. As your needs grow and become more complex, so too can the capabilities of Ranger 2 thanks to software feature packs available in three versions; Survey, Dynamic Positioning and Professional – all of which can be remotely activated* in the field.

*Subject to having the appropriate hardware available on board

WHY IT'S GOOD FOR YOUR OPERATIONS

- Simple, intuitive software
- Tracks an unlimited number of targets; ROVs, towfish, AUVs...
- Operating range beyond 7,000 metres
- Better than 0.1% system accuracy when optimised
- Up to 1 second position updates
- Compatible with all makes of DP system
- Automated setup reduces vessel delays
- Application packs available bringing extra features specific to your operations
- User training available worldwide
- Multi-user capable
- Track record of success on all types of vessel
- Support available globally 24/7


N
0m
Deep Tow
3000m
6000m
5000 m
S 7528.61m
H 6030.83m, 15.9°
2000 m
1000 m
Odyssey Explorer

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RANGER 2 USBL FOR

SURVEY

WHETHER YOU ARE CONDUCTING A HYDROGRAPHIC SURVEY WITH A TOWFISH, MONITORING THE TOUCHDOWN POSITION OF A PIPELINE OR LOWERING AND LANDING STRUCTURES ONTO THE SEABED, RANGER 2 HAS ALL THE CAPABILITY YOU NEED IN ONE APPLICATION. THE OPTIONAL SURVEY PACK UNLOCKS A HOST OF ADDITIONAL FEATURES TO FURTHER OPTIMISE THE PERFORMANCE OF YOUR RANGER 2 SYSTEM FOR THE MAJORITY OF OFFSHORE CONSTRUCTION AND SURVEY TASKS.

RANGER 2 SURVEY PACK

The Ranger 2 Survey pack uses the intuitive and simple layout as the standard software but allows access to more complex areas such as the setup and tracking of ROVs, AUVs and structures. These objects can be configured with multiple transponders attached to them and fixed offsets can then be computed to points such as a structure's CRP or an ROV's bumper bar which can be both displayed on-screen with their position output.

Being able to work in this manner directly in the USBL software benefits your surveys as any sensor latency induced errors are minimised, and the risk of systematic errors from the use of incorrect offsets is reduced. AutoCAD backdrops and configurable seabed geodesy allow Ranger 2 Survey to be used for tracking and guidance. Complex doesn't have to be complicated.

WHY IT'S GOOD FOR SURVEY

- Up to 0.07% slat range tracking performance using GyroUSBL
- Supports complex tracking scenarios such as structures and vehicles with multiple transponders and multiple remote offsets
- Importable AutoCAD DXF field backdrops
- Built-in seabed geodesy package
- Configurable UI to suit multiple project tasks
- Tools to configure stinger-mounted GyroUSBL transceivers
- System can be shared with DP


WLL 15T

RANGER 2 USBL FOR

DYNAMIC POSITIONING

OUT OF THE BOX, RANGER 2 IS A HIGHLY CAPABLE ACOUSTIC POSITION REFERENCE SYSTEM THAT YOU CAN INTERFACE WITH ANY DP SYSTEM INCLUDING GE, KONGSBERG, MT, NAVIS, ROLLS-ROYCE AND WÄRTSILÄ. BUT IF YOUR VESSEL UNDERTAKES CRITICAL STATION KEEPING ACTIVITIES IN ULTRA-DEEP WATERS, THE RANGER 2 DP PACK OFFERS ENHANCED LEVELS OF POSITIONING INTEGRITY. DEVELOPED TO MEET THE REQUIREMENTS OF CLASS 2 AND 3 RULES, IT'S PERFECT FOR HEAVY CONSTRUCTION, WELL INTERVENTION, SALVAGE AND PRODUCTION VESSELS.

RANGER 2 DP PACK

The DP pack's stand-out feature is its ability to support Long and Ultra-Short BaseLine (LUSBL) and inertial navigation (DP-INS) configurations.

LUSBL exploits the greater precision and acoustic range redundancy offered by Long BaseLine (LBL) seabed transponder arrays where accuracy is virtually independent of water depth. And because Ranger 2 is built around our exclusive Wideband 2 signal architecture, you have the freedom to deploy your own transponder array without interrupting others, or share one that is already deployed in the field, saving vessel time and lowering your costs.

Tightly integrated acoustic and inertial positioning benefits your DP system by improving the accuracy, update rate and reliability of the position. The inertial navigation system can be aided by a single USBL transponder or multiple transponders – but far fewer than a conventional LBL array. Transponders can also be set to a slower update rate, extending their battery life saving deployment and calibration time and extending service intervals.

DPO FRIENDLY

DPOs quickly feel comfortable using Ranger 2's easy and intuitive software. Automatic discovery of Sonardyne transponders and array planning tools are included as standard whilst real-time quality indicators, noise analysis and signal travel time displays are just some of the extra tools available to help them optimise performance.

WHY IT'S GOOD FOR DP

- High integrity positioning for critical deep water operations
- Fully compatible with all makes of DP system
- Cost effective for owners and shipyards
- Less wiring, fewer components and smaller gate-valve than comparable systems
- Easy to learn, easy to use
- DP-INS for added reliability and operational savings
- Dual transceivers for added accuracy


CCC PIONEER


CCC

RANGER 2 USBL FOR

EXPLORATION

WITH ITS ABILITY TO SIMULTANEOUSLY TRACK MULTIPLE SUBSEA TARGETS, RANGER 2 IS IDEAL FOR MARINE SEISMIC OPERATIONS WHERE VERY LARGE AREAS OF THE SEABED ARE COVERED WITH NODES AND THEIR PRECISE LOCATIONS CONFIRMED BEFORE ACQUISITION CAN BEGIN. BUT RANGER 2 DOES MORE THAN SIMPLY POSITIONING. THE HIGH-SPEED ACOUSTIC COMMUNICATIONS BUILT INTO EACH NODE-MOUNTED 6G TRANSPONDER MEANS THAT DURING A SURVEY, DATA CAN BE UPLOADED TO THE SURFACE TO LET YOU KNOW EACH NODE'S STATUS.

FROM SHALLOW TO DEEP

Seismic surveys using Ocean Bottom Nodes (OBNs) are a popular method of acquiring high resolution reservoir imagery. Ranger 2 USBL is used to determine the locations of thousands of marine seismic nodes – or the ROVs that deploy them – when operating in the transition zone all the way to very deep water.

When ROVs are used, Ranger 2 integrates seamlessly with our SPRINT INS and Syrinx DVL products to maximise ROV positioning performance. This minimises the number of observations required to achieve your project's specification.

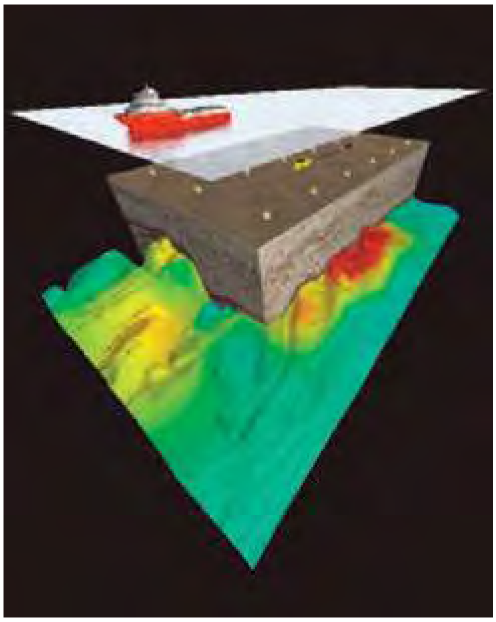
THIRD PARTY SOFTWARE INTERFACES

Node deployment operations are typically conducted under the control of third party navigation packages such as HydroPos and Gator II so Ranger 2 comes with a remote control interface provided as standard.

Once your survey is complete, the precision offered by Ranger 2 allows an ROV pilot to navigate directly to each node to recover it. This saves time and ensures no hardware is left behind on the seabed. Alternatively, the transponders attached to each node can be acoustically commanded to release anchor weights so that the entire instrument floats up to the surface.

WHY IT'S GOOD FOR EXPLORATION

- Thousands of unique transponder addresses permit large node arrays without identity repetition.
- Compatible with Sonardyne ROV based INS and DVL products for seamless operation.
- High update rate maximises deployment speed.
- Quick to install on vessels of opportunity using pre-calibrated transceivers
- Remote control interface to standard seismic navigation systems such as HydroPos and Gator II.

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RANGER 2 USBL FOR

OCEAN SCIENCE

CHOSEN FOR ITS ABILITY TO TRACK A WIDE VARIETY OF SCIENTIFIC PACKAGES AT RANGES UP TO 10,000 METRES, RANGER 2 IS THE PREFERRED USBL SOLUTION FOR MANY OF THE WORLD'S LEADING OCEAN RESEARCH INSTITUTES. IT IS A KEY ENABLER FOR THEIR VESSELS AND HAS THE FLEXIBILITY TO MEET THE PRECISE IN-WATER AND NEAR-BOTTOM SUSTAINED OBSERVATION NEEDS OF SCIENCE USERS WORKING NEARSHORE, COASTAL AND DEEP OCEAN.

MAXIMISING SCIENCE TIME, MINIMISING DOWNTIME

Science users rarely have the luxury of remaining on site for long, so Ranger 2's ability to position instruments such as corers, camera platforms and geological drills without having to first deploy a seabed array of transponders, helps you maximise precious ship time. It can even be used to activate compatible acoustic release transponders, allowing you to release and track your moorings all the way to the surface for immediate recovery on board.

If your research involves using a vessel of opportunity, then the benefits of using Ranger 2 begin before you've left port. Our pre-calibrated, all-in-one GyroUSBL transceiver is perfect for installation on a temporary over-the-side mounting arrangement yet delivers the same precision as a permanent installation.

ULTRA-DEEP TOW

Ranger 2's unique Inverted USBL (iUSBL) mode, a feature of the Survey pack, is perfect for deep tow, extreme layback towfish tracking. Rather than mounting the USBL transceiver on the vessel in the traditional manner, with iUSBL, the transceiver is installed on the towed body itself. Because towfish are typically quiet, the signal-to-noise ratio is significantly improved which provides longer ranges and greater precision.

AUV OPERATIONS

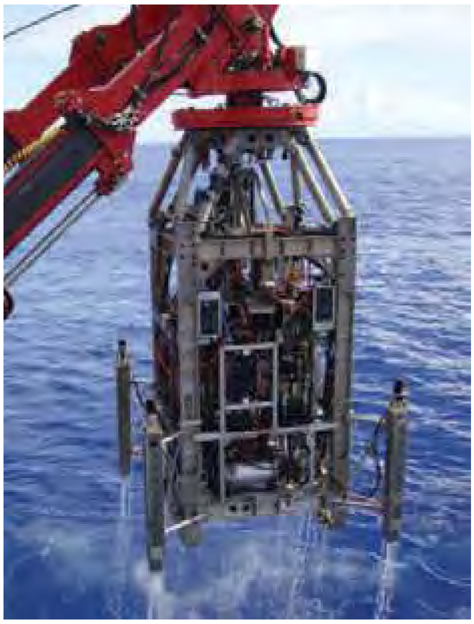
When paired with Av-Trak 6, Ranger 2 enhances AUV operations, combining telemetry and positioning. The 6G Sonardyne Messaging Service supports the transfer of vehicle mission updates and USBL reference positions to the AUV, as well as status messages from it, and AUV-to-AUV telemetry.

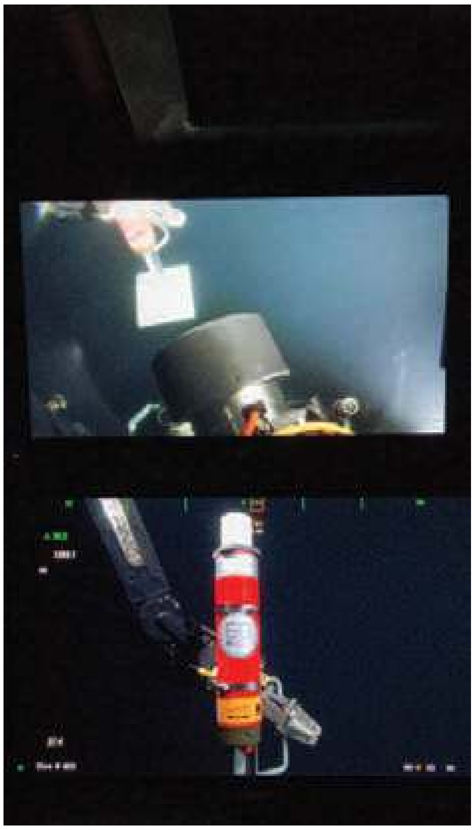
SEABED GEODESY

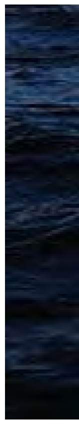
Ranger 2's flexibility allows you to recover data from our Autonomous Monitoring Transponders, which are increasingly being used for the long term measurement (up to 10 years) of seabed tectonic deformation. With both MF and LMF options available to support this capability, Ranger 2 HPTs can also be supplied as stand-alone modems for over-the-side wire deployment on ships not fitted with a Ranger 2 system.

WHY IT'S GOOD FOR OCEAN SCIENCE

- Tracks AUVs, ROVs and other equipment to full ocean depth
- Maintains performance in noisy, shallow water environments
- Built-in fast data telemetry capability
- Supports MF and long range LMF operating bands
- Easy to install on vessels of opportunity
- Inverted USBL mode for tracking over long laybacks
- Software is simple and intuitive
- Compatible with all DP systems







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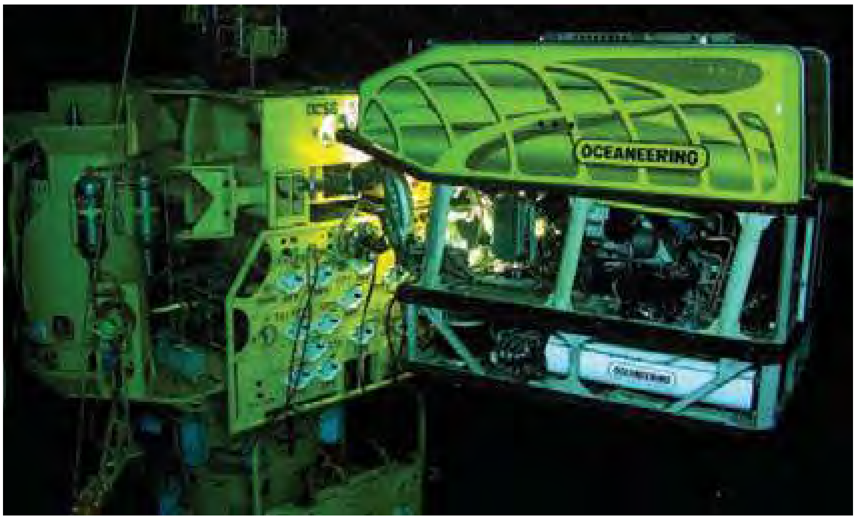
RANGER 2 USBL FOR

UNRIVALLED CAPABILITY

BE PREPARED FOR ANY VESSEL AND SUBSEA POSITIONING SCENARIO BY CHOOSING THE HIGHEST SPECIFICATION RANGER 2 PACK AVAILABLE – PROFESSIONAL. WITH THIS FEATURE PACK INSTALLED, YOU AND YOUR VESSEL HAVE GOT THE UNRIVALLED ABILITY TO SELECT WHICHEVER FEATURE YOU WANT, WHEN YOU WANT IT



RANGER 2 PROFESSIONAL PACK

Whether it's to provide an acoustically aided reference telegram to a DP desk whilst simultaneously tracking a complex structure with multiple transponders attached, or tracking an ROV overlaid on a geodetic backdrop whilst outputting an LUSBL DP telegram, Ranger 2 USBL Professional can do all this and more.

SURVEY AND DP

Ranger 2 Professional directly benefits multi-purpose vessels by enabling you to take advantage of the powerful position reference features found within the DP pack along with all the tracking features found within the Survey pack. This enables vessels to operate using a single USBL system for both DP and construction survey tasks which makes ownership and operation much simpler.

Professional retains the same easy to use UI of the standard version enabling you to make the switch with the minimum of extra training required. And, like the Survey pack, the UI can display exactly what you want to see.

WHY I'TS GOOD FOR ANY OPERATION

- Up to 0.07% slant range tracking performance
- Full support for aided INS and LUSBL vessel DP references
- Capability to track structures and vehicles with multiple transponders and multiple remote offsets
- Can operate in Standard and Optimised tracking modes
- Easy to install on vessels of opportunity
- Support for all Sonardyne 6G USBL transceivers, transponders and responders
- Configurable UI to suit multiple project tasks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SHIP FIT EQUIPMENT

BRIDGE & INSTRUMENT ROOM

EASIER, FASTER AND NOW MORE CONFIGURABLE. THE LATEST VERSION OF RANGER 2 OPERATING SOFTWARE IS UNLIKE ANY OTHER ACOUSTIC POSITIONING SOFTWARE PACKAGE AND BRINGS TOGETHER ALL THE FEATURES SURVEYORS, SCIENTISTS AND DPOS TOLD US THEY WANTED TO SEE. IF YOU'VE NEVER USED A USBL SYSTEM, YOU'LL QUICKLY FEEL COMFORTABLE USING RANGER 2 AND IN NO TIME, BE READY TO CONFIGURE YOUR FIRST UNDERWATER TRACKING OPERATION. IT'S ALSO DESIGNED SPECIFICALLY TO TAKE ADVANTAGE OF THE POWERFUL FEATURES CONTAINED WITHIN EVERY 6G TRANSPONDER AND TRANSCEIVER.

ALL THE TOOLS YOU NEED

Ranger 2 benefits from a completely revised main UI, a centralised transponder management table, an array planning tool for DP operations, configurable displays, and integrated support for iWand, our go-anywhere back deck test and configuration device for 6G transponders. And when you need them, remote infield upgrades unlock extra features – ensuring you only pay for what you need.

- **Highly configurable navigation chart with layers**
- **Importable DXF backdrops**
- **Remote control and output telegrams**
- **Built-in performance verification and optimisation tools**
- **Automatic detection of previously deployed transponders including configured address**

NAVIGATION PC (NAVPC)

The NavPC and NSH are designed to meet the complete on-board requirements of any Ranger 2 positioning operation. Featuring an Intel® Core i7 processor, the NavPC is purpose built to run the family of Ranger 2 software applications and is proven to withstand the rugged environmental conditions associated with marine operations. It measures just 2U high so is ideally suited for mounting in an instrument rack, portable case for temporary installations or within a DP desk.

- **Designed to industrial PC standards**
- **Internal security dongle**
- **Shock-mounted hard drive**
- **Dual screen (VGA, DVI or HDMI)**
- **Ethernet or Serial interface to NSH**

NAVIGATION SENSOR HUB (NSH)

The NSH is the interface between the in-water acoustic instruments, sensors and the NavPC which runs the Ranger 2 positioning software. In addition to accurately time-stamping incoming data from external devices such as gyros, VRUs and GNSS, the NSH also provides power and communications for ship-borne acoustic transceivers.

- **Configurable for stand-alone or dual independent modes**
- **Up to 16 Ethernet or serial interfaces**
- **6 transceiver serial ports providing 24/48 V DC power**
- **Sub-microsecond time-stamping on all Tx/Rx data**

SHIP FIT EQUIPMENT

TRANSCEIVERS

WHEN IT COMES TO USBL TRANSCEIVERS, ONE MODEL DOES NOT FIT ALL SITUATIONS AND VESSELS. THAT'S WHY OUR HIGH PERFORMANCE TRANSCEIVER (HPT) IS AVAILABLE WITH DIFFERENT ARRAY DESIGNS RANGING FROM FULL HEMISPHERICAL COVERAGE TO DIRECTIONAL DESIGNS FOR ULTRA-DEEP WATER AND HIGH VESSEL NOISE OPERATING ENVIRONMENTS. HPT TRANSCEIVERS CAN ALSO BE USED AS WIRELESS MODEMS FOR AUTONOMOUS MONITORING TRANSPONDER SETUP AND DATA RETRIEVAL AS WELL AS SUPPORTING LBL OPERATIONS.

TOWFISH MOUNTED

iUSBL/GYROiUSBL

A subsea vehicle based transceiver that turns conventional USBL tracking on its head. Designed for projects using deep tow, long layback survey platforms requiring high precision.

HPT 13000

A specialist USBL transceiver available to support tracking projects in the deepest water. The large array and advanced multi-element signal processing enables transponders to be tracked with ultimate precision.

LMF HPT

A Low Medium Frequency (14-18kHz) transceiver to ensure maximum data telemetry rate and positioning range whilst providing simultaneous multi-user operation with systems in other bands of operation. Identical functionality to that of Medium Frequency band HPT instruments.

GYROUSBL 5000/7000

Lodestar subsea AHRS sensor and HPT transceiver in one unit. GyroUSBL can be pre-calibrated for rapid and cost-effective deployment on vessels of opportunity. Available with standard and deep water optimised arrays.

HPT 7000

A USBL and LUSBL transceiver optimised for noisy dynamically positioned drilling and construction vessels operating in deep water. Vessel and thruster noise is rejected.

HPT 5000

Enables subsea targets to be tracked with precision and repeatability over a wide range of water depths and elevations. Supports high speed 6G data telemetry mode.

SHIP FIT EQUIPMENT

OPTIONS

OPTIMISED USBL

The positioning accuracy obtainable from Ranger 2 can be further improved by co-locating Lodestar, our premium quality Attitude and Heading Reference system (AHRS), with your vessel's 6G acoustic transceiver.

Known as Optimised USBL, the advantage of this configuration is that raw USBL range and bearing data is simultaneously processed with the Lodestar's attitude data. This achieves a tightly compensated solution that enables a system accuracy of 0.1% of slant range to be achieved. Available with standard Ranger 2 systems, or those enabled with Survey, DP and Professional feature packs.

TIP If you don't need the extra performance offered by Optimised USBL, the bridge-installed version of Lodestar is a cost effective replacement for your ship's gyro and VRU.

DP-INS

For tightly integrated acoustically-aided inertial DP operations ,you will need to install our DP-INS sensor to work alongside your Ranger 2 system.

GyroUSBL transceivers have this sensor built-in, its capability simply needs to be enabled. Alternatively, we offer a stand-alone unit for installing on your bridge or deployment machine. Both units incorporate three Ring Laser Gyroscopes and three accelerometers selected for use for their performance, high mean time between failure (MTBF) and ease of export (non ITAR). These sensors have highly stable error characteristics and are compensated for temperature variation.

TIP Did you know we use RLGs and inertial sensors with a 400,000hrs MTBF, proven over 15 years of use in almost every commercial airliner?

VIEWPOINT REMOTE WORKSTATION

If you want to share and visualise positioning data from your Ranger 2 system with other teams on board, then you will need a Viewpoint remote display workstation.

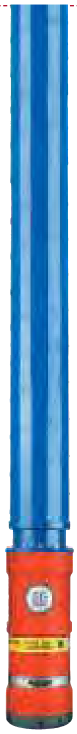
It enables you to transform co-ordinates of surface vessels, subsea vehicles and structures into geographical information overlaid on easy-to-use guidance displays. When changes to Ranger 2 are made, such as adding a new tracked target, they automatically appear on ViewPoint workstations. And because it is serially interfaced with Ranger 2, Viewpoint is totally secure; there is no way to affect live survey and DP operations.

TRANSCEIVER DEPLOYMENT – PERMANENT

USBL system performance is seriously degraded by poor transceiver mounting and deployment so we've developed a family of highly engineered deployment machines suitable for any situation. Validated on hundreds of vessels, our through-hull hydraulic deployment machine is ideal for permanent installations and features a stiff, corrosion-resistant pole, high integrity bearing and sealing design and reliable hydraulic actuation with safety interlocks, sea chest for access, and remote control options.

Where through-hull deployment via a gate valve is not available or practical, a through-tube machine is available. Modular, easy to transport sections accommodate any pole length and once deployed, the pole is held rigidly in place using a self-contained hydraulic clamping mechanisms.

TRANSCEIVER DEPLOYMENT – TEMPORARY



For short term projects using a vessel of opportunity, our modular over-the-side deployment pole provides a cost-effective and practical solution. Pole lengths can be adjusted by adding or removing sections and once the assembled pole is lowered and locked into position, a high degree of stability is assured.

- **High performance, high integrity survey grade deployment system**
- **Drag and vortex reducing strakes**
- **Deck and hull mount options**
- **Sectional pole allows length to be configured for each vessel**
- **Good corrosion resistance**
- **Custom design available for other manufacturers instrumentation**
- **Easy to transport and assemble**

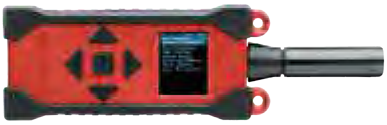
VEHICLE FIT / SEABED EQUIPMENT

TRANSPONDERS

WIDEBAND SUB-MINI 6+ (WSM 6+)

Included with any purchase of our Ranger 2 USBL system, WSM 6+ is the ideal choice of transponder for tracking mobile underwater targets such as a towfish, crane wire, ROV and manned submersible. 2-way wideband signals ensure reliable acoustic performance in all conditions.

- Small and rugged
- 1,000 metre and 4,000 metre depth ratings
- Omni-directional or directional transducers
- Inbuilt depth sensor aids USBL performance
- Responder mode for fast position updates
- Rechargeable battery



TIP iWand – use it to test and configure any 6G transponder on the back deck. You can even import their settings straight into Ranger 2.

WIDEBAND MINI TRANSPONDER 6 (WMT 6)

If size and weight are important considerations, but you need the capability to track equipment in water depths up to 7,000 metres, look no further than the WMT 6. Its high power acoustic output means it's perfect for noisy operating environments.

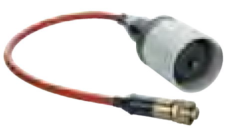
- 3,000 metre, 5,000 metre and 7,000 metre depth ratings
- Available with remote transducer (3,000 metre version)
- Mini size – small and lightweight
- Full 2-way Sonardyne Wideband communications
- Responder mode for fast position updates
- Long life Li-ion battery

TIP If you're not using your WMT for a while, the unit's external On/Off switch helps to ensure it is always ready for your next operation.

AV-TRAK 6

Av-Trak 6 combines the functions of a USBL transponder, LBL transceiver and wireless communications link in one low power instrument that's perfect for missions involving AUVs. Available with electronics-only for customer integration and a custom I/O for mission abort and ballast jettison.

- Combined transponder, transceiver and telemetry instrument
- Track it, navigate it and command it
- Depth ratings to 7,000 metres
- Can aid vehicle's INS system
- Remote transducer option for easy vehicle installation
- Rechargeable battery



TIP If space on your vehicle is limited, Av-Trak 6 can be supplied with a remote transducer allowing you to install the main electronics housing wherever you want.

WIDEBAND RELEASE TRANSPONDER 6 (WRT 6)

WRT 6 is a dedicated acoustic release transponder which you can use with Ranger 2 to deploy, track and detach seafloor equipment and instrument moorings. It uses field-proven mechanics combined with 6G electronics to ensure interference-free operation in multi-user scenarios.

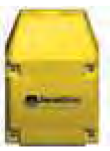
- **1,275 kg Working Load Limit (WLL)**
- **Higher WLL available with load maximisation frames**
- **Highly reliable release mechanism**
- **External On/Off switch to maximise battery life when not in use**
- **Depth rated to 3,000 metres**
- **Can be positioned using Kongsberg HiPAP® systems**

TIP Load amplification frames extend the WLL of WRT 6s – perfect for structure installation projects.

DYNAMIC POSITIONING TRANSPONDER 6 (DPT 6)

If you need an ultra-dependable, cost effective seabed DP reference transponder, DPT 6 is the answer. It's quick to set up on the back deck, easy to deploy and can be recovered without the need to send down an ROV.

- **Highly reliable acoustic release mechanism**
- **3,000 metre, 5,000 metre and 7,000 metre depth ratings**
- **Robust acoustic performance in all conditions**
- **Hundreds of operating channels**
- **Choice of sensors including depth, temperature and inclinometer**



TIP If you're deploying a Compatt or DPT on the seabed, you'll need a floatation collar. We have designs to suit every application.

COMPATT 6 (C6)

From Mini to Mega, C6 is the industry standard transponder used for high precision subsea survey and construction in all water depths. Available in a wide range of sizes, materials, sensor and battery configurations, ask us which one is right for your project.

- **Multi-functional transponder; supports USBL, LBL, modem and gyro applications**
- **Mini, Midi, Standard, Mega and Maxi sizes**
- **Can be used by multiple users simultaneously**
- **Extensive choice of sensors, depths and batteries**
- **Global track record of success**

SUPPORT

WE INSTALL, WE TRAIN, WE MAINTAIN.

WITH SEVERAL THOUSAND USBL INSTALLATIONS SUCCESSFULLY UNDERTAKEN, WE HAVE THE EXPERIENCE TO WORK SIDE-BY-SIDE WITH YOUR NAVAL ARCHITECT, SHIPYARD, DP SUPPLIER AND CREW TO MAKE THE PROCESS OF INVESTING IN RANGER 2 PROBLEM-FREE AND LOW-RISK. IT'S ALL PART OF THE SERVICE THAT HELPS LOWER YOUR OPERATIONAL RISK, SPEED UP YOUR SUBSEA OPERATIONS AND KEEP VESSEL DOWNTIME TO A MINIMUM.

EXPERT ADVICE

Our long-term partnership with clients has enabled us to develop a unique and extensive insight into the diverse nature of underwater operations and the associated commercial and operational pressures. We understand that the technology investment decisions you take today, will affect your operational capability for years to come so they need to be right.

That's why you can trust our global commercial and technical teams to give you expert advice on which Ranger 2 system is best for you, how to finance it (now including lease rental), where and how it should be installed, what transponders you need and the typical performance you can expect to see based on how and where you'll be using it.

OPERATOR TRAINING

Making sure that you get the very best out of your Ranger 2 system once it is installed and commissioned is the goal of our operator training programme. From standard courses run at our worldwide centres to bespoke courses held on your vessel, Sonardyne's training is comprehensive and flexible.

HELP WHEN YOU NEED IT

Once you become a Sonardyne Ranger 2 customer, you gain unrivalled access to our customer care programme. A dedicated email helpline connects you to product engineers ready to answer your questions but if it's more urgent, our 24 hour worldwide telephone help-line is standing by ready to resolve any operational issues you're facing.

ANNUAL SERVICE VISITS

Of course, the best way to ensure your equipment always performs as it should, is to service it regularly. Book an annual service visit, and one of our field engineers will inspect the health of your vessel's system including updating software and firmware and inspecting your deployment machine to make sure regular checks are being carried out. Transponder sensors can be re-calibrated at any one of our international service centres.


HPT 5000
FORWARD


This is to certify that
Your DP Officer
Has attended
The 2 day Ranger 2 USBL
Operators Training Course
At Sonardyne Sea Trials Centre
Plymouth, UK
Course Instructor:
Certificate Number: 1064

SUBSEA TECHNOLOGY

Global Headquarters
T. +44 (0) 1252 872288
F. +44 (0) 1252 876100
sales@sonardyne.com

Aberdeen, UK
T. +44 (0) 1224 707875
F. +44 (0) 1224 707876
sales@sonardyne.com

Houston, USA
T. +1 281 890 2120
F. +1 281 890 7047
usa.sales@sonardyne.com

Singapore
T. +65 6542 1911
F. +65 6542 6937
asia.sales@sonardyne.com

Rio das Ostras, Brasil
T. +55 22 2123 4950
F. +55 22 2123 4951
brasil.sales@sonardyne.com

24 Hour Emergency Telephone Helpline
T. +44 (0) 1252 877600
support@sonardyne.com

4200 SERIES
SIDE SCAN SONAR SYSTEM

EdgeTech
An Affiliate of ORE Offshore

FEATURES

- Optional Multi-Pulse (MP) technology for high speed surveys
- Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Choice of stainless steel or lightweight aluminum towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

APPLICATIONS

- Cable & Pipeline Surveys
- Geological/Geophysical Surveys
- Mine Countermeasures (MCM)
- Geohazard Surveys
- Channel Clearance
- Search and Recovery
- Archeological Surveys

The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.

One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classification ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Definition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best configuration for the specific job type.

A 4200 system comes with a choice of a dual simultaneous frequency towfish available in either a stainless steel or lightweight aluminum housing depending on operational requirements. Customers can also choose between a rack mount or portable topside processor or a digital link to interface to 3rd party topsides and software.

4200 SERIES

SIDE SCAN SONAR SYSTEM

KEY SPECIFICATIONS

SONAR SPECIFICATIONS	STANDARD	WITH OPTIONAL MP TECHNOLOGY
Frequency	Choice of either 100/400, 300/600 or 300/900 kHz dual simultaneous	
Operating Range (meters/side)	100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m	
Horizontal Beam Width:	100 kHz: 1.5°, 300 kHz: 0.5°, 400 kHz: 0.4°, 600 kHz: 0.26°, 900 kHz: 0.2°	In High Speed Mode: 100 kHz: 1.26°, 300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°, 900 kHz: 0.3° In High Definition Mode: 100 kHz: 0.64°, 300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°, 900 kHz: 0.2°
Resolution Along Track	100 kHz: 5 m @ 200 m 300 kHz: 1.3 m @ 150 m 400 kHz: 0.6 m @ 100 m 600 kHz: 0.45 m @ 100 m 900 kHz: 18 cm @ 50 m	High Definition Mode: 100 kHz: 2.5m @ 200m 300 kHz: 1.0m @ 200m 400 kHz: 0.5m @ 100m 600 kHz: 0.45m @ 100m 900 kHz: 18 cm @ 50m HIgh Speed Mode: 100 kHz: 4.4m @ 200m 300 kHz: 1.9m @ 200m 400 kHz: 0.7m @ 100m 600 kHz: 0.6m @ 100m 900 kHz: 26 cm @ 50m
Resolution Across Track	100 kHz: 8 cm, 300 kHz: 3 cm, 400 kHz: 2 cm, 600 kHz: 1.5 cm, 900 kHz: 1 cm	
Vertical Beam Width	50°	
Depression Angle	Tilted down 20°	

TOWFISH	STAINLESS STEEL	ALUMINUM
Diameter	11.4 cm (4.5 inches)	
Length	125.6 cm (49.5 inches)	
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)	30 / 18 kg (66 / 40 pounds)
Depth Rating (Max)	2,000m	500m
Standard Sensors	Heading, pitch & roll	
Optional Sensor Port	(1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC	
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors	

TOPSIDE PROCESSOR	4200-P	4200	701-DL INTERFACE
Hardware	Portable splash-proof case	19” rack mount computer	19” rack mount interface
Display & Interface	Splash-proof laptop	21” flat panel monitor, keyboard & trackball	Customer-supplied
Power Input	20-36 VDC or 115/230 VAC	115/230 VAC	115/230 VAC
Operating System	Windows© XP Pro		
File Format	Native JSF or XTF		
Output	Ethernet		

TOW CABLE	
	Coaxial Kevlar or double-armored up to 6,000m, winches available

EdgeTech

4205

TRI-FREQUENCY / MOTION TOLERANT SIDE SCAN SONAR SYSTEM

FEATURES

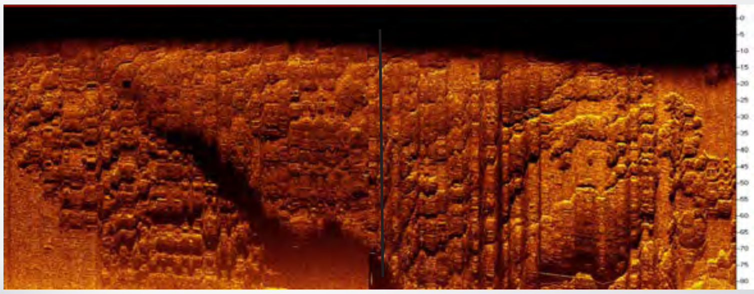
- Tri frequency side scan sonar
- Motion tolerant mode
- Improved target positioning
- Crisp, high resolution CHIRP imagery
- Increased towfish power to support wider range of 3rd party sensors
- Single pulse high resolution mode

APPLICATIONS

- Cable & pipeline surveys
- Geological/geophysical surveys
- Mine countermeasures (MCM)
- Geohazard surveys
- Channel clearance
- Search and recovery
- Archeological surveys

The next generation 4205 is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4205 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys. In addition to the high-resolution imagery that EdgeTech is known for, the 4205 comes with a number of new features which makes the system even more flexible and powerful in offshore operations. The 4205 is available in either a tri-frequency side scan sonar configuration or motion tolerant and multi-pulse configuration. The tri-frequency version allows surveyors the option to operate any two frequencies simultaneously from the tri-frequency system. Long range operations for example can be achieved with a selection of 230/540 kHz combination. Then, on-demand the system can be changed to a 540/850kHz system for an even higher resolution survey. The 4205 motion tolerant configuration with multi-pulse provides surveyors the ability to operate either at faster survey speeds or in more adverse weather conditions while still obtaining high quality underwater imagery. Additionally, this configuration can be operated in a single pulse high-resolution mode for those operations that require an even more finite view of the seafloor.

In both the tri-frequency and motion tolerant/ multi-pulse configurations, towfish and target positioning has been improved with the integration of a more accurate heading sensor that can be coupled with an optional USBL beacon. Additionally, all systems now come with increased towfish power to support a wider range of additional 3rd party sensors. All EdgeTech 4205 systems are comprised of a topside system and a reliable stainless steel towfish. Topside processors are rack mountable and come with easy-to-use GUI software that can be installed on the optional industrial workstation, laptop or customer provided PC.



Motion Tolerant Mode Sonar example: During turbulent conditions, the data on the left of side of this image was recorded using the EdgeTech 4205 Motion Tolerant mode. The right side of the image, depicting motion induced striping was captured without the Motion Tolerant mode for comparison.

For more information please visit EdgeTech.com

info@EdgeTech.com | USA 1.508.291.0057

EdgeTech

4205

TRI-FREQUENCY / MOTION TOLERANT SIDE SCAN SONAR SYSTEM

KEY SPECIFICATIONS

SONAR SPECIFICATIONS	4205 TRI-FREQUENCY	4205 MULTI-PULSE/MOTION TOLERANT (MP/MT) AND HIGH DEFINITION MODE	
Frequency	Choice of either 120/410/850 kHz or 230/540/850 kHz	Choice of either 120/410 kHz, 230/540 kHz,or 230/850 kHz	
Operating Range (meters/side)	120 kHz: 600m, 230 kHz: 350m, 410 kHz: 200m, 540 kHz: 150m, 850 kHz: 90m		
		MP/MT	HDM
Horizontal Beam Width	120 kHz: 0.70° 230 kHz: 0.44° 410 kHz: 0.28° 540 kHz: 0.26° 850 kHz: 0.23°	120 kHz: 0.95° 230 kHz: 0.62° 410 kHz: 0.40° 540 kHz: 0.36° 850 kHz: 0.33°	0.70° 0.44° 0.28° 0.26° 0.23°
		MP/MT	HDM
Resolution Along Track	120 kHz: 2.4m @ 200m 230 kHz: 1.2m @ 150m 410 kHz: 0.5m @ 100m 540 kHz: 0.45m @ 100m 850 kHz: 0.20m @ 50m	120 kHz: 3.3m @ 200m 230 kHz: 1.7m @ 150m 410 kHz: 0.7m @ 100m 540 kHz: 0.6m @ 100m 850 kHz: 0.26m @ 50m	2.4m @ 200m 1.2m @ 150m 0.5m @ 100m 0.45m @ 100m 0.20m @ 50m
Resolution Across Track	120 kHz: 8cm; 230 kHz: 3cm; 410 kHz: 2 cm; 540 kHz: 1.5cm; 850 kHz: 1cm		
Vertical Beam Width	50°		
Depression Angle	Tilted down 25°		
TOWFISH	**STAINLESS STEEL**		
Diameter	12cm (4.75 inches)		
Length	140cm (55 inches)		
Weight in Air	52 kg (115 pounds)		
Depth Rating (Max)	2,000m		
Standard Sensors	Heading, pitch & roll		
Optional Sensor Port	(1) Serial – RS 232C, Bi-directional & 28 VDC +/- 4%		
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors		
TOPSIDE PROCESSOR	**4205 INTERFACE**		
Hardware	19" rack mount interface (150 watt or 400 watt)		
Display & Interface	Optional industrial workstation, laptop or customer provided PC		
Power Input	115/230 VAC		
File Format	Native JSF or XTF		
Sensor Interfaces	Ethernet, RS 232		
TOW CABLE			
	Coaxial Kevlar or double-armored up to 6,000m, winches available		

Trimble R8 GNSS Receiver

KEY FEATURES

Advanced Trimble R-Track technology

Unmatched GNSS tracking performance

Includes Trimble Maxwell 6 chip with 220 channels

Remote configuration and access

Base and rover communications options to suit any application

The Trimble® R8 GNSS Receiver sets the new standard for full-featured GNSS (Global Navigation Satellite System) receiver technology. This integrated system delivers unmatched power, accuracy and performance in a rugged, compact unit.

ADVANCED TRIMBLE R-TRACK TECHNOLOGY
The Trimble R8 GNSS delivers the latest advancements in R-Track™ technology, designed to deliver reliable, precise positioning performance. In challenging areas for GNSS surveying, such as tree cover or limited sky view, Trimble R-Track provides unmatched tracking performance of GNSS satellite signals.

Trimble R-Track with Signal Prediction™ compensates for intermittent or marginal RTK correction signals, enabling extended precision operation after an RTK signal is interrupted.

The new CMRx communications protocol provides unprecedented correction compression for optimized bandwidth and full utilization all of the satellites in view, giving you the most reliable positioning performance.

Featuring the Trimble Maxwell™ 6 chip, the Trimble R8 GNSS advances the industry with more memory and more GNSS channels. Trimble delivers business confidence with a sound GNSS investment for today and into the future.

Broad GNSS Support
The Trimble R8 GNSS supports a wide range of satellite signals, including GPS L2C and L5 and GLONASS L1/L2 signals. In addition, Trimble is committed to the next generation of modernized GNSS configurations by providing Galileo-compatible products available for customers well in advance of Galileo system availability[1,2]. In support of this plan, the new Trimble R8 GNSS is capable of tracking the experimental GIOVE-A and GIOVE-B test satellites for signal evaluation and test purposes.

FLEXIBLE SYSTEM DESIGN
The Trimble R8 GNSS receiver combines the most comprehensive feature set into an integrated and flexible system for demanding surveying applications. The Trimble R8 GNSS includes a built-in transmit/receive UHF radio, enabling ultimate flexibility for rover or base operation. As a base station, the internal NTRIP caster provides you with customized access[3] to base station corrections via the internet.

Trimble's exclusive, Web UI™ eliminates travel requirements for routine monitoring of base station receivers. Now you can assess the health and status of base receivers and perform remote configurations from the office. Likewise, you can download post-processing data through Web UI and save additional trips out to the field.

ENABLING THE CONNECTED SITE
Pair the speed and accuracy of the Trimble R8 GNSS receiver with flexibility and collaboration tools of Trimble Access™ software. Trimble Access brings field and office teams closer by enabling data sharing and collaboration in a secure, web-based environment. With optional streamlined workflows, Trimble Access further empowers surveyors and survey teams for success. Now it is easier than ever to realize the potential of the Trimble Connected Site. Connecting the right tools, techniques, services and relationships enables surveying businesses to achieve more every day.

1 ***Galileo Commercial Authorization***
Receiver technology having Galileo capability to operate in the Galileo frequency bands and using information from the Galileo system for future operational satellites is restricted in the publicly available Galileo Open Service Signal-In-Space Interface Control Document (GAL OS SIS ICD) and is not currently authorized for commercial use.
Receiver technology that tracks the GIOVE-A and GIOVE-B test satellites uses information that is unrestricted in the public domain in the GIOVE A + B Navigation Signals-In-Space Interface Control Document. Receiver technology having developmental GIOVE-A and B capability is intended for signal evaluation and test purposes.

2 *For more information about Trimble and GNSS modernization, please visit* ***http://www.trimble.com/srv_new_era.shtml****.*

3 *Cellular modem required.*

Trimble R8 GNSS Receiver

TRIMBLE R8 GNSS RECEIVER

PERFORMANCE SPECIFICATIONS

Measurements

- Trimble R-Track technology
- Advanced Trimble Maxwell 6 Custom Survey GNSS chip with 220 channels
- High precision multiple correlator for GNSS pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Proven Trimble low elevation tracking technology
- Satellite signals tracked simultaneously:
  - GPS: L1C/A, L2C, L2E (Trimble method for tracking L2P), L5
  - GLONASS: L1C/A, L1P, L2C/A (GLONASS M only), L2P
  - SBAS: L1C/A, L5
  - Galileo GIOVE-A and GIOVE-B

Code differential GNSS positioning[1]

Horizontal . . . . . 0.25 m + 1 ppm RMS
Vertical . . . . . 0.50 m + 1 ppm RMS
WAAS differential positioning accuracy[2] . . . . . typically <5 m 3DRMS

Static and FastStatic GNSS surveying[1]

Horizontal . . . . . 3 mm + 0.1 ppm RMS
Vertical . . . . . 3.5 mm + 0.4 ppm RMS

Kinematic surveying[1]

Horizontal . . . . . 10 mm + 1 ppm RMS
Vertical . . . . . 20 mm + 1 ppm RMS
Initialization time[3] . . . . . typically <10 seconds
Initialization reliability[4] . . . . . typically >99.9%

HARDWARE

Physical

Dimensions (W×H) . . . . . 19 cm × 11.2 cm (7.5 in x 4.4 in), including connectors
Weight . . . . . 1.34 kg (2.95 lb) with internal battery, internal radio, standard UHF antenna.
3.70 kg (8.16 lb) entire RTK rover including batteries, range pole, controller and bracket

Temperature[5]
Operating . . . . . –40 °C to +65 °C (–40 °F to +149 °F)
Storage . . . . . –40 °C to +75 °C (–40 °F to +167 °F)
Humidity . . . . . 100%, condensing
Water/dustproof . . . . . IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)

Shock and vibration . . . . . Tested and meets the following environmental standards:
Shock . . . . . Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete. Operating: to 40 G, 10 msec, sawtooth
Vibration MIL-STD-810F, FIG.514.5C-1

Electrical

- Power 11 to 28 V DC external power input with over-voltage protection on Port 1 (7-pin Lemo)
- Rechargeable, removable 7.4 V, 2.4 Ah Lithium-Ion battery in internal battery compartment. Power consumption is 3.2 W, in RTK rover mode with internal radio. Operating times on internal battery:
  - 450 MHz receive only option . . . . . 5.8 hours[7]
  - 450 MHz receive/transmit option . . . . . 3.7 hours[8]
  - GSM/GPRS . . . . . 4.1 hours[7]
- Certification Class B Part 15, 22, 24 FCC certification, 850/1900 MHz. Class 10 GSM/GPRS module. CE Mark approval, and C-tick approval

Communications and Data Storage

- 3-wire serial (7-pin Lemo) on Port 1. Full RS-232 serial on Port 2 (Dsub 9 pin)
- Fully Integrated, fully sealed internal 450 MHz receiver/transmitter option:
  - Transmit power: 0.5 W
  - Range[6]: 3–5 km typical / 10 km optimal
- Fully integrated, fully sealed internal GSM/GPRS option[7]
- Fully integrated, fully sealed 2.4 GHz communications port (Bluetooth®)[9]
- External cellphone support for GSM/GPRS/CDPD modems for RTK and VRS operations
- Data storage on 57 MB internal memory: 40.7 days of raw observables (approx. 1.4 MB /Day), based on recording every 15 seconds from an average of 14 satellites
- 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz positioning
- CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1 Input and Output
- 16 NMEA outputs, GSOF, RT17 and RT27 outputs. Supports BINEX and smoothed carrier

1 Accuracy and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. Always follow recommended survey practices.
2 Depends on WAAS/EGNOS system performance.
3 May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry.
4 May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
5 Receiver will operate normally to –40 °C, internal batteries are rated to –20 °C.
6 Varies with terrain and operating conditions.
7 Varies with temperature.
8 Varies with temperature and wireless data rate.
9 Bluetooth type approvals are country specific.
Contact your local Trimble Authorized Distribution Partner for more information.

Specifications subject to change without notice.

TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

NORTH AMERICA
Trimble Engineering & Construction Group
5475 Kellenburger Road
Dayton, Ohio 45424-1099 • USA
800-538-7800 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax

EUROPE
Trimble GmbH
Am Prime Parc 11
65479 Raunheim • GERMANY
+49-6142-2100-0 Phone
+49-6142-2100-550 Fax

ASIA-PACIFIC
Trimble Navigation Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269 • SINGAPORE
+65-6348-2212 Phone
+65-6348-2232 Fax

www.trimble.com

Teledyne Oceanscience

rapidCAST™

Underway Profiling System

Teledyne Oceanscience's new rapidCAST™ underway profiling system allows surveyors and scientists to collect precise sound velocity (SV) profile on the fly. This unique technology eliminates costly survey down time and greatly increases survey efficiency by removing the need to stop the vessel to collect critical SV measurements. The new rapidCAST seamlessly delivers near real-time data, which is critical to ensuring the quality and integrity of bathymetric survey data.

The highly robust and nimble rapidCAST allows for SV casts to over 500 m depth while traveling at speeds of up to 5 kts, without the need for an operator on deck. (Deeper casts or higher speeds are possible - see chart on reverse side.) Using an advanced active line payout system with precise tension control, the effects of vessel speed and heave are eliminated, allowing the freefall SV probe to maintain a ±5% depth accuracy versus target even with no conducting cable tether. Integrated Bluetooth data transfer capability eliminates the need to fully recover the probe between casts, allowing the surveyor to conduct SV profile from their survey position, eliminating the need for an added deckhand.

The system's light weight combined with its small footprint allow for fast and easy installation onboard virtually any survey vessel of opportunity, allowing surveyors greater flexibility.

PRODUCT FEATURES

- Rapid underway sound velocity profiles at up to 12 kts
- Repeatable automated profiling to >500 m at 5 kts or deeper at slower speeds
- ±5% depth accuracy versus target
- Automatic Bluetooth data download after every profile
- Lightweight portable system
- Fast single-person mobilization
- Small footprint allows installation on practically any vessel
- Only seven-minute cycle time to 200 m @ 8 kts
- High quality Valeport rapidSV direct reading probe
- Optional temperature sensor
- Future Valeport Rapid CTD/Fluorescence probe option

TECHNICAL SPCIFICATIONS

Winch	Length	48 cm (18.89")
	Length with Davit	200 cm (78.74")
	Width	71 cm (27.95")
	Height	46 cm (18.11")
	Weight	36 kg (79.36 lbs.)
	Input Voltage	48 VDC/ 2.0 kW
	Line Capacity	1500 m standard (up to 3000 m)
	Construction	Aluminum/Delrin/Titanium/Stainless Steel
	Probe Recovery Speed	0.5-2 m/s (1.5-6.6 fps)
	Mount	Swivel base (12 cm diameter)
	Hardware	Stainless Steel
Control Module	Weight	14 kg (30.86 lbs.)
	Length	52 cm (20.47")
	Width	34 cm (13.34")
	Height	29 cm (11.42")
	Input Power	90-264 VAC (47-63 Hz)
	Output Power	48 VDC
Davit	Length	160 cm (63")
	Diameter	5 cm (2")
	Weight	1.18 kg (2.6 lbs.)
Valeport rapidSV Probe	Length (with tail spool)	111 cm (43.70")
	Diameter	5 cm (1.96")
	Weight (in air) (without tail spool)	4.48 kg (9.87 lbs.)
	Internal Memory	1000 casts
	Depth Rating	2000 m
	Pressure	Resolution ±0.001% range / Accuracy ±0.01% range / Range 0-200 dBar
	Temperature (if fitted)	Resolution 0.001C / Accuracy ±0.01C / Range -5 to 35C
	Sound Velocity	Resolution 0.001 m/s Accuracy ±0.02 m/s Range 1375 – 1900 m/s

Profiling Capability >500 m at 5 kts or deeper at slower speeds

EQUIPMENT SHEET OFFSHORE SURVEY

FUGRO
SBE SEACAT 19 PLUS

The SBE Seacat 19 Plus velocimeter measures conductivity, temperature, and pressure (CTD) with high accuracy, resolution, and reliability for a wide range of survey applications.

The pump-controlled T-C ducted flow configuration minimizes salinity spiking caused by ship heave and allows for gradual decent rates without slowing sensor responses, improving dynamic accuracy and resolving small-scale structure in the water column.

APPLICATION
The SBE 19 Plus samples continuously up to four scans per second (4 Hz), is battery operated and self-recording, and is commonly used in the field without a computer, recording up to 100 individual profiles. Nine D-size alkaline batteries provide up to 60 hours of operation.

OPERATION
The 19 Plus is commonly used autonomously, recording data internally. It can also provide real-time acquisition and display over short cables via the RS-232 interface. A load-bearing cable for hand-hauled, real-time profiling is available.

The SBE 19 Plus is supplied with a powerful Windows-based software package (SEASOFT-Win 32), which includes programs for communication and data retrieval, real-time acquisition, display, and plotting, as well as data processing (filtering, aligning, and averaging). Firmware upgrades can be downloaded through the communications port by the user without opening the instrument.

System capabilities include the following:

- 64 MB FLASH RAM memory
- 6 Auxiliary A/D input channels
- Supplies power to seven external sensors
- Samples continuously up to 4 Hz
- Data can be output in XML or ASCII format
- Battery operation for up to 60 continuous hours

Appendix B

PSO Equipment Specification Sheets

Night Monitoring Equipment Specifications

Night monitoring watches will be conducted with night vision goggles with head mounts and thermal clip-ons. Regular night vision binoculars work by enhancing the disponible light to allow a brighter image with the use of phosphor screen. The PVS-7D night vision goggles (Figure 1) withstand water immersion and runs on two AA batteries for more than 40 hours. Also provided were three pairs of batteries and a batteries charger with the equipment.

Figure 1: Night vision goggles with thermal clip.

The thermal clip on the night vision binocular enabled the capture of infrared light, which provided thermal imaging. The handheld forward-looking infrared (FLIR) system may also be provided (Figure 2). This allows a bit more flexibility with the IR detached from the headpiece.

Figure 2: Handheld thermal FLIR

Night Monitoring Equipment Specifications

Night Vision Goggle Technical Specifications

- Generation: 3 U.S.
- Resolution: 64 lp/mm (Min)
- Film: Thin-filmed
- Magnification: 1x
- Field of View: 40º
- Objective Lens: 25mm f/1.2
- Eyepiece Lens EFL: 26 mm
- Diopter Adjustment: +2 to -6
- Interpupillary Adjustment: 55 to 71 mm
- Range of Focus: 20cm to infinity
- Battery Type: Two (2) AA batteries
- Weight w/batteries: 24 oz / 680 grams
- Dimensions: 6 3/8”(L) x 6”(W) x 3”(H)
- Operating Temperature: -51°C to +52° C
- Weather Resistant: Yes
- IR Illuminator: Yes (built in)

Thermal Acquisition Clip-On Technical Specifications

- Field of View: 20° circular (centered)
- Magnification: 1X, optical unity
- Sensor: 320 x 240 Vox uncooled LWIR microbolometer
- Display Brightness: Adjustable
- Polarity: White hot/black hot
- Calibration: Manual
- Range: Detection – 300m, Recognition – 260m
- Compatibility: PVS-7
- Interface: Standard quick connect
- Battery Type: CR123, 3V lithium
- Battery Life: >3.0 hours (23°C), 2.5 hours (0°C)
- Dimensions: 38 x 64 x 89 mm (W x H x L)
- Weight: 166g with battery

Forward–looking Infrared (FLIR) Monocular Technical Specifications

- Dimensions: 5.5”(L) x 2.7”(W) x 1.9”(H)
- Weight: 0.46 pounds
- Detector Type: 320 x 256 V0x Microbolometer
- FOV: 24° x 19° (NTSC)
- Refresh Rate: 60 Hz
- Video Output: Digital Video
- Optical Magnification: 1x
- Display: Quad-VGA (1280 x 960) FLCOS
- Battery Type: One CR123A 3V Lithium Battery
- USB Power: 5 VDC

Appendix C

Discussion Draft – Native American Tribes Communication Plan

Vineyard Mid-Atlantic/Lease Area OCS-A 0544

Native American Tribes Communication Plan

DISCUSSION DRAFT

I. Overview

Vineyard Offshore is an offshore wind development company established by the same team that developed Vineyard Wind 1 (Lease Area OCS-0501), the nation's first commercial-scale offshore wind project. Vineyard Offshore leads the development of two lease areas along the US East Coast – Lease Area OCS-A 0544 (also known as Vineyard Mid-Atlantic) and Lease Area OCS-A 0522 (also known as Vineyard Northeast).

Section 3.1.2.2. of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (the "Lease Agreement") for Lease Area OCS-A 0544 requires Vineyard Mid-Atlantic to develop a publicly available Native American Tribes Communication Plan (NATCP) that describes the strategies that we intend to use for communicating with federally recognized tribal communities and outlines specific methods for engaging with and disseminating information to federally recognized tribal communities with cultural and/or historical ties to the lease area. This document serves as the NATCP for Vineyard Mid-Atlantic in satisfaction of the above-cited Lease Agreement provision and will be implemented by Vineyard Offshore as the developer.

Vineyard Offshore understands and respects that the areas where it intends to develop its projects are part of tribes' cultural heritage and their traditional bonds to the past and importance to their cultural identity, sense of self, and future well-being. Open communication and consultation are therefore essential, given the potential for offshore wind development in Lease Area OCS-A 0544 to affect tribal communities' historical and cultural properties. This NATCP is based on our experience working with federally recognized tribes in conjunction with Vineyard Wind 1 and reflects the best practice recommendations outlined in the handbook published by the Advisory Council on Historic Preservation in 2019.[2] This document

[2] See https://www.achp.gov/sites/default/files/documents/2019-10/EarlyCoordinationHandbook_102819_highRes.pdf.

will be updated as needed to reflect feedback from tribal communities and federal agencies and ensure communication and information sharing protocols remain relevant and effective.

II. NATCP Approach

Vineyard Offshore has gained experience engaging and communicating with tribal communities both informally and through the National Historic Preservation Act's Section 106 consultation process. We fully understand that effective communication, early coordination, and information sharing are key to building productive working relationships with tribal communities and addressing tribal concerns.

Through the implementation of this NATCP, Vineyard Offshore aims to:

- develop and maintain positive, long-term working relationships with tribal communities in support of tribal efforts to preserve and maintain cultural heritage and histories.
- ensure that tribal communities are aware of Vineyard Mid-Atlantic's development milestones, provided with up-to-date information, and informed of and invited to local project-related outreach events and public meetings.
- give timely notice ahead of geological surveys and afford ample opportunities for tribal representatives to review and discuss survey results with Vineyard Offshore and contracted experts.
- understand tribal concerns about potential impacts to historical and cultural properties from offshore wind development in Vineyard Mid-Atlantic.
- where appropriate develop collaborative mitigation strategies for potentially unavoidable impacts.
- solicit input from tribal communities on offshore wind survey plans as well as project siting and design elements.
- identify opportunities to recruit, mentor, and train tribal community members for careers in the offshore wind industry.

Vineyard Offshore will work with tribal communities to develop mutually acceptable protocols for effective communication and information-sharing. As much as possible, these protocols will account for how tribal communities prefer to engage with offshore wind developers and receive information.

III. Federally Recognized Tribes

The Lease requires the lessee to disseminate information to "federally recognized Tribes with cultural and/or historical ties to the lease area." It also requires coordination of tribal pre-survey meetings with the following tribal communities (herein the "Tribes"):

- Abesentee-Shawnee Tribe of Indians of Oklahoma

- Delaware Tribe of Indians
- Eastern Shawnee Tribe of Oklahoma
- Mashantucket Pequot Tribal Nation
- Mashpee Wampanoag Tribe
- Mohegan Tribe of Connecticut
- Shawnee Tribe
- Stockbridge-Munsee Community Band of Mohican Indians
- The Delaware Nation
- The Narragansett Indian Tribe
- The Shinnecock Indian Nation
- Wampanoag Tribe of Gay Head (Aquinnah)

Vineyard Offshore will conduct outreach to the Tribes to discuss their cultural and/or historical ties to Lease Area OCS-A 0544 and invite them to participate in the development of the NATCP. If a Tribe confirms its desire to participate in the development of the NATCP, we will request that the Tribe designate a Tribal Representative to serve as the primary point of contact for communicating with Vineyard Offshore.

We have existing relationships with or have previously been in contact with the Mashantucket Pequot Tribal Nation, Mashpee Wampanoag Tribe, Mohegan Tribe of Connecticut, Narragansett Indian Tribe, Wampanoag Tribe of Gay Head (Aquinnah), and Shinnecock Indian Nation. We look forward to establishing relationships with the remaining tribal communities. Finally, we will conduct additional outreach with federal agencies and other stakeholders will confirm the completeness of this list with respect to Tribes that have cultural and/or historical ties to the lease area.

IV. Tribal Liaison

Vineyard Offshore intends to designate a Tribal Liaison who will be the primary point of contact for tribal communities for Vineyard Mid-Atlantic and other lease areas. The Tribal Liaison will have experience and training on how to coordinate and work with Native American tribes. Until a Tribal Liaison is formally retained, Nate Mayo, Director of External Affairs will serve in this role.

The name and contact details for the Tribal Liaison are provided below.

Name: Nate Mayo
Email: nmayo@vineyardoffshore.com
Phone: 617-840-4045

The Tribal Liaison will work with individual tribal representatives to ensure open lines of communication between tribal communities and Vineyard Offshore and to identify opportunities for engagement on the job training, work opportunities, energy savings projects, and sponsorship opportunities through which Vineyard Offshore and the tribes engage with one another and build and maintain long-term mutually beneficial relationships.

The Tribal Liaison will also be responsible for coordinating pre-survey meetings as well as regular check-ins with the Tribes either by text, email, phone calls, or meetings (in-person or virtual). The Tribal Liaison will also provide timely notice to tribal communities on critical development milestones and public comment opportunities in both the federal, state, and local permitting processes.

To ensure timely feedback, the Tribal Liaison will schedule listening sessions with interested tribal communities before decisions are made on items such as onshore and offshore cable routing and other potentially sensitive items. The Tribal Liaison will also proactively identify opportunities for Tribes to participate in open houses or set up tribal-specific events for tribal members including, but not limited to, workforce opportunities, project updates, or Tribal Council meetings.

V. Tribal Communication and Collaboration Strategies

Vineyard Offshore's tribal communication and collaboration strategies will utilize a number of methods and tools to engage and consult with Tribes, disseminate information, and keep tribal stakeholders informed. Based on our experience with Vineyard Wind 1, we expect that a combination of in-person, virtual, and digital communication approaches will be essential to build relationships, ensure effective two-way communication, and share information. These approaches will include, but not be limited to, one-on-one and group meetings, conference calls, text messages, listening sessions, e-mail updates, certified letters, virtual and in-person vessel tours and site visits, and social media updates. Vineyard Offshore will also explore with the Tribes opportunities to attend, present at, and support tribal meetings and events.

To ensure that Tribes and other tribal communities have ready and timely access to data and information, Vineyard Offshore will host a dedicated tribal page on our website. This "For Tribes" page will be a public resource that hosts information and documents on topics relevant to tribal communities, such as the Section 106 process, survey activities, fisheries science, and, eventually, construction updates. This page will serve as a one-stop shop for tribal communities interested in learning about Vineyard Mid-Atlantic and opportunities to engage with Vineyard Offshore. Vineyard Offshore will also create a separate non-public, log-in-only page for Tribal Historic Preservation Officers from the Tribes. This log-in-only page will host sensitive and confidential information that will not be available to the public, such as archaeology reports.

a. Communication and Information Sharing Protocols

Vineyard Offshore will work with the Tribes individually to develop communication and information sharing protocols that reflect each Tribe's preferred method(s) and frequency of communication. Effective communication is not one size fits all endeavor, and we will attempt to tailor our approach to the needs of each Tribe. These protocols will be outlined in future iterations of this NATCP.

We will also collaborate with offshore wind developers, as well as federal agencies where appropriate, to identify opportunities to streamline communication and information sharing efforts to reduce the demand for limited tribal resources to participate in the offshore wind project development process.

b. Tribal Pre-Survey Meetings

Vineyard Offshore will hold tribal pre-survey meetings as required in Section 5.3.3 of the Lease Agreement, which stipulates that the Lessee must coordinate a tribal pre-survey meeting by sending a letter through certified mail and following up with email and phone calls as necessary.

The purpose of these meetings will be for Vineyard Offshore and a Qualified Marine Archaeologist to discuss Vineyard Mid-Atlantic's Survey Plan with the Tribes and consider requests to monitor portions of the survey, including the visual logging and analysis of geotechnical sampling. The Tribes will also be given an opportunity to tour the survey vessel(s) prior to the campaign.

Tribal pre-survey meeting notifications will be sent at least 15 calendar days prior to the date of the proposed tribal pre-survey meeting, and the meeting will be scheduled at least 30 calendar days prior to the commencement of survey activity. Meetings will be either remote or in-person and will afford the Tribes a reasonable opportunity to participate. Meetings will be held with individual tribes, and if any of the Tribes do not attend the meeting, the Tribal Liaison will follow up with an email and phone call to offer alternative meeting dates and times. Any meeting materials and presentations from tribal pre-survey meetings will be provided to the Tribes upon request.

Once survey data has been collected and reviewed, Vineyard Offshore will offer the Tribes opportunities to discuss and review the findings.

c. Section 106 Pre-application Meetings

Vineyard Offshore will consult with the Tribes during Vineyard Mid-Atlantic's site assessment phase to discuss ways to ensure tribal historic preservation interests and concerns are understood and can be accommodated through early coordination. Aside from relationship and trust-building, these early meetings will allow the Tribes' indigenous knowledge to inform and influence Vineyard Mid-Atlantic's development while providing all parties the opportunity to consider mechanisms and opportunities for tribal involvement in the historic and cultural resources work.

Vineyard Offshore will also seek to use these pre-application meetings to obtain tribal input on the siting of offshore wind project components and export cable corridors. This will facilitate efforts to minimize, to the greatest extent practicable, potential visual and other impacts to historical and cultural properties as well as paleolandforms.

We will also use these meetings to understand how decision-making processes within each Tribe need to be considered when planning site assessment, permitting, and development activities for Vineyard Mid-Atlantic to facilitate tribal community participation.

d. Workforce Development

Vineyard Offshore will work proactively with the Tribes to identify opportunities to recruit, mentor, and train interested tribal community members for careers in the offshore wind industry. As a first step, we will discuss with the Tribes their interest in a tribal workforce assessment to identify individuals and tribe-affiliated businesses who are interested in working in the offshore wind industry during construction or operations, within the supply chain, or in support of development work such as surveys and permitting. A similar assessment was conducted for Vineyard Wind 1 to classify skills gaps and associated needs and map out pathways forward with existing training programs and barrier-reduction tools.

Appendix D

Discussion Draft - Fisheries Communication Plan

Vineyard Mid-Atlantic/Lease Area OCS-A 0544

Fisheries Communication Plan

DISCUSSION DRAFT

I. Introduction

Vineyard Offshore is an offshore wind development company established by the same team that developed Vineyard Wind 1 (Lease Area OCS-0501), the nation's first commercial-scale offshore wind project. Vineyard Offshore leads the development of two lease areas along the US East Coast – Lease Area OCS-A 0544 (also known as Vineyard Mid-Atlantic) and Lease Area OCS-A 0522 (also known as Vineyard Northeast).

Section 3.1.2.2. of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (the "Lease Agreement") for Lease Area OCS-A 0544 requires Vineyard Mid-Atlantic to develop a publicly available Fisheries Communication Plan (FCP). This document serves as the FCP for Vineyard Mid-Atlantic in satisfaction of the above-cited Lease Agreement provision and will be implemented by Vineyard Offshore as the developer.

The FCP is a living document based on best practice guidance and input from fishermen and fisheries stakeholders. It outlines our proactive approach to fisheries communication to ensure effective and regular engagement with a wide range of fishermen and fisheries stakeholders. This FCP aligns with the Vineyard Wind 1 FCP, which was first drafted in 2011 to improve communication with fishermen potentially affected by the development of that offshore wind project. Since then, our communications plan and approach has evolved and grown with over ten years of input from fisheries stakeholders. This document will be updated regularly, in response to stakeholder feedback and to incorporate lessons learned, to ensure communication protocols and tools remain relevant and effective.

Vineyard Offshore strongly believes that the offshore wind and fishing industries can successfully co-exist in the marine environment, and we will continue the work started with Vineyard Wind 1 to build bridges between the two sectors. We will also continue to fund research, share data, participate in regional science initiatives, and expand our prior efforts to use fishermen and/or fishing vessels to support offshore site assessment and data gathering activities.

Visit https://www.vineyardoffshore.com/fishermen to sign-up for updates, Notices to Mariners, and information requests as well as to access charts, frequently asked questions (FAQs), and our fisheries science reports.

II. Vineyard Mid-Atlantic

Vineyard Offshore is developing Lease Area OCS-A 0544, as Vineyard Mid-Atlantic, for wind energy production on the Outer Continental Shelf (OCS). The lease area is approximately 43,056 acres in size and is located approximately 21 and 36 nautical miles from the nearest shorelines in New York and New Jersey, respectively. The lease area abuts Empire Wind's Lease Area OCS-A 0512 along its western edge and has water depths between 134.5 – 148 feet (22.4 – 24.6 fathoms).

III. Potentially Affected Fisheries

An analysis published by the National Oceanic and Atmospheric Administration (NOAA) in 2021 indicates that the commercial fisheries most likely to be most affected[3] by offshore wind site assessment, development, construction, and operations activities in Vineyard Mid-Atlantic are: Sea Scallop; Mackerel, Squid, and Butterfish; Monkfish; Surfclam, Ocean Quahog; and Summer Flounder, Scup, Black Sea Bass.[4] Other FMPs and fisheries may also be affected. Vineyard Offshore will conduct fisheries outreach and engagement to verify and refine NOAA's assessment of potential impacted commercial and recreational fisheries in Vineyard Mid-Atlantic as well along any potential offshore export cable corridors.

IV. Fisheries Team

Our fisheries communication efforts are led by Fisheries Manager (FM) Crista Bank, a fisheries biologist with deep knowledge of fishing practices as well as an extensive network of personal relationships with fishermen and fishery organizations in the region (see Figure 2). Crista oversees Vineyard Offshore's efforts to build and maintain relations with the fishing industry and surrounding communities. This includes directing outreach, developing fisheries research programs, and identifying potential workforce opportunities for fishing industry involvement. She has spent the last four years laying the groundwork for these strategies as a Fisheries Liaison on the Vineyard Wind 1 project.

[3] NOAA defines "most impacted" as the Fisheries Management Plans (FMPs) deriving the most revenue from an area over the 12-year analysis period of 2008 to 2019, indicating the highest potential for impact to the industry from a reduction in fishing area.

[4] See https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/WIND_AREA_REPORTS/OCS_A_0544.html.

Crista is readily available by phone, email, and text for ongoing communication (see Figure 2 for contact information). Fishermen can also sign up for general updates and news, offshore wind mariner updates, and information requests by filling out a contact form on our website.

Vineyard Offshore also employs a Marine Operations Officer (MOO), also known as the Marine Operations Liaison Officer, who is responsible for safe marine operations and ensuring that Vineyard Offshore is a good neighbor while on the water. As such, there will be frequent interaction, information exchange, and coordination between the fisheries team and the MOO.

Vineyard Offshore will expand the fisheries team before the start of survey activities to include a Fisheries Liaison (FL), Fisheries Representatives (FRs), and Onboard Fisheries Liaisons (OFLs). Information about the role of FLs, FRs, and OFLs on offshore wind projects is provided below.

Figure 1. Vineyard Offshore's Fisheries Manager

Crista Bank, Fisheries Manager
cbank@vineyardoffshore.com
508-525-0421

Crista is a fisheries biologist who spent 12 years working at the School for Marine Science and Technology where she spent considerable time offshore on commercial fishing vessels working on collaborative research projects. Prior to that, she sailed on traditional sailing vessels crossing the Indian and South Atlantic Oceans and earned her 100-ton Captain's license while sailing on the Schooner Ernestina, the only surviving 19th-century Gloucester-built fishing schooner. Crista started her career teaching marine science at outdoor experiential education programs in New England, Southern California, and the Florida Keys.

She holds a bachelor's degree in Marine Biology and a master's degree in Fisheries Oceanography from the University of Massachusetts at Dartmouth. She resides in New Bedford, Massachusetts with her husband and three children and enjoys being out on the water as much as she can.

a. Fisheries Liaisons

FLs are employed by offshore wind developers to implement FCPs and serve as a communication conduit between offshore wind developers and the fishing industry. At Vineyard Offshore, FLs serve as a readily accessible and knowledgeable point of contact within the company that fishermen and FRs can efficiently and effectively communicate with. FLs are also tasked with:

- developing relationships and direct lines of communication with individuals that are representative of potentially impacted fishing regions, industries, and communities;
- understanding and conveying current fishing industry concerns and feedback to the fisheries team to identify and work towards solutions;

- maintaining existing working relationships with FRs, and identifying and onboarding new FRs;
- identifying potentially affected fisheries and developing communication protocols and tools that create two-way communication channels;
- coordinating with the FLs employed by other offshore wind developers to streamline fisheries communication, collaborate on fisheries research and support, and standardize programs as appropriate;
- working with scientists, federal and state agencies, fishermen, and fisheries stakeholders to develop monitoring plans for fish species and habitats of concern; and
- identifying and expanding training and work opportunities for fishermen and fishing vessels.

b. Fisheries Representatives

FRs do not work on behalf of offshore wind developers but represent a particular fishing community, organization, gear type, port, region, state, or sector(s). FRs are responsible for communicating fisheries concerns, issues, and other input to offshore wind developers. Typically, an FR is an active fisherman or group representing active fishermen within the region, fishery, state, or sector they represent. While FRs are compensated for their time and expenses by offshore wind developers, their duty is to the fishing region, industry, organization, gear type, or sector they represent.

Vineyard Offshore is committed to maintaining an effective network of FRs and is currently seeking FRs for Vineyard Mid-Atlantic. If you are interested or have suggestions, please contact our FM.

c. Onboard Fisheries Liaisons

OFLs are experienced fishermen employed to assist survey vessel captains with communication and to document fishing gear in the area to help avoid interactions. OFLs continue the role of the FL offshore so that there is effective communication on-site and in real-time. OFLs report to the FLs, and serve as the FLs' "eyes, ears, and voice" during offshore operations.

Among other things, the OFL records observed fisheries activities, ensures survey vessel operations are compliant with the FCP and other fisheries-related policies, and seeks to avoid negative fisheries interactions by looking out for fixed gear and establishing communications (usually by very high-frequency [VHF] radio) with fishing vessels when appropriate. In the event of a negative fisheries interaction, the OFL works with the FLs and relevant FRs to resolve the matter safely, fairly, and efficiently.

IV. Fisheries Engagement

Starting with the Vineyard Wind 1 project, Vineyard Offshore's team has over a decade of experience engaging with commercial and recreational fishermen, vessel owners, fishing advocacy organizations, shore support services, and fisheries research institutions on offshore wind. Our FM and other members of our staff have met with hundreds of fisheries stakeholders in recent years, including fishermen from various gear types and sectors, fishing advocacy organizations, and local fisheries groups who are most likely to be affected by offshore wind development on the OCS. Aside from building relationships with the region's fishermen and fisheries stakeholders, a key objective of our engagement efforts is to build trust and look for mutually beneficial opportunities to work with the fishing industry.

Vineyard Offshore has and will continue to employ a variety of outreach methods and tools to communicate and maintain relationships with fishermen and fisheries stakeholders. These outreach methods and tools include, but are not limited to, the following:

- organizing bi-weekly meetings with FRs to share project information and discuss concerns and current issues facing the fishing industry;
- working with FRs to distribute flyers, charts, FAQs, and other relevant information through their networks and communication channels;
- creating outreach materials for fishing communities to distribute at different events as well as local bait and tackle shops in the region;
- holding "port hours" with FLs from other offshore wind developers at ports in Montauk, New York, New Bedford, Massachusetts, Narragansett, Rhode Island, and Stonington, Connecticut to provide information to fishing vessel crews who fish in or transit through the New York Bight;
- maintaining a website with information specifically for fishermen, including fisheries science information, charts, mariner updates of offshore vessel activity, and vessel Requests for Information (RFIs);
- maintaining a database of fishing vessels interested in offshore wind, survey vessel, and guard vessel work as identified through our vessel RFI;
- reaching out to local recreational fishing organizations and clubs;
- presenting project information and updates on fisheries science at recreational organization meetings;
- hosting tables at commercial marine expos and recreational fishing shows;
- engaging with recreational fishing tournaments and derby organizers, including sponsoring events;
- engaging with local recreational fishing experts and influencers with a high social media presence to increase project awareness; and
- relying on word of mouth (i.e., reaching out to a fisherman at the request of another fisherman).

Vineyard Offshore is in regular contact with the relevant federal and state agencies on fisheries-related matters. In addition, we are or will become a member of and/or active participants in the following technical working groups, advisory boards, councils, and commissions:

- Atlantic States Marine Fisheries Commission
- International Council for the Exploration of the Seas (member of Working Group on Offshore Wind Development and Fisheries)
- Massachusetts Fisheries Working Group on Offshore Wind Energy
- Massachusetts Habitat Working Group on Offshore Wind Energy
- Mid-Atlantic Fishery Management Council
- New England Fishery Management Council
- New York State Energy Research and Development's (NYSERDA's) Environmental Technical Working Group
- NYSERDA's Fisheries Technical Working Group
- Regional Wildlife Science Entity
- Responsible Offshore Science Alliance

Finally, we understand that some fishermen do not feel adequately represented by fishing organizations or FRs, and therefore prefer to share information and concerns individually and through different channels of communication. We recognize that individuals' concerns are just as important as group concerns and will continue to reach out to individual fishermen and respect requests for anonymity.

VI. Offshore Communication Protocols

a. Overview

The offshore communications protocols outlined below will be adjusted and adapted over time to reflect best practices and lessons learned. Similar protocols will be standardized and implemented for construction activities at the appropriate time.

E-mail alerts are a critical communication tool to keep fishermen apprised of offshore activities, and we will actively encourage all fishermen and fisheries stakeholders to sign up for these alerts on our website.

b. Fishing Industry Communication Protocol Before and During Offshore Survey Work

Our offshore survey work communication protocol, which incorporates recommendations from fishermen and state agency protocols, is as follows:

- coordinate with the US Coast Guard to issue Notices to Mariners.
- create Offshore Wind Mariner Update Bulletins (OWMUs) that provide survey vessel(s) picture(s) and contact information, a chart showing the location and approximate

duration of vessel activity, OFL contact information, and scout vessel picture(s) and contact information.
- post OWMUs on our website, send them to our fisheries e-mail alert list, and share them on our main social media channels –LinkedIn, Facebook, Twitter, and Instagram.
- work with FRs to share information through their email lists and other media channels.
- announce and publicize survey activities through state agencies, fishing organization websites, fish houses, and newsletters.
- send out regular email and/or text updates detailing progress, both for work completed and upcoming work areas, to various parties during offshore work.

c. Geological Survey Vessel Communication and Fishing Gear Protocols

Vineyard Offshore will contract with local fishermen to serve as OFLs onboard survey vessels to assist vessel captains with communication and document fishing gear in the area to help avoid interactions, as noted above. OFLs with local fishing experience and knowledge of the area will typically be contracted for the duration of a survey vessel's operations.

Before a survey trip begins, FLs and OFLs will attend pre-trip meetings with the survey vessel captain and crew to review the specifics of the fisheries active in the area. If an FL has known coordinates of fixed gear in the area, the information will be shared with the survey vessel captain and OFL. The survey vessel captain and crew will be instructed to communicate respectfully with fishermen and work around fishing gear to the greatest extent practicable.

The captain, crew chief, Vineyard Offshore's client representative, and OFL will review and sign off on the communication and gear interaction protocols, which are outlined below, at the start of a survey campaign and whenever there is a new captain or party chief.

Communication Protocol for Survey Vessel Captains

Survey vessel captains and crew will implement the following communication protocol during offshore surveys:

- Provide the OFL with a VHF unit to monitor radio communications and will be able to communicate directly with fishermen if agreed upon with the vessel captain.
- Attempt to establish radio contact with any fishing vessels that are encountered. If a fishing vessel is not responding to radio calls, the OFL will try to communicate with the fishing vessel. If the OFL is off watch, the crew will wake up the OFL if asleep to engage in communication if necessary.
- Report all communication between fishing vessels and the OFL to Vineyard Offshore.
- Immediately alert the OFL about fishing gear interactions, including waking up the OFL if necessary.
- Work around fishing gear to the greatest extent practicable.
- Plot fixed gear locations while the OFL is off watch and relay that information to the OFL when s/he is back on watch.
- Establish agreed-upon safety zones and relay that information to fishing vessels in the area.

- Provide the OFL with access to the wheelhouse to set up equipment, if practicable, along with a reliable internet connection.

Fixed Gear Interaction Protocols for Survey Vessels

The following protocol will be implemented in the event of an incident between a survey vessel and static fishing gear:

- Immediately notify the OFL (wake up if off watch).
- Log the fishing gear interaction in both the daily vessel report spreadsheet and the Interaction Log, including the time, location, photos, details of events, etc.
- If the fishing gear is entangled around survey equipment and is brought on board, the OFL will determine if the fishing gear is active or if it is abandoned (i.e., ghost gear).
- For active fishing gear where the line needs to be severed, keep any severed fishing gear on board.
- For active fishing gear where the line does not need to be severed, return the fishing gear to the water. Take photos of the gear and record the time and vessel position where the fishing gear was returned.
- If the OFL determines that the fishing gear is not actively engaged in fishing, keep the abandoned fishing gear on board and record the position where it was retrieved.
- Bring all active severed fishing gear and ghost gear back to shore. If the owner can be identified, they will be notified, and the gear will be returned.
- For every incident, record vessel location and the time of any incident; log the buoy permit number and color, as available; and take pictures of the gear.
- Notify the FL in charge onshore as soon as possible.

Safety Management System/Emergency Communication Protocols

An important objective of this FCP is to enhance the safety of all ocean users in and around a project area during development, construction, operations, and decommissioning. Our Safety Management System will outline clear communication protocols and procedures for emergency events such as collision or allision of a vessel with a wind turbine structure, gear entanglement, damage to cables by fishing activity, catastrophic failure of a wind turbine, or another event. Safety planning will be further elaborated on in future updates of the FCP.

VII. Fishing Gear Loss and Compensation

Vineyard Offshore is currently developing a fishing gear loss and compensation protocol but anticipates adopting the same or a substantially standard gear loss/damage claims form that was previously developed through coordination with FRs, FLs, and other developers for the Vineyard Wind 1 project. This form, which was also adopted by other developers including Equinor and Mayflower, will be posted on our website before the start of any offshore activities.

OCS-A 0522 LLC[1] ("522 LLC") is pleased to submit this Survey Plan (Plan) in accordance with Lease OCS-A 0522 (Lease, Lease 0522) Addendum C, stipulation 2.1.1, which states that the Lessee must submit to the Lessor a Survey Plan for site characterization. The Survey Plan includes geophysical, geotechnical, and environmental investigations that are expected to begin in 2022 and extend into subsequent years as necessary (refer to the survey timeline in Section 5 for details). The site characterization campaign will be conducted in support of the submission of a proposed construction and operations plan (COP) for the development of Lease 0522 and potential offshore export cable corridors (OECCs) to shore (Figures 1 and 2). The scope of work covered under this Survey Plan includes geophysical surveying and geotechnical sampling, as well as environmental sampling and remote sensing, which collectively serve the following purposes:

1. Inform cable routing to select the most suitable path(s) between the wind farm and a mainland landfall position,
2. Inform cable design and assessment of burial techniques for the given site conditions,
3. Inform foundation design and wind turbine generator (WTG) siting in the WDA,
4. Inform of site conditions, particularly sensitive environmental areas and potential cultural resources, and the avoidance and mitigation of impact to those areas,
5. Provision of scientific information in support of COP submittals, and
6. Provision of scientific information for engineering and design efforts associated with project and installation planning.

A highly qualified team of experts will support this campaign from start to finish including professional marine geophysical, geotechnical, and environmental consultants, qualified marine archaeologists (QMAs), federal and state permitting specialists, and other senior level experts who have participated in previous Vineyard Wind projects and have extensive experience in the offshore renewables industry.

[1] On August 9, 2021, BOEM approved the assignment of lease OCS-A 0522 from Vineyard Wind LLC to OCS-A 0522 LLC. 522 LLC is currently within the Vineyard Wind corporate structure.

This Lease 0522 Survey Plan includes:

1. Government Guidelines
2. Project Background
3. Survey Plan Details
4. Equipment to Be Deployed
5. Survey Timeline
6. Protected Species Impact Mitigation Plan
7. Archaeology and Tribal Outreach
8. Fisheries Communications Plan
9. Pre-Survey Meeting
10. Reporting
11. Communication

Appendix A Geophysical, Geotechnical, and Environmental Survey Equipment Specification Sheets
Appendix B Relevant NMFS / NOAA / BOEM Correspondence
Appendix C PSO Equipment Specification Sheets

Survey acronyms used in this Plan:

G&G = geological and geophysical
HRG = high resolution geophysical
MBES = multibeam echosounder
SSS = side scan sonar
MAG/GRAD = magnetometer/gradiometer
SBP = subbottom profiler
SCS = single channel seismic
MCS = multi-channel seismic
CPT = cone penetration testing
CPTU = cone penetration testing with pore pressure
DH = down hole
DTH = down the hole
BH = bore hole

1. Government Guidelines

The following guidelines are applicable to coastal and offshore surveys conducted under this Survey Plan and the development of the COP (Table 1). Relevant state agencies will be consulted for portions of the site characterization campaign that occur in state waters.

Table 1. Agency Guidelines and Publications

Bureau of Ocean Energy Management (BOEM) Guidelines
Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP)
Guidelines for Information Requirements for a Renewable Energy Site Assessment Plan (SAP)
Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (BOEM G&G)
BOEM Publication No. 2018-054, Data Gathering Process: Geotechnical Departures for Offshore Wind Energy, DNV GL Doc No. 10071328-HOU-01, September 2018
Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 (Section 106 of NHPA and NEPA)
Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585
Guidelines for Providing Information on Fisheries Social and Economic Conditions for Renewable Energy Development on the Atlantic OCS Pursuant to 30 CFR Part 585

2. Project Background

Lease OCS-A 0522 is a 207 miles^2 area located approximately 28-50 miles south of Nantucket, MA in water depths of 98-213 ft on the continental shelf (Figure 1). Geophysical, geotechnical, and environmental surveys are planned to be conducted throughout the entire Lease Area.

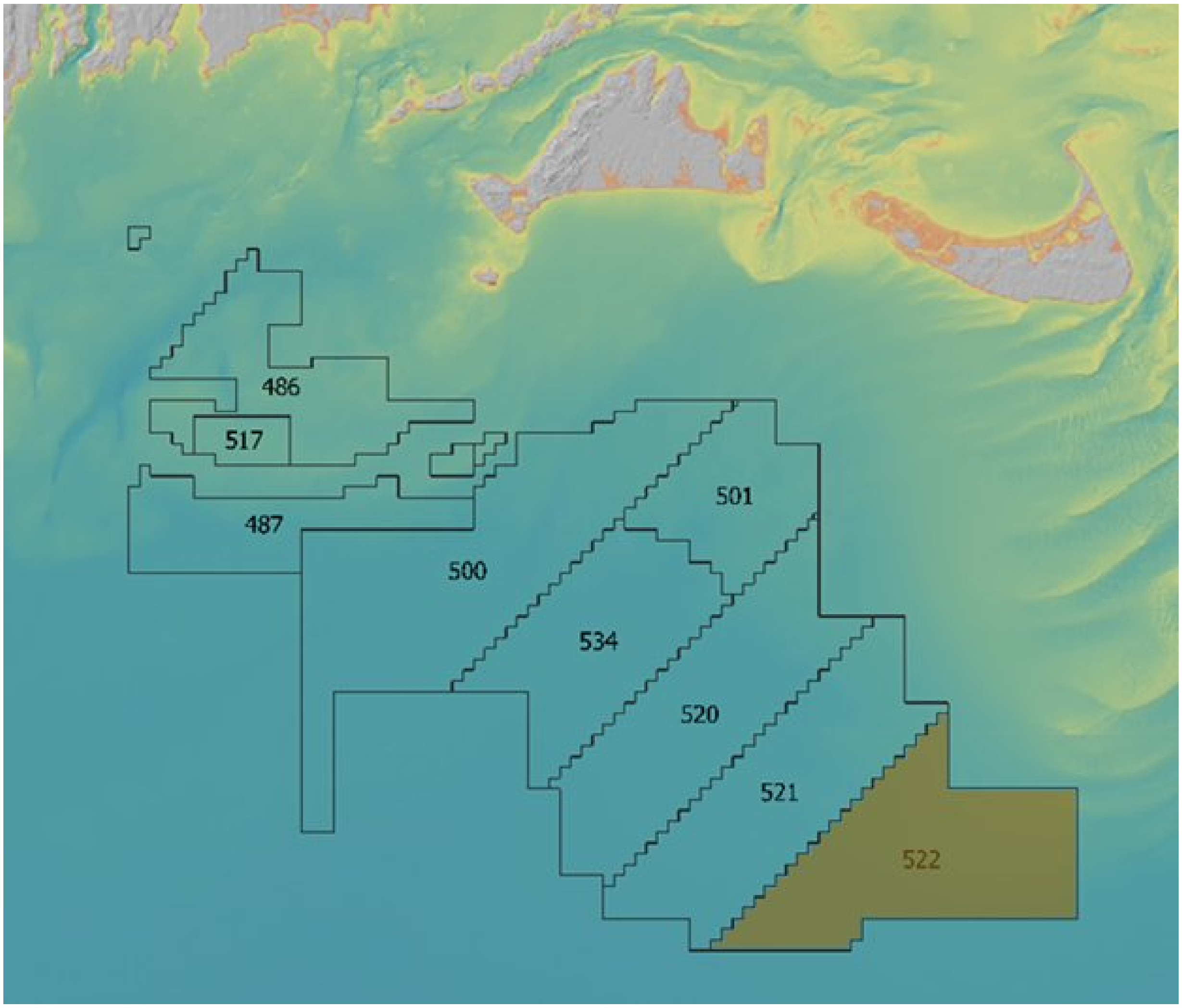


Figure 1: Location of Lease OCS-A 0522 (brown shaded area) offshore Massachusetts, due south of Nantucket. Other OCS lease areas in the Massachusetts Wind Energy Area (MA WEA) are included for location reference.

Several potential offshore export cable corridors (OECCs), ranging from approximately 50-200+ miles long, have been identified that could connect Lease 0522 to landfall locations along the north Atlantic coast. A selection of these potential routes may be surveyed during the field program covered by this Plan under individual mobilizations.

Due to the sensitive and proprietary nature of this information, the regions of the OCS and coastal waters where OECC routes may occur, and over which surveys described in this Plan will be conducted are broadly depicted (Figure 2).

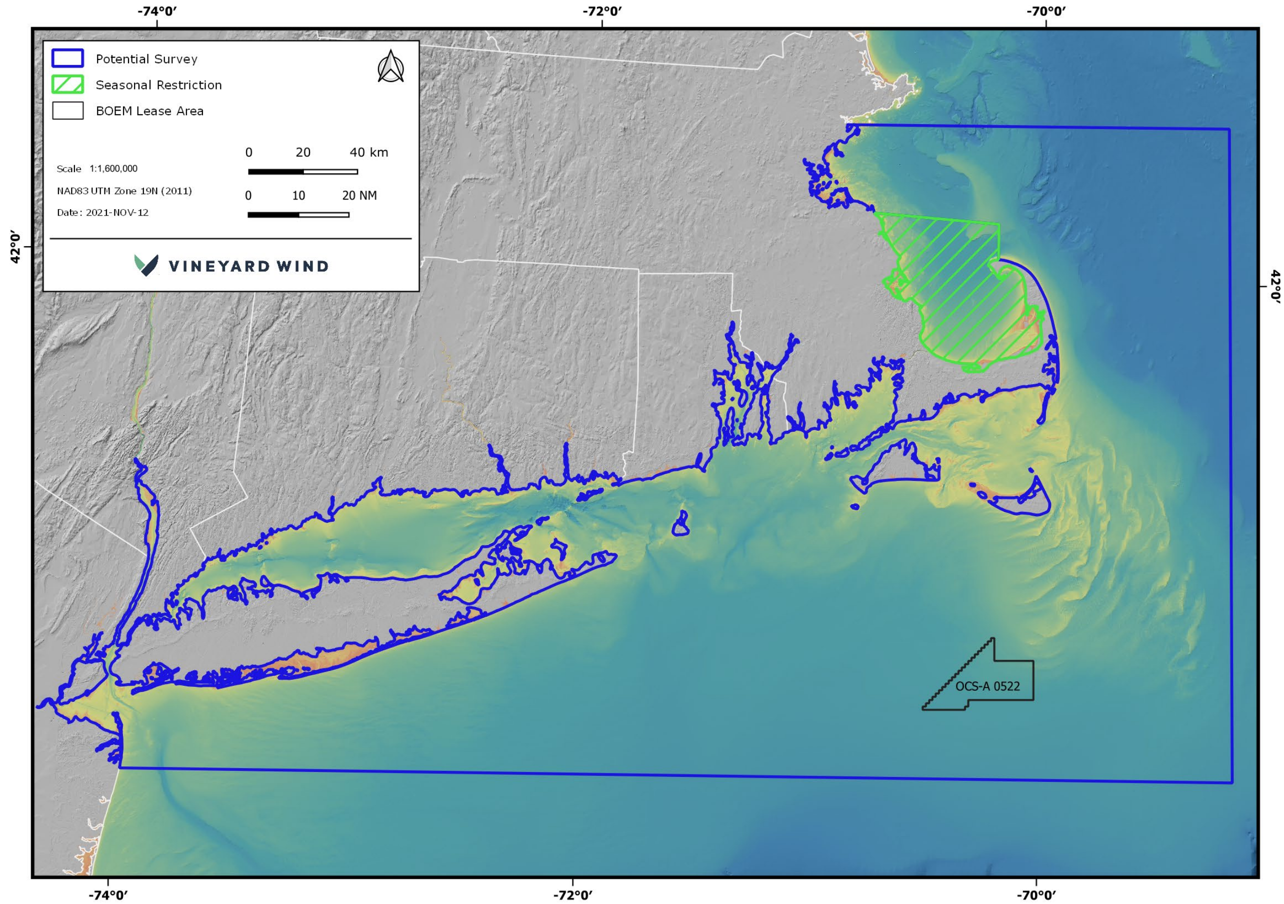


Figure 2: Proposed geophysical, geotechnical, and environmental site characterization campaign area including the Lease Area, and potential export cable corridors to bring power ashore from Lease 0522.

Previous Surveys

From 2016 to 2020, through the team's work as part of Vineyard Wind, the geophysical, geotechnical, and environmental data required to fulfill agency information requirements (Table 1) in Leases OCS-A 0501 (Lease 0501) and OCS-A 0534 (Lease 0534) was acquired. The team also acquired data along the OECC from Lease 0501 that runs from that lease areas to the south shore of Cape Cod. The data and results are described in detail in Volume II of the COP for Vineyard Wind 1 (previously 501 North) submitted in October 2018 (revised March 2019) and in Volume II of the COP for New England Wind (Lease 0534) soon to be submitted. Reconnaissance level geophysical and geotechnical data was also acquired in 2019 in the OCS-A 0522 Lease area. Data and results in Lease 0501 identify and describe the site-specific geology that can be extrapolated to the regional geology and identified stratigraphy underlying the southeast portion of the MA WEA that includes Lease 0522. A description of the surveys completed in 2019 is provided in the section below.

The MCS (multi-channel seismic; mini-air gun) data acquired in 2009 aboard the RV Endeavor (Cruise EN465[2]) and available through the Academic Seismic Portal at Lamont Doherty Earth Observatory, Columbia University[3], allows correlation of the deeper stratigraphic units described in the "Geotechnical Interpretative Report" of the Vineyard Wind 1 COP for Lease OCS-A 0501 into Lease 0522 (Figure 3). Through this correlation between the layers observed in OCS-A 0501 and 0534, a basic understanding of the expected ground conditions within the OCS-A 0522 Lease area can be deduced.

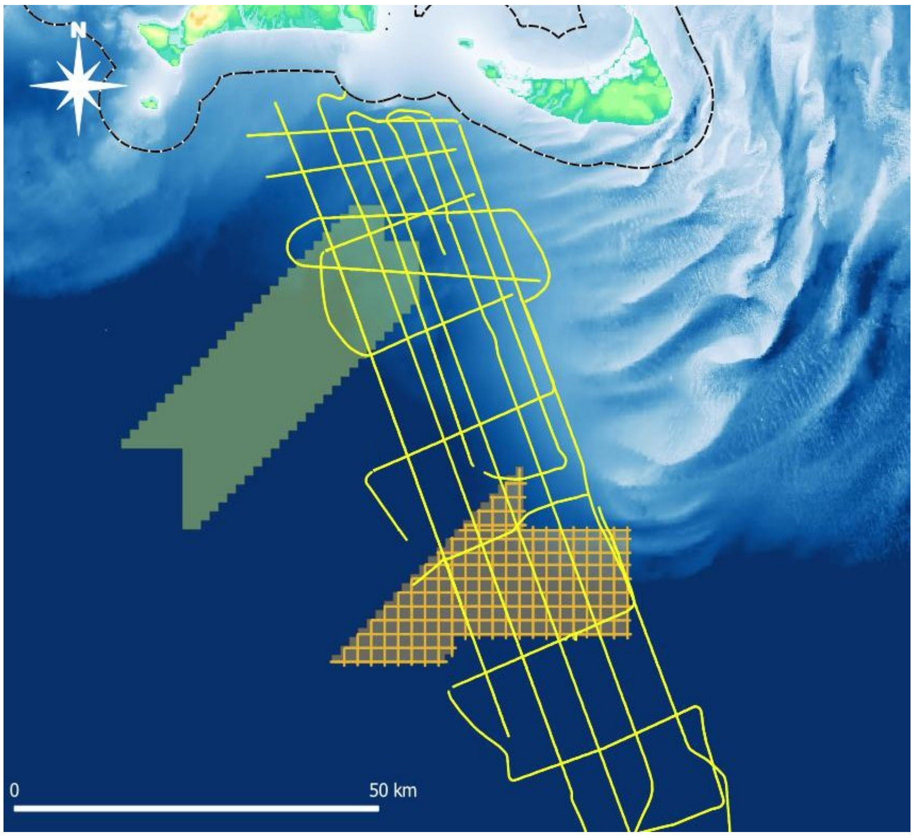


Figure 3. Map showing the 2019 MCS tracks surveyed in the Lease 0522 area (orange) and MCS profile lines acquired aboard the RV Endeavor in 2009 as part of Cruise EN465 (yellow).

[2] Siegel, J., Dugan, B., Lizarralde, D., Person, M., DeFoor, W., and Miller, N. 2012. Geophysical evidence of a late Pleistocene glaciation and paleo-ice stream on the Atlantic continental shelf offshore Massachusetts, USA, Marine Geology, vol. 303-306, p. 63-74, DOI: 10.1016/j.margeo.2012.01.007.

[3] Lamont Doherty Geological Observatory, Columbia University, Academic Seismic Portal
[Marine Geoscience Data System | Collections (marine-geo.org)]

Other studies conducted in the vicinity of Lease 0522 include the Collaborative Archaeological Investigations and Sound Source Verifications within the Massachusetts Wind Energy Area (BOEM 2013), an Inventory and Analysis of Archaeological Site Occurrence on the Atlantic Continental Shelf (TRC 2012), and SMAST drop video camera surveys of the benthos in the Massachusetts Wind Energy Area (Stokesbury, 2012 & 2014).

The amount of marine scientific information from available public research increases significantly adjacent to the southern shoreline of Massachusetts and Long Island, NY. Much of these data have been summarized and examined as part of general desktop and cable route feasibility studies previously developed for the Vineyard Wind lease areas, including OCS-A 0522.

2019 Surveys Conducted in Lease Area 0522

The 2019 field campaign in Lease 0522 included the initial surveys on surficial and subsurface site conditions. These data support the special mapping and assessments that are associated with the COP, including benthic habitats, archaeological/cultural resources, geology ground modeling, and cable burial to name a few. A total of six different vessels were utilized to complete the 2019 scope of work that included the following surveys in Lease 0522 (Figure 4):

High Resolution Geophysical (HRG) Survey:

Location	Lease Area
Systems	Full geophysical suite of instruments including multibeam, side scan sonar, magnetometer, shallow (chirp) and medium (sparker) penetration single channel subbottom profilers, and all support systems (positioning, motion sensor, sound velocity profiler, etc.)
Line Layout	Three 90 m (196.8 ft) spaced lines along primary E-W corridors, corridor centerlines spaced 900 m (2,952.7 ft) apart; grid/tie-line spacing 1,800 m (3,280.8 ft), perpendicular to primary corridors (N-S)
Purpose	Data for design of the wind farm and in support of the COP; archaeological reconnaissance

Multi-channel Seismic (MCS) Survey:

Location	Lease Area
Systems	Multi-channel seismic profiling system including sparker sound source, 48 channel hydrophone array (24x1m and 24x2m groups), multi-trace recording computer/software, and all support systems (vessel and streamer positioning, etc.).
Line Layout	Grid centerlines, 1,800 m spacing N-S direction, 1,800 m spacing E-W direction
Purpose	To assist with development of the subsurface geology ground model to support WTG/ESP foundation engineering and design

Site Assessment Plan (SAP) Survey:

Location	Two 300 m (984.2 ft) square areas in the Lease Area
Systems	Full geophysical suite of instruments including multibeam, side scan sonar, magnetometer, shallow (chirp) and medium (sparker) penetration, single channel subbottom profilers, and all support systems (positioning, motion sensor, sound velocity profiler, etc.)
Line Layout	11 lines at 30 m (98.4 ft) primary line spacing (N-S), 1 perpendicular tie-line (W-E) through the center point
Purpose	Site surveys for a potential met-ocean buoy installation

Geotechnical Site Clearance Surveys (geophysics):

Location	38 locations in the Lease Area, each 150x150 m (393.7x393.7 ft) area
Systems	Full geophysical suite of instruments including multibeam, side scan sonar, magnetometer, shallow (chirp) and medium (sparker) penetration, single channel subbottom profilers, and all support systems (positioning, motion sensor, sound velocity profiler, etc.)
Line Layout	5 primary lines at 30 m (98.4 ft) spacing (SW-NE), plus at least one tieline across the primary tracks
Purpose	Data for archaeological review for clearance of geotechnical stations prior to conducting geotechnical investigations; assessment made by the project qualified marine archaeologist (QMA)

Geotechnical Investigations:

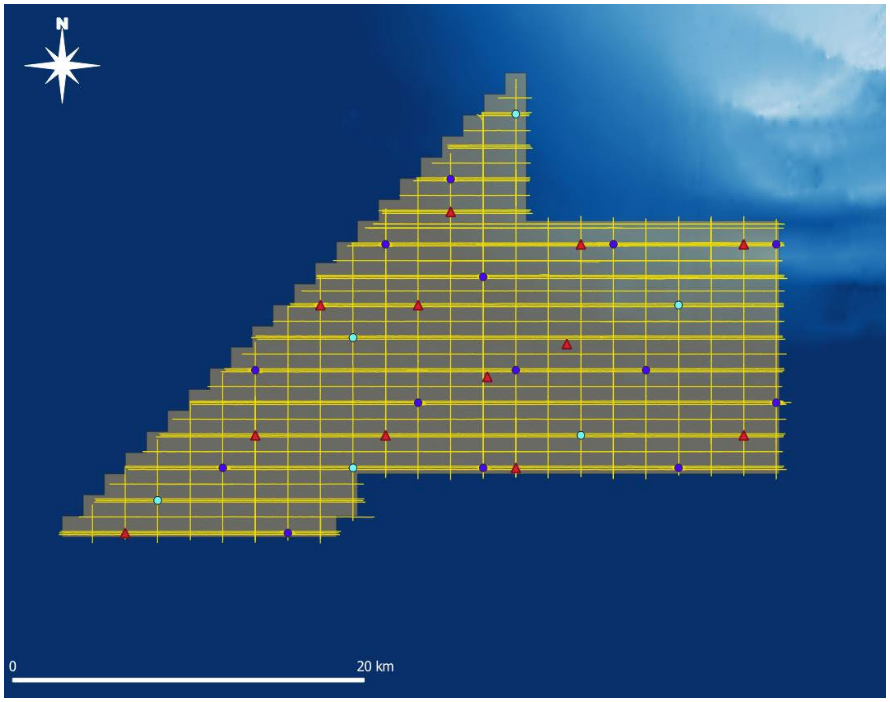
Location	38 locations in the Lease Area
Systems	Top drive power swivel boring rig with split spoon, wireline push sampler or up to 100 MPa downhole piezocone penetration testing tool, and 20 ton Seabed CPT for seabed piezocone penetration testing Vibratory corer with 6 m (19.7 ft) long, 10.2 cm (4 inch) OD core barrel and all support systems.
Sample Layout	6 borings up to 70 m (229.6 ft) deep; stations positioned strategically based on seismic profile data and site coverage. Alternating sampling and CPT. 20 seabed CPTs up to 23 m (75.4 ft) deep spread out to cover the area 12 vibracores 3-4 m deep to sample nearsurface sediments at the SAP sites and around the lease area
Purpose	Direct physical sampling of materials deep below the seabed, shallow subsurface and beyond foundation limits, for ground truthing and correlation with seismic data to support the geology ground model

Benthic Grab Sampling & Still Photos:

Location	40 locations in the Lease Area
Systems	Grab sampler with video/still photo camera; sampler with approx. 0.1 m^2 (1.07 ft^2) surface area, approx. 15 liter (3.96 gallon) volume
Sample Layout	~2 km (~1.1 nm) spacing along corridors, plus extras
Purpose	Analysis of surficial sediment for (a) ground truthing sonar data and (b) to identify benthic organisms and habitats

Underwater Video Transects:

Location	25 transects in the Lease Area
Systems	High resolution underwater video system, either towed camera or Remotely Operated Vehicle
Sample Layout	~2 km (~1.1 nm) spacing along corridors, plus additional in areas of suspected SSUs (special, sensitive, or unique habitats)
Purpose	Visual inspection of the seafloor and possible sensitive benthic habitats



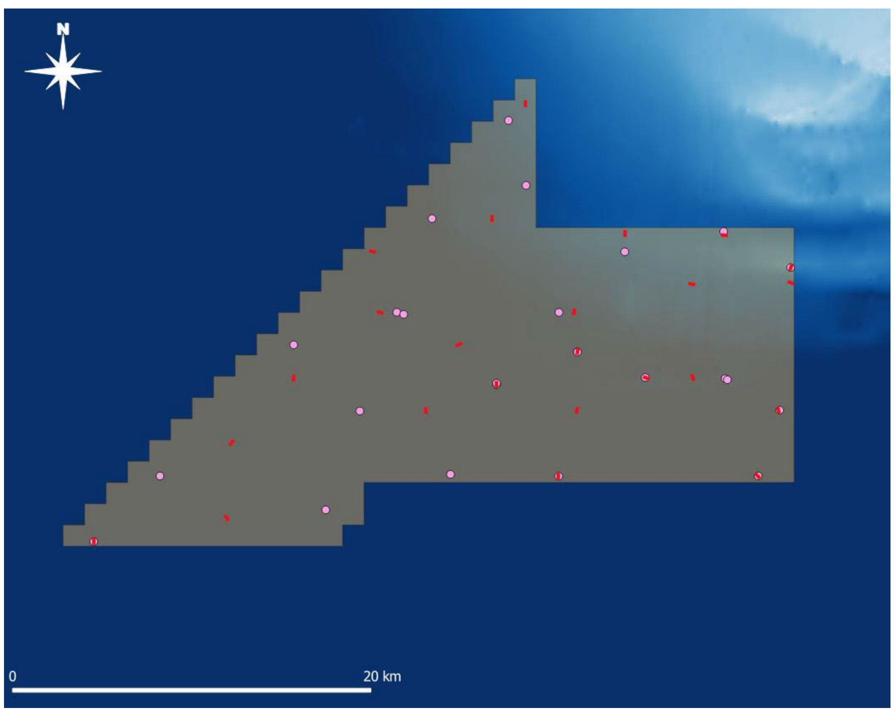


Figure 4: Maps showing the 2019 site investigations in Lease 0522. TOP = geophysical tracklines and geotechnical locations (vibracores in red, deep borings in cyan, CPTs in blue and cyan). BOT = benthic grab samples (pink dots) and underwater video transects (red lines).

3. COP Survey Plan Details

Surveys will be conducted in accordance with the BOEM Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (May 27, 2020), Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 (May 27, 2020), and other relevant guidelines listed previously (Table 1). The Survey Plan includes geophysical, geotechnical, and environmental surveys in Lease 0522 and along potential OECCs.

The data acquired in 2022 and beyond will be used to support the preparation of one or more COP and Facilities Design Reports (FDR). A full suite of geophysical instrumentation including multi-channel seismic (MCS), shallow and medium penetration subbottom profilers, multibeam echosounder (MBES), side scan sonar (SSS) and gradiometer as well as geotechnical and benthic sampling equipment (deep boreholes, CPTs, vibratory corer and grab sampler), and other support systems may be utilized in the site characterization campaign.

Note that the surveys described in this plan will begin in 2022, and will extend as necessary into subsequent years to complete site characterization in support of a COP. The proposed surveys in Lease Area OCS-A 0522 and potential OECCs have been subdivided as follows:

- Lease Area geophysical surveys
- Lease Area deep geotechnical investigations
- Geophysical surveys along potential export cable corridors
- Shallow geotechnical investigations
- Environmental surveys

The following sub-sections detail the aim/objective and scope for each survey type. The site characterization campaign for Lease 0522 will include multiple vessel mobilizations as required to accommodate the timing of critical tasks (e.g., geotechnical investigations only after QMA has reviewed geophysical data and cleared) and to complete the full scope of services envisioned for 2022 and beyond.

Geophysical Surveys Within the Lease Area

<u>Aim and Objectives</u>

The planned geophysical scope in Lease 0522 includes full seafloor coverage and data density (line and point spacings) to meet BOEM requirements. The detailed geophysical surveys build upon the survey grids covered in the Lease Area in 2019 (see Section 2 “Site Surveys To-Date”) with detailed data acquisition in areas of potential seabed disturbance to meet federal and state guidelines and requirements.

<u>General Survey Scope</u>

- Geophysical Surveys—Lease Area
    - Full geophysical suite coverage of the Lease Area
    - 30 m line spacing acquiring all systems on all lines throughout the lease
- Geotechnical site clearance surveys
    - 30 m line spacing centered on proposed sample locations

    - Minimum 120 m square box for seabed coverage around geotechnical locations
    - Performed early in the campaign to expedite QMA assessment
- Hydrographic MBES
    - Minimum 60 m swath each side of survey line (dependent upon system)
    - Minimum 120 m box covered around geotechnical locations
- Side Scan Sonar
    - 50 m swath each side of centerline
    - Minimum 120 m box covered around geotechnical locations
- Gradiometer survey to identify possible ferrous objects along the export cable corridors
    - Maximum altitude of 6 m
    - Noise <3 nT to allow picking targets ≥5 nT peak-to-trough
- Subbottom / Seismic Profiling
    - High frequency, shallow penetration system (e.g., pinger- or chirp-type instrument)
    - Lower frequency, medium penetration system (e.g., sparker or boomer-type instrument)
    - Suitable for mapping geological horizons and archaeological items of potential interest along cable routes to a minimum depth of 10 m below the seafloor
- Multi-Channel Seismic (MCS)(sparker source; OPTIONAL)
    - Suitable for mapping of deep geological horizons to >70 m below the seafloor
    - Ability to resolve beds ~2 m-thick at the greatest depth of interest
    - Additional lines infilling the 2019 grid may be completed to supplement the SCS data

Deep Geotechnical Survey Within the Lease Area

Aim and Objectives

The proposed deep geotechnical investigations will be comprised of boreholes, downhole CPTs and optional seabed CPTs positioned at the WTG locations. The geotechnical data will be used to support ground model refinement and provide specific engineering properties critical for the WTG foundation design.

General Survey Scope

- Boreholes
    - Up to 50 stations up to 100 m depth with P-S logging, shallower depth at some
    - ASTM soil classification standards (or similar recognized standard) will be used
    - Minimum soil disturbance
    - Minimum sample diameter of 70 mm
    - Maximum vertical data gap of 0.2 m
    - Only seawater can be used as drilling fluid unless alternatives are approved
    - Potential sampling and oversampling methods, listed in order of preference
        - Piston thin wall sampler
        - Push thin wall sampler
        - Push thick wall
        - Hammer sampler
        - Rotary coring

    - Storage and transport of soil and rock samples must be in accordance with ASTM D 4220-95(2000) and ASTM D 5079-02
    - Optional near continuous CPTU
        - 0-40 m below sea floor: Maximum data gap = 0.20 m
        - 40+ m below sea floor: Next CPTU started from nearest 0.50 m mark from refusal depth of previous push/test (maximum data gap = 0.50 m)
- Continuous piezocone penetration testing (DTH CPTU)
    - Up to 160 tests up to 100 m depth, shallower depth at some
    - Measures tip resistance, sleeve friction, and pore pressure
    - Minimum penetration of 15 m
    - If 10 m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements
    - 10 and 15 cm^2 cones will be used
    - Tests carried out in accordance with ISO 22476-1:2012
    - Only class 2 or higher will be assessed in-class and accepted
    - Filter stones will be fully saturated
    - Test stopped if:
        - Capacity of cone is reached
        - Inclination of 10 degrees
        - Sudden jump in inclination or tip resistance is observed
- Optional continuous seabed CPTU
    - Up to 160 tests up to 40 m depth
    - Measures tip resistance, sleeve friction, and pore pressure
    - Minimum penetration of 10 m
    - If 10 m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements
    - 10 or 15 cm^2 cones will be used
    - Tests carried out in accordance with ISO 22476-1:2012
    - Only class 2 or higher will be assessed in-class and accepted
    - Filter stones will be fully saturated
    - Test stopped if:
        - Capacity of cone is reached
        - Inclination exceeds 10 degrees
        - Sudden jump in inclination or tip resistance is observed

Geophysical Survey Along Offshore Export Cable Corridors (OECCs)

<u>Aim and Objectives</u>

OECC options for linking the offshore wind farm to shore are being considered based on desktop studies (existing research and data publicly available) to assess expected conditions. Figure 2 shows the continental shelf region where export cable routes may be investigated.

A single geophysical reconnaissance line will be surveyed along multiple potential OECCs. Data will be reviewed in near real-time to assess each route and compare advantages and disadvantages of the various alignments. Additional offset lines may be acquired in areas where adverse seabed conditions are identified. In areas where unique subsurface conditions are present and/or sensitive habitats have been interpreted, additional data will also be acquired. A preferred route will be chosen based on the data collected and existing background information. A full corridor geophysical survey along with shallow geotechnical and environmental sampling will then be conducted primarily along the preferred route.

General Survey Scope

- Single line, reconnaissance survey with local optional routing along two or more potential OECCs
    - OECC link connecting a corner of Lease OCS-A 0522 with Lease OCS-A 0501 and/or Lease OCS-A 0534 (locations TBD)
    - OECCs connecting the Lease to potential landfall locations in NY, CT, RI, or MA
- Full export cable corridor COP detailed HRG surveys (chosen alignment)
    - 30 m line spacing federal waters, 15 m line spacing state waters
    - All systems run on every survey line
- Geotechnical site clearance surveys
    - 7 primary lines at 30 m spacing, and 1 tie line through the center
    - Covers a minimum 120 m square box at each geotechnical location
- Hydrographic MBES
    - Minimum beam width of 120° (60 degrees each side, system dependent)
    - Minimum 120 m box covered around geotechnical locations
- Side Scan Sonar
    - Reconnaissance = 75 m sweep range (each side of centerline)
    - Detail surveys = 50 m sweep range
    - Minimum 120 m box covered around geotechnical locations
- Magnetometer survey to identify possible ferrous objects along the export cable routes
    - Single magnetometer used for route reconnaissance surveys only
    - Maximum altitude of 6 m
    - Noise <3 nT to allow picking targets ≥5 nT peak-to-trough
- Gradiometer survey to identify possible ferrous objects along the export cable corridors
    - Multiple magnetometers used for the preferred OECC detailed COP survey
    - Maximum altitude of 6 m
    - Noise <3 nT to allow picking targets ≥5 nT peak-to-trough
- Single-Channel Seismic
    - High frequency, shallow penetration system (e.g., subbottom profiler (SBP) type, pinger- or chirp-type instrument)
    - Lower frequency, medium penetration system (e.g., single channel seismic (SCS) type, boomer or sparker source instrument)
    - Suitable for mapping geological horizons and archaeological items of potential interest beneath the export cable routes to a minimum depth of 10 m below the seafloor

- Suitable for mapping deeper horizons in support of stratigraphic mapping WTG foundation design and engineering, 70+m below the seafloor

Shallow Geotechnical Surveys

<u>Aim and Objectives</u>

Along with the geophysical and benthic habitat survey, the shallow geotechnical data is being used to assess cable corridor feasibility. The geotechnical data will also be used to ground-truth the geophysical data collected for mapping subsurface geological horizons important for archaeological resource evaluation and cable design and burial assessment.

<u>General Survey Scope</u>

- Geotechnical sampling performed after geophysical data has been analyzed and reviewed by the project geologist and Qualified Marine Archaeologist (QMA)
- Up to 200 co-located or alternating seabed CPTs and vibracores spaced approximately every 1-2 km along one or more export cable routes
- Additional vibracores and/or CPTs will be collected if advisable by the QMA and project geologists following preliminary geophysical data review
- Up to 200 co-located vibracores/CPTs along potential IACCs in the Lease Area
- Vibracores
  - Minimum requirements for first attempt
    - Penetration of at least 3 m
    - Recovery of >67% required
  - If minimum requirements are not met in the first attempt, a second (and possibly a third) attempt will be performed to try to meet the requirements
  - Vibracores will be cut in 1 m sections, photographed, logged, and torvane and pocket penetrometer testing will be carried out at section ends. The liner will be sealed, capped, taped securely shut, labeled and carefully stored for further archaeological and geotechnical testing
- Piezocone penetration testing (CPT)
  - Measures tip resistance, sleeve friction, and pore pressure
  - Minimum penetration of 3 m
  - If 3 m requirement is not met in the first attempt, a second (and possibly a third) re-test will be performed to try to meet the requirements
  - Only class 2 or higher will be assessed in-class and accepted

Environmental Surveys

<u>Aim and Objectives</u>

Grab samples and underwater video will be used to perform benthic habitat mapping along the potential OECCs and in the Lease Area. General characterization studies detailed in the BOEM Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic OCS Pursuant to 30 CFR 585 (June 2019) are planned. Benthic habitats and organisms will be identified from the grab samples and underwater imagery. The sediment recovered from the grabs will also be described and subjected to grain size analysis. The grab samples will be used to ground truth the side scan sonar imagery to help determine the nature of the surficial material and distribution of benthic habitats in the survey area. The latest National Marine Fisheries Service (NMFS) guidelines will be followed (Mar 2021) for habitat mapping with all benthic classifications based on the Coastal and Marine Ecological Classification Standard (CMECS).

General Survey Scope

- Up to 200 grab samples and 200 underwater video transects throughout the OECCs and Lease 0522
- Sampling and video transects will be conducted in the vicinity of sensitive habitats
- Grab sampling methodology
    - Attached underwater camera
    - Replicates as needed
    - Photographed, described, and subsampled on deck
    - Benthic analysis (2 subsamples)
        - 500 micron mesh sieve used for enumerating benthic infauna
    - Grain size analysis (1 subsample)
- Underwater video
    - Video speed < 1 kt
    - USBL in water depths > 9 m

4. Survey Equipment

A combination of the following equipment (or equivalent) may be utilized for the geophysical, geotechnical, and environmental site characterization campaign based on prior years' experience and knowledge of the industry standard systems being offered by the survey contractors.

Industry standard geophysical systems, including but not limited to:

Systems	Full geophysical suite of instruments including multibeam, side scan sonar, magnetometer, shallow (chirp) and medium (sparker) penetration single channel subbottom profilers, and all support systems (positioning, motion sensor, sound velocity profiler, etc.) • Applanix POS MV with Trimble Nav-Beacon/USCG differential receiver • Sonardyne Scout Pro USBL • Reson 7125 multibeam echosounder • Odom HydroTrac single beam echosounder • Klein 3900 side scan sonar • Geometrics Transverse Gradiometer (TVG) with dual G882 magnetometers • Teledyne-Benthos CHIRP III shallow subbottom profiler • GeoMarine Geospark 1000J medium penetration subbottom profiler with 200 tip sparker source and 8 element single channel GeoEel streamer • Teledyne-Oceanscience RapidCAST sound velocity profiler • Generation 3 NVG and Gardline PAMS system for PSO mitigation • Atlas H10 Offshore Corrections DGPS • SBG Ekinox 2-U Motion Sensor

	• Applanix POSMV M5 • Hemisphere VS330 GPS Receiver • R2Sonic 2024 MBES system • Knudsen 3212 200 kHz SBES system • Oceanscience Underway CTD system • AML Base-X SVP sensor • Valeport Mini SVP sensor • Applied Acoustics Easytrak Nexus 2 USBL System with AA 1019 mini beacons • Edgetech 4200/4205 dual frequency SSS (300/600/900 kHz) with Edgetech topside processor • Knudsen 3260 2x2 SBP Array (3.5kHz) Pinger • Applied Acoustic Dura-spark 200/400 seismic system with AA CSP-N (2400J) power supply • Geometrics G-882 Cesium Marine Magnetometer • Sonardyne Mini-Ranger 2 USBL system for underwater positioning

Industry standard geotechnical equipment used, including but not limited to:

Systems	• Top drive power swivel boring rig with split spoon or wireline push sampler • Wireline CPT tool for downhole piezocone penetration testing • 20 ton Seabed CPT for piezocone penetration testing Twin-derrick GMTR120 geotechnical drill rig, a fully heave-compensated rotary flush marine drill with a 5.5-inch API drill string driven by an EDECO Hydraulic power swivel (or equivalent) Downhole tools: • Hydraulic piston/push sampler, percussion/hammer sampler • WISON-APB Piezocone Penetration Test (PCPT) with 5 cm^2 or 10 cm^2 cones • Rock Coring bit / barrel combination • Seismic Cone Penetration Test (SCPT) with 10 cm^2 cones Manta-200kn seabed piezocone penetration test (PCPT) with 10 cm^2 or 15 cm^2 cones Drilling performed with standard 5-inch API drill pipe, fitted with a 5 wing drag bit. Bottom Hole Assembly (BHA), comprised of standard drill collars plus a specially adapted collar containing a series of landing and latching rings designed to accommodate and allow the use of the various sampling, in situ testing and non-coring tools. “WISON-APB” push sampler system with a minimal 70 mm inner diameter “Shelby” sampling tube mounted on a sample latching tool. “WISON-APB” downhole PCPT system with 10 cm^2 or 5 cm^2 electrical cones. PS logger probe Vibratory corer, pneumatic and electric systems; 3.5-4 inch diameter, 3-4 m long barrels with cutter heads and core/sediment catcher. Designed for shallow subsurface sampling of unconsolidated materials up to gravel and cobble size. Specifically applicable for cable burial assessment and sediment property suitability for housing power cables. Seabed CPT system, shallow penetration (3-10 m), e.g., Neptune 3000-5000; CPTU systems mounted on seabed frames with varying thrust capacity, smaller cone sizes (2-10 cm^2). Measure axial load, sleeve friction, pore pressure, tip resistance, and axial tilt, hydrostatic pressure. Complimentary system to the vibracore for obtaining information on more sediment properties to help define the variations in material layering.

Industry standard environmental survey equipment, including but not limited to:

Systems	Modified Day grab sampler, Van Veen power grab, or Smith McIntyre grab sampler, each with attached camera; samplers have 0.1 m^2 (1.07 ft^2) surface area and retain approximately 15 liter (3.96 gallon) volume of material Gravity BM500 Video Sled with DOER Marine HP Lasers, a DeepSea Power and Light W-Eye Camera and DeepSea Power and Light LED wide lights. SeaRover/DSSI SeaMax MK2 Survey Class ROV with Sony UMC S3CA 4K HD video camera, scaling lasers, powerful thrusters and LED lighting. Kongsberg/Simrad OE Model Cameras with low light sensitive lens, LED lighting, auto focus, and software overlay tool. Additional support systems (or equivalent) include: • Applanix POSMV OceanMaster with USCG Differential Corrections and PPK capability • Sonardyne Scout Plus/MiniRanger 2 USBL (35-55 kHz) • YSI CastAway CTD, AML SVP

High Resolution Geophysical (HRG)

Nearshore bodies of water found along the southern shores of the Northeast Atlantic (e.g. Vineyard Sound, Rhode Island Sound, Nantucket Sound, Great South Bay, Buzzards Bay) are dynamic areas with strong and variable tides and currents. Survey operations will be performed to make optimal use of the tidal conditions and when applicable, tracklines will be run along preferred orientations with respect to the prevailing currents with tight control of vessel speed. This will help maintain towed sensor positions and help keep the vessel on line when surveying the potential export cable corridors. In the open waters of the Atlantic Ocean found within Lease OCS-A 0522, currents are less severe than some constricted waterways nearshore, but still ever-present and variable, therefore towed sensor position is tracked accurately with a USBL system and vessel steering and line keeping monitored constantly.

Sediment transport is common in the area and is observed in the seafloor geomorphology as bedforms that migrate along the bottom. If there are larger, longer period sand waves present along any routes, towed sensors can be raised and lowered to maintain recommended heights for the side scan sonar and gradiometer given appropriate vessel speed. If the wavelength of the bedforms decreases, typically the sensors stay within the 6 m guideline over the troughs and may be much closer to the seafloor over the crests. Careful planning of preferred survey direction for the given tidal conditions assists in meeting these requirements.

Specific attributes of the geophysical systems and methods are discussed below.

Navigation and Sensor Positioning

Vessel positioning will be accomplished using industry standard GPS techniques to achieve a total horizontal uncertainty at the 95% confidence level of 2 m (IHO special order survey requirement, worst case accuracy). It expected more accurate positioning can be achieved offshore. Differential GPS solutions (e.g., U.S. Coast Guard or private reference stations) will be utilized to obtain this accuracy interfaced to a sophisticated GNSS aided inertial navigation system. These systems are the most widely used positioning solution for multibeam data acquisition as they provide integrated DGPS, inertial navigation, motion, and heading to obtain highly accurate position and orientation measurements. Additional post-survey applications afford further position processing to increase horizontal and vertical accuracies even more.

All GPS and associated data strings are imported to the navigation software (e.g., QINSy, Hypack, etc.) for positioning other ancillary devices that are a part of the geophysical instrument suite. These software programs allow full control over positioning and recording external system digital data and provide useful post-survey data review and processing tools for offline work onboard the larger vessels.

For towed sensors, a USBL underwater acoustic positioning system will be used in water depths greater than 9 m. This system is interfaced to the navigation software such that range, azimuth, depth, motion, and supporting USBL data are used to calculate the true x,y position of the USBL beacon attached to the towed sensor. Those coordinates are then exported out of the navigation software to external geophysical towed system's computers (side scan sonar, magnetometer). In this manner, offset and layback corrected positions are recorded in the towed system digital files in real time.

Multibeam Echosounder and Data

A multibeam bathymetry system will be used to record water depth measurements and backscatter ('snippets') in a swath covering the seafloor. These systems typically utilize 200-400 kHz frequencies over 120-200º angles to cover usable swath widths of 3-5 times the water depth. Depth values will be adjusted for sound velocity (SV) using CTD or SV profiler measurements. The systems have a SV probe at the transducer for continuous surface measurements and frequent CTD/SV casts for the entire water column supplement these surface data. Moving vessel profilers (MVPs) are preferred so the vessel does not have to stop to obtain a sound velocity cast. Precision motion data (heave, pitch, roll, yaw) are also recorded to position the soundings accurately on the bottom. During the survey, vessel speed, ping rate, beam width, and other parameters are closely monitored and controlled to ensure that a suitable quantity of soundings per square meter on the seafloor is achieved.

For vertical control and referencing of the water depths to the MLLW datum, POS data logged during the survey contains GPS altitudes that can be post-processed to achieve a tightly coupled PPK (post-processed kinematic) solution. The resulting NAD83 ellipsoid referenced points can be converted to MLLW using NOAA's VDatum software by applying the smoothed best estimate of trajectory (SBET) file from the POSPac software. The final processed water depth data will meet IHO S-44 Order 1a requirements.

Side Scan Sonar and Imagery

Dual frequency side scan sonar imagery (e.g., 300/600 kHz, 445/900 kHz) will be acquired to record the acoustic reflectivity of the seafloor. The combination of lower and higher frequency transmissions was designed to satisfy range and resolution desires of operators. A sonar sweep range of 50-75 m will be employed to obtain high resolution imagery in all survey areas. A 50 m sweep range is used for detailed survey work and the 75 m range is utilized for the reconnaissance lines to cover more area. The towfish is "flown" at a height of 10-20% of this range above the bottom to obtain optimal image results. During sea trials, sweep range, pulse length, ping rate, and frequency will be optimized to meet a target size detection criterion of 0.5 m.

In deeper water (i.e., > 9 m), the sonar towfish will be positioned using the USBL system with a beacon either integrated into the towfish or attached just above on the tow cable. Properly corrected towfish geo-referenced positions will be input to the digital sonar files in real time via the navigation software interface. A position accuracy of 3-5 m is estimated for the deeper water depths expected for this survey. For shallow water areas where water column noise can affect the USBL, a cable counter is planned for use to provide towfish layback corrections. Overall, position accuracy increases as water depth decreases.

Magnetic Intensity Measurements

A gradiometer system such as a dual Geometrics G882/Transverse gradiometer (TVG) will be utilized to detect ferrous materials on and below the seafloor. The systems will include an altimeter to measure and record height of the sensor above the seafloor, which will be maintained at less than 6 m if possible. Each gradiometer sensor will have a counter sensitivity of <0.004 nT/√Hz rms and an absolute accuracy across the range (20,000-100,000 nT) of <2 nT. The data sampling rate will be greater than 4.0 Hz to ensure sufficient data point density and is typically up to 10 Hz. Data is constantly monitored to ensure background noise remains below 3 nT. The magnetic data may be recorded by the navigation software or separate stand-alone computer package.

The gradiometer will be towed at a distance from the survey vessel and to minimize magnetic interference from the vessel. This distance is normally expected to be at least three times the length of the vessel, but shorter distances are acceptable if interference levels can be demonstrated to be acceptably low. If the gradiometer is piggy-backed to other equipment such as a Side-Scan Sonar towfish, sufficient distance to prevent interference from the towfish will be ensured. The gradiometer will be positioned using USBL tracking in water depths <10 m and cable layback in shallower waters. In very shallow waters, the magnetic sensor may be floated on the surface and towed separately to optimize data quality and vessel maneuverability without the use of a USBL.

Subbottom Profiling

To gather information on the shallow subsurface, two different seismic reflection-type systems will be utilized; a high frequency, shallow penetration subbottom profiling-type (SBP) system (e.g. pinger or chirp source instruments) and a lower frequency, medium penetration, single-channel seismic (SCS) system (e.g., boomer/sparker source instrument). Chirp and pinger SBPs are optimized to investigate the top 10 m below the seabed but in areas such as Rhode Island Sound, Nantucket Sound and elsewhere along the OCS, penetration is often limited to the upper few meters due to the presence of compact sands and coarser deposits. In these geologic settings, a lower frequency system is needed to penetrate and resolve sediment layers up to 10 m below the potential depth of disturbance for cable installation and geotechnical sampling. Boomer/sparker and chirp/pinger systems complement each by providing the resolution and penetration needed to assess the shallow subsurface geology. Chirp/pinger systems, due to their higher frequency content, are capable of resolving 30 cm-thick layers in the upper 3 m while the boomer/sparker's lower frequency can achieve resolution of 2 m or less in the upper 10-20 m.

Chirp/pinger SBPs are commonly hull mounted or towed on a short cable off the side, or in a moon pool, of the vessel. Boomer/sparker systems consist of a towed catamaran that houses the sound source (an electro-mechanical plate or sparker electrodes) and a towed, 8-10 element hydrophone single-channel streamer, which records the signal. A boomer system will emit a short duration outgoing pulse and the tow configuration will be optimized to minimize ghosting, which masks real subsurface reflectors. Additionally, the boomer system will be configured so that both the source and streamer are positioned outside the vessel wake and prop wash to minimize unwanted noise on the recording.

Multi-Channel Seismic

Multi-Channel Seismic (MCS) data may be acquired in Lease OCS-A 0522 to provide additional information needed to supplement the subsurface ground model to a depth 10 m greater than the maximum depth of disturbance from a potential wind turbine foundation. The MCS survey will make use of a sparker-type seismic source (~500-1000 joules) that can generate a repeatable, broadband (~0.5-4 kHz) signal to penetrate nearly 100 m below the seabed and resolve layers as thin as 2 m. The sparker system will be fired approximately every meter and a calibrated hydrophone will monitor the source signature as well as the tow depths of the source and streamer.

The multi-channel streamer used for the survey will have front end and tail buoys with GPS of radio transponders to monitor streamer feathering. The streamer will be towed at a depth of around 0.5 m to ensure the surface ghost does not degrade the frequency spectrum and reduce the vertical resolution. The group interval will be less than 3.125 m to allow for high horizontal resolution and the length of the streamer will be greater than the maximum target depth to improve velocity analysis and multiple suppression.

Shallow Geotechnical

Shallow geotechnical information will be obtained in the Lease Area and approximately every 1-2 km along the proposed export cable routes using co-located as well as alternating vibracores and CPTs. The total number of locations and type of sampling will be finalized after geophysical data has been analyzed and reviewed by the project geologist and Qualified Marine Archaeologist (QMA). The number of samples may also be driven by the results of initial geotechnical information as the field program progresses. Sampling may be reduced in areas that present consistent ground conditions.

This approach is consistent with Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (May 27, 2020). Where possible, geotechnical sample stations will be strategically positioned to sample subsurface features interpreted from the subbottom profile data. This could include potential pre-Holocene intact strata (ravinement surface, possible archaeological significance), possible buried paleofeatures or submerged ancient landforms, or coarse deposits suggesting difficult burial conditions.

The vibratory coring method will recover samples of at least 70 mm diameter with a minimum penetration of 3 m and a minimum recovery of 67%. If either the penetration or recovery criteria is not achieved, at least one re-test shall be carried out. If the required penetration is not achieved on the re-attempt the Offshore Client Representative may instruct a third attempt. Core catchers and drill bits shall be available to maximize the penetration and recovery in the expected soils. Upon recovery to deck, the vibracores will be cut in 1m sections, photographed, geologically logged, and the section ends will be subjected to torvane and pocket penetrometer testing. The liner will be sealed, capped, taped securely shut, labeled and carefully stored for further testing.

Piezocone penetration testing (CPTU) will measure soil properties (tip resistance, sleeve friction, and pore pressure) at the same locations and over the same vertical zone (~3-4 m) as the vibracores. The size and capacity of the cones will be agreed upon prior to mobilization to produce the best results given the site conditions along the cable routes. A minimum penetration of 3 m is required. Like the vibracore sampling program, if 3 m penetration is not achieved in the first attempt, a second (and possibly a third) re-test will be performed.

The tests will be carried out in accordance with ISO 22476-1:2012 Geotechnical investigation and testing – Field testing – Part 1: Electrical cone and piezocone penetration test. Zero readings of all sensors shall be recorded before and after each test. The drift readings shall be calculated, and the class of each data reading calculated in accordance with ISO 22476-1:2012. Only class 2 or higher will be assessed as in-class and accepted. Class 3 or lower will be considered out of class. Continuous deck-to-deck readings will be taken and recorded for all tests and filter stones shall be fully saturated before each test. The test will be stopped if the capacity of the cone is reached, an inclination of 10 degrees is reached or a sudden jump in inclination or tip resistance is observed.

Deep Geotechnical

A deep geotechnical campaign may be undertaken initially using a large floating drillship that will most likely hold position using a dynamic positioning system – although there is a possibility that anchors may also be used. A heave compensated drill frame will be used that shall have the option to either undertake downhole CPTs or undertake wireline core drilling. Some basic sample testing will be undertaken on board the vessel, however more extensive and advanced testing shall be undertaken at onshore laboratories. P-S logging is planned at all boring locations after continuous sampling has been performed. Continuous CPTs may be acquired using a similar vessel with a seabed mounted CPT rig.

The deep geotechnical campaign will consist of multiple continuous sampling boreholes (up to 100 m depth below seafloor) with P-S logging and multiple downhole near-continuous CPTs (up to 100 m depth). Downhole near-continuous CPT boreholes will require that the maximum data gap allowed between a push/test that met refusal and a subsequent CPT push/test be less than 0.2 m up to 40 m below the seafloor and 0.5 m at depths greater than 40 m. For soil sampling, several methods are being considered. These methods in order of preference are:

- Piston thin wall sampler
- Push thin wall sampler
- Push thick wall
- Hammer sampler
- Rotary coring

Soil borings, sampling and handling shall be carried out in such a way that there is a minimum disturbance to the soil to be sampled or tested. The minimum sample diameter acceptable is 70 mm and the maximum vertical data gap between samples will be 0.2-0.5 m depending upon depth below the seafloor. Only seawater can be used as a drilling fluid unless alternatives are approved. The storage and transport of soil and rock samples must be in accordance with ASTM D 4220-95(2000) and ASTM D 5079–02.

Continuous seabed CPT data will be performed in the 0522 Lease Area with the same requirements as the shallow geotechnical CPTs except that the minimum penetration accepted is 10 m. The seabed CPT program will consist of multiple tests up to 40 m below the seafloor.

Benthic Sampling and Mapping

Grab samples are collected for benthic analysis and provide ground-truthing of the side scan sonar imagery and other geophysical data needed to perform surficial sediment mapping. The samples will be strategically located to provide material and data to support as many analyses and project tasks as possible. The grab sampler will have an underwater camera attached to the frame or downline to record images of the seafloor at the sample locations. Once on deck the grab sample will be photographed, and three subsamples will be retained (1 for grain size analysis and 2 for benthic analysis). Replicates will be obtained to meet NMFS guidelines when appropriate.

An underwater video system will also be used to aid benthic habitat mapping. The video survey speed will be maintained at less than 1 knot to assure the acquired video footage can be used for organism identification on the seafloor. In water depths greater than 9 m, a USBL will be used to position the video sled. Synchronized time on the video camera and navigation systems will allow time tags to be generated post-survey along the USBL tracklines that will show the camera position correlated directly to the time display on the video recording. The imagery will be used to ground truth surficial sediment types, delineate benthic habitat areas, and identify benthic communities on the seafloor.

Sampling methodology outlined in the NMFS guidelines (March 2021) will generally be followed, with fewer samples considered over large areas of homogenous seabed and habitat conditions. CMECS will be adhered to for defining sediments from the grabs and estimating visual seabed types from the video analysis.

Survey Vessels

Multiple vessels may be performing survey duties simultaneously in different sections of the cable corridors and within Lease 0522. Simultaneous operations (SIMOPS) between vessels will be coordinated to ensure that any separation distances required to avoid overlapping sound signatures are maintained.

Furthermore, to increase survey efficiency and production while reducing project costs, and effectively meet the timing required of the geophysical and geotechnical efforts, the vessels, survey equipment, and scientific crews will be mobilized to the site to conduct work for multiple tasks simultaneously. This will be a highly coordinated effort for program logistics with the intention of minimizing the survey time onsite.

More details on survey resources (quantity of vessels, equipment specification sheets, companies involved) will be provided to BOEM toward the end of the procurement when contractor(s) are selected.

5. Survey Timeline

Field investigations are expected to begin in the spring of 2022 with the duration of the work ultimately dependent on the final scope of the investigations performed. The survey tasks will likely be completed by four to six vessels simultaneously (nearshore and offshore), subject to any restrictions imposed by the final IHA from NMFS. Survey operational scenarios of 12- and 24-hour days are both being considered. Depending on contractor and vessel availability, the field operations may also not be performed sequentially. The current proposed survey timeline is outlined in Table 2 below.

Table 2. Proposed schedule for the OCS-A 0522 (and OECCs) site characterization campaign and pre-survey requirements

Work	Approx. Start Date
Survey Plan submittal to BOEM	November 17, 2021
BOEM pre-survey meeting	January 18, 2022
Tribal pre-survey meeting invitations sent out via certified mail	February 2, 2022
Tribal pre-survey meetings	February 17, 2022
Estimated submittal of PSO resumes to BOEM for NMFS approval[4]	March 1, 2022
Survey Start Date	March 19, 2022
Survey End Date *	31 December 2023

Notes:
*Survey dates above are only estimated and may change subsequent to receipt of updated information from BOEM and availability of survey resources. Due to the possibility of poor weather in the fall, unforeseeable project variations, and commercial constraints, the field program that begins in 2022 would extend into 2023 and possibly 2024 if necessary.

6. <u>Protected Species Impact Mitigation Plan</u>

During the site characterization campaign, monitoring and mitigation measures and the most appropriate equipment will be used to avoid and minimize potential effects to marine mammals and sea turtles from geophysical sound sources or vessels. These measures include, but are not necessarily limited to, monitoring and exclusion zones, ramp-up and shut down procedures, and vessel strike avoidance.

Currently, an Incidental Harassment Authorization (IHA) is in place that covers activities under this survey plan through June 20, 2022.[5] 522 LLC is also submitting a new IHA application to NMFS for work conducted under this survey plan that extends beyond June 2022. That IHA will either be renewed or a new IHA would be sought for work extending beyond June 2023.

The terms and conditions of the current IHA prescribe monitoring and mitigation measures specific to geophysical activities, including requirements for marine mammal monitoring and exclusion zones,

[4] PSOs approved for the previous surveys in 2016-2018 are understood to already be approved by BOEM and NMFS for surveys related to Lease OCS-A 0522. All names of PSOs with current NMFS approval scheduled for participation in 2019 will be submitted along with documentation of the PSOs' successful training or coursework to the agencies seven days before the scheduled start of the survey activities.

[5] The IHA was issued to Vineyard Wind LLC, which is the sole member of OCS-A 0522 LLC. See *https://www.federalregister.gov/documents/2021/07/20/2021-15383/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to*.

ramp-up of survey equipment, shutdown procedures, vessel strike avoidance, seasonal operating requirements, and reporting. Activities under this Survey Plan will adhere to all provisions applicable to marine mammals as set forth by NMFS in the current IHA, as well as those included in the new IHA that is expected to be finalized in Spring 2022. For monitoring and mitigation measures of species not included in IHAs (e.g., sea turtles), surveys will comply with lease stipulations set forth in Addendum C of OCS-A 0522. A waiver request accompanies this Survey Plan for any lease stipulations that are inconsistent with the IHA, industry standards, and recent correspondence with NMFS.

Additional information related to potential effects of high resolution geophysical survey sound sources and monitoring and mitigation planned for the site characterization campaign are summarized below.

Sound Field Verification

Sound field verification (SFV) of HRG sources is not planned for the site characterization campaign. The same, or similar model geophysical equipment operating below 180 kHz that was used in surveys from 2016-2021 are proposed for this campaign (e.g., shallow penetration subbottom profilers and medium penetration single channel seismic systems). Prior field verifications in the vicinity of the Lease Area (Table 3) and assessment of sources by BOEM[6] and NMFS[7] indicate that sound fields produced by HRG equipment operating below 180 kHz are transient and temporary, and limited in radial distance to regulatory thresholds.

Table 3. Results from the 2016 SFV including measured sound levels from geophysical equipment operating at <200 kHz in the vicinity of the Lease Area[8].

System	Frequency (kHz)	Measured Source Level (SPL peak, db re 1 uPa m)	Measured Source Level (SPL, db re 1 uPa m)	Measured Distance to Level B Harassment Threshold (SPL 160 dB re 1 uPa)
Shallow Penetration Chirp/Pinger Subbottom Profiler	1.5-10	207.5	178.9	9 m
Medium Penetration 800J Sparker Subbottom Profiler	0.75-2.5	210.0	185.5	19 m

[6] BOEM. 2021. Data Collection and Site Survey Activities for Renewable Energy on the Atlantic Outer Continental Shelf Biological Assessment-NMFS-2021. Last Revised June 10, 2021.

[7] NMFS. 2021. Data Collection and Site Survey Activities Programmatic Informal Consultation. Issued June 29, 2021. Revision 1. September 2021.

[8] Gardline Survey Report submitted 9-28-16. *Field Verification and Vessel Signature Report*, Vineyard Wind HRG Survey, Project No. 10878, 89 pp.

Additional acoustic assessment of HRG sources can be found in: (a) SFV performed in shallow water for the Cape Wind project[9], (b) SFV completed for geophysical surveys on adjacent OCS lease blocks, (c) geophysical systems testing by the Naval Undersea Warfare Center[10], (d) modeling of sound source parameters by JASCO for the Vineyard Wind IHA[11], and (e) the BOEM Data Collection and Site Survey Activities for Renewable Energy on the Atlantic Outer Continental Shelf Biological Assessment[6]. These measures and model estimates of sound source parameters all confirm that the limited acoustic impact from these systems is well within the planned monitoring and exclusion zones.

Geotechnical equipment acoustic field testing has limited documentation from previous research studies[12,13] but is not considered to have the potential impact that impulsive, low frequency geophysical sources might have. In the recently released Programmatic Consultation[7] NMFS stated that noise associated with geotechnical surveys is below the level that is expected to result in physiological or behavioral responses by any ESA-listed species considered in the assessment, and as such, effects to listed whales, sea turtles, or fish from exposure to this noise source is extremely unlikely to occur.

This survey plan serves as the submittal of existing SFV for geophysical and geotechnical instruments to document why this data is expected to be representative of the equipment and conditions described by the present Survey Plan. The equipment planned for use during the site characterization is the same as, or similar to, the equipment assessed in previous Vineyard Wind IHA applications and the above-referenced documents. Therefore, no additional sound field verification is necessary.

[9] Martin, B, J. MacDonnell, N.E. Chorney, and D. Zeddies. 2012. *Sound Source Verification of Fugro Geotechnical Sources: Final Report: Boomer, Sub-Bottom Profiler, Multibeam Sonar, and the R/V Taku.* JASCO Document 00413, Version 1.0 DRAFT. Technical report by JASCO Applied Sciences for Fugro GeoServices Inc.

[10] Crocker, S.E. and F.D. Fratantonio. 2016. Characteristics of Sounds Emitted During High-Resolution Marine Geophysical Surveys. Report by Naval Undersea Warfare Center Division. NUWC-NPT Technical Report 12,203, Newport, RI, USA. p. 266. https://apps.dtic.mil/dtic/tr/fulltext/u2/1007504.pdf.

[11] Vineyard Wind and JASCO Applied Sciences. 2020. Draft Request for an Incidental Harassment Authorization to Allow the Non-Lethal Take of Marine Mammals Incidental to High-resolution Geophysical Surveys. Document 01923, Version 2.0. Technical report by JASCO Applied Sciences for Vineyard Wind, LLC. Draft Request for an Incidental Harassment Authorization to Allow the Non-Lethal Take of Marine Mammals Incidental to High-resolution Geophysical Surveys (noaa.gov)

[12] For vibratory coring, there is a publicly available document from the National Marine Fisheries Service (http://www.nmfs.noaa.gov/pr/pdfs/permits/shell_90day_report2010.pdf) titled "Marine Mammal Monitoring and Mitigation During Marine Geophysical Surveys by Shell Offshore, Inc. in the Alaskan Chukchi and Beaufort Seas, July-October 2010: 90 day Report" which provides some insight into the sound level produced by an Alpine Pneumatic Vibracore System. Based on this report, an Alpine Vibracore has a source level of 187.4 dB re 1µPa @ 1 m (Page 3-33 Chapter 3: Underwater Sound Measurements).

[13] Willis, MR, Broudic M, Bhurosah M, Mster I. 2010. Noise Associated with Small Scale Drilling Operations. 3rd International Conference on Ocean Energy, 6 October, Bilbao.

Personnel

A long list of protected species observers (PSOs) were approved for the previous 2016-2021 surveys in the Vineyard Wind lease areas. Every attempt is made to utilize the most experienced personnel to meet the appropriate compliance for all the surveys. For all PSOs that will participate in the site characterization campaign, their resumes and company information will be submitted to BOEM prior to seven days before the start of the field program (see Table 2 for project schedule).

7. Archaeology and Tribal Outreach

The project QMA and any additional Subject Matter Experts (SMEs) identified by BOEM will be present at the BOEM pre-survey meeting and will attend the pre-survey tribal meetings (Lease 4.2.3). The QMA will assume all applicable duties required in the Lease as well as Guidelines for Providing Archaeological and Historic Property Information (May 2021). The QMA will interface with appropriate state historical agencies within the 3 nm limit to ensure their guidelines and requirements are met by the cable route survey.

Prior to geotechnical operations, the QMA will review and assess the geophysical data acquired in the vicinity of each proposed borehole/vibracore and/or CPT location (per Lease Section 4.2.4). Preliminary data processing and results will be generated in the field to support this near real-time review, and will consist of the following products for each proposed geotechnical sample site, a minimum 120 x 120 m square box centered on the location:

- Survey vessel/sensor tracklines
- bathymetric color shaded relief/topographic rendering
- side scan sonar mosaic imagery
- magnetic intensity contours/colorized residual gradient
- side scan sonar targets and magnetic anomalies picked, listed, and mapped
- interpreted subbottom profiles along all primary lines
- Excel spreadsheet tracking data, results, and clearance

The QMA will document the archaeological review in writing prior to conducting geotechnical work (see Section 10 for further details). Archaeological documentation of geophysical clearance of geotechnical locations will be included in the Marine Archaeological Resource Assessment (MARA) report with the COP.

Cooperative Tribal Meeting/Communication Plan

Open communication and consultation between 522 LLC and the local Tribes (Narragansett, Mashpee Wampanoag, Aquinnah Wampanoag, Mashantucket Pequot, Mohegan, Shinnecock, and Delaware; herein known as “the Tribes”) is a vital and required component to the pre-survey permitting process due to potential historical and pre-contact concerns regarding the proposed offshore activities. The location of the export cable corridor chosen will dictate which of the Tribes listed below need to be involved. Table 5 below lists the primary contacts for each federally recognized Tribe in the vicinity of the project survey areas. A detailed listing of correspondence with tribal representatives and other tribal personnel is available upon request.

Table 5. Tribal Historic Preservation Officers

Tribe	THPO	Address	Email	Phone
Aquinnah Wampanoag Tribe of Gay Head	Bettina Washington	20 Black Brook Road, Aquinnah, MA 02535	Bettina@wampanoagtribe.net	508-645-9265 x 175
Mashpee Wampanoag	David Weeden	483 Great Neck Road South, Mashpee, MA 02649	dweeden@mwtribe.com	508-477-0208 x 102
Narragansett Indian Tribe	John Brown	4425 S. Country Trail, Charleston, RI 02813	Brwnjbb123@aol.com	401-491-9459
Mashantucket Pequot Tribal Nation	Marissa Turnbull	2 Matts Path/ POB 3060 Mashantucket, CT 06338-3202	mturnbull@mptn-nsn.gov	860-396-7575
Mohegan Tribe of Indians of Connecticut	James Quinn	13 CrowHill Road Uncasville, CT 06382	jquinn@monheganmail.com	860 -862-6893
Shinnecock Indian Nation	Josephine Smith	POB 5006 Southampton, NY 11969	JosephineSmith@shinnecock.org	631-283-6143
Delaware Tribe of Indians	Susan Bachor	PO Box 64, Pocono Lake, PA 18347	sbachor@delawaretribe.org	610-761-7452

According to the Lease, Section 4.2.3, and subsequent to any pre-survey meeting with BOEM and at least 45 calendar days prior to commencing any survey activities, invitations by certified mail (formal request) will be sent to the Tribes for a tribal pre-survey meeting with a Qualified Marine Archaeologist (QMA). The meeting will be scheduled for a date at least 30 calendar days prior to commencing the survey work and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated dates for the invitation mailing and pre-survey meeting are identified in Table 2.

522 LLC will communicate directly with designated Tribal Historic Preservation Officers (THPO). Hard copies of invitation letters will be mailed per the lease and emails will be delivered to the THPOs as well. The QMA will be present at all tribal meetings. Minutes of each meeting held will be recorded.

8. Fisheries Communication Plan

Through the efforts on the Vineyard Wind portfolio of projects, the team is continuing outreach to numerous fishery organizations and fishermen to identify potentially affected fisheries and lay out communication methods and tools. Crista Bank, Fisheries Liaison, is a fisheries biologist with a Master's degree in fisheries oceanography.

522 LLC has and will continue to meet with a long list of people/organizations to openly communicate the project plans to the fishing community. A detailed listing of correspondence with fishermen and associated groups is available upon request.

In addition to these organizations, we will be reaching out to and meeting with additional fishermen before our surveys and continuing our dialogue. We will also be submitting updates on our surveys via email, text alerts, direct communication, advertising, and list-serve notification. Day-to-day fisheries information will be communicated via the onboard fisheries liaisons (OFLs) who in turn update the project team (email, calls), as well as directly interact with fishermen working in the vicinity of the survey vessels (VHF radio, emails). The Company fisheries communications plan is available at the following web link: Fisheries+Communication+Plan (squarespace.com).

We will also create single page handouts – "Mariner Updates" – that will contain relevant information for the survey including OFL & FR contact details, survey vessel information, and a chart of the primary survey area to be handed out to fishermen on the docks. The company website will be updated as needed to help spread information to the fishermen regarding the survey schedules and progress.

Current key company personnel for contact regarding fisheries:

Fisheries Representative: Crista Banks Mobile: 508-525-0421 cbank@vineyardwind.com

9. Pre-Survey Meeting

Lease 0522 states that at least 60 days prior to the initiation of survey activities in support of the submission of a plan, the Lessee must hold a pre-survey meeting with BOEM to discuss the enclosed survey plan and timeline (Lease Section 2.1.2). An approximate date for the pre-survey meeting is provided in Table 2.

10. Reporting

Regarding the geotechnical clearance, preliminary data processing and results will be expedited to support near real-time review of geophysical data and coverage of proposed geotechnical sample stations (vibracores, borings, and CPTs). Plots of processed data and results (see Section 7) will be delivered to the QMA for review and progress tracked as the field work and clearance is conducted. A final clearance tracking spreadsheet documenting the conditions at each geotechnical sampling location, and whether the site is clear of cultural resources, will be issued to 522 LLC and the survey contractor prior to any seafloor and subsurface disturbance activity. Final memos will be included with the MARA in the COP submission.

The full COP site characterization campaign data package will be analyzed, mapped, and reported to provide information on the seafloor structures, bathymetry, subsurface features, and any natural and man-made hazards that may affect the foundation design, cable routing, design, or installation operations. A final site characterization report will be generated in accordance with BOEM guidelines and submitted as part of the COP.

Furthermore, in accordance with Section 4.4 of Addendum C of Lease 0522 and all other governing documents (e.g., IHA), all reporting measures will be followed pertaining to protected species monitoring and mitigation.

11. Communication

In compliance with Lease provision 3.2.4, which states that the lessee must inform the lessor of persons/officers to be contacted in order to implement Lease provisions 3.2.2 and 3.2.3 requiring suspension of activities due to national security reasons, we provide the following contact information:

Rachel Pachter Chief Development Officer OCS-A 0522 LLC Mobile: 508-680-6455 Email: rpachter@vineyardwind.com	**Jeff Gardner** Field Program Manager Geo SubSea LLC Mobile: 860-682-7093 Email: jeff@geosubseaconsulting.com

In accordance with Lease provision 3.2.5, the contractor will contact U.S. Navy Fleet Forces, Command Headquarters in order to avoid or minimize the potential to conflict with any military operations being conducted in or near Lease 0522. The contractor will submit all required information to the Navy including but not limited to, the schedule of field activities and contact information in case of an emergency or short notice of Navy operations.

Open communication is maintained with the U.S. Coast Guard (USCG) and other personnel who are frequently out on coastal waterways so that these organizations are aware of the project and its activities. 522 LLC will coordinate with the USCG to prepare a Notice to Mariners for the offshore activities anticipated during the site characterization campaign. Survey contractors will assist with USCG coordination to provide vessel specific information, employee contact information for key personnel, and communication protocols.

SIMOPS will be closely monitored by all vessels and masters, as well as program managers onshore, to maintain appropriate marine safety zones and coordinate activities in all project areas. All shore-based field management personnel and key vessel crew members and staff (Master, Party Chief, Client Rep) will be connected on multiple communications platforms for reporting survey progress, plans for the next 24 hours, and specific vessel movements and activities so the entire fleet is up-to-date. Direct communications via marine VHF radio will be used when vessels are working in the same area.

Appendix A

Geophysical, Geotechnical, and Environmental

Survey Equipment Specification Sheets

(to be provided after contractor selection)

Geo-Spark 2000X - 7 kJ Spread

Ultra Hi-Res Seismic Profiling System

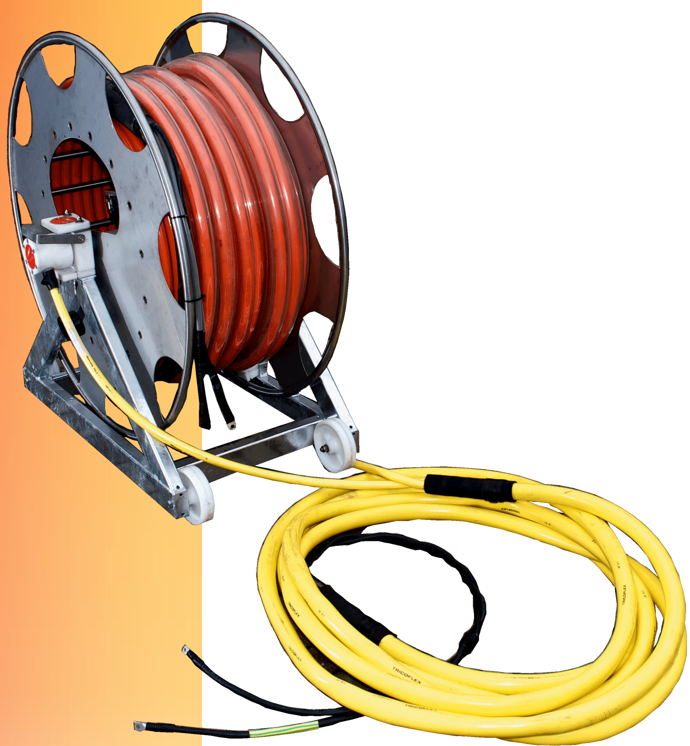
SPARK UP YOUR HI-RES SEISMIC SURVEY WITH INNOVATING NEGATIVE DISCHARGE TECHNOLOGY

The new **Geo-Spark 7000 spread** is based on the ideal combination of:

- the new **portable**, fast charging, **Geo-Spark 2000 X** Power Supply plus a switchable **5 kJ** capacitor unit
- the **400 or 800-tip** Geo-Source Sparker with **maintenance-free** electrodes
- the new, **floating, 2 x 40 mm^2 coaxial** HV cable designed for minimum power loss
- the **compact**, mobile HV cable reel with axial rotating HV contacts plus armored deck lead
- the **24-bit** Mini-Trace II recording system with powerful 64 bit **Geo-Suite Acquisition software**

THE GEO-SPARK CONCEPT, what makes the difference?

The difference is made by the unique concept of the Geo-Spark power supply, which is designed for a very fast, extremely powerful, **NEGATIVE,** High Voltage discharge of 5.6 kV up to 20 kA. It is this electric ***"punch"*** which makes the difference in the **powerful** acoustic pulse, that is providing the resolution and the penetration

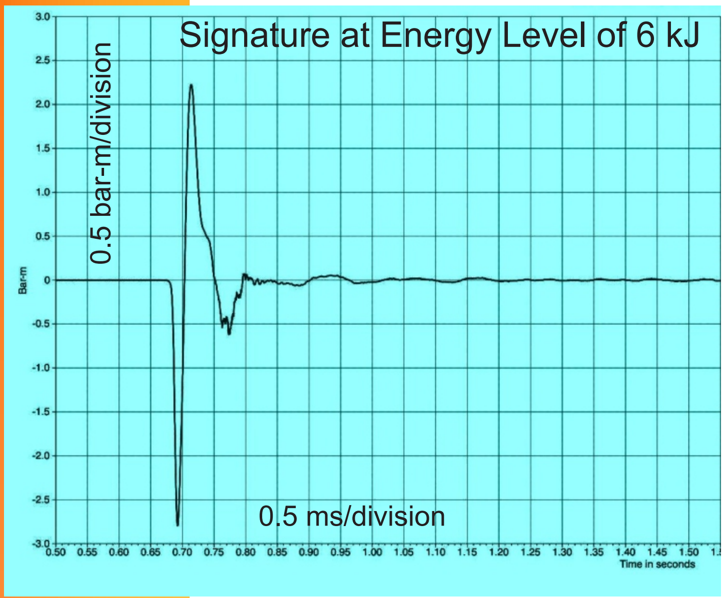


Maintenance free electrodes, with 5 year !! operational guarantee ….

By using the Geo-Spark power supplies, **the electrode tip-wear is reduced to practically zero**. Finally, the acoustic signature does not degrade anymore, which still happens as the old-fashioned electrodes are quickly burning away. With the Geo-Spark, there is no more need for tedious electrode trimming, there are **no more electrode consumables** and **no more interruptions** in the survey work. This means that you are saving a lot of time and money. Our so-called **PRESERVING ELECTRODE MODE** will give you continuously good quality data, day after day, month after month, year after year…. It is almost boring…

Portable Geo-Spark 7 kJ Spread

Ultra Hi-Res Seismic Profiling System



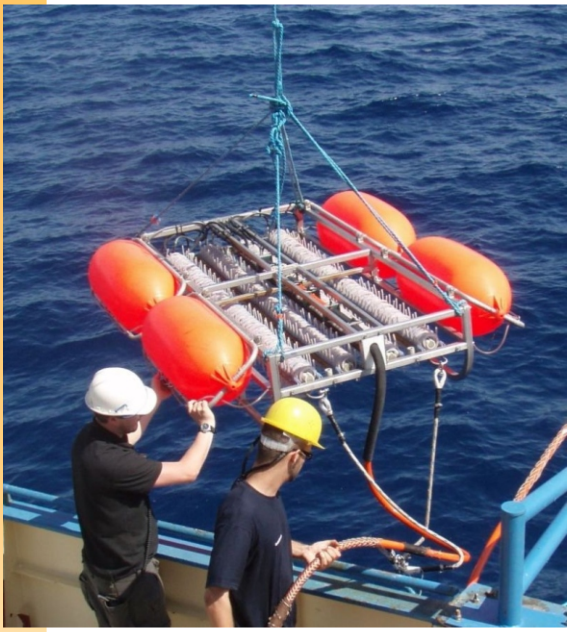
Resolution and Penetration

The Geo-Spark signature consists typically of the very strong **explosive pulse** (CF>1000 Hz), which provides the very high resolution, followed by the **implosive pulse** (CF<750 Hz), which achieves the penetration.

The High Power Geo-Spark Systems have a **proven track record** of successful use in prestigious Oceanographic Research Programs.

< Example Integrating Sparker - Airgun data in Risk Evaluation Study of Transcurrent fault in deep water > 1500 m, location Southern Spain

(Courtesy SEA TECHNOLOGY Feb 2009)



Wide Range of Applications

- For offshore surveys with a **large research vessel** in deep water down to **5000 m** depth.
- For near-shore studies in shallow water depths from **2 m** to **100 m** with a small survey vessel.
- The **Geo-Spark 2000 X power supply** can also be used as **stand-alone** with Geo-Source 400-tip sparkers (marine and fresh water)..... and even with a 300-500 Joule Geo-Boomer .

GEO-SPARK 7000 Power System Main Specifications

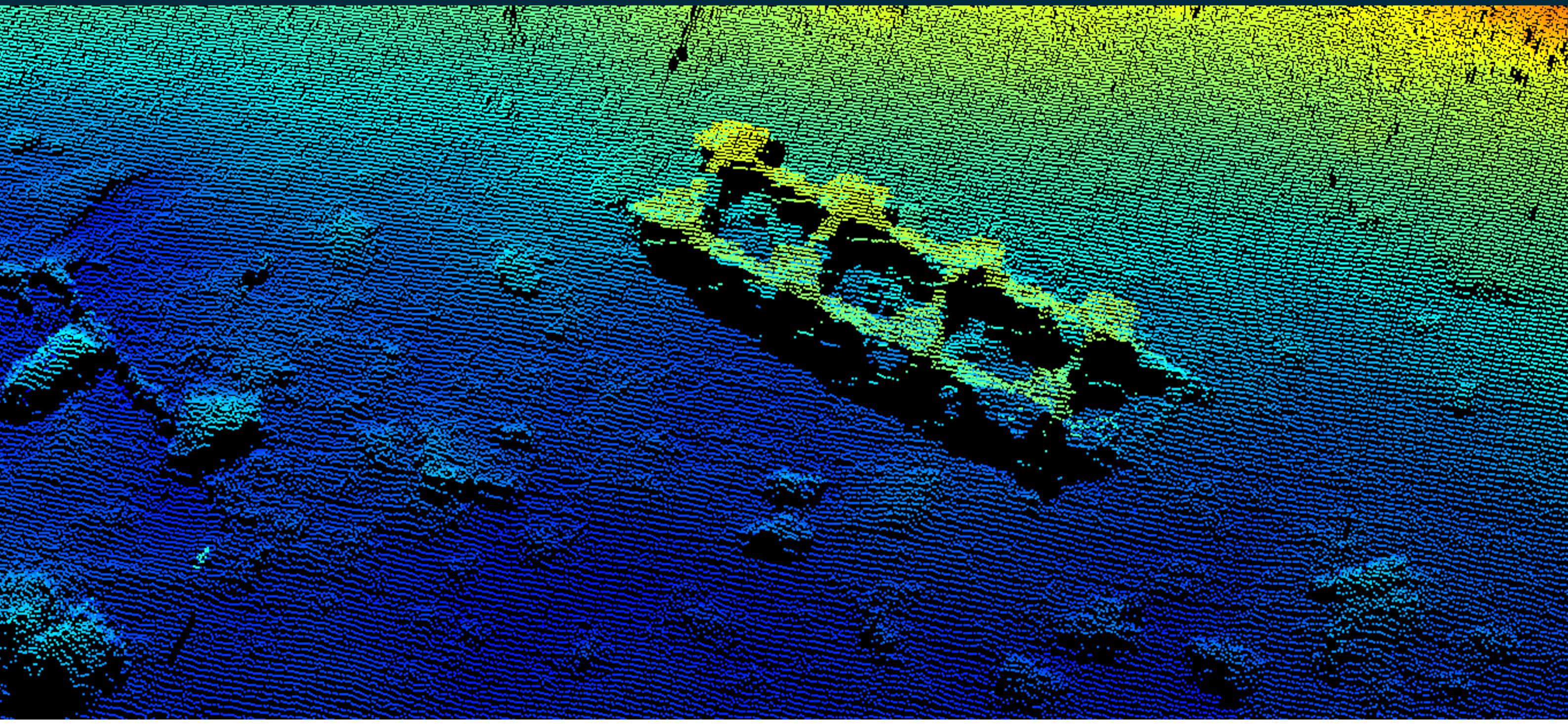
- Mains Power: 220- 240 V AC, 50-60 Hz, 16 A
- 95 kg for PS, 95 kg for Capacitor Bank
- Dimensions: H x W x D = 109 x 55 x 71cm
- High Voltage - 5600 V for real acoustic punch
- Energy Output selectable from 100 to 7000 J
- HV charging capability : 2 kJ / sec
- 1 shot every 4 sec at energy of 7000 J
- Indestructible 25 kA -5.6 kV discharge Thyristor
- Very high dI/dT, **NO** electrical oscillations
- 5 year guarantee for discharge capacitors
- Fully ground-referenced, 100 % safe
- Humidity and Temperature protection
- State-of-the-art micro-processor based control and monitoring system
- **maintenance-free** electrodes, 5 year guarantee
- Proven system **Reliability** and **Quality**

GEO Marine Survey Systems b.v.
Sheffieldstraat 8
3047 AP Rotterdam
The Netherlands

Phone: + 31 10 41 55 755
Fax: +31 10 41 55 351
info@geomarinesurveysystems.com
Website: www.geo-spark.com

EM® 2040

KONGSBERG



MULTIBEAM ECHO SOUNDER

The EM2040 is a true wide band high resolution shallow water mutibeam echosounder, an ideal tool for any high resolution mapping and inspection application. It has a modular design, allowing the user to tailor the beamwidths and coverage to the operational requirements. The system fulfils and even surpasses the IHO-S44 special order and the more stringent LINZ specification.

Key facts
The EM 2040 receiver is 0.7 degrees, two transmitters are available: 0.4 and 0.7 degrees. The transmit fan is divided into three sectors pinging simultaneously at separate frequencies. This ensures a very strong and beneficial dampening of multibounce interference. The EM 2040 has dual swath capability, allowing a sufficient sounding density alongtrack at a reasonable vessel speed.

The operating bandwidth available on the EM 2040 is 200 to 400 kHz. Due to the very large operating bandwidth available, the system will have an output sample rate up to 60 kHz. The system can effectively operate with very short pulse lengths. The shortest pulse is 14 microseconds, which gives a raw range resolution (cτ/2) of 10.5 mm. For maximum range and high resolution FM chirp is used.

The standard depth rating of the EM 2040 subsea parts is 6000 m. The system is ideal for operation on subsea vehicles such as ROVs or AUVs.

Components
The basic EM 2040 has four units, a transmit transducer, a receive transducer, a processing unit, and a workstation.

The EM 2040 is a modular system, fully prepared for upgrading to cater for more demanding applications. The transmit transducer has an angular coverage of 200º (±100º) as standard, allowing a coverage of 5.5 times water depth when matched with a single receive transducer. Adding a second receive transducer allows surveying to the water surface or up to 10 times water depth on flat bottoms. With two sets of transmit and receive transducers it is possible to avoid having a transducer at the keel. Also for pipeline inspections a dual TX and RX configuration gives the possibility to inspect the pipe from two different angles. The transducers are separate units with titanium housings.

Operational modes
The EM 2040 has a frequency range of 200-400 kHz. The single transmitter configuration with either one or two receivers has three standard modes. 300 kHz is used for normal operation, giving an optimum balance between high resolution, depth capability and tolerance of detrimental factors such as water column sediments. 200 kHz is available for meeting requirements to operate at the standard hydrographic single beam frequency, but also to achieve the best depth capability. 400 kHz is provided for inspection work with the utmost resolution.

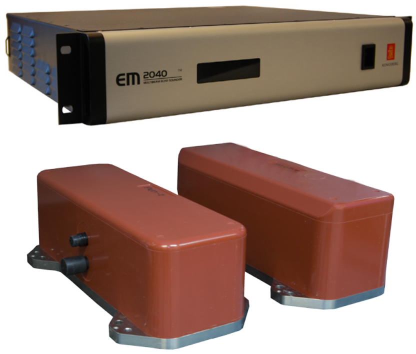
The specialised dual transmitter and receiver configuration has a mapping mode with two frequency coded sectors and user selectable frequency in steps of 10 kHz from 200 to 400 kHz.

FEATURES

- High resolution
- Wide frequency range
- FM chirp
- Roll, pitch and yaw stabilisation
- Nearfield focusing - both on transmit and receive
- Short pulse lengths, large bandwidth
- Water column display
- Seabed image
- Depth rated to 6000 m
- Easy to install

Options:

- Water column logging
- Extra detections
- Dual swath
- Dual RX
- Dual TX



TECHNICAL SPECIFICATIONS

Coverage example for EM 2040 with bottom type rock (BS = - 10 dB), NL = 45 dB, FM mode						
Operating mode	**Cold ocean**			**Cold fresh water**		
EM 2040-04:	**Max depth**	**Max coverage single RX**	**Max coverage dual RX**	**Max depth**	**Max coverage single RX**	**Max coverage dual RX**
200 kHz	635 m	920 m	980 m	1360 m	1990 m	2110 m
300 kHz	480 m	670 m	760 m	740 m	1100 m	1270 m
400 kHz	315 m	410 m	430 m	430 m	570 m	610 m
EM 2040-07:						
200 kHz	600 m	880 m	930 m	1300 m	1870 m	2000 m
300 kHz	465 m	640 m	725 m	700 m	1050 m	1200 m
400 kHz	300 m	385 m	410 m	375 m	540 m	570 m

Pulse lengths	**200 kHz mode**		**300 kHz mode**		**400 kHz mode**	
	CW	**FM**	**CW**	**FM**	**CW**	**FM**
Normal mode	38, 108 and 324 µs	3 and 12 ms	38, 108 and 324 µs	2 and 6 ms	27, 54 and 108 µs	N/A
Single sector mode	19, 38 and 81 µs	1.5 ms	19, 38 and 81 µs	1.5 ms	14, 27 and 54 µs	N/A
	200 - 400 kHz CW in 10 kHz step			**200 - 400 kHz FM in 10 kHz step**		
Dual TX model	14, 27, 54, 135, 324 and 918 µs			3 and 12 ms		

Max no. of soundings per ping	**Single swath**	**Dual swath**
Single RX	400	800
Dual RX	800	1600

Beamwidth				**Physical dimensions (excluding connectors and mounting arrange-ments)**	
	200 kHz	300 kHz	400 kHz	Dimensions	Weight
Tx EM 2040-04	0.7 deg	0.5 deg	0.4 deg	727 x 142 x 150 mm (LxWxH)	45 kg
Tx EM 2040-07	1.5 deg	1 deg	0.7 deg	407 x 142 x 150 mm (LxWxH)	23 kg
Rx	1.5 deg	1 deg	0.7 deg	407 x 142 x 136 mm (LxWxH)	22 kg
Processing Unit (2U 19” rack)*				482.5 x 424 x 88.6 mm (WxDxH)	10.5 kg

Laptop, HWS and monitor can be delivered on request.

332644 /M September 2017

Specifications subject to change without any further notice.

KONGSBERG MARITIME
Switchboard: +47 815 73 700
Global support 24/7: +47 33 03 24 07
E-mail sales: km.sales@km.kongsberg.com
E-mail support: km.support@kongsberg.com

km.kongsberg.com

KONGSBERG

EdgeTech

4200 SERIES

SIDE SCAN SONAR SYSTEM

FEATURES

- Optional Multi-Pulse (MP) technology for high speed surveys
- Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Stainless steel towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

APPLICATIONS

- Cable & Pipeline Surveys
- Geological/Geophysical Surveys
- Mine Countermeasures (MCM)
- Geohazard Surveys
- Channel Clearance
- Search and Recovery
- Archeological Surveys

The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.

One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classification ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Definition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best configuration for the specific job type.

All EdgeTech 4200 systems are comprised of a topside system and a reliable stainless steel towfish. A choice of dual simultaneous frequency sets are available to the user and topside processors come in a choice of configurations from portable to rack mounted units. In addition, an easy-to-use GUI software is supplied with every unit.

EdgeTech

4200 SERIES

SIDE SCAN SONAR SYSTEM

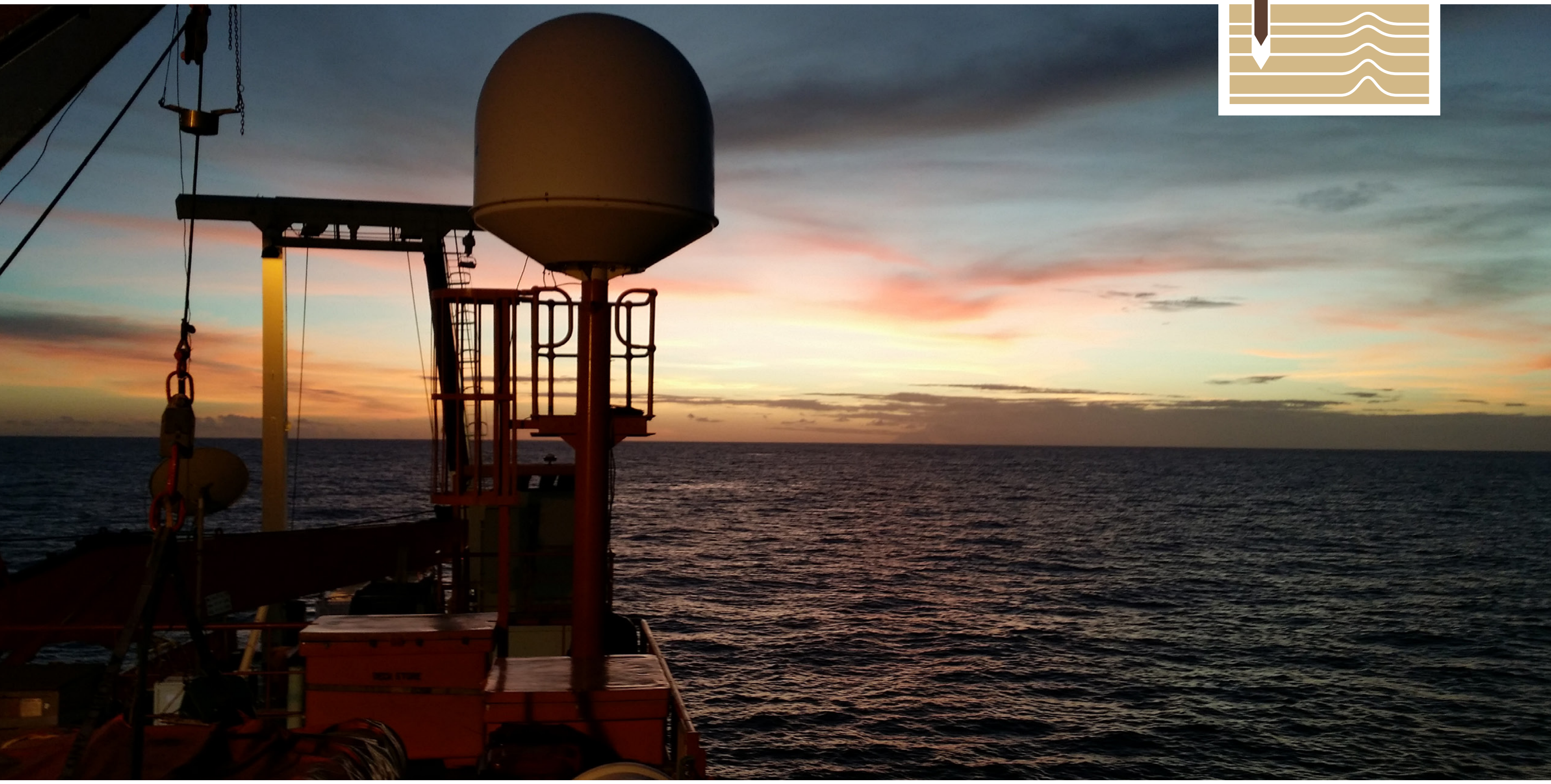
KEY SPECIFICATIONS

SONAR SPECIFICATIONS	STANDARD	WITH OPTIONAL MP TECHNOLOGY	
Frequency	Choice of either 100/400, 300/600 or 300/900 kHz dual simultaneous		
Operating Range (meters/side)	100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m		
Horizontal Beam Width:	100 kHz: 1.5°, 300 kHz: 0.5°, 400 kHz: 0.4°, 600 kHz: 0.26°, 900 kHz: 0.2°	In High Speed Mode: 100 kHz: 1.26°, 300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°, 900 kHz: 0.3° In High Definition Mode: 100 kHz: 0.64°, 300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°, 900 kHz: 0.2°	
Resolution Along Track	100 kHz: 5 m @ 200 m 300 kHz: 1.3 m @ 150 m 400 kHz: 0.6 m @ 100 m 600 kHz: 0.45 m @ 100 m 900 kHz: 18 cm @ 50 m	High Definition Mode: 100 kHz: 2.5m @ 200m 300 kHz: 1.0m @ 200m 400 kHz: 0.5m @ 100m 600 kHz: 0.45m @ 100m 900 kHz: 18 cm @ 50m	HIgh Speed Mode: 100 kHz: 4.4m @ 200m 300 kHz: 1.9m @ 200m 400 kHz: 0.7m @ 100m 600 kHz: 0.6m @ 100m 900 kHz: 26 cm @ 50m
Resolution Across Track	100 kHz: 8 cm, 300 kHz: 3 cm, 400 kHz: 2 cm, 600 kHz: 1.5 cm, 900 kHz: 1 cm		
Vertical Beam Width	50°		
Depression Angle	Tilted down 20°		
TOWFISH	STAINLESS STEEL		
Diameter	11.4 cm (4.5 inches)		
Length	125.6 cm (49.5 inches)		
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)		
Depth Rating (Max)	2,000m		
Standard Sensors	Heading, pitch & roll		
Optional Sensor Port	(1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC		
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors		
TOPSIDE PROCESSOR	4200-P	4200	701-DL INTERFACE
Hardware	Portable splash-proof case	19" rack mount computer	19" rack mount interface
Display & Interface	Splash-proof laptop	21" flat panel monitor, keyboard & trackball	Customer-supplied
Power Input	20-36 VDC or 115/230 VAC	115/230 VAC	115/230 VAC
Operating System	Windows© XP Pro		
File Format	Native JSF or XTF		
Output	Ethernet		
TOW CABLE			
	Coaxial Kevlar or double-armored up to 6,000m, winches available		

For more information please visit EdgeTech.com

info@EdgeTech.com | USA 1.508.291.0057

SERVICE FLYER



FUGRO
BACK2BASE™

Back2Base™ is a set of technologies and processes which enable survey data to be reliably and economically transferred between work locations including survey vessels to the terrestrial reporting office, via an internet link such as satellite or mobile broadband and Wi-Fi.

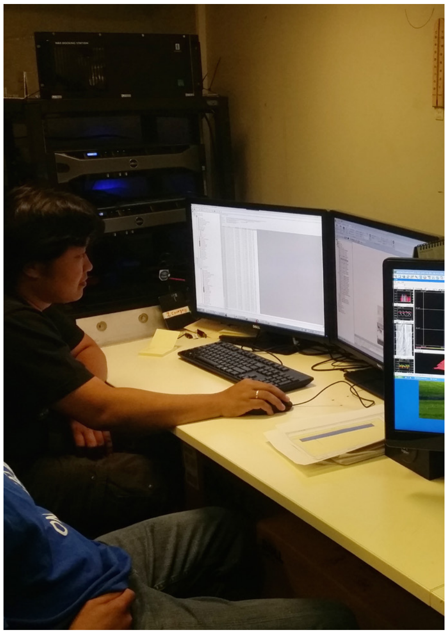
Getting information back from the field and onto the client's desk in a timely manner has always been one of the most challenging aspects of survey work. With internet and communication costs reducing as rapidly as bandwidth increases, Fugro have developed a service to deliver survey data to the client in a swift and cost-effective manner.

This data transmission technique enables close liaison with shore-based client personnel and Fugro experts in any location, not only in the field. Peer reviewed decisions can be taken in near real time that may modify the survey on the basis of observed conditions onsite or to investigate areas of particular interest. Experts can review data from multiple projects. Full processing and reporting can be started earlier resulting in faster information delivery.

THE PROCESS

The key to the Back2Base operation is in the packaging – data compression on its own is simply not enough …

For example, a typical MBES survey will need to transfer the MBES, attitude and position data back to the office for processing



Survey data processed in the field.

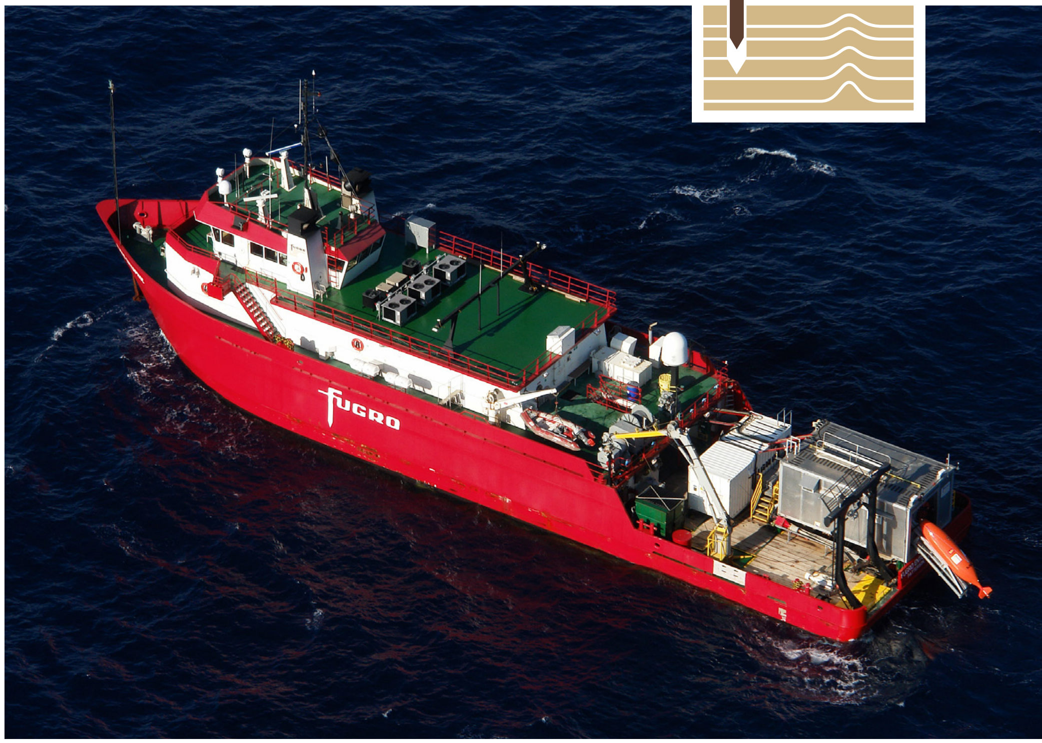
SERVICE FLYER

- MBES @ 20Hz, 512 beams/ping
- Single beam echo sounding
- Attitude @100 Hz (pitch, roll, heave, heading)
- Position @1 Hz
- Raw RINEX on mobile + base for PPK processing
- Auxiliary files (SVP, tides, logs etc.)
- Side scan sonar .xtf files
- SEGY seismic files

PACKAGING EXAMPLES

The example below shows the reduction in file size typically obtained from the Back2Base procedure for MBES survey data:

Example Dataset	Size
Raw Data (5 mins MBES Calibration line)	680 MB
Packaging	49.4 MB
Compression	4.8 MB



Survey vessel.

TRANSFER PROCESS

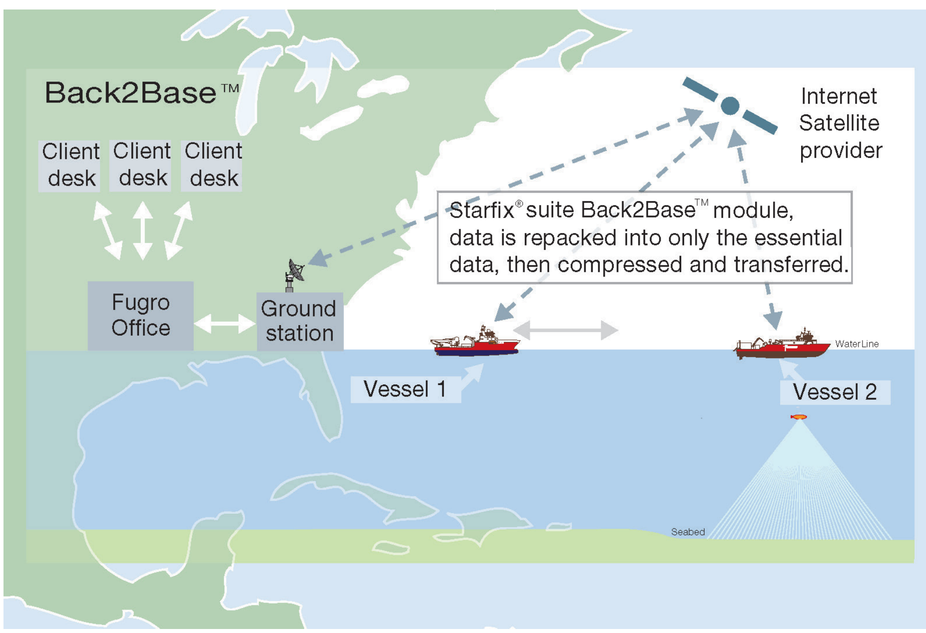
- The data to be sent is organised into a directory structure.
- Using the Starfix Suite Back2Base module, SBES/MBES, XTF and SEGY data is repackaged into only the essential data and then compressed.
- Transmission then takes place by the most efficient means – VSAT (C-band, Ku-band or Ka-band), 4G, 3G or Wi-Fi as available.
- Uploading of data does not compromise other internal or external tasks on the vessel network, such as email traffic; Back2Base transmission is prioritized to only use bandwidth when it is available.
- In the destination location, the data is decompressed and made available for processing using industry standard products.

SECURITY

Back2Base uses open SSL communications for data transfer. All data is protected using AES-128 encryption. The Back2Base security model uses session encryption, secure authentication and on-the-fly data encryption with integrity verification for each transmitted data block. Back2Base server access is through secure username and password. The Back2Base client can operate on a HTTPS certificate URL, essentially a secured web browser.

REAL WORLD EXAMPLES

Back2Base has been used for various survey types including special order nearshore surveys, AUV surveys, deep water pipeline route geophysical / geotechnical surveys, the search for MH370 and high-resolution site survey work.



WWW.FUGRO.COM

SEAPATH® 380 SERIES

KONGSBERG

THE ULTIMATE HEADING, ATTITUDE AND POSITIONING SENSOR

The Seapath 380 series uses a state-of-the-art dual frequency GNSS receiver, inertial technology and processing algorithms to provide surveyors with the best possible accuracy in position, attitude and timing. All available GPS, GLONASS, Galileo, Beidou and QZSS satellites are used in the position solution.

Function

The advanced Seapath navigation algorithms integrate RTK GNSS data with the inertial sensor data from the MRU. This gives the Seapath 380 unique advantages compared to stand- alone RTK products. The Seapath product's accurate roll, pitch and heading measurements allow the RTK antenna position to be referenced to any point on the vessel where accurate position and velocity are required. All data from Seapath have the same time stamp and the output is in real-time. Subdecimetre position accuracy can be achieved through download of satellite orbit and clock data from the internet and by post processing of satellite and IMU data.

Product range

The Seapath 380 series is delivered in the following product range:

	Roll/Pitch [RMS]	Heading [RMS]	
		2.5m baseline	4m baseline
Seapath 380-3	0.08°	0.07°	0.05°
Seapath 380-H	0.03°	0.07°	0.04°
Seapath 380-5	0.02°	0.04°	0.03°
Seapath 380-5+	0.008°	0.04°	0.02°

Note: The MRU 3 model part of Seapath 380-3 has to be mounted in a fixed direction relative to the vessel and with the connector pointing up or down. Otherwise the performance of the Seapath 380-3 will be degraded.

System configuration

This Seapath series is a two-module solution with a processing unit and a HMI unit connected via Ethernet. The processing unit run all critical computations independent from user interface on the HMI unit to ensure continuous and reliable operation. Multiple HMI units can be connected to the same processing unit in a networked architecture. The HMI units present the vessel motion in a clear and easy-to-understand format. The Seapath is operated through the operator software installed on one or several HMI units. This software is used for performance monitoring, configuration and troubleshooting of the system.

Interfaces

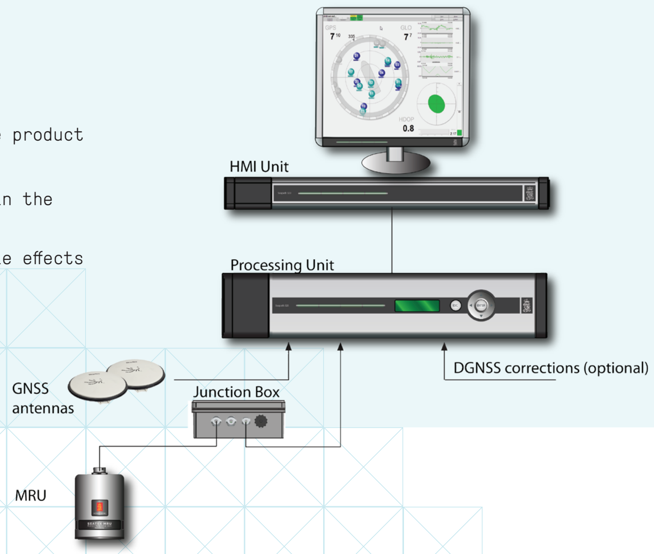
The processing unit has eight RS-232/422 serial lines, four Ethernet LANs and three analog output channels. This makes distribution of Seapath data to various users onboard almost endless. DGNSS corrections of various quality and sources are input on a configurable RS-232/422 serial line or Ethernet.

Applications

By using standard DGNSS, Fugro XP2/G2/G4/G4+ and RTK corrections, the Seapath 380 is a unique solution for hydrographic surveying and dredging work demanding the most comprehensive and accurate surveying data available.

FEATURES

- 0.008° to 0.08° roll and pitch accuracy depending on model
- 2 cm heave accuracy by use of the PFreeHeave® algorithms
- Meets IHO special order requirements
- Robust against GNSS dropouts due to the inertial sensor part of the product
- 555-channel dual frequency GPS/GLONASS/Galileo/Beidou receiver
- All available GPS/GLONASS/Galileo/Beidou/QZSS satellites are used in the positioning solution
- Includes ionospheric compensation methods to reduce Sunspot 24 cycle effects
- Fugro XP2/G2/G4/G4+ corrections and RTK supported
- RTK corrections format RTCM and CMR supported
- Includes SBAS corrections (WAAS, EGNOS, MSAS, GAGAN)
- All data have the same time stamp and to an accuracy of 0.001 s to the actual measurement time
- Logging of raw satellite and IMU data possible



TECHNICAL SPECIFICATIONS

SEAPATH 380 SERIES

PERFORMANCE	
Heave accuracy (real-time)	5 cm or 5 % whichever is highest
Heave accuracy (delayed signal)	2 cm or 2 % whichever is highest
Heave periods (real-time), except Seapath 380-3	1 to 25 seconds
Heave periods (real-time), Seapath 380-3	0 to 18 seconds
Heave periods (delayed signal)	1 to 50 seconds
Position accuracy DGNSS/GLONASS	0.5 m RMS or 1 m 95% CEP
Position accuracy SBAS	0.5 m RMS or 1 m 95% CEP
Position accuracy Fugro XP2/G2/G4/G4+	0.1 m RMS or 0.2 m 95% CEP
Position accuracy RTK (X and Y)	1 cm + 1 ppm RMS
Position accuracy RTK (Z)	2 cm + 1 ppm RMS
Velocity accuracy	0.03 m/s (RMS)
Range to RTK reference station	10 km
UHF radio frequencies (radio not included in standard package)	430 to 470 MHz 390 to 430 MHz (optional)

DATA OUTPUTS	
Communication ports	8 serial RS-232/RS-422 lines and 16 Ethernet UPD/IP ports
Data output interval	Programmable in 0.005-se steps and 1PPS pulse
Data update rate	Up to 200 Hz
Analog output	3 user configurable channels, +/- 10 Volt
1PPS signal accuracy	220 nsec

POWER SPECIFICATIONS	
Processing Unit	100 to 240 V AC, 75 W (max)
HMI Unit	100 to 240 V AC, 40 W (max)
Monitor	100 to 240 V AC, 23 W (max)
IMU	24 V DC from Processing Unit
GNSS antenna	5 V DC from Processing Unit

WEIGHTS AND DIMENSIONS	
Processing Unit	5.4 kg, 89 x 485 x 357 mm
HMI Unit	3.8 kg, 44 x 485 x 330 mm
Monitor	3.8 kg, 383 x 380 x 170 mm
IMU	2.2 kg, 140 x Ø105 mm
GNSS antenna	0.5 kg, 69 x 185 mm

ENVIRONMENTAL SPECIFICATIONS	
Operational temperature range	
Processing and HMI Unit	-15 to +55 °C
Monitor	+5 to +40 °C
IMU	-5 to +55 °C
GNSS antenna	-40 to +85 °C
Storage temperature range	
Processing and HMI Unit	-20 to +70 °C
Monitor	-20 to +60 °C
IMU	-25 to +70 °C
GNSS antenna	-55 to +85 °C
Enclosure protection	
Processing and HMI Unit	IP 21 (rear)
Monitor	IP 21 (rear)
IMU	IP 66
GNSS antenna	IP 66
Cables	IP 67
Connectors	IP 67
Mechanical	
Vibration	IEC 60945/EN 60945
Electromagnetic compatibility	
Compliance to EMCD, immunity/emission	IEC 60945/EN 60945

PRODUCT SAFETY	
Compliance to LVD, standard used	IEC 60950-1/EN 60950-1

Specifications are valid without multipath, without shadowing of antennas and with vessel in motion.

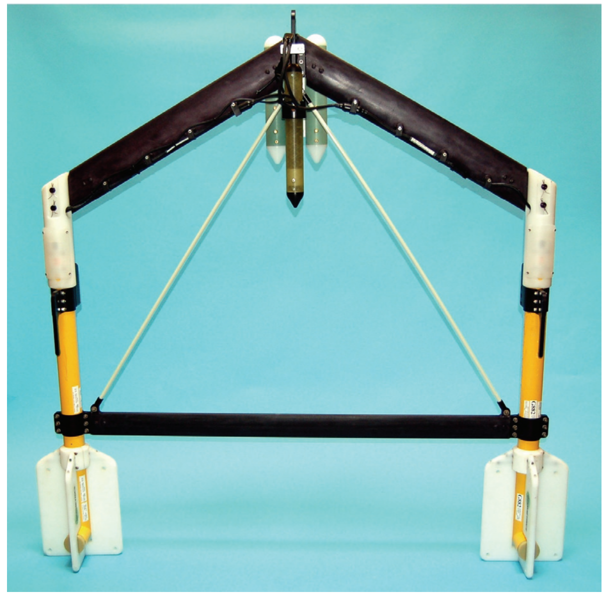
Specifications subject to change without any further notice.

December 2018

KONGSBERG SEATEX
Switchboard: +47 73 54 55 00
Global support 24/7: +47 33 03 24 07
E-mail sales: km.seatex.sales@km.kongsberg.com
E-mail support: km.support.seatex@kongsberg.com
km.kongsberg.com/seatex

GEOMETRICS
Innovation • Experience • Results

G-882TVG CESIUM MAGNETOMETER & TRANSVERSE GRADIOMETER



- **Marine Search Applications for UXO, pipelines, lost objects with Multi-Sensor Array Capability**
- **High Sensitivity — 0.004 nT/sq-rt-Hz RMS with dual CM−221 Larmor Counters**
- **Very Low Heading Error — ±0.25nT over 360° equatorial and polar spins**
- **Versatility — CM-221 counter includes 8 channel 12 bit A to D converters for real time internal diagnostics, digital data stream concatenation, and short, long or telemetry over coax options**
- **Reliability and Ruggedness – Cesium magnetometers never need be returned to factory for calibration or tuning. Designed for tough environmental conditions and high "G" loads**
- **Gradiometer arrays offering simultaneous operation of up to 8 separate sensors using the designed-in multi-sensor data concatenation of the CM-221 internal counter**
- **Geometrics offers complete turnkey systems including tow cables, gradiometer wing, digital data acquisition systems with real time anomaly detection, GPS navigation and post acquisition data processing software and training.**

The Geometrics Model G-882TVG Transverse Gradiometer system mates the well- proven high-performance cesium sensor with dual high sensitivity and high speed CM-221 Larmor Counters. This advanced integrated magnetometer system provides unmatched versatility in performance, with a wide sensor separation for maximum target detection efficiency and survey cost effectiveness.

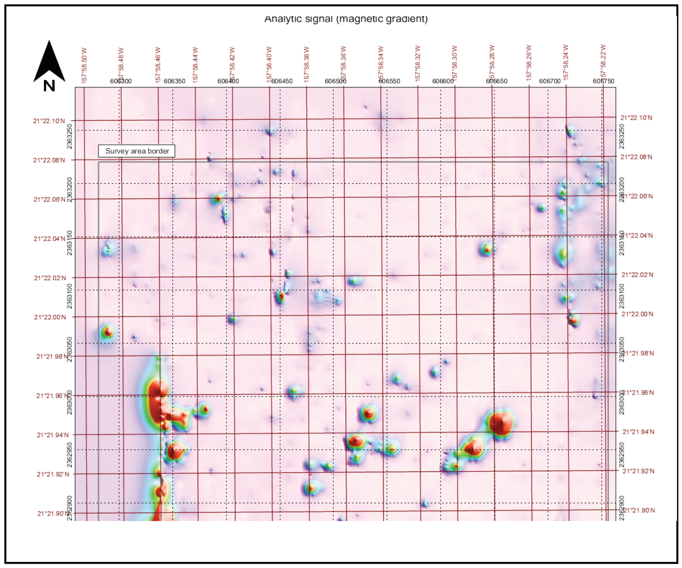
The system comprises a transverse wing and two G-882 Cesium Vapor magnetometer fish with stabilizer weights and fins. Tow cables may be up to 150m in length with standard power supply or up to 700m with a high capacity voltage sense supply. Depth sensors provide gradiometer attitude and depth information to the operator depth and an echo-sounder altimeter provides height above sea floor for proper system flight control.

Dual sensors are synchronized to 1ms sampling and data is transmitted via RS-232 for recording by any standard PC computer using our industry standard MagLogLite software. High sample and data transmission rates (up to 40 samples per second) are standard.

The G-882G provides sensitivities of 0.004 nT/√Hz RMS or approximately 0.01 nT P−P at 10 Hz, selectable via software command for detection of the smallest anomalies. MagLog software computes the transverse difference for display and analysis in real time, using the customer supplied GPS for interpolation and target positioning.

The system's high performance is excellent for the detection and delineation of cables, pipelines, environmental, archaeological or military UXO and EOD targets.

Software
Geometrics supplies MagMap2000 and MagPick with each system for analysis and interpretation of total field and gradient data. Analytical signal is computed from the transverse gradient, longitudinal time gradient and computed vertical gradient to give a time-variation free data set for contouring and plotting of anomaly targets. Simultaneous dual inversion routines in MagPick produce a located target worksheet with models including object latitude-longitude position and depth of burial. Download ftp://geom.geometrics.com/pub/mag/Software/Posters.zip for more information



MODEL G-882TVG MARINE CESIUM GRADIOMETER SPECIFICATIONS

OPERATING PRINCIPLE:	Self-oscillating split-beam cesium vapor (non-radioactive)
OPERATING RANGE:	20,000 to 100,000 nT
OPERATING ZONES:	The earth's field vector should be at an angle greater than 10° from the sensor's equator and greater than 10° from the sensor's long axis. Automatic hemisphere switching.
SENSITIVITY WITH CM-221 COUNTER:	<0.004 nT/sq-rt-Hz RMS. Typically 0.01 nT P-P at a 0.1 second (10 Hz) sample rate (90% of all readings falling within the P-P envelope)
SAMPLE RATE:	Up to 40Hz in 100ms increments
HEADING ERROR:	<0.25 nT over entire 360° equatorial and polar spins
ABSOLUTE ACCURACY:	<3 nT throughout range
OUTPUT:	Cycle of Larmor frequency = 3.498572 Hz/nT, RS-232 data at 115K baud, concatenated data streams from 2 to 8 sensors depending on sample rate
MECHANICAL:	Total weight including 70kg (155 lbs) including two fish, wing and tow cable. Sensor separation is 1. 5m for maximum gradient
CABLES:	Vectran Reinforced multi-conductor tow cable. Breaking strength 3,600 lbs, 0.48 in OD, 500 ft standard maximum. Up to 2100 ft with variable voltage supply. 200 ft (60m) weighs 17 lbs (7.7 kg).
OPERATING TEMPERATURE:	-30°F to +122°F (-35°C to +50°C)
STORAGE TEMPERATURE:	-48°F to +158°F (-45°C to +70°C)
ALTITUDE:	Up to 30,000 ft (9,000 m)
DEPTH RATING:	Depth rated to 4,000 psi (2,700m)
POWER:	115/220 VAC, 60 watts at turn-on and 40 watts thereafter
ACCESSORIES:	
Standard:	Power/RS-232 multiconductor cable (electronics to power/data junction box with 9 pin RS-232 connector and power lugs), lengths to be specified, operation manual and reusable shipping and storage containers
Optional:	
Logging Software	MagLog (Logs GPS and Mag, shows trackplot, mag profile, other data)
Processing software	MagMap2000, MagPick

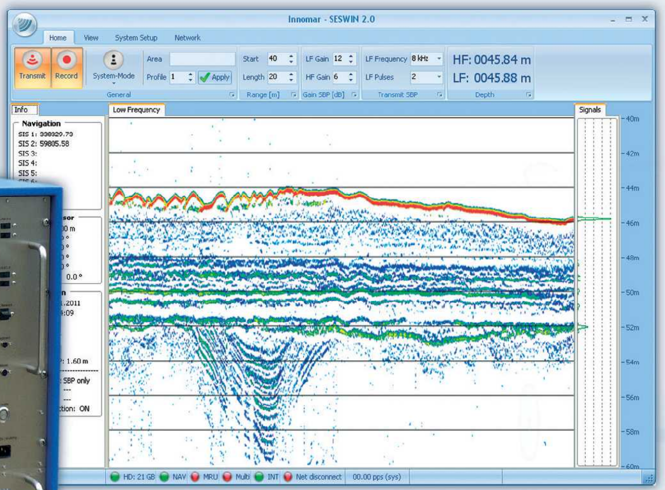
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE ***05/09***

GEOMETRICS
Innovation • Experience • Results

GEOMETRICS INC. 2190 Fortune Drive, San Jose, California 95131, USA
Tel: 408-954-0522 – Fax: 408-954-0902
Email: sales@geometrics.com

GEOMETRICS EUROPE
20 Eden Way, Pages Industrial Park, Leighton Buzzard LU7 4TZ, UK
Tel: 44-1525-383438 – Fax: 44-1525-382200
Email: chris@georentals.co.uk

Top-side unit



Screenshot of the operating software

Transducer

SES-2000 medium-100

Parametric Sub-bottom Profiler

▶ Performance

- water depth range: 2 – 2,000 m
- penetration: up to 70 m, depending on sediments
- layer resolution: up to 5 cm
- motion compensation: heave, roll
- beam width @ 3 dB: ±1 ° / footprint < 3.5 % of water depth for all frequencies

▶ Transmitter

- primary frequencies: approx. 100 kHz (band 85 – 115 kHz)
- secondary low frequencies: 4, 5, 6, 8, 10, 12, 15 kHz (band 2 – 22 kHz)
- primary source level: > 247 dB//μPa re 1 m
- pulse width: 0.07 – 2 ms
- pulse rate: up to 40/s
- multi-ping mode
- pulse type: CW, Ricker, LFM (chirp)

▶ Acquisition

- primary frequency (echo sounder, bottom track)
- secondary low frequency (sub-bottom data, multi-frequency mode)
- sample rate 96 kHz @ 24 bit

▶ System Components

- transceiver unit 19 inch / 12 U (WHD: 0.52 m x 0.58 m x 0.40 m; 56 kg)
- transducer incl. 30 m cable (WHD: 0.50 m x 0.12 m x 0.50 m; 60 kg)
- system control: internal PC
- KVM remote control

▶ Software

- SESWIN data acquisition software
- SES Convert SEG-Y/XTF data export
- SES NetView remote display
- ISE post-processing software

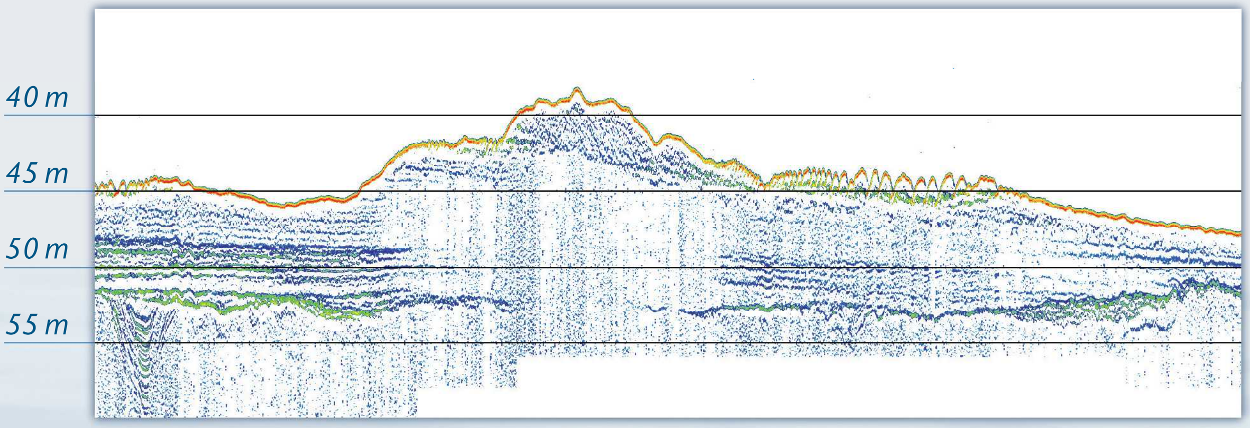
▶ Power Supply Requirements

- 100 – 240 V AC / 50 – 60 Hz
- power consumption: < 700 W

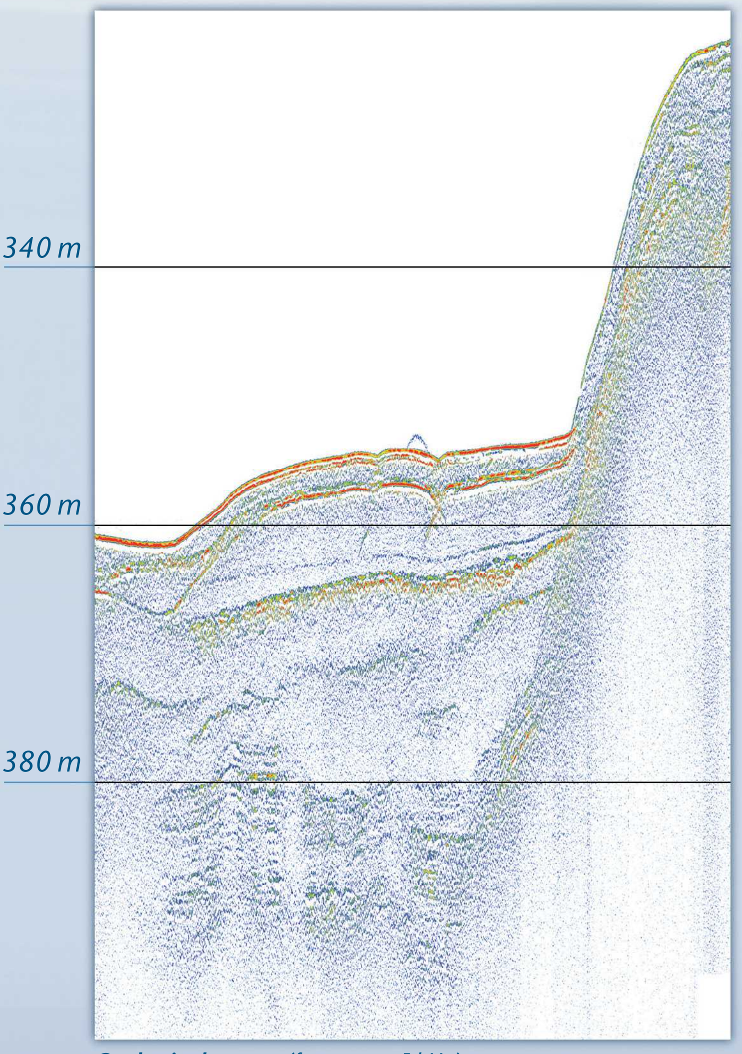
Innomar

www.innomar.com

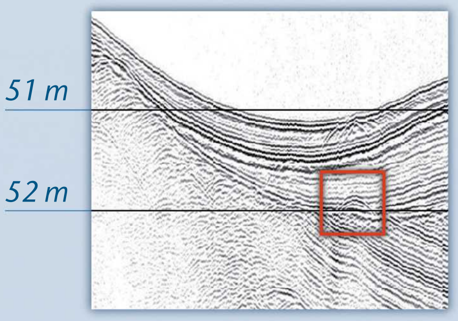
Survey examples of SES-2000 medium-100



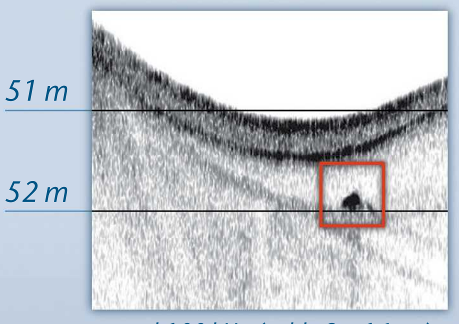
Geological survey *(frequency 8 kHz)*



Geological survey *(frequency 5 kHz)*



Cable burial depth survey *15 kHz*



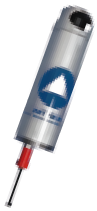
... and 100 kHz (cable 8 x 16 cm)

Innomar Technologie GmbH

Schutower Ringstraße 4
D-18069 Rostock
Phone (Fax) +49 381 44079-0 (-299)
E-Mail info@innomar.com

Innomar

www.innomar.com

GAPS

FOURTH-GENERATION USBL ACOUSTIC POSITIONING SYSTEM

The **iXBlue** fourth-generation pre-calibrated **GAPS** combines high performance ultra-short baseline (USBL) and a fiber-optic inertial navigation system (INS) in the same housing to provide accurate position of any subsea object, in diverse and challenging environments. Its performance ranges from extremely shallow water to deep sea. Its compact and all-in-one design allows both portable and permanent installations. One of **GAPS** key new features is support of dynamic positioning (DP).

FEATURES

- Integrates USBL, high-grade INS, real-time positioning and GPS
- Position accuracy: 0.06% x slant range
- Advanced signal processing and 3D acoustic antenna for range and accuracy performance
- Powerful dynamic positioning (DP) mode (L/USBL/INS)

BENEFITS

- Cost- and time-saving deployment: flexible, portable, pre-calibrated, rapid, and simple
- Robust performance in very shallow water (10 m depth) to long range (> 4000 m depth)
- Deployment options, from surface buoy, side pole, moon pool or hull mounted
- Universal utilization

APPLICATIONS

• Offshore, AUV and ROV navigation • Underwater survey and inspection • Drilling • Dynamic positioning (DP) • Structure placement • Pipeline and cable deployment • Diver tracking • Seismic • Ocean science • Defense • Renewable energy industries




IXBLUE
DEEP INSIGHT. SHARPER SENSES.

GAPS
TECHNICAL SPECIFICATIONS

PERFORMANCE

Subsea positioning	
Position accuracy (CEP50)	0.06 % of the slant range [1]
Nominal range	4 000 m [2]
Antenna coverage	200 deg hemispherical
Surface positioning	
Heading accuracy	0.01 deg x secant latitude
Roll / pitch accuracy	0.01 deg

COMPATIBLE TRANSPONDERS AND SENSORS

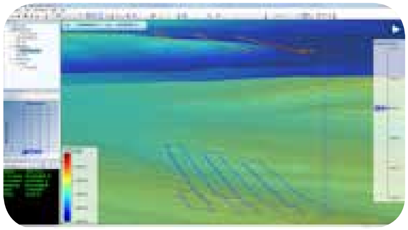
iXBlue mini transponders	OCEANO MT8 x 2, OCEANO MT9 x 2, OCEANO MTA x 2
iXBlue midi transponders	OCEANO ETA62 and releasable OCEANO RTA62
Third party wide band transponders	Optional
iXBlue inertial-acoustic solution integration	PHINS, ROVINS, RAMSES

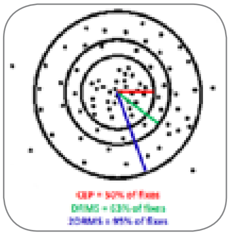
OPERATING / ENVIRONMENT / MECHANICAL

Power supply / consumption	24 – 36 VDC or 110 – 230 VAC / 50 W
Weight in air / water	15 kg / -7 kg (positive buoyancy)
Dimensions (Ø x H)	295 mm x 638 mm
Array depth rating	20 m (100 m survival)
Operating / storage temperature	-5°C to 35°C / -40°C to 70°C

INTERFACES

Control command	Standard iXBlue web-based user interface
Input / output	Quad RS232 / RS485 / Ethernet
	Trigger I/O pulse port and PPS / Sync ports
Protocols	Library of NMEA protocols (standard telegrams for all DPs)

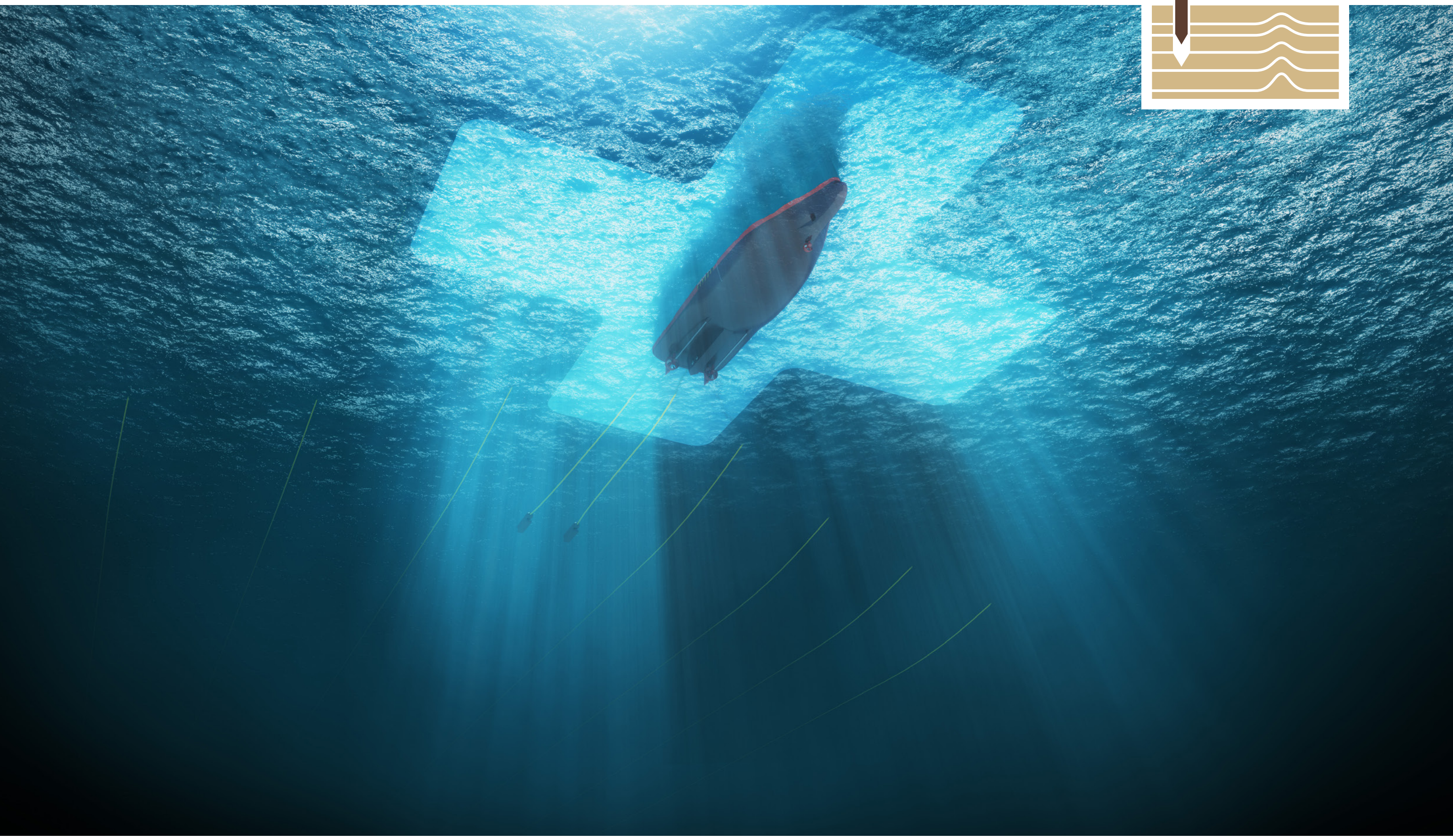




1 signal to noise ratio > 40 dB, in vertical conditions
2 noise level < 65 dB / √Hz @ 1 m ref µPa

2014-02-PS-GAPS

FUGRO SATELLITE POSITIONING



STARFIX. G2+
AN ULTRA HIGH ACCURACY SERVICE FOR OFFSHORE APPLICATIONS

Starfix.G2+ is a further advancement in the field of GNSS augmentation, which delivers ultra-high accuracy positioning to our customers.

The Starfix.G2+ is a further advancement in the field of GNSS augmentation, which delivers ultra-high accuracy positioning to our customers.

This new positioning service is based on advanced Integer Ambiguity Resolution (IAR) technology which is a further development of Precise Point Positioning (PPP). The basis of the IAR technique is the derivation an additional set of carrier-phase corrections from the Fugro reference station network (known as Uncalibrated Phase Delays or UPD).

The implementation of the UPD corrections in the Fugro StarPack software results in the carrier-phase ambiguities being resolved (fixed to integer values) resulting in a positioning accuracy at the centimetre level.

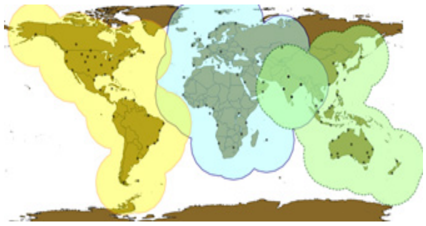
When the Starfix.G2+ service is enabled, the Fugro StarPack software will compute a centimetre Starfix.G2+ position. If for some reason the carrier-phase ambiguities cannot be resolved then the solution will fall back to a standard decimetre PPP solution.

The Starfix.G2+ corrections are supplied to our customers via L-Band satellite links to give global coverage.

The UPD Corrections are generated for 3 geographical regions as these provide significantly better results when compared to a single global set of corrections.
These regions are:

1. North and South America
2. Europe, Africa and Middle East
3. Asia and Australia

Although the corrections are divided into regions, our customers do not need to be inside the region in order for the service to work, but should always choose the region closest to their work location.

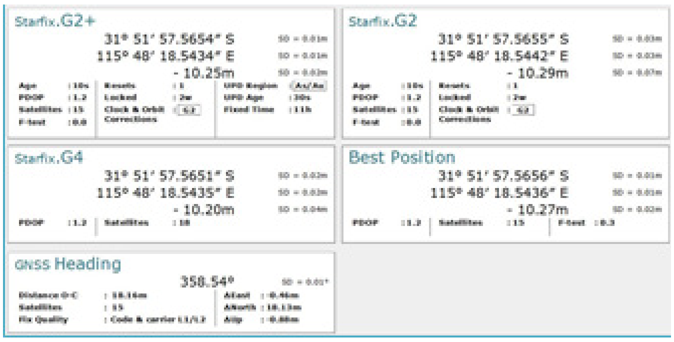


FUGRO SATELLITE POSITIONING

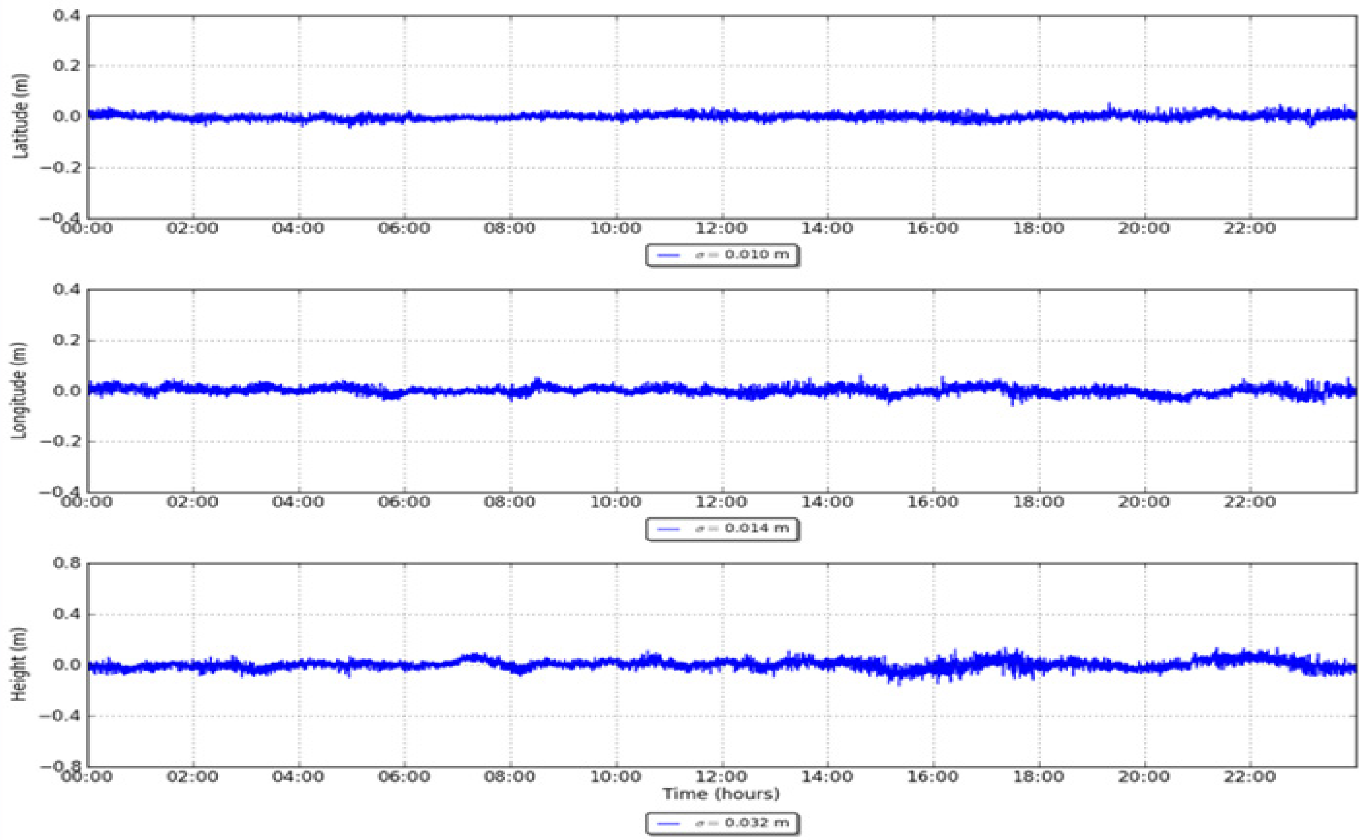
Solution accuracy; the following table illustrates Starfix.G2+ accuracy over 24 hours over 2 days from four locations

The Starfix.G2+ service is currently available to customers using Fugro's StarPack GNSS systems.

	E (SD)	N (SD)	H (SD)
Bergen (14/03/2015)	0.014 m	0.010 m	0.032 m
Bergen (15/03/2015)	0.016 m	0.013 m	0.034 m
Brownsville (14/03/2015)	0.012 m	0.011 m	0.037 m
Brownsville (15/03/2015)	0.011 m	0.010 m	0.027 m
Houston (14/03/2015)	0.013 m	0.011 m	0.032 m
Houston (15/03/2015)	0.011 m	0.010 m	0.029 m
Leidschendam (14/03/2015)	0.013 m	0.010 m	0.028 m
Leidschendam (15/03/2015)	0.014 m	0.012 m	0.032 m



Starfix.G2+ performance plots for Bergen, on 14th March 2015.



Fugro Survey AS
Nygaardsviken 1,
N-5165 Laksevaag, Norway
Telephone: +47 55 34 94 00
Email: starfix@fugro.no
www.starfix.com

StarPack - High precision GNSS positions, heading and time from a single platform

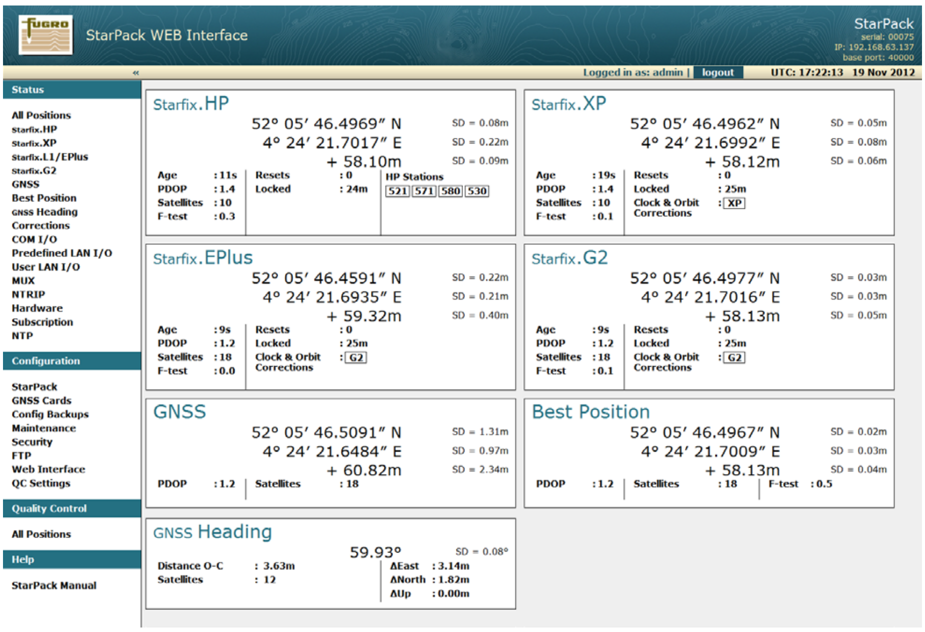
The StarPack is Fugro's answer to increasing market demand for precise, redundant GNSS positioning solutions, including extensive QC and accurate time, from a single, easy to use platform.

StarPack platform

The StarPack unit consists of a survey grade GNSS combined L-band receiver and powerful processor, running Linux multitasking operating system. The receiver is capable of tracking all current satellites (GPS, GLONASS) and is Galileo ready. StarPack can be extended with a second GNSS card (in the same unit), to provide accurate, GNSS derived heading. In addition to GNSS observations, the second card provides also L-band functionality, creating an independent source of corrections for backup.

The combination of receiver and processor provides robust multiple simultaneous precise position calculations and extensive QC. For maximum system reliability, the internal software is embedded on a flash memory. System can be controlled and configured via the front panel, web interface or a serial port.

The StarPack is equipped with four serial ports on the rear panel and LAN interface to provide a multitude of outputs to the user and to read multiple correction sources (in addition to those from the integrated receiver(s)). Raw GNSS data and corrections are continuously logged internally and can be exported to RINEX to enable high quality support and back-up. User can download this data and send it to Fugro's development centers for re-processing. Additional user defined output can be configured for automatic logging. Firmware can be upgraded using the web interface or using a USB stick at the front panel.



Positioning and Heading solutions

The embedded processing software of the StarPack GNSS receiver provides multiple configurable simultaneous precise positioning solutions, including G2.

- Four independent correction sources
  - o Starfix.G2
  - o Starfix.XP
  - o Starfix.HP
  - o Starfix.L1
- Five solutions: Starfix.G2, Starfix.XP, Starfix.HP, Starfix.EPlus and Starfix.L1
- New “Best Position” solution, combining all available solutions in to one, using proper weighting. “Best Position” provides increased availability and better accuracy.
- A Heading solution between two GNSS antennae, in combination with a second GNSS card (in the same or another receiver).

StarPack applications

- Accurate height for tidal corrections and heave compensation
- Accurate position for seabed mapping surveys
- Accurate vertical reference for out of straightness pipeline surveys
- Accurate (instantaneous) heading source (in combination with a second GNSS card)
- Stable position for station keeping on DP vessels
- Accurate relative positioning of structures
- Automated vessel guidance

NTP support

The StarPack contains an NTP (Network Time Protocol) server, providing a time accuracy of 500 µs or better with a convergence time after power-on within several minutes.

NTRIP client

The StarPack contains also NTRIP (Networked Transport of RTCM via Internet Protocol) client. When internet connection is available StarPack can be connected to Fugro’s (or third-party) corrections servers providing additional, independent from L-Band, corrections backup.

Quality control

Extensive quality control is provided through StarPackQC, a stand alone PC based application, or on web interface, Quality control parameters indicating precision, reliability and availability can be visualized for estimated positions as well as for corrections and individual satellites.

Technical specifications

GNSS hardware engine

- Trimble BD982 with two antenna inputs: 220 channel GPS/GLONASS, Galileo/BeiDou available with software option upgrade
- Single or dual NovAtel OEMV- 3: 72 channel GPS/GLONASS board (no longer manufactured, but serviceable)
- Trimble BD960: 72 channel GPS/ GLONASS board (no longer manufactured, but serviceable)

Corrections	Integrated receiver for Starfix differential and orbit/clock corrections
Processor	Intel Pentium III, embedded Linux operating system
Data rate	1 Hz - 5Hz
Data storage	10 days, raw and correction data (1 Hz) on internal disk
Size	245 x 60 x 195 mm (W x H x D)
Weight	2 kg
Input voltage	80 – 250 VAC, 40 – 60 Hz
Input/output	4 RS232 ports, LAN with more than 30 configurable ports, 1 PPS
Operating temperature	-20°C – +50°C
Storage temperature	-40°C – +85°C
Humidity	95% non-condensing
Compliant	EMC 2004/108/EC (EN60945:2002) 2011/65/EU(RoHS 2)

Service/ solution	Accuracy (hor. 95%)	System	Correction data	Coverage
Starfix.G2	0.1m	GPS GLONASS	Clock and orbit corrections	Global
Starfix.XP	0.1m	GPS	Clock and orbit corrections	Global
Starfix.HP	0.1m	GPS	Ionosphere-free carrier phase corrections from multiple reference stations	Regional <1000km*
Starfix.EPlus	1m	GPS GLONASS	Clock and orbit corrections	Global
Starfix.L1	1.5m	GPS	L1 pseudo range corrections from multiple reference stations	Regional <500km*
Best Position	0.1m	GPS GLONASS	All available correction data	Global
Heading	Better than 0.1° for baselines longer than 3m	GPS GLONASS	-	Global

** distance to reference station*

SKYFIX-XP

SkyFix-XP (Decimetric Differential GPS)

SkyFix-XP is a GPS positioning system that is based on clock and orbit corrections supplied by NASA's Jet Propulsion Laboratory (JPL). SkyFix-XP is a Precise Point Positioning (PPP) technology, which distinguishes itself from the traditional differential approach as satellite errors are not lumped together but estimated per source, per satellite; it is also known as a *'State Space solution'*. The GPS clock and orbit corrections are computed independently, free of ionospheric and tropospheric effects.

Key Features:

- Capable of 10cm accuracy in horizontal and 20cm in vertical domain.
- Truly global coverage with no range restrictions from stations
- Dual delivery satellite beams – high power and low power
- Extensive QC monitoring in line with UKOOA standards
- Real-time system performance information available on-line
- Compatible with existing SkyFix hardware
- Truly independent of Starfix systems

SkyFix-XP Technology

Traditional Differential GPS services use the fixed location of a single reference station to measure the ranges to all GPS satellites in view. These measurements are then compared to the computed ranges at that location and the resulting differences in the observations are transmitted as pseudo-range corrections. This technique introduces some inaccuracies as the distance from the reference station grows.

SkyFix-XP removes this range limitation by using a completely new technique known as Satellite Differential GPS (SDGPS). Orbit and clock corrections are determined for each satellite continuously utilizing Fugro's global network of reference stations. These corrections are then broadcast to the user and can be used at any location, regardless if the distance to any reference station, making the system truly global.

The orbit and clock corrections are contained in a set of proprietary RTCM messages, which can be received using the existing SkyFix decoders. Users require dual-frequency DGPS receiver as well as the MultiFix 5 positioning and QC software. The high accuracy is obtained by new processing techniques within MultiFix 5 that correct, estimate and /or eliminate the common GPS error sources (orbits, clocks, troposphere, ionosphere, multi-path and noise).

Local tropospheric and ionospheric errors are corrected at the user end by using a dual GPS frequency receiver. Multipath and receiver noise are addressed by using carrier phase observations within the XP calculation.

Advantages of SkyFix XP

- A single set of corrections per satellite valid independent of the geographic location.
- Independence from the existing Fugro reference station network
- Simplicity for the user

Direct comparisons with competing providers' capabilities and performance show that Fugro continues to lead in accuracy and robustness of solution.

Quality Control and Verification

SkyFix-XP data is rigorously checked for accuracy, advanced statistical testing is performed using UKOOA recommendations. SkyFix-XP utilises MultiFix 5, Fugro's latest version of its GPS QC software. MultiFix 5 can also be configured with a number of back-up solutions for the primary SkyFix-XP calculation to provide optimum redundancy. This allows the system to switch automatically to an alternative DGPS solution such as SkyFix or SkyFix Premier. These back-up processes are performance (rather than availability) based, giving the operator maximum confidence in the system.

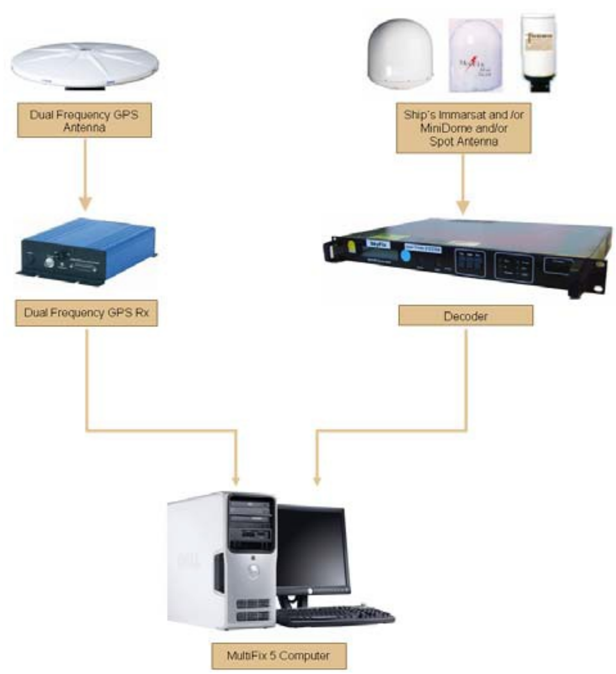
Standard DGPS vs. SkyFix-XP

To provide a confirmation of accuracy, Fugro has installed regional monitoring systems located at key oil and gas hot spots around the world. These provide real-time system performance information via the Starfix website (www.skyfix.com).

System Overview

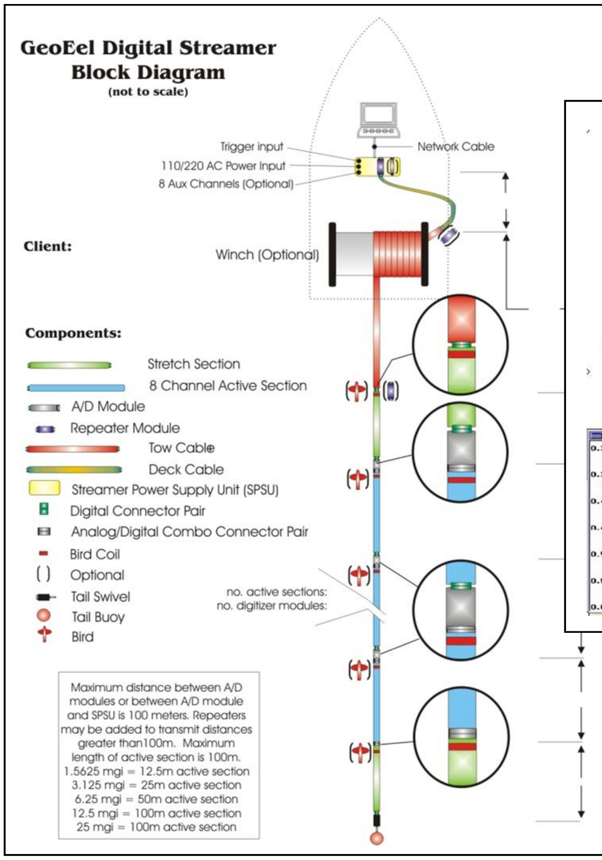
The hardware configuration for SkyFix-XP is similar is similar to that of the standard SkyFix system, it is possible to share hardware or upgrade an existing system with the addition of a dual frequency GPS receiver and the new MultiFix 5 software.

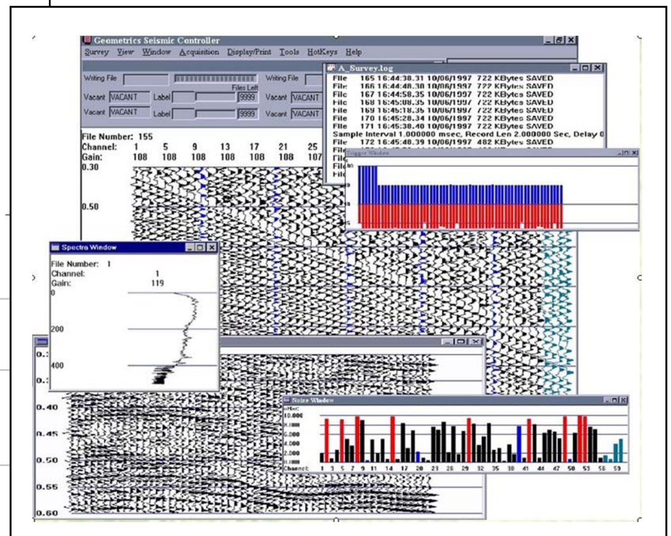
Typical SkyFix-XP system configuration:



The additional SkyFix-XP correction messages can be received with all existing SkyFix decoders. MultiFix 5 is compatible with most leading GPS receivers including units produced by Thales, Trimble and Novatel.

EQUIPMENT SHEET OFFSHORE SURVEY



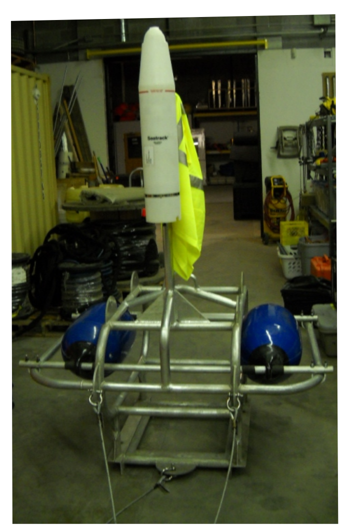


FUGRO
SEISMIC PROFILER - GEOMETRICS GeoEeL

The Geometrics GeoEel digital towed hydrophone streamer is the first narrow diameter array meeting the performance standards of larger systems. With a diameter of only 41 mm, the GeoEel is easy to deploy, easy to transport, and can be shipped by air. Separate 8 channel modules coupled with unique slim active-section design yield noise levels under 5 microbars and make the GeoEel immune from the electronic interference, leakage, and ground loops that plague the installation of analog streamers.

GeoEel active sections are filled with inert silicone oil, making them environmentally safe and non-flammable. A 1/8-inch thick abrasion resistant polyurethane makes the streamer extremely rugged but still flexible enough to deploy on small boats. Acquisition is controlled with PC-based Geometrics CNT-2 software.

Features include: multiple shot and gather windows, bar graph noise displays, windows for shot timing, gun energy, brute stack, tape status, spectral analysis; sure-save software that protects against data loss even with total storage device failure; sequentially-ordered file saving; auto-switching between storage device, dual tape writing; multiple printer support; parameter change logs; and integrated navigation, gun, and bird parameters into an SEG-D, SEG-Y or SEG-2 header.



GPS Tail Bouy

EQUIPMENT SHEET OFFSHORE SURVEY

SEISMIC PROFILER - GEOMETRICS GeoEel

A/D Converter Canister Specifications

Channels Per A/D Canister	8
Sample Rates	1/16, 1/8, 1/4, 1/2, 1, 2, 4 ms
Bandwidth	5 Hz to 8 kHz
Programmable Gain	0 dB, 6 dB, 18 dB, 30 dB, 42 dB
Anti-Alias Filter	set by sample interval, down 135 dB at stop band
Maximum Input Range	±2.25V
Resolution	24 bits including sign
Input Impedance	126.8 K Ohms, paralleled by 2.4 nF
Dynamic Range	120 dB Typical @ 1ms
Common Mode Rejection	>110 dB
Record Length	Up To 40 sec in shot synch mode
Dead Time	100 ms
Continuous Recording Mode	Enabled with GPS synchronization
Noise Floor	0.1 uV at 2 ms
QC Tests	Leakage and capacitance of hydrophone elements, noise, offset, harmonic distortion and gain similarity
Power Consumption	Approximately 100 mA at 48 VDC
Calibration Oscillator	10 Hz to 2 kHz, 1 ?V to 100 mV AC RMS
Dimensions	44 mm diameter x 33 cm long (1.75” by 11”)
Weight	900 grams (2.0 lbs)
Packaging Material	Titanium body
Connectors	Waterproof high density stainless steel, 41 pin

Stretch and Vibration Isolation Section Specifications

Length Construction	10, 25 or 50 meters standard
Outer Diameter	Similar to active section
Stretch Ratio	41 mm (1.6 inches)
Compass/Bird Coil	Approximately 15% for stretch section
Break Strength	I/O Model 587, isolation section Only
Depth Transducer	over 2200 kg (5000 lbs), Vectran strain members
	Available only on isolation section

Hydrophone Section Specifications

Number of Channels	8 per section
Hydrophones per group	16 typical at 12.5m
Hydrophone Type	Benthos RDA Geopoint, or AQ-1
Jacket Material	Clear polyurethane, 70 Duro, 3.18 mm (1/8 inch) wall thickness
Outer Diameter	41 mm (1.6 inches)
Ballast Fluid	Inert, non-polluting silicone oil, 100 cSt
Weight	~135 kg (300 lbs) / 8 channels @12.5 mg
Break Strength	over 2200 kg (5000 lbs), Vectran strain members
Maximum Tow Speed	~8 knots recording, ~10 knots steaming, depending on configuration and sea state
Minimum Bend Radius	75 cm (30 inches)
Compass/Bird Coil	IO Model 587
Depth Transducer	One per section (optional)

Fugro GeoServices, Inc.

200 Dulles Dr.
Lafayette, LA 70506
USA
Telephone: +1 337-237-2636
Email: info-fgsi@fugro.com
www.fugro.com

6100 Hillcroft
Houston, TX 77081
USA
Telephone: +1 713-369-5837

EQUIPMENT SHEET OFFSHORE SURVEY

SEISMIC PROFILER - GEOMETRICS GeoEel

Streamer Power Supply Unit Specifications

Power Requirements	115/230 VAC, 3/1.5 Amp max, 50/60 Hz
Voltage to Streamer	36- 72 VDC
I/O Communications	100 Base TX Fast Ethernet, IEEE 802.3 compliant
Trigger Requirements	Isolated Input, Positive or Negative TTL, software selectable
Testing	Cable leakage and resistance, Ethernet for faults and collisions
Optional Auxiliary Inputs	8 analog channels with 24-bit resolution
Ethernet Connection	RJ-45
Trigger Connection	BNC

Tow Cable Specifications

Electrical conductors Weight	10 twisted pair shielded
Strain member	~ 25 kg (55 lbs) for 50 meters
Break strength	Kevlar
Diameter	over 2200 kg (5000 lbs)
	20 mm

GeoEel Convertible Acquisition Channel Specifications

Maximum Channels	240 per chassis
Channel per card set	8
Sample Rates	1/16, 1/8, 1/4, 1/2, 1, 2, 4 ms
Bandwidth	5 Hz to 8 kHz
Programmable Gain	0 dB, 6 dB, 18 dB, 30 dB, 42 dB
Anti-Alias Filters	et by sample interval, down 135 dB at stop band
Maximum Input Range	±2.25V
Resolution	24 bits including sign
Input Impedance	126.8K Ohms, paralleled by 2.4 nF
Dynamic Range	120dB Typical @ 1ms
Common Mode Rejection	>110 dB
Record Length	Up to 40 sec

Charge Amplifier

Configurations	24 to 120 channels in groups of 24
Frequency response	5 Hz to > 300 Hz, by streamer capacitance
Output Impedance	1000 ohms
Dimensions	7U 12.5"hx19"Chassis wx14"d
Power Consumption	115/220 VAC, 50/60 Hz, 1 Amp
Weight	33.5 lbs
Operating Temperature	-10 to +40 degrees C
Relative Humidity	80% max, non-condensing
Input Impedance	virtual ground
Transducers	piezoelectric ceramic element
Channel Output D.C. Offset Channel	3mV (Differential) nominal
Maximum Output	4V P-P open circuit
Channel Dynamic Range	>100dB
Channel Output Distortion	< 0.005% THD
Channel Output Sensitivity Precision	+/- 2%
Channel Low Frequency Cutoff	4Hz
Common Mode Rejection	>40 dB (Balanced Input)
Communication Interface (Option)	10/100 Base T Ethernet

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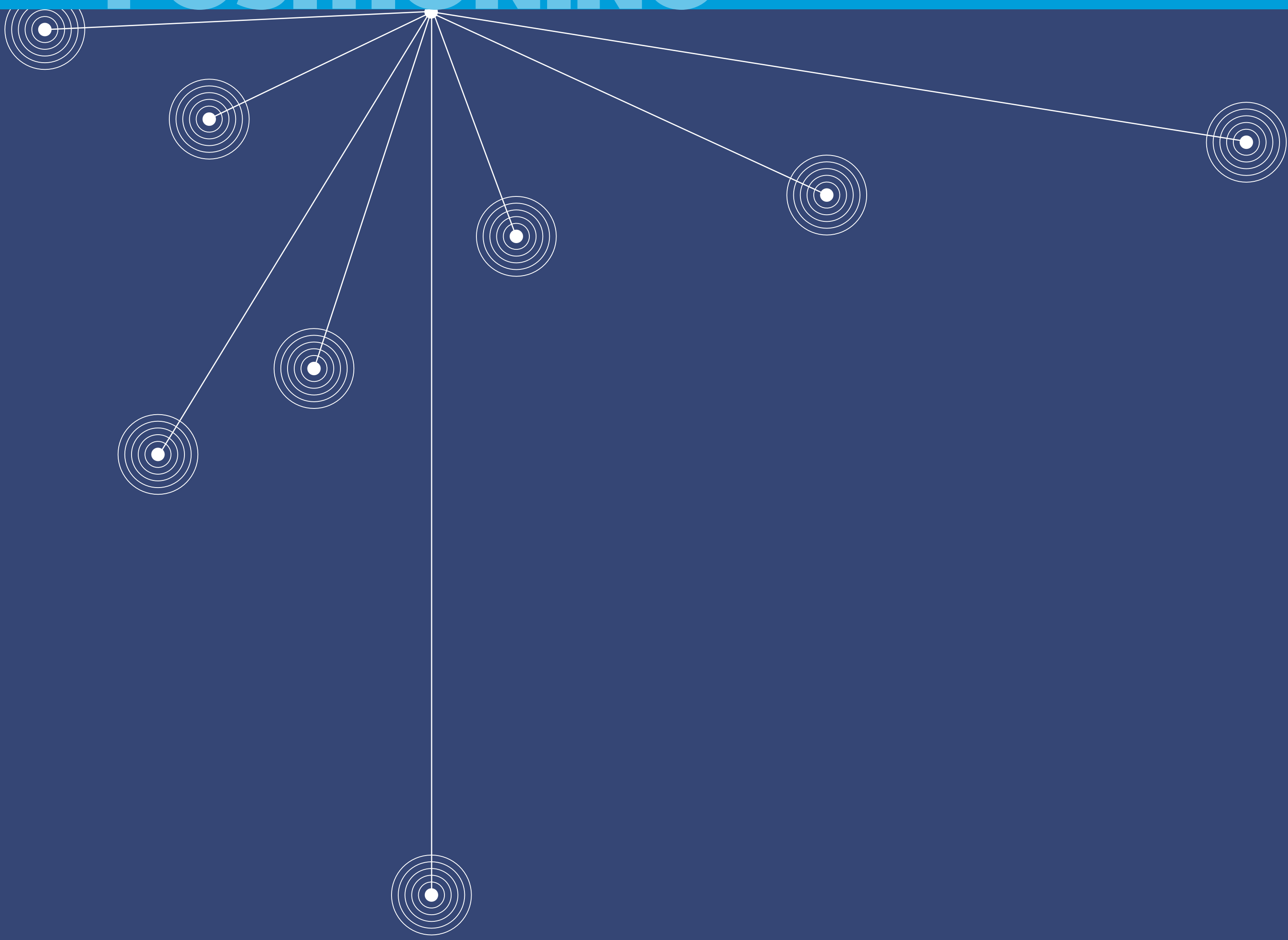
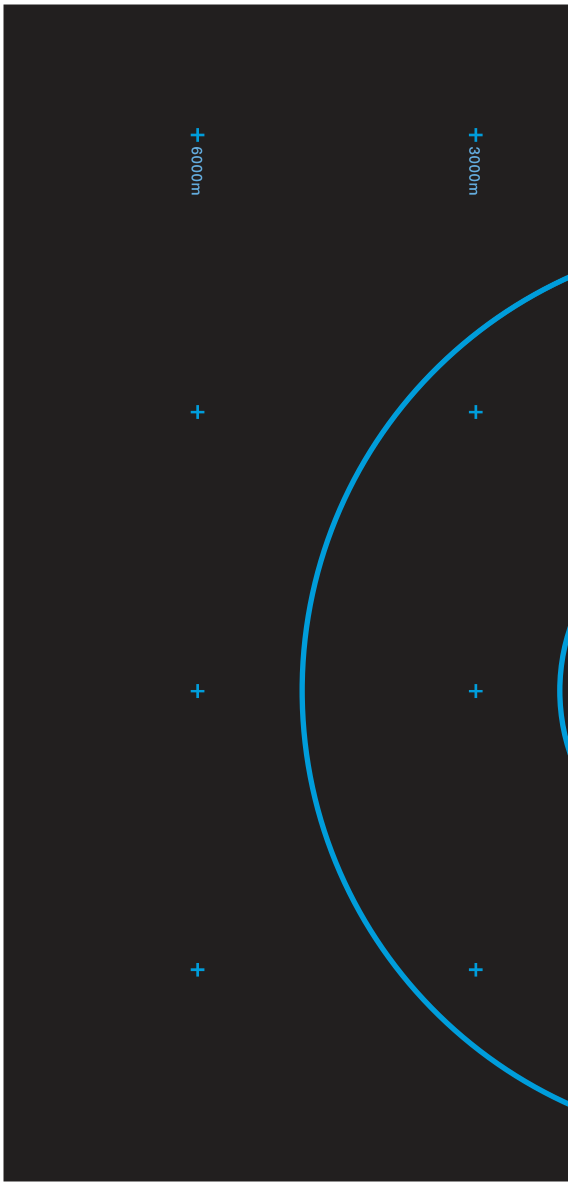
Sonardyne
SOUND IN DEPTH

SUBSEA TECHNOLOGY

RANGER 2 USBL UNDERWATER TRACKING AND POSITIONING



POSITIONING
NAVIGATION
COMMUNICATION
MONITORING
IMAGING



RANGER 2 USBL

TRACK EVERYTHING, IN ANY DEPTH, FROM ANY VESSEL.

TRACK A TOWFISH, POSITION AN ROV, DP YOUR VESSEL, SEARCH THE SEABED OR NAVIGATE AN AUV. WHEN YOU NEED TO INVEST IN ULTRA-SHORT BASELINE (USBL) ACOUSTIC TECHNOLOGY TO SUPPORT YOUR UNDERWATER OPERATIONS, RANGER 2 HAS THE PERFORMANCE YOU NEED, AT THE INVESTMENT LEVEL YOU CAN AFFORD TO GET THE PROJECT COMPLETED FASTER AND MORE EFFICIENTLY THAN ANY OTHER SYSTEM ON THE MARKET.

ENGINEERED LIKE NO OTHER

All USBL systems calculate position by measuring the range and bearing from a vessel-mounted transceiver to an acoustic transponder fitted to a moving target or placed on the seabed. But not all USBL systems do it with the accuracy and precision offered by Ranger 2.

We've taken everything that made our original Ranger system so effective and advanced it to the next level. That next level is our award-winning 6G (sixth generation) acoustic hardware platform and Sonardyne Wideband® 2 digital signal architecture which work seamlessly together to deliver the best possible USBL positioning performance and operator experience.

Vessel and vehicle hardware is easy to install and configure. It can track your equipment to beyond 7,000 metres and update its position every second. It's engineered for shallow water, deep water, high elevation and multi-user operating scenarios. And if your vessel's fitted with a DP system – regardless of what make it is – Ranger 2 can interface with it.

THE ONLY USBL YOU'LL NEED

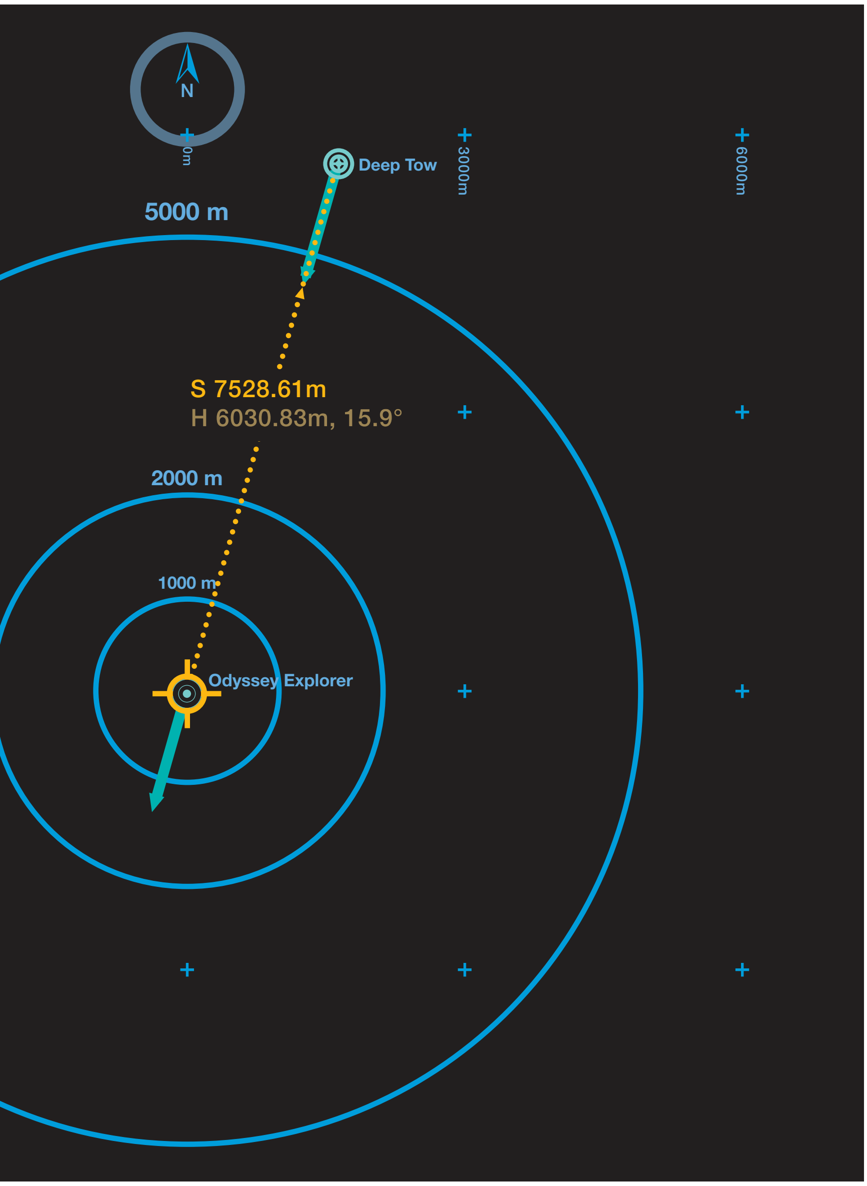
Every survey, ocean science, DP and seismic exploration project is different; different water depths, different vessels and different targets to position. But that shouldn't mean you need a different USBL system for each one.

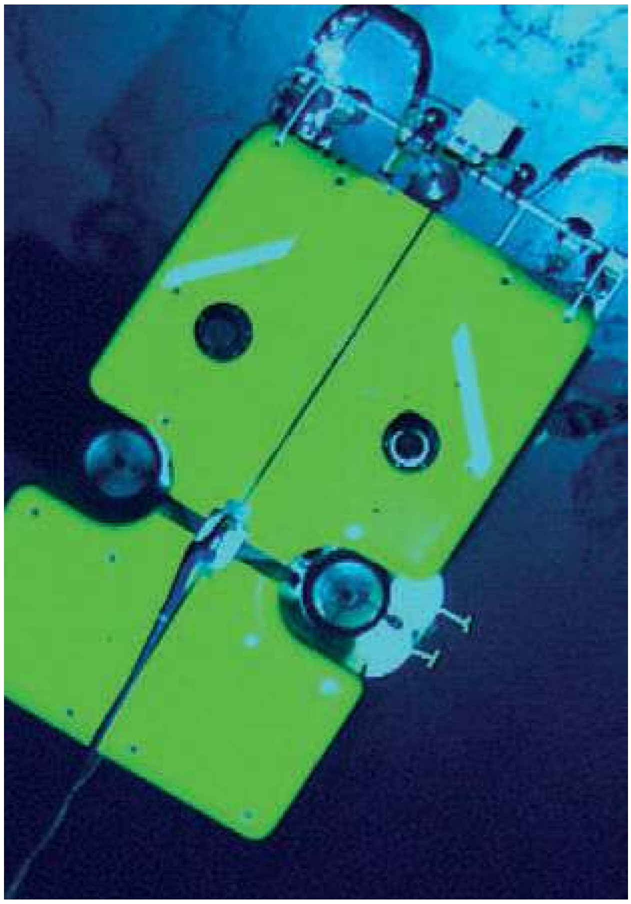
Ranger 2 comes with an impressive list of standard features. As your needs grow and become more complex, so too can the capabilities of Ranger 2 thanks to software feature packs available in three versions; Survey, Dynamic Positioning and Professional – all of which can be remotely activated* in the field.

*Subject to having the appropriate hardware available on board

WHY IT'S GOOD FOR YOUR OPERATIONS

- Simple, intuitive software
- Tracks an unlimited number of targets; ROVs, towfish, AUVs...
- Operating range beyond 7,000 metres
- Better than 0.1% system accuracy when optimised
- Up to 1 second position updates
- Compatible with all makes of DP system
- Automated setup reduces vessel delays
- Application packs available bringing extra features specific to your operations
- User training available worldwide
- Multi-user capable
- Track record of success on all types of vessel
- Support available globally 24/7


N
0m
Deep Tow
3000m
6000m
5000 m
S 7528.61m
H 6030.83m, 15.9°
2000 m
1000 m
Odyssey Explorer




VENTANA

RANGER 2 USBL FOR

SURVEY

WHETHER YOU ARE CONDUCTING A HYDROGRAPHIC SURVEY WITH A TOWFISH, MONITORING THE TOUCHDOWN POSITION OF A PIPELINE OR LOWERING AND LANDING STRUCTURES ONTO THE SEABED, RANGER 2 HAS ALL THE CAPABILITY YOU NEED IN ONE APPLICATION. THE OPTIONAL SURVEY PACK UNLOCKS A HOST OF ADDITIONAL FEATURES TO FURTHER OPTIMISE THE PERFORMANCE OF YOUR RANGER 2 SYSTEM FOR THE MAJORITY OF OFFSHORE CONSTRUCTION AND SURVEY TASKS.

RANGER 2 SURVEY PACK

The Ranger 2 Survey pack uses the intuitive and simple layout as the standard software but allows access to more complex areas such as the setup and tracking of ROVs, AUVs and structures. These objects can be configured with multiple transponders attached to them and fixed offsets can then be computed to points such as a structure's CRP or an ROV's bumper bar which can be both displayed on-screen with their position output.

Being able to work in this manner directly in the USBL software benefits your surveys as any sensor latency induced errors are minimised, and the risk of systematic errors from the use of incorrect offsets is reduced. AutoCAD backdrops and configurable seabed geodesy allow Ranger 2 Survey to be used for tracking and guidance. Complex doesn't have to be complicated.

WHY IT'S GOOD FOR SURVEY

- Up to 0.07% slat range tracking performance using GyroUSBL
- Supports complex tracking scenarios such as structures and vehicles with multiple transponders and multiple remote offsets
- Importable AutoCAD DXF field backdrops
- Built-in seabed geodesy package
- Configurable UI to suit multiple project tasks
- Tools to configure stinger-mounted GyroUSBL transceivers
- System can be shared with DP


BSEA
WLL 15T

RANGER 2 USBL FOR

DYNAMIC POSITIONING

OUT OF THE BOX, RANGER 2 IS A HIGHLY CAPABLE ACOUSTIC POSITION REFERENCE SYSTEM THAT YOU CAN INTERFACE WITH ANY DP SYSTEM INCLUDING GE, KONGSBERG, MT, NAVIS, ROLLS-ROYCE AND WÄRTSILÄ. BUT IF YOUR VESSEL UNDERTAKES CRITICAL STATION KEEPING ACTIVITIES IN ULTRA-DEEP WATERS, THE RANGER 2 DP PACK OFFERS ENHANCED LEVELS OF POSITIONING INTEGRITY. DEVELOPED TO MEET THE REQUIREMENTS OF CLASS 2 AND 3 RULES, IT'S PERFECT FOR HEAVY CONSTRUCTION, WELL INTERVENTION, SALVAGE AND PRODUCTION VESSELS.

RANGER 2 DP PACK

The DP pack's stand-out feature is its ability to support Long and Ultra-Short BaseLine (LUSBL) and inertial navigation (DP-INS) configurations.

LUSBL exploits the greater precision and acoustic range redundancy offered by Long BaseLine (LBL) seabed transponder arrays where accuracy is virtually independent of water depth. And because Ranger 2 is built around our exclusive Wideband 2 signal architecture, you have the freedom to deploy your own transponder array without interrupting others, or share one that is already deployed in the field, saving vessel time and lowering your costs.

Tightly integrated acoustic and inertial positioning benefits your DP system by improving the accuracy, update rate and reliability of the position. The inertial navigation system can be aided by a single USBL transponder or multiple transponders – but far fewer than a conventional LBL array. Transponders can also be set to a slower update rate, extending their battery life saving deployment and calibration time and extending service intervals.

DPO FRIENDLY

DPOs quickly feel comfortable using Ranger 2's easy and intuitive software. Automatic discovery of Sonardyne transponders and array planning tools are included as standard whilst real-time quality indicators, noise analysis and signal travel time displays are just some of the extra tools available to help them optimise performance.

WHY IT'S GOOD FOR DP

- High integrity positioning for critical deep water operations
- Fully compatible with all makes of DP system
- Cost effective for owners and shipyards
- Less wiring, fewer components and smaller gate-valve than comparable systems
- Easy to learn, easy to use
- DP-INS for added reliability and operational savings
- Dual transceivers for added accuracy


CCC PIONEER


CCC

RANGER 2 USBL FOR

EXPLORATION

WITH ITS ABILITY TO SIMULTANEOUSLY TRACK MULTIPLE SUBSEA TARGETS, RANGER 2 IS IDEAL FOR MARINE SEISMIC OPERATIONS WHERE VERY LARGE AREAS OF THE SEABED ARE COVERED WITH NODES AND THEIR PRECISE LOCATIONS CONFIRMED BEFORE ACQUISITION CAN BEGIN. BUT RANGER 2 DOES MORE THAN SIMPLY POSITIONING. THE HIGH-SPEED ACOUSTIC COMMUNICATIONS BUILT INTO EACH NODE-MOUNTED 6G TRANSPONDER MEANS THAT DURING A SURVEY, DATA CAN BE UPLOADED TO THE SURFACE TO LET YOU KNOW EACH NODE'S STATUS.

FROM SHALLOW TO DEEP

Seismic surveys using Ocean Bottom Nodes (OBNs) are a popular method of acquiring high resolution reservoir imagery. Ranger 2 USBL is used to determine the locations of thousands of marine seismic nodes – or the ROVs that deploy them – when operating in the transition zone all the way to very deep water.

When ROVs are used, Ranger 2 integrates seamlessly with our SPRINT INS and Syrinx DVL products to maximise ROV positioning performance. This minimises the number of observations required to achieve your project's specification.

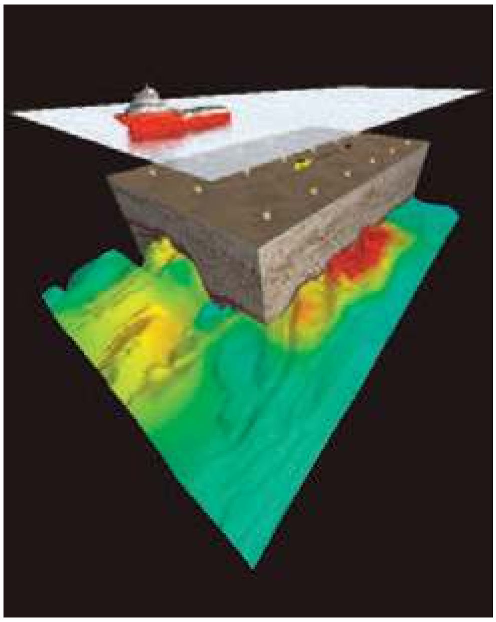
THIRD PARTY SOFTWARE INTERFACES

Node deployment operations are typically conducted under the control of third party navigation packages such as HydroPos and Gator II so Ranger 2 comes with a remote control interface provided as standard.

Once your survey is complete, the precision offered by Ranger 2 allows an ROV pilot to navigate directly to each node to recover it. This saves time and ensures no hardware is left behind on the seabed. Alternatively, the transponders attached to each node can be acoustically commanded to release anchor weights so that the entire instrument floats up to the surface.

WHY IT'S GOOD FOR EXPLORATION

- Thousands of unique transponder addresses permit large node arrays without identity repetition.
- Compatible with Sonardyne ROV based INS and DVL products for seamless operation.
- High update rate maximises deployment speed.
- Quick to install on vessels of opportunity using pre-calibrated transceivers
- Remote control interface to standard seismic navigation systems such as HydroPos and Gator II.

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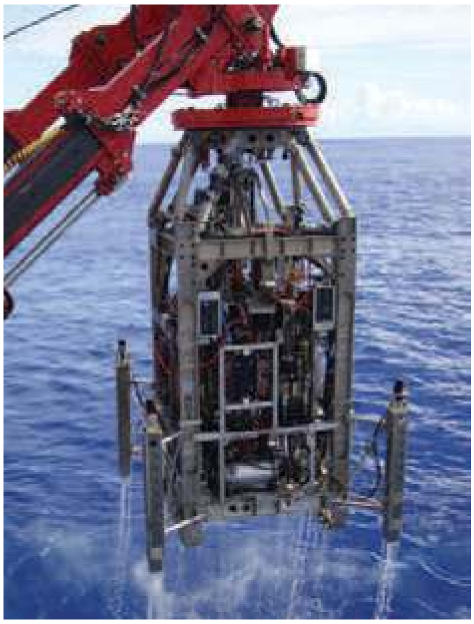


RANGER 2 USBL FOR

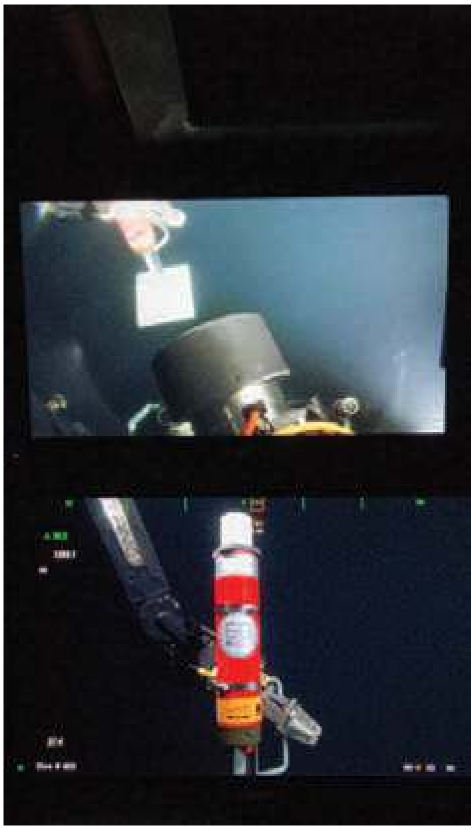
OCEAN SCIENCE

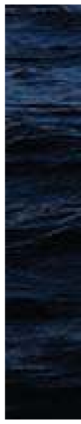
CHOSEN FOR ITS ABILITY TO TRACK A WIDE VARIETY OF SCIENTIFIC PACKAGES AT RANGES UP TO 10,000 METRES, RANGER 2 IS THE PREFERRED USBL SOLUTION FOR MANY OF THE WORLD'S LEADING OCEAN RESEARCH INSTITUTES. IT IS A KEY ENABLER FOR THEIR VESSELS AND HAS THE FLEXIBILITY TO MEET THE PRECISE IN-WATER AND NEAR-BOTTOM SUSTAINED OBSERVATION NEEDS OF SCIENCE USERS WORKING NEARSHORE, COASTAL AND DEEP OCEAN.

MAXIMISING SCIENCE TIME, MINIMISING DOWNTIME

Science users rarely have the luxury of remaining on site for long, so Ranger 2's ability to position instruments such as corers, camera platforms and geological drills without having to first deploy a seabed array of transponders, helps you maximise precious ship time. It can even be used to activate compatible acoustic release transponders, allowing you to release and track your moorings all the way to the surface for immediate recovery on board.

If your research involves using a vessel of opportunity, then the benefits of using Ranger 2 begin before you've left port. Our pre-calibrated, all-in-one GyroUSBL transceiver is perfect for installation on a temporary over-the-side mounting arrangement yet delivers the same precision as a permanent installation.





ULTRA-DEEP TOW

Ranger 2's unique Inverted USBL (iUSBL) mode, a feature of the Survey pack, is perfect for deep tow, extreme layback towfish tracking. Rather than mounting the USBL transceiver on the vessel in the traditional manner, with iUSBL, the transceiver is installed on the towed body itself. Because towfish are typically quiet, the signal-to-noise ratio is significantly improved which provides longer ranges and greater precision.

AUV OPERATIONS

When paired with Av-Trak 6, Ranger 2 enhances AUV operations, combining telemetry and positioning. The 6G Sonardyne Messaging Service supports the transfer of vehicle mission updates and USBL reference positions to the AUV, as well as status messages from it, and AUV-to-AUV telemetry.

SEABED GEODESY

Ranger 2's flexibility allows you to recover data from our Autonomous Monitoring Transponders, which are increasingly being used for the long term measurement (up to 10 years) of seabed tectonic deformation. With both MF and LMF options available to support this capability, Ranger 2 HPTs can also be supplied as stand-alone modems for over-the-side wire deployment on ships not fitted with a Ranger 2 system.

WHY IT'S GOOD FOR OCEAN SCIENCE

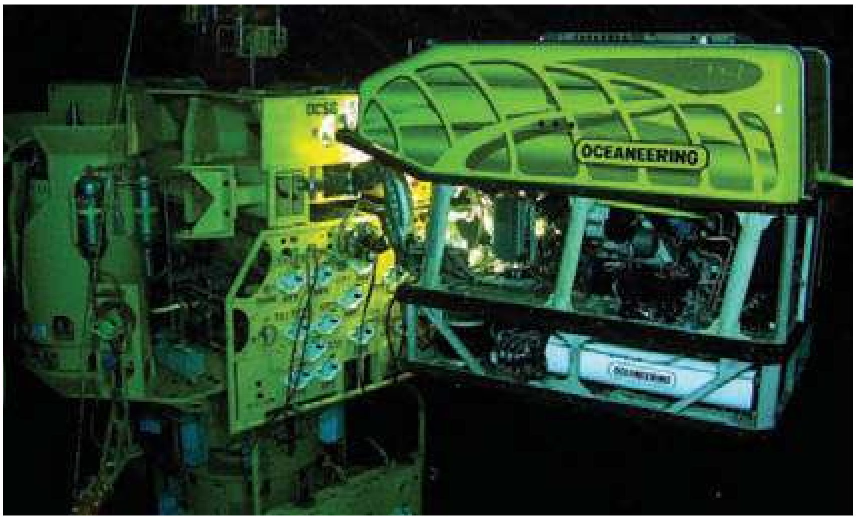
- Tracks AUVs, ROVs and other equipment to full ocean depth
- Maintains performance in noisy, shallow water environments
- Built-in fast data telemetry capability
- Supports MF and long range LMF operating bands
- Easy to install on vessels of opportunity
- Inverted USBL mode for tracking over long laybacks
- Software is simple and intuitive
- Compatible with all DP systems

Image: SOI

RANGER 2 USBL FOR

UNRIVALLED CAPABILITY

BE PREPARED FOR ANY VESSEL AND SUBSEA POSITIONING SCENARIO BY CHOOSING THE HIGHEST SPECIFICATION RANGER 2 PACK AVAILABLE – PROFESSIONAL. WITH THIS FEATURE PACK INSTALLED, YOU AND YOUR VESSEL HAVE GOT THE UNRIVALLED ABILITY TO SELECT WHICHEVER FEATURE YOU WANT, WHEN YOU WANT IT



RANGER 2 PROFESSIONAL PACK

Whether it's to provide an acoustically aided reference telegram to a DP desk whilst simultaneously tracking a complex structure with multiple transponders attached, or tracking an ROV overlaid on a geodetic backdrop whilst outputting an LUSBL DP telegram, Ranger 2 USBL Professional can do all this and more.

SURVEY AND DP

Ranger 2 Professional directly benefits multi-purpose vessels by enabling you to take advantage of the powerful position reference features found within the DP pack along with all the tracking features found within the Survey pack. This enables vessels to operate using a single USBL system for both DP and construction survey tasks which makes ownership and operation much simpler.

Professional retains the same easy to use UI of the standard version enabling you to make the switch with the minimum of extra training required. And, like the Survey pack, the UI can display exactly what you want to see.

WHY IT'S GOOD FOR ANY OPERATION

- Up to 0.07% slant range tracking performance
- Full support for aided INS and LUSBL vessel DP references
- Capability to track structures and vehicles with multiple transponders and multiple remote offsets
- Can operate in Standard and Optimised tracking modes
- Easy to install on vessels of opportunity
- Support for all Sonardyne 6G USBL transceivers, transponders and responders
- Configurable UI to suit multiple project tasks


EMAS CHIYODA

SHIP FIT EQUIPMENT

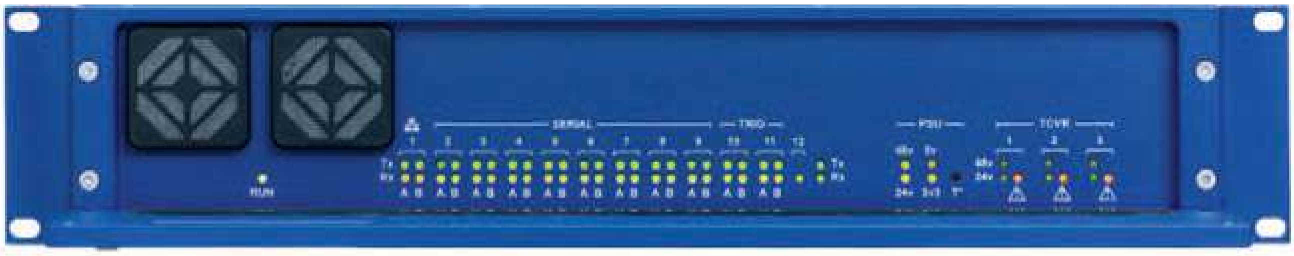
BRIDGE & INSTRUMENT ROOM

EASIER, FASTER AND NOW MORE CONFIGURABLE. THE LATEST VERSION OF RANGER 2 OPERATING SOFTWARE IS UNLIKE ANY OTHER ACOUSTIC POSITIONING SOFTWARE PACKAGE AND BRINGS TOGETHER ALL THE FEATURES SURVEYORS, SCIENTISTS AND DPOS TOLD US THEY WANTED TO SEE. IF YOU'VE NEVER USED A USBL SYSTEM, YOU'LL QUICKLY FEEL COMFORTABLE USING RANGER 2 AND IN NO TIME, BE READY TO CONFIGURE YOUR FIRST UNDERWATER TRACKING OPERATION. IT'S ALSO DESIGNED SPECIFICALLY TO TAKE ADVANTAGE OF THE POWERFUL FEATURES CONTAINED WITHIN EVERY 6G TRANSPONDER AND TRANSCEIVER.

ALL THE TOOLS YOU NEED

Ranger 2 benefits from a completely revised main UI, a centralised transponder management table, an array planning tool for DP operations, configurable displays, and integrated support for iWand, our go-anywhere back deck test and configuration device for 6G transponders. And when you need them, remote infield upgrades unlock extra features – ensuring you only pay for what you need.

- **Highly configurable navigation chart with layers**
- **Importable DXF backdrops**
- **Remote control and output telegrams**
- **Built-in performance verification and optimisation tools**
- **Automatic detection of previously deployed transponders including configured address**



NAVIGATION PC (NAVPC)

The NavPC and NSH are designed to meet the complete on-board requirements of any Ranger 2 positioning operation. Featuring an Intel® Core i7 processor, the NavPC is purpose built to run the family of Ranger 2 software applications and is proven to withstand the rugged environmental conditions associated with marine operations. It measures just 2U high so is ideally suited for mounting in an instrument rack, portable case for temporary installations or within a DP desk.

- **Designed to industrial PC standards**
- **Internal security dongle**
- **Shock-mounted hard drive**
- **Dual screen (VGA, DVI or HDMI)**
- **Ethernet or Serial interface to NSH**

NAVIGATION SENSOR HUB (NSH)

The NSH is the interface between the in-water acoustic instruments, sensors and the NavPC which runs the Ranger 2 positioning software. In addition to accurately time-stamping incoming data from external devices such as gyros, VRUs and GNSS, the NSH also provides power and communications for ship-borne acoustic transceivers.

- **Configurable for stand-alone or dual independent modes**
- **Up to 16 Ethernet or serial interfaces**
- **6 transceiver serial ports providing 24/48 V DC power**
- **Sub-microsecond time-stamping on all Tx/Rx data**

SHIP FIT EQUIPMENT

TRANSCEIVERS

WHEN IT COMES TO USBL TRANSCEIVERS, ONE MODEL DOES NOT FIT ALL SITUATIONS AND VESSELS. THAT'S WHY OUR HIGH PERFORMANCE TRANSCEIVER (HPT) IS AVAILABLE WITH DIFFERENT ARRAY DESIGNS RANGING FROM FULL HEMISPHERICAL COVERAGE TO DIRECTIONAL DESIGNS FOR ULTRA-DEEP WATER AND HIGH VESSEL NOISE OPERATING ENVIRONMENTS. HPT TRANSCEIVERS CAN ALSO BE USED AS WIRELESS MODEMS FOR AUTONOMOUS MONITORING TRANSPONDER SETUP AND DATA RETRIEVAL AS WELL AS SUPPORTING LBL OPERATIONS.

TOWFISH MOUNTED

iUSBL/GYROiUSBL

A subsea vehicle based transceiver that turns conventional USBL tracking on its head. Designed for projects using deep tow, long layback survey platforms requiring high precision.

HPT 13000

A specialist USBL transceiver available to support tracking projects in the deepest water. The large array and advanced multi-element signal processing enables transponders to be tracked with ultimate precision.

LMF HPT

A Low Medium Frequency (14-18kHz) transceiver to ensure maximum data telemetry rate and positioning range whilst providing simultaneous multi-user operation with systems in other bands of operation. Identical functionality to that of Medium Frequency band HPT instruments.

GYROUSBL 5000/7000

Lodestar subsea AHRS sensor and HPT transceiver in one unit. GyroUSBL can be pre-calibrated for rapid and cost-effective deployment on vessels of opportunity. Available with standard and deep water optimised arrays.

HPT 7000

A USBL and LUSBL transceiver optimised for noisy dynamically positioned drilling and construction vessels operating in deep water. Vessel and thruster noise is rejected.

HPT 5000

Enables subsea targets to be tracked with precision and repeatability over a wide range of water depths and elevations. Supports high speed 6G data telemetry mode.

SHIP FIT EQUIPMENT

OPTIONS

OPTIMISED USBL

The positioning accuracy obtainable from Ranger 2 can be further improved by co-locating Lodestar, our premium quality Attitude and Heading Reference system (AHRS), with your vessel's 6G acoustic transceiver.

Known as Optimised USBL, the advantage of this configuration is that raw USBL range and bearing data is simultaneously processed with the Lodestar's attitude data. This achieves a tightly compensated solution that enables a system accuracy of 0.1% of slant range to be achieved. Available with standard Ranger 2 systems, or those enabled with Survey, DP and Professional feature packs.

TIP If you don't need the extra performance offered by Optimised USBL, the bridge-installed version of Lodestar is a cost effective replacement for your ship's gyro and VRU.

DP-INS

For tightly integrated acoustically-aided inertial DP operations ,you will need to install our DP-INS sensor to work alongside your Ranger 2 system.

GyroUSBL transceivers have this sensor built-in, its capability simply needs to be enabled. Alternatively, we offer a stand-alone unit for installing on your bridge or deployment machine. Both units incorporate three Ring Laser Gyroscopes and three accelerometers selected for use for their performance, high mean time between failure (MTBF) and ease of export (non ITAR). These sensors have highly stable error characteristics and are compensated for temperature variation.

TIP Did you know we use RLGs and inertial sensors with a 400,000hrs MTBF, proven over 15 years of use in almost every commercial airliner?

VIEWPOINT REMOTE WORKSTATION

If you want to share and visualise positioning data from your Ranger 2 system with other teams on board, then you will need a Viewpoint remote display workstation.

It enables you to transform co-ordinates of surface vessels, subsea vehicles and structures into geographical information overlaid on easy-to-use guidance displays. When changes to Ranger 2 are made, such as adding a new tracked target, they automatically appear on ViewPoint workstations. And because it is serially interfaced with Ranger 2, Viewpoint is totally secure; there is no way to affect live survey and DP operations.

TRANSCEIVER DEPLOYMENT – PERMANENT

USBL system performance is seriously degraded by poor transceiver mounting and deployment so we've developed a family of highly engineered deployment machines suitable for any situation. Validated on hundreds of vessels, our through-hull hydraulic deployment machine is ideal for permanent installations and features a stiff, corrosion-resistant pole, high integrity bearing and sealing design and reliable hydraulic actuation with safety interlocks, sea chest for access, and remote control options.

Where through-hull deployment via a gate valve is not available or practical, a through-tube machine is available. Modular, easy to transport sections accommodate any pole length and once deployed, the pole is held rigidly in place using a self-contained hydraulic clamping mechanisms.

TRANSCEIVER DEPLOYMENT – TEMPORARY

For short term projects using a vessel of opportunity, our modular over-the-side deployment pole provides a cost-effective and practical solution. Pole lengths can be adjusted by adding or removing sections and once the assembled pole is lowered and locked into position, a high degree of stability is assured.

- **High performance, high integrity survey grade deployment system**
- **Drag and vortex reducing strakes**
- **Deck and hull mount options**
- **Sectional pole allows length to be configured for each vessel**
- **Good corrosion resistance**
- **Custom design available for other manufacturers instrumentation**
- **Easy to transport and assemble**

VEHICLE FIT / SEABED EQUIPMENT

TRANSPONDERS

WIDEBAND SUB-MINI 6+ (WSM 6+)

Included with any purchase of our Ranger 2 USBL system, WSM 6+ is the ideal choice of transponder for tracking mobile underwater targets such as a towfish, crane wire, ROV and manned submersible. 2-way wideband signals ensure reliable acoustic performance in all conditions.

- **Small and rugged**
- **1,000 metre and 4,000 metre depth ratings**
- **Omni-directional or directional transducers**
- **Inbuilt depth sensor aids USBL performance**
- **Responder mode for fast position updates**
- **Rechargeable battery**

TIP iWand – use it to test and configure any 6G transponder on the back deck. You can even import their settings straight into Ranger 2.

WIDEBAND MINI TRANSPONDER 6 (WMT 6)

If size and weight are important considerations, but you need the capability to track equipment in water depths up to 7,000 metres, look no further than the WMT 6. Its high power acoustic output means it's perfect for noisy operating environments.

- **3,000 metre, 5,000 metre and 7,000 metre depth ratings**
- **Available with remote transducer (3,000 metre version)**
- **Mini size – small and lightweight**
- **Full 2-way Sonardyne Wideband communications**
- **Responder mode for fast position updates**
- **Long life Li-ion battery**

TIP If you're not using your WMT for a while, the unit's external On/Off switch helps to ensure it is always ready for your next operation.

AV-TRAK 6

Av-Trak 6 combines the functions of a USBL transponder, LBL transceiver and wireless communications link in one low power instrument that's perfect for missions involving AUVs. Available with electronics-only for customer integration and a custom I/O for mission abort and ballast jettison.

- **Combined transponder, transceiver and telemetry instrument**
- **Track it, navigate it and command it**
- **Depth ratings to 7,000 metres**
- **Can aid vehicle's INS system**
- **Remote transducer option for easy vehicle installation**
- **Rechargeable battery**

TIP If space on your vehicle is limited, Av-Trak 6 can be supplied with a remote transducer allowing you to install the main electronics housing wherever you want.

WIDEBAND RELEASE TRANSPONDER 6 (WRT 6)

WRT 6 is a dedicated acoustic release transponder which you can use with Ranger 2 to deploy, track and detach seafloor equipment and instrument moorings. It uses field-proven mechanics combined with 6G electronics to ensure interference-free operation in multi-user scenarios.

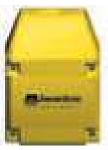
- **1,275 kg Working Load Limit (WLL)**
- **Higher WLL available with load maximisation frames**
- **Highly reliable release mechanism**
- **External On/Off switch to maximise battery life when not in use**
- **Depth rated to 3,000 metres**
- **Can be positioned using Kongsberg HiPAP® systems**

TIP Load amplification frames extend the WLL of WRT 6s – perfect for structure installation projects.

DYNAMIC POSITIONING TRANSPONDER 6 (DPT 6)

If you need an ultra-dependable, cost effective seabed DP reference transponder, DPT 6 is the answer. It's quick to set up on the back deck, easy to deploy and can be recovered without the need to send down an ROV.

- **Highly reliable acoustic release mechanism**
- **3,000 metre, 5,000 metre and 7,000 metre depth ratings**
- **Robust acoustic performance in all conditions**
- **Hundreds of operating channels**
- **Choice of sensors including depth, temperature and inclinometer**



TIP If you're deploying a Compatt or DPT on the seabed, you'll need a floatation collar. We have designs to suit every application.

COMPATT 6 (C6)

From Mini to Mega, C6 is the industry standard transponder used for high precision subsea survey and construction in all water depths. Available in a wide range of sizes, materials, sensor and battery configurations, ask us which one is right for your project.

- **Multi-functional transponder; supports USBL, LBL, modem and gyro applications**
- **Mini, Midi, Standard, Mega and Maxi sizes**
- **Can be used by multiple users simultaneously**
- **Extensive choice of sensors, depths and batteries**
- **Global track record of success**

SUPPORT

WE INSTALL, WE TRAIN, WE MAINTAIN.

WITH SEVERAL THOUSAND USBL INSTALLATIONS SUCCESSFULLY UNDERTAKEN, WE HAVE THE EXPERIENCE TO WORK SIDE-BY-SIDE WITH YOUR NAVAL ARCHITECT, SHIPYARD, DP SUPPLIER AND CREW TO MAKE THE PROCESS OF INVESTING IN RANGER 2 PROBLEM-FREE AND LOW-RISK. IT'S ALL PART OF THE SERVICE THAT HELPS LOWER YOUR OPERATIONAL RISK, SPEED UP YOUR SUBSEA OPERATIONS AND KEEP VESSEL DOWNTIME TO A MINIMUM.

EXPERT ADVICE

Our long-term partnership with clients has enabled us to develop a unique and extensive insight into the diverse nature of underwater operations and the associated commercial and operational pressures. We understand that the technology investment decisions you take today, will affect your operational capability for years to come so they need to be right.

That's why you can trust our global commercial and technical teams to give you expert advice on which Ranger 2 system is best for you, how to finance it (now including lease rental), where and how it should be installed, what transponders you need and the typical performance you can expect to see based on how and where you'll be using it.

OPERATOR TRAINING

Making sure that you get the very best out of your Ranger 2 system once it is installed and commissioned is the goal of our operator training programme. From standard courses run at our worldwide centres to bespoke courses held on your vessel, Sonardyne's training is comprehensive and flexible.

HELP WHEN YOU NEED IT

Once you become a Sonardyne Ranger 2 customer, you gain unrivalled access to our customer care programme. A dedicated email helpline connects you to product engineers ready to answer your questions but if it's more urgent, our 24 hour worldwide telephone help-line is standing by ready to resolve any operational issues you're facing.

ANNUAL SERVICE VISITS

Of course, the best way to ensure your equipment always performs as it should, is to service it regularly. Book an annual service visit, and one of our field engineers will inspect the health of your vessel's system including updating software and firmware and inspecting your deployment machine to make sure regular checks are being carried out. Transponder sensors can be re-calibrated at any one of our international service centres.


HPT 5000
FORWARD


This is to certify that
Your DP Officer
Has attended
The 2 day Ranger 2 USBL
Operators Training Course
At Sonardyne Sea Trials Centre
Plymouth, UK
Course Instructor:
Certificate Number: 1064

Sonardyne
SOUND IN DEPTH

SUBSEA TECHNOLOGY

Global Headquarters
T. +44 (0) 1252 872288
F. +44 (0) 1252 876100
sales@sonardyne.com

Aberdeen, UK
T. +44 (0) 1224 707875
F. +44 (0) 1224 707876
sales@sonardyne.com

Houston, USA
T. +1 281 890 2120
F. +1 281 890 7047
usa.sales@sonardyne.com

Singapore
T. +65 6542 1911
F. +65 6542 6937
asia.sales@sonardyne.com

Rio das Ostras, Brasil
T. +55 22 2123 4950
F. +55 22 2123 4951
brasil.sales@sonardyne.com

24 Hour Emergency Telephone Helpline
T. +44 (0) 1252 877600
support@sonardyne.com

4200 SERIES

SIDE SCAN SONAR SYSTEM

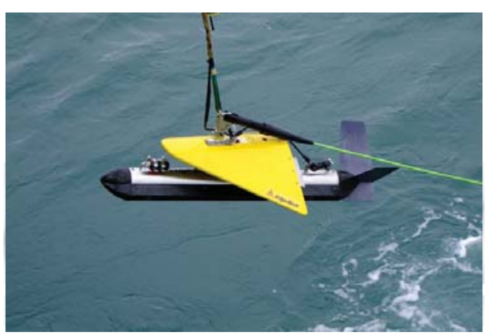
EdgeTech
An Affiliate of ORE Offshore

FEATURES

- Optional Multi-Pulse (MP) technology for high speed surveys
- Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Choice of stainless steel or lightweight aluminum towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

APPLICATIONS

- Cable & Pipeline Surveys
- Geological/Geophysical Surveys
- Mine Countermeasures (MCM)
- Geohazard Surveys
- Channel Clearance
- Search and Recovery
- Archeological Surveys



The 4200 Series is a versatile side scan sonar system that can be confi gured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.

One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classifi cation ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Defi nition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best confi guration for the specific job type.

A 4200 system comes with a choice of a dual simultaneous frequency towfi sh available in either a stainless steel or lightweight aluminum housing depending on operational requirements. Customers can also choose between a rack mount or portable topside processor or a digital link to interface to 3rd party topsides and software.

4200 SERIES
SIDE SCAN SONAR SYSTEM

EdgeTech
An Affiliate of ORE Offshore

KEY SPECIFICATIONS

SONAR SPECIFICATIONS	STANDARD	WITH OPTIONAL MP TECHNOLOGY	
Frequency	Choice of either 100/400, 300/600 or 300/900 kHz dual simultaneous		
Operating Range (meters/side)	100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m		
Horizontal Beam Width:	100 kHz: 1.5°, 300 kHz: 0.5°, 400 kHz: 0.4°, 600 kHz: 0.26°, 900 kHz: 0.2°	In High Speed Mode: 100 kHz: 1.26°, 300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°, 900 kHz: 0.3° In High Definition Mode: 100 kHz: 0.64°, 300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°, 900 kHz: 0.2°	
Resolution Along Track	100 kHz: 5 m @ 200 m 300 kHz: 1.3 m @ 150 m 400 kHz: 0.6 m @ 100 m 600 kHz: 0.45 m @ 100 m 900 kHz: 18 cm @ 50 m	High Definition Mode: 100 kHz: 2.5m @ 200m 300 kHz: 1.0m @ 200m 400 kHz: 0.5m @ 100m 600 kHz: 0.45m @ 100m 900 kHz: 18 cm @ 50m	HIgh Speed Mode: 100 kHz: 4.4m @ 200m 300 kHz: 1.9m @ 200m 400 kHz: 0.7m @ 100m 600 kHz: 0.6m @ 100m 900 kHz: 26 cm @ 50m
Resolution Across Track	100 kHz: 8 cm, 300 kHz: 3 cm, 400 kHz: 2 cm, 600 kHz: 1.5 cm, 900 kHz: 1 cm		
Vertical Beam Width	50°		
Depression Angle	Tilted down 20°		
TOWFISH	**STAINLESS STEEL**	**ALUMINUM**	
Diameter	11.4 cm (4.5 inches)		
Length	125.6 cm (49.5 inches)		
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)	30 / 18 kg (66 / 40 pounds)	
Depth Rating (Max)	2,000m	500m	
Standard Sensors	Heading, pitch & roll		
Optional Sensor Port	(1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC		
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors		
TOPSIDE PROCESSOR	**4200-P**	**4200**	**701-DL INTERFACE**
Hardware	Portable splash-proof case	19" rack mount computer	19" rack mount interface
Display & Interface	Splash-proof laptop	21" flat panel monitor, keyboard & trackball	Customer-supplied
Power Input	20-36 VDC or 115/230 VAC	115/230 VAC	115/230 VAC
Operating System	Windows© XP Pro		
File Format	Native JSF or XTF		
Output	Ethernet		
TOW CABLE			
	Coaxial Kevlar or double-armored up to 6,000m, winches available		

4205

TRI-FREQUENCY / MOTION TOLERANT SIDE SCAN SONAR SYSTEM

FEATURES

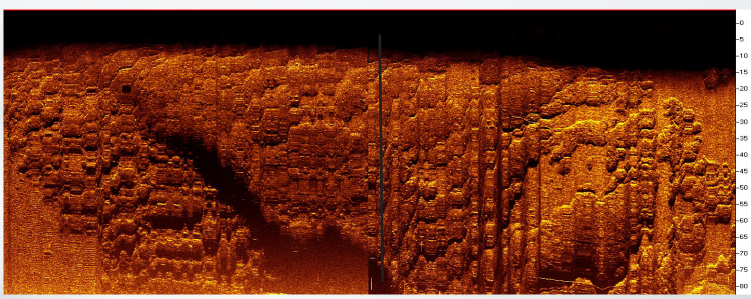
- Tri frequency side scan sonar
- Motion tolerant mode
- Improved target positioning
- Crisp, high resolution CHIRP imagery
- Increased towfish power to support wider range of 3rd party sensors
- Single pulse high resolution mode

APPLICATIONS

- Cable & pipeline surveys
- Geological/geophysical surveys
- Mine countermeasures (MCM)
- Geohazard surveys
- Channel clearance
- Search and recovery
- Archeological surveys

The next generation 4205 is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4205 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys. In addition to the high-resolution imagery that EdgeTech is known for, the 4205 comes with a number of new features which makes the system even more flexible and powerful in offshore operations. The 4205 is available in either a tri-frequency side scan sonar configuration or motion tolerant and multi-pulse configuration. The tri-frequency version allows surveyors the option to operate any two frequencies simultaneously from the tri-frequency system. Long range operations for example can be achieved with a selection of 230/540 kHz combination. Then, on-demand the system can be changed to a 540/850kHz system for an even higher resolution survey. The 4205 motion tolerant configuration with multi-pulse provides surveyors the ability to operate either at faster survey speeds or in more adverse weather conditions while still obtaining high quality underwater imagery. Additionally, this configuration can be operated in a single pulse high-resolution mode for those operations that require an even more finite view of the seafloor.

In both the tri-frequency and motion tolerant/ multi-pulse configurations, towfish and target positioning has been improved with the integration of a more accurate heading sensor that can be coupled with an optional USBL beacon. Additionally, all systems now come with increased towfish power to support a wider range of additional 3rd party sensors. All EdgeTech 4205 systems are comprised of a topside system and a reliable stainless steel towfish. Topside processors are rack mountable and come with easy-to-use GUI software that can be installed on the optional industrial workstation, laptop or customer provided PC.



Motion Tolerant Mode Sonar example: During turbulent conditions, the data on the left of side of this image was recorded using the EdgeTech 4205 Motion Tolerant mode. The right side of the image, depicting motion induced striping was captured without the Motion Tolerant mode for comparison.

EdgeTech

4205

TRI-FREQUENCY / MOTION TOLERANT SIDE SCAN SONAR SYSTEM

KEY SPECIFICATIONS

SONAR SPECIFICATIONS	4205 TRI-FREQUENCY	4205 MULTI-PULSE/MOTION TOLERANT (MP/MT) AND HIGH DEFINITION MODE	
Frequency	Choice of either 120/410/850 kHz or 230/540/850 kHz	Choice of either 120/410 kHz, 230/540 kHz,or 230/850 kHz	
Operating Range (meters/side)	120 kHz: 600m, 230 kHz: 350m, 410 kHz: 200m, 540 kHz: 150m, 850 kHz: 90m		
		MP/MT	HDM
Horizontal Beam Width	120 kHz: 0.70° 230 kHz: 0.44° 410 kHz: 0.28° 540 kHz: 0.26° 850 kHz: 0.23°	120 kHz: 0.95° 230 kHz: 0.62° 410 kHz: 0.40° 540 kHz: 0.36° 850 kHz: 0.33°	0.70° 0.44° 0.28° 0.26° 0.23°
		MP/MT	HDM
Resolution Along Track	120 kHz: 2.4m @ 200m 230 kHz: 1.2m @ 150m 410 kHz: 0.5m @ 100m 540 kHz: 0.45m @ 100m 850 kHz: 0.20m @ 50m	120 kHz: 3.3m @ 200m 230 kHz: 1.7m @ 150m 410 kHz: 0.7m @ 100m 540 kHz: 0.6m @ 100m 850 kHz: 0.26m @ 50m	2.4m @ 200m 1.2m @ 150m 0.5m @ 100m 0.45m @ 100m 0.20m @ 50m
Resolution Across Track	120 kHz: 8cm; 230 kHz: 3cm; 410 kHz: 2 cm; 540 kHz: 1.5cm; 850 kHz: 1cm		
Vertical Beam Width	50°		
Depression Angle	Tilted down 25°		
TOWFISH	**STAINLESS STEEL**		
Diameter	12cm (4.75 inches)		
Length	140cm (55 inches)		
Weight in Air	52 kg (115 pounds)		
Depth Rating (Max)	2,000m		
Standard Sensors	Heading, pitch & roll		
Optional Sensor Port	(1) Serial – RS 232C, Bi-directional & 28 VDC +/- 4%		
Options	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors		
TOPSIDE PROCESSOR	**4205 INTERFACE**		
Hardware	19" rack mount interface (150 watt or 400 watt)		
Display & Interface	Optional industrial workstation, laptop or customer provided PC		
Power Input	115/230 VAC		
File Format	Native JSF or XTF		
Sensor Interfaces	Ethernet, RS 232		
TOW CABLE			
	Coaxial Kevlar or double-armored up to 6,000m, winches available		

Trimble R8 GNSS Receiver

KEY FEATURES

Advanced Trimble R-Track technology

Unmatched GNSS tracking performance

Includes Trimble Maxwell 6 chip with 220 channels

Remote configuration and access

Base and rover communications options to suit any application

The Trimble® R8 GNSS Receiver sets the new standard for full-featured GNSS (Global Navigation Satellite System) receiver technology. This integrated system delivers unmatched power, accuracy and performance in a rugged, compact unit.

ADVANCED TRIMBLE R-TRACK TECHNOLOGY

The Trimble R8 GNSS delivers the latest advancements in R-Track™ technology, designed to deliver reliable, precise positioning performance. In challenging areas for GNSS surveying, such as tree cover or limited sky view, Trimble R-Track provides unmatched tracking performance of GNSS satellite signals.

Trimble R-Track with Signal Prediction™ compensates for intermittent or marginal RTK correction signals, enabling extended precision operation after an RTK signal is interrupted.

The new CMRx communications protocol provides unprecedented correction compression for optimized bandwidth and full utilization all of the satellites in view, giving you the most reliable positioning performance.

Featuring the Trimble Maxwell™ 6 chip, the Trimble R8 GNSS advances the industry with more memory and more GNSS channels. Trimble delivers business confidence with a sound GNSS investment for today and into the future.

Broad GNSS Support

The Trimble R8 GNSS supports a wide range of satellite signals, including GPS L2C and L5 and GLONASS L1/L2 signals. In addition, Trimble is committed to the next generation of modernized GNSS configurations by providing Galileo-compatible products available for customers well in advance of Galileo system availability[1,2]. In support of this plan, the new Trimble R8 GNSS is capable of tracking the experimental GIOVE-A and GIOVE-B test satellites for signal evaluation and test purposes.

FLEXIBLE SYSTEM DESIGN

The Trimble R8 GNSS receiver combines the most comprehensive feature set into an integrated and flexible system for demanding surveying applications. The Trimble R8 GNSS includes a built-in transmit/receive UHF radio, enabling ultimate flexibility for rover or base operation. As a base station, the internal NTRIP caster provides you with customized access[3] to base station corrections via the internet.

Trimble's exclusive, Web UI™ eliminates travel requirements for routine monitoring of base station receivers. Now you can assess the health and status of base receivers and perform remote configurations from the office. Likewise, you can download post-processing data through Web UI and save additional trips out to the field.

ENABLING THE CONNECTED SITE

Pair the speed and accuracy of the Trimble R8 GNSS receiver with flexibility and collaboration tools of Trimble Access™ software. Trimble Access brings field and office teams closer by enabling data sharing and collaboration in a secure, web-based environment. With optional streamlined workflows, Trimble Access further empowers surveyors and survey teams for success. Now it is easier than ever to realize the potential of the Trimble Connected Site. Connecting the right tools, techniques, services and relationships enables surveying businesses to achieve more every day.

1 ***Galileo Commercial Authorization***
Receiver technology having Galileo capability to operate in the Galileo frequency bands and using information from the Galileo system for future operational satellites is restricted in the publicly available Galileo Open Service Signal-In-Space Interface Control Document (GAL OS SIS ICD) and is not currently authorized for commercial use.
Receiver technology that tracks the GIOVE-A and GIOVE-B test satellites uses information that is unrestricted in the public domain in the GIOVE A + B Navigation Signals-In-Space Interface Control Document. Receiver technology having developmental GIOVE-A and B capability is intended for signal evaluation and test purposes.

2 *For more information about Trimble and GNSS modernization, please visit* ***http://www.trimble.com/srv_new_era.shtml***.

3 *Cellular modem required.*

Trimble R8 GNSS Receiver

TRIMBLE R8 GNSS RECEIVER

PERFORMANCE SPECIFICATIONS

Measurements

- Trimble R-Track technology
- Advanced Trimble Maxwell 6 Custom Survey GNSS chip with 220 channels
- High precision multiple correlator for GNSS pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Proven Trimble low elevation tracking technology
- Satellite signals tracked simultaneously:
  - GPS: L1C/A, L2C, L2E (Trimble method for tracking L2P), L5
  - GLONASS: L1C/A, L1P, L2C/A (GLONASS M only), L2P
  - SBAS: L1C/A, L5
  - Galileo GIOVE-A and GIOVE-B

Code differential GNSS positioning[1]

Horizontal. . . . . 0.25 m + 1 ppm RMS
Vertical . . . . 0.50 m + 1 ppm RMS
WAAS differential positioning accuracy[2]. . . . . typically <5 m 3DRMS

Static and FastStatic GNSS surveying[1]

Horizontal. . . . . 3 mm + 0.1 ppm RMS
Vertical . . . . 3.5 mm + 0.4 ppm RMS

Kinematic surveying[1]

Horizontal. . . . . 10 mm + 1 ppm RMS
Vertical . . . . 20 mm + 1 ppm RMS
Initialization time[3] . . . . typically <10 seconds
Initialization reliability[4]. . . . . typically >99.9%

HARDWARE

Physical

Dimensions (W×H) . . . . 19 cm × 11.2 cm (7.5 in x 4.4 in), including connectors
Weight . . . . 1.34 kg (2.95 lb) with internal battery, internal radio, standard UHF antenna.
3.70 kg (8.16 lb) entire RTK rover including batteries, range pole, controller and bracket
Temperature[5]
Operating . . . . –40 °C to +65 °C (–40 °F to +149 °F)
Storage . . . . –40 °C to +75 °C (–40 °F to +167 °F)
Humidity. . . . . 100%, condensing
Water/dustproof. . . . . IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)

Shock and vibration. . . . . Tested and meets the following environmental standards:
Shock . . . . Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete. Operating: to 40 G, 10 msec, sawtooth
Vibration MIL-STD-810F, FIG.514.5C-1

Electrical

- Power 11 to 28 V DC external power input with over-voltage protection on Port 1 (7-pin Lemo)
- Rechargeable, removable 7.4 V, 2.4 Ah Lithium-Ion battery in internal battery compartment. Power consumption is 3.2 W, in RTK rover mode with internal radio. Operating times on internal battery:
  - 450 MHz receive only option. . . . . 5.8 hours[7]
  - 450 MHz receive/transmit option . . . . 3.7 hours[8]
  - GSM/GPRS . . . . 4.1 hours[7]
- Certification Class B Part 15, 22, 24 FCC certification, 850/1900 MHz. Class 10 GSM/GPRS module. CE Mark approval, and C-tick approval

Communications and Data Storage

- 3-wire serial (7-pin Lemo) on Port 1. Full RS-232 serial on Port 2 (Dsub 9 pin)
- Fully Integrated, fully sealed internal 450 MHz receiver/transmitter option:
  - Transmit power: 0.5 W
  - Range[6]: 3–5 km typical / 10 km optimal
- Fully integrated, fully sealed internal GSM/GPRS option[7]
- Fully integrated, fully sealed 2.4 GHz communications port (Bluetooth®)[9]
- External cellphone support for GSM/GPRS/CDPD modems for RTK and VRS operations
- Data storage on 57 MB internal memory: 40.7 days of raw observables (approx. 1.4 MB /Day), based on recording every 15 seconds from an average of 14 satellites
- 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz positioning
- CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1 Input and Output
- 16 NMEA outputs, GSOF, RT17 and RT27 outputs. Supports BINEX and smoothed carrier

1 Accuracy and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. Always follow recommended survey practices.
2 Depends on WAAS/EGNOS system performance.
3 May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry.
4 May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
5 Receiver will operate normally to –40 °C, internal batteries are rated to –20 °C.
6 Varies with terrain and operating conditions.
7 Varies with temperature.
8 Varies with temperature and wireless data rate.
9 Bluetooth type approvals are country specific. Contact your local Trimble Authorized Distribution Partner for more information.

Specifications subject to change without notice.

Bluetooth®

TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

NORTH AMERICA
Trimble Engineering
& Construction Group
5475 Kellenburger Road
Dayton, Ohio 45424-1099 • USA
800-538-7800 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax

EUROPE
Trimble GmbH
Am Prime Parc 11
65479 Raunheim • GERMANY
+49-6142-2100-0 Phone
+49-6142-2100-550 Fax

ASIA-PACIFIC
Trimble Navigation
Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269 • SINGAPORE
+65-6348-2212 Phone
+65-6348-2232 Fax

Trimble.

www.trimble.com

Teledyne Oceanscience

rapidCAST™

Underway Profiling System

[illegible]

[illegible]

[illegible]

PRODUCT FEATURES

- [illegible] 12 [illegible]
- Repeatable automated profiling to >500 m at 5 kts or deeper at slower speeds
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TECHNICAL SPCIFICATIONS

Winch	[illegible]	[illegible]
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Control Module	[illegible]	[illegible]
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Valeport rapidSV Probe	[illegible]	[illegible]
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	[illegible]	[illegible]

Profiling Capability [illegible]

EQUIPMENT SHEET OFFSHORE SURVEY

FUGRO
SBE SEACAT 19 PLUS

The SBE Seacat 19 Plus velocimeter measures conductivity, temperature, and pressure (CTD) with high accuracy, resolution, and reliability for a wide range of survey applications.

The pump-controlled T-C ducted flow configuration minimizes salinity spiking caused by ship heave and allows for gradual decent rates without slowing sensor responses, improving dynamic accuracy and resolving small-scale structure in the water column.

APPLICATION
The SBE 19 Plus samples continuously up to four scans per second (4 Hz), is battery operated and self-recording, and is commonly used in the field without a computer, recording up to 100 individual profiles. Nine D-size alkaline batteries provide up to 60 hours of operation.

OPERATION
The 19 Plus is commonly used autonomously, recording data internally. It can also provide real-time acquisition and display over short cables via the RS-232 interface. A load-bearing cable for hand-hauled, real-time profiling is available.

The SBE 19 Plus is supplied with a powerful Windows-based software package (SEASOFT-Win 32), which includes programs for communication and data retrieval, real-time acquisition, display, and plotting, as well as data processing (filtering, aligning, and averaging). Firmware upgrades can be downloaded through the communications port by the user without opening the instrument.

System capabilities include the following:

- 64 MB FLASH RAM memory
- 6 Auxiliary A/D input channels
- Supplies power to seven external sensors
- Samples continuously up to 4 Hz
- Data can be output in XML or ASCII format
- Battery operation for up to 60 continuous hours

Appendix B

Relevant NMFS / NOAA / BOEM Correspondence

1. May 2019 - BOEM Responses to VW's Limited Waiver and Modified Lease Stipulation Requests for Lease OCS-A 0522 G&G Surveys

2. 20 July 2021 NMFS Incidental Harassment Authorization Renewal

BOEM Responses to Vineyard Wind's Limited Waiver and Modified Lease Stipulation Requests for Lease OCS-A 0522 Geophysical and Geotechnical Surveys (Scheduled for May and June of 2019)

4.1.1.2 <u>Vessel Strike Avoidance Measures and Time-of-Year Speed Restrictions</u>. **Vineyard Wind LLC (the Lessee) requested a limited waiver of the seasonal speed restriction to 10 knots or less from November 1 to July 31, as required under lease stipulation 4.1.1.2.** This speed restriction is based on several Seasonal Management Area (SMA) time/area restrictions based on possible ports where vessels may operate. Because vessels associated with the survey plan will only operate within or near the Mid-Atlantic SMA (from November 1 to April 30) and Vineyard Wind proposed an extended protective speed restriction buffer (from April 30 to May 14), Vineyard Wind requested a limited waiver of the 10-knot speed restriction from May 15 to July 31. Upon reviewing the information provided, **BOEM approves this request** because the vessel operating area is consistent with the Federal time-of-year vessel speed requirements for the Mid-Atlantic SMA. Please note that this lease stipulation still applies to vessels transiting from ports and within the operating areas described in the survey plans.

4.1.1.4 <u>Vessel Strike Avoidance Measures and Speed Restrictions</u>. **Vineyard Wind requested a limited waiver of the 10-knot speed restriction designated at any time of year in Nantucket Sound, as required under lease stipulation 4.1.1.4. BOEM denies this request to waive the 10-knot speed restriction in Dynamic Management Areas (DMAs).** During consultation with the National Marine Fisheries Service (NMFS) on this request, BOEM confirmed that DMAs are designated in waterways where NMFS believes groups of North Atlantic right whales may occur; therefore, no vessel speed exemptions should apply in DMAs. Additionally, vessel speed restrictions based on SMAs are required in the biological opinion, and thus, changes to those restrictions will not be approved. However, as described in the preceding paragraph, BOEM approves the limited waiver of seasonal speed restrictions between May 15 and July 31 for vessels operating within the vicinity of the Mid-Atlantic SMA.

Vineyard Wind also requested a limited waiver of any speed restriction requirements if vessel speeds over 10 knots are needed during a time period when speed restrictions are in place. Vineyard Wind indicated that in such cases, observers will be stationed on vessels over 65 feet in length to watch for North Atlantic right whales (NARWs). Upon reviewing the information provided, **BOEM denies this request**. The vessel speed restriction set forth in stipulation 4.1.1.4 is intended to avoid mortal injury if whales are unintentionally struck, and not all whales can be seen and avoided. The vessel speed restriction also provides more adequate reaction time to avoid whales that are sighted in the path of a moving vessel.

4.3.6.1 <u>Establishment of Default High Resolution Geophysical Watch Zone and Exclusion Zone</u>. **Vineyard Wind requested to modify the size of the 200-meter default exclusion zone required under lease stipulation 4.3.6.1 for ESA-listed whales and sea turtles during high resolution geophysical (HRG) surveys with equipment operating below 200 kHz.** In the case of the North Atlantic right whale, the minimum separation distance of 500 meters (1,640 feet), as required under stipulation 4.1.1.6.1, must be observed. According to lease stipulation

4.3.6.1, exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of Incidental Take Authorizations (ITAs) provided by NMFS. If an ITA is not required, default exclusion zones of 100 meters for harbor porpoises and humpback whales, and 50 meters for all other non-listed marine mammals must be established around each vessel conducting HRG survey activities.

Vineyard Wind requested an increase to 1,000 meters for NARWs, a decrease to 100 meters for non-delphinoid cetaceans other than right whales and harbor porpoises, and a decrease to 50 meters for delphinoid cetaceans, pinnipeds, and sea turtles. BOEM approves these requests based on new information showing that these exclusion zones are still effective at minimizing and avoiding effects to protected species. Please note that BOEM does not find that the information provided supports the increase from 500 to 1,000 meters. However, BOEM acknowledges Vineyard Wind's commitment to implementing the January 22, 2019 agreement with non-governmental organizations, and considers any additional distance beyond the minimum 500 meters to be voluntary on behalf of Vineyard Wind. Thus, a waiver is not required for this increase.

4.3.6.5 <u>Clearance of Exclusion Zone during HRG Surveys</u>. **Vineyard Wind requested to modify the pre-clearance time and active sound source wait period required under lease stipulation 4.3.6.5 during HRG surveys with equipment operating below 200 kHz.** This stipulation requires a pre-clearance and wait period of 60 minutes for all marine mammals and sea turtles. **Vineyard Wind requested a change from 60 minutes to 30 minutes for non-delphinoid cetaceans and sea turtles, and to 15 minutes for delphinoid cetaceans, pinnipeds, and other protected marine species. BOEM partially approves this request according to the following: Vineyard Wind must ensure that active acoustic sound sources are not activated until the protected species observer (PSO) has reported the exclusion zone clear of: NARWs and sea turtles for 60 minutes; non-delphinoid cetaceans other than NARWs for 30 minutes; and delphinoid cetaceans and pinnipeds for 15 minutes.**

BOEM denies the requested reduction from 60 minutes to 30 minutes for sea turtles because of the current biological opinion requirements. The 60-minute pre-clearance and wait period requirement is based on the longest dive time (about 60 minutes for sea turtles) of listed species in the survey area, and applies to all species. Given that Mysticete whale dive times in the area are less than 30 minutes, BOEM has allowed for the change to 30 minutes only for whales. However, as noted above, Vineyard Wind must still follow the 60-minute requirement for turtles, as required in the biological opinion.

4.3.7.1 <u>Establishment of Default Geotechnical Watch Zone and Exclusion Zone</u>. **Vineyard Wind requested to modify the size of the 200-meter default exclusion zone required under lease stipulation 4.3.7.1 for large whales other than NARWs and sea turtles during geotechnical surveys.** According to lease stipulation 4.3.7.1, a default exclusion zone distance of 500 meters for North Atlantic right whales and other listed species must be monitored around each vessel conducting geotechnical survey activities where North Atlantic right whales are expected to occur. If surveys are conducted in an area where North Atlantic right whales are not expected to occur, a default exclusion zone of 200 meters for other large whales and sea turtles must be established around each vessel conducting geotechnical survey activities. Exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of ITAs provided by NMFS. If an ITA is not required, default exclusion zones of 100 meters for harbor porpoises and humpback whales, and 50 meters for all other non-listed marine mammals must be established around each vessel conducting geotechnical survey activities.

Vineyard Wind requested an increase to 1,000 meters for NARWs, a decrease to 100 meters for non-delphinoid cetaceans other than right whales and harbor porpoises, and a decrease to 50 meters for delphinoid cetaceans, pinnipeds, and sea turtles. BOEM approves these requests based on new information showing that these exclusion zones are still effective at minimizing and avoiding effects to protected species. Please note that BOEM does not find that the information provided supports the increase from 500 to 1,000 meters. However, BOEM acknowledges Vineyard Wind's commitment to implementing the January 22, 2019 agreement with non-governmental organizations, and considers any additional distance beyond the minimum 500 meters to be voluntary on behalf of Vineyard Wind. Thus, a waiver is not required for this increase.

4.3.7.3 **Clearance of Exclusion Zone during Geotechnical Surveys. Vineyard Wind requested to modify the pre-clearance time and sound source wait period required under lease stipulation 4.3.7.3 during geotechnical surveys.** This stipulation requires a pre-clearance and wait period of 60 minutes for all marine mammals and sea turtles. **Vineyard Wind requested a change from 60 minutes to 30 minutes for non-delphinoid cetaceans and sea turtles, and to 15 minutes for delphinoid cetaceans, pinnipeds, and other protected marine species. BOEM partially approves this request according to the following: Vineyard Wind must ensure that the geotechnical sound source is not activated until the PSO has reported the exclusion zone clear of: NARWs and sea turtles for 60 minutes; non-delphinoid cetaceans other than NARWs for 30 minutes; and delphinoid cetaceans and pinnipeds for 15 minutes. BOEM denies the requested reduction from 60 minutes to 30 minutes for sea turtles** because of the current biological opinion requirements.

BOEM's approval of the above-noted modifications and limited waivers apply solely for purposes of Vineyard Wind's HRG and geotechnical surveys scheduled for May and June of 2019. None of these modifications or limited waivers impacts compliance with any other lease stipulations.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

INCIDENTAL HARASSMENT AUTHORIZATION

Vineyard Wind, LLC (Vineyard Wind) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to harass marine mammals incidental to marine site characterization surveys off the coasts of Massachusetts, Rhode Island, Connecticut, and New York, when adhering to the following terms and conditions.

1. This incidental harassment authorization (IHA) is valid from the date of issuance through June 20, 2022.

2. This IHA is valid only for the marine site characterization survey specified in the IHA application, in the Atlantic Ocean.

3. General Conditions

   (a) A copy of this IHA must be in the possession of Vineyard Wind, the vessel operators, the lead protected species observers (PSO), and any other relevant designees of Vineyard Wind operating under the authority of this IHA.

   (b) The species authorized for taking are listed in Table 1. The taking, by Level B harassment only, is limited to the species and numbers listed in Table 1. Any taking of species not listed in Table 1, or exceeding the authorized amounts listed in Table 1, is prohibited and may result in the modification, suspension, or revocation of this IHA.

   (c) The taking by injury, serious injury, or death of any of the species listed in Table 1 of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.

   (d) Vineyard Wind must ensure that the vessel operator and other relevant vessel personnel are briefed on all responsibilities, communication procedures, marine mammal monitoring protocols, operational procedures, and IHA requirements prior to the start of survey activity, and when relevant new personnel join the survey operations.

4. Mitigation Requirements – The holder of this Authorization is required to implement the following mitigation measures:

(a) Vineyard Wind must employ a minimum of two (2) NMFS-approved PSOs on each survey vessel at all times when high-resolution geophysical (HRG) equipment is in use (*i.e.* daylight and night time operations). PSOs must be on duty 30 minutes prior to ramp-up of HRG equipment on each survey vessel. PSOs must have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements.

(b) Visual monitoring must begin no less than 30 minutes prior to initiation of survey equipment and must continue until 30 minutes after use of survey equipment ceases.

(c) Exclusion Zones – PSOs must establish and monitor marine mammal Exclusion Zones. Distances to Exclusion Zones must be from any survey equipment, not the distance from the vessel. Exclusion Zones must be as follows:

(i) 500-m Exclusion Zone for North Atlantic right whales;

(ii) 100-m Exclusion Zone for all other marine mammals.

(d) Marine Mammal Monitoring Zone – PSOs must establish and monitor a marine mammal Monitoring Zone that represents a distance of 500 meters from survey equipment.

(e) Marine Mammal Buffer Zone – PSOs must establish and monitor a 200-m Buffer Zone.

(i) During use of geophysical sources with the potential to result in marine mammal harassment (i.e., anytime the acoustic source is active, including ramp-up), occurrences of marine mammals within the Buffer Zone must be communicated to the vessel operator to prepare for potential shutdown of the acoustic source.

(ii) The Buffer Zone is not applicable when the EZ is greater than 100 meters.

(f) Shutdown requirements

(i) If a marine mammal is observed within or entering the relevant Exclusion Zones as described under 4(c) while geophysical survey equipment is operational, the geophysical survey equipment must be immediately shut down.

(ii) Any PSO on duty has the authority to call for shutdown of survey equipment. When there is certainty regarding the need for mitigation action on the basis of visual detection, the relevant PSO(s) must call for such action immediately.

(iii) When a shutdown is called for by a PSO, the shutdown must occur and any dispute resolved only following shutdown.

(iv) The vessel operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the geophysical source(s) to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.

(v) Upon implementation of a shutdown, survey equipment may be reactivated when all marine mammals that triggered the shutdown have been confirmed by visual observation to have exited the relevant Exclusion Zone or an additional time period has elapsed with no further sighting of the animal that triggered the shutdown (15 minutes for small odontocetes and seals and 30 minutes for all other marine mammals).

(vi) If geophysical survey equipment shuts down for less than 30 minutes for reasons other than marine mammal mitigation (*e.g.,* due to mechanical or electronic failure) the equipment may be re-activated as soon as is practicable at full operational level if PSOs have maintained constant visual observation during the shutdown and no visual detections of marine mammals occurred within the applicable Exclusion and Buffer Zones during that time. For a shutdown of 30 minutes or longer, or if visual observation was not continued diligently during the pause, pre-clearance observation is required, as described under 4(g).

(vii) If a delphinid(s) from the genera *Delphinus, Lagenorhynchus,* or *Tursiops* is visually detected approaching the vessel (*e.g*., to bow ride) or towed survey equipment, shutdown is not required. If there is uncertainty regarding identification of a marine mammal species (*i.e.,* whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgment in making the decision to call for a shutdown. If delphinids from the above genera are observed within or entering the relevant EZ but do not approach the vessel or towed survey equipment, shutdown is required.

(viii) Shutdown of geophysical survey equipment is required upon observation of a species for which authorization has not been granted, or, observation of a species for which authorization has been granted but the authorized number of takes has been met, approaching or observed within the Level B harassment zone (*i.e.,* within 195 meters of active geophysical survey equipment).

(g) Pre-clearance observation – PSOs must conduct 30 minutes of pre-clearance observation prior to initiation of geophysical survey equipment. If a marine mammal is observed within or approaching the pre-clearance zones described below during the pre-clearance period, geophysical survey equipment must not be initiated until the marine mammal(s) is confirmed by visual observation to have exited the relevant zone, or, until an additional time period has elapsed with no further sighting of the animal (15 minutes for small odontocetes and seals and 30 minutes for all other species). The pre-clearance requirement includes small delphinids (as described in 4(f)(vii) above) that approach the vessel (*e.g.*, bow ride). Geophysical surveys must not be initiated if:

(i) a North Atlantic right whale is observed within a 500-m radius of geophysical survey equipment during the pre-clearance period; or

(ii) any other marine mammals are observed within a 200-m radius of geophysical survey equipment during the pre-clearance period.

(h) Ramp-up – when technically feasible, survey equipment must be ramped up at the start or re-start of survey activities. Ramp-up must begin with the power of the smallest acoustic equipment at its lowest practical power output appropriate for the survey. When technically feasible the power must then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually.

(i) Seasonal Restrictions

(i) Survey activities in the Cape Cod Bay SMA and Off Race Point SMA are limited to the months of August and September.

(ii) Vineyard Wind must not operate more than three HRG survey vessels concurrently within a seasonal restriction area as shown in Figure 1 with HRG survey equipment operating at or below 180 kHz.

(A) December through February restriction area is delineated by latitudes and longitudes of 41.183 N; 40.366 N; 69.533 W; and 70.616 W. This area is marked by a solid line in Figure 1.

(B) March through June restriction area is delineated by a polygon with the following vertices: 40.746 N 70.748 W; 40.953 N 71.284 W; 41.188 N 71.284 W; 41.348 N 70.835 W; 41.35 N 70.455 W; 41.097 N 70.372 W; and 41.021 N 70.37 W. This area is marked by a dashed line in Figure 1.

(j) Vessel Strike Avoidance – Vessel operator and crew must maintain a vigilant watch for all marine mammals and slow down or stop the vessel or alter course, as appropriate, to avoid striking any marine mammal, unless such action represents a human safety concern. Survey vessel crew members responsible for navigation duties must receive site-specific training on marine mammal sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures must include the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:

(i) The vessel operator and crew must maintain vigilant watch for cetaceans and pinnipeds, and slow down or stop the vessel to avoid striking marine mammals;

(ii) The vessel operator must reduce vessel speed to 10 knots (18.5 km/hr) or less when any large whale, any mother/calf pairs, whale or dolphin pods, or larger assemblages of non-delphinoid cetaceans are observed near (within 100 m (330-ft)) an underway vessel;

(iii) The survey vessel must maintain a separation distance of 500 meters (1640 ft) or greater from any sighted North Atlantic right whale. If a whale is observed but cannot be confirmed as a species other than a right whale, the vessel operator must assume that it is a right whale and maintain a minimum separation distance of 500 meters.

(iv) If underway, the vessel must steer a course away from any sighted North Atlantic right whale at 10 knots (18.5 km/hr) or less until the 500-m (1640 ft) minimum separation distance has been established. If a North Atlantic right whale is sighted in a vessel’s path, or within 500 meters to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines must not be engaged until the North Atlantic right whale has moved outside of the vessel’s path and beyond 500 meters. If stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 500 m;

(v) The vessel must maintain a separation distance of 100 meters (330 ft) or greater from any sighted non-delphinoid cetacean. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinoid cetacean has moved outside of the vessel’s path and beyond 100 meters. If a survey vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved out of the vessel’s path and beyond 100 meters;

(vi) The vessel must maintain a separation distance of 50 meters (164 ft) or greater from any sighted delphinoid cetacean or pinniped. Any vessel underway must remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. Vessels may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 meters and/or the abeam of the underway vessel;

(vii) All vessels underway must not divert or alter course in order to approach any whale, delphinoid cetacean, or pinniped. Any vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to the sighted cetacean or pinniped; and

(viii) All survey vessels, regardless of size, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales from vessel strikes: any DMAs or Slow Zones when in effect, and the Block Island Seasonal Management Area (SMA) (from November 1 through April 30), Cape Cod Bay SMA (from January 1 through May 15), Off Race Point SMA (from March 1 through April 30) and Great South Channel SMA (from April 1 through July 31).

5. Monitoring Requirements – Vineyard Wind is required to conduct marine mammal visual monitoring during geophysical survey activity. Monitoring must be conducted in accordance with the following requirements:

(a) A minimum of two (2) NMFS-approved PSOs must be on duty and conducting visual observations when HRG equipment is in use on all survey vessels during geophysical surveys (*i.e*. daylight and night time operations).

(b) PSO resumes must be provided to NMFS for approval prior to commencement of the survey. PSO qualifications must include completion of a PSO training course and direct field experience conducting similar surveys.

(c) PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements (including brief alerts regarding maritime hazards), and must have successfully completed an approved PSO training course appropriate for their designated task. Non-third-party observers may be approved by NMFS on a case-by-case basis for limited, specific duties in support of approved, independent PSOs.

(d) Visual monitoring must begin no less than 30 minutes prior to initiation of geophysical survey equipment and must continue until one hour after use of the acoustic source ceases or until 30 minutes past sunset.

(e) PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts.

(f) Visual observations must be conducted using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

(g) PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

(h) In cases where multiple vessels are surveying concurrently, any observations of marine mammals must be communicated to PSOs on all active survey vessels.

(i) PSOs must be equipped with binoculars and have the ability to estimate distances to marine mammals located in proximity to the vessel and/or Exclusion Zones using range finders. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine species.

(j) Position data must be recorded using hand-held or vessel global positioning system (GPS) units for each sighting.

(k) Vineyard Wind must consult NMFS' North Atlantic right whale reporting systems for the presence of North Atlantic right whales throughout survey operations for the establishment of a Dynamic Management Area (DMA or Slow Zone).

(l) During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, visual PSOs must conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the acoustic source and between acquisition periods.

(m) Night-vision equipment (*i.e.*, night-vision goggles and infrared technology) must be available for use during nighttime monitoring.

(n) Any observations of marine mammals by crew members aboard any vessel associated with the survey must be relayed to the PSO team.

(o) If Exclusion Zones, Buffer Zone and/or Monitoring Zone are not fully visible to PSOs due to darkness or inclement weather, survey activities may continue, unless a marine mammal is detected within or entering the Exclusion Zones as described under 4(c).

(p) Data on all PSO observations must be recorded based on standard PSO collection requirements. PSOs must use standardized data forms, whether hard copy or electronic. The following information must be reported:

(i) PSO names and affiliations

(ii) Dates of departures and returns to port with port name

(iii) Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort

(iv) Vessel location (latitude/longitude) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts

(v) Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change

(vi) Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort sea state, Beaufort wind force, swell height, weather conditions, cloud cover, sun glare, and overall visibility to the horizon

(vii) Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions)

(viii) Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (*i.e.*, pre-clearance survey, ramp-up, shutdown, end of operations, etc.)

(ix) If a marine mammal is sighted, the following information should be recorded:

(A) Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);

(B) PSO who sighted the animal;

(C) Time of sighting;

(D) Vessel location at time of sighting;

(E) Water depth;

(F) Direction of vessel’s travel (compass direction);

(G) Direction of animal’s travel relative to the vessel;

(H) Pace of the animal;

(I) Estimated distance to the animal and its heading relative to vessel at initial sighting;

(J) Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;

(K) Estimated number of animals (high/low/best) ;

(L) Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);

(M) Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);

(N) Detailed behavior observations (*e.g.*, number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);

(O) Animal’s closest point of approach and/or closest distance from the center point of the acoustic source;

(P) Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, data acquisition, other);

(Q) Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action: and

(R) Documentation of whether the marine mammal was estimated to have been within 195 meters of active survey equipment.

6. Reporting – a monitoring report must be provided to NMFS within 90 days after completion of survey activities that fully documents the methods and monitoring protocols, summarizes the data recorded during both visual and passive acoustic monitoring, estimates the number of marine mammals that may have been taken during survey activities, describes, assesses and compares the effectiveness of monitoring and mitigation measures. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS. PSO datasheets or raw sightings data must also be provided with the draft and final monitoring report.

(a) Reporting sightings of North Atlantic right whales:

(i) If a North Atlantic right whale is observed at any time by any project vessels, during surveys or during vessel transit, Vineyard Wind must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.

(b) Reporting injured or dead marine mammals:

(i) Discovery of injured or dead marine mammal – In the event that personnel involved in the survey activities covered by the authorization discover an injured or dead marine mammal, the IHA-holder shall report the incident to the Office of Protected Resources (OPR) (301-427-8401), NMFS and to the New England/Mid-Atlantic Regional Stranding Coordinator (978-282-8478) as soon as feasible. The report must include the following information:

(A) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

(B) Species identification (if known) or description of the animal(s) involved;

(C) Condition of the animal(s) (including carcass condition if the animal is dead);

(D) Observed behaviors of the animal(s), if alive;

(E) If available, photographs or video footage of the animal(s); and

(F) General circumstances under which the animal was discovered.

(ii) Vessel Strike – In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, the IHA-holder shall report the incident to OPR, NMFS and to the New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. The report must include the following information:

(A) Time, date, and location (latitude/longitude) of the incident;

(B) Species identification (if known) or description of the animal(s) involved;

(C) Vessel's speed during and leading up to the incident;

(D) Vessel's course/heading and what operations were being conducted (if applicable);

(E) Status of all sound sources in use;

(F) Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

(G) Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;

(H) Estimated size and length of animal that was struck;

(I) Description of the behavior of the marine mammal immediately preceding and following the strike;

(J) If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;

(K) Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and

(L) To the extent practicable, photographs or video footage of the animal(s).

7. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is

having more than a negligible impact on the species or stock of affected marine mammals.

______________________________________ __________________________

Catherine Marzin, Date
Acting Director, Office of Protected Resources
National Marine Fisheries Service

Table 1. Numbers of Incidental Take of Marine Mammals Authorized

Species	Authorized Takes by Level B Harassment
Fin whale	51
Humpback whale	34
Minke whale	31
North Atlantic right whale	10
Sei whale	3
Atlantic white sided dolphin	758
Bottlenose dolphin	611
Pilot whales	107
Risso's dolphin	6
Common dolphin	2,036
Sperm whale	3
Harbor porpoise	784
Gray seal	3,033
Harbor seal	3,033

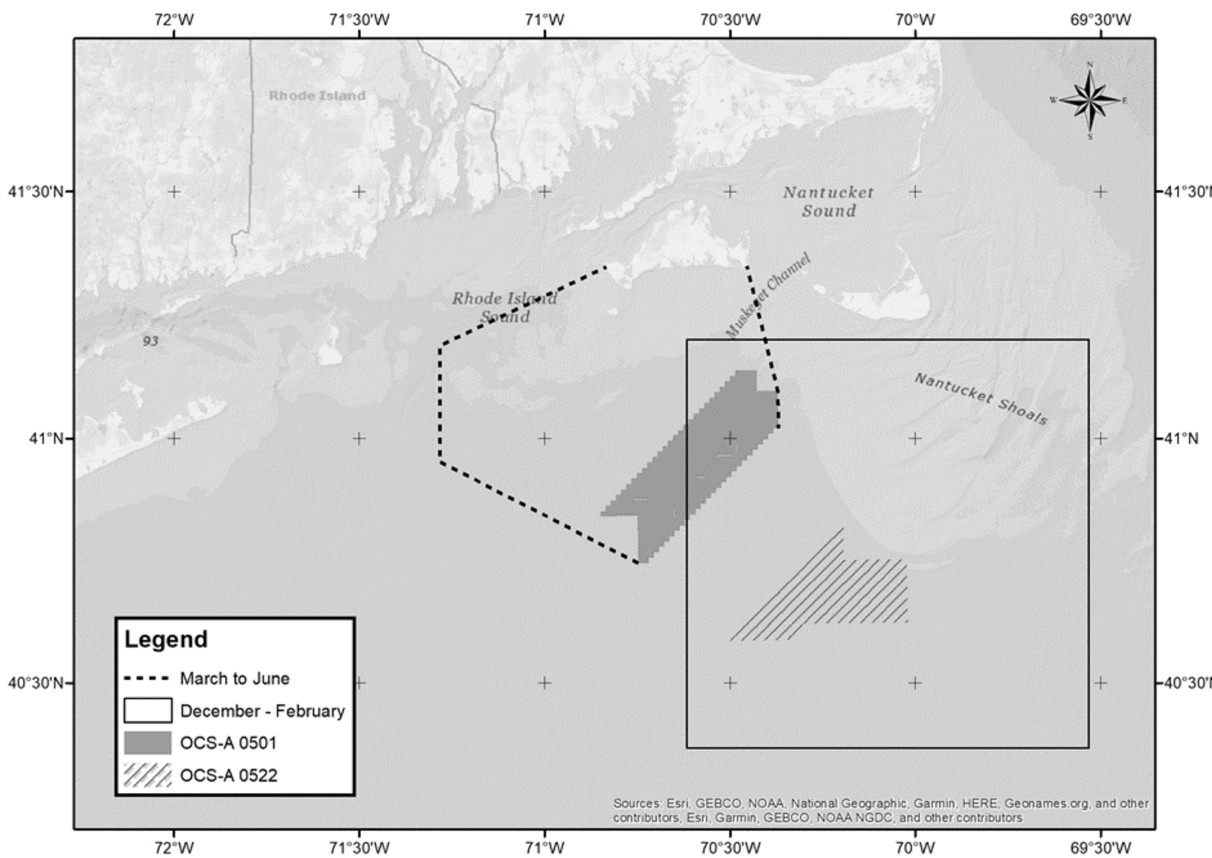


Figure 1. Seasonal Restriction Areas

Appendix C

PSO Equipment Specification Sheets

(to be provided after contractor selection)

Night Monitoring Equipment Specifications

Night monitoring watches will be conducted with night vision goggles with head mounts and thermal clip-ons. Regular night vision binoculars work by enhancing the disponible light to allow a brighter image with the use of phosphor screen. The PVS-7D night vision goggles (Figure 1) withstand water immersion and runs on two AA batteries for more than 40 hours. Also provided were three pairs of batteries and a batteries charger with the equipment.

Figure 1: Night vision goggles with thermal clip.

The thermal clip on the night vision binocular enabled the capture of infrared light, which provided thermal imaging. The handheld forward-looking infrared (FLIR) system may also be provided (Figure 2). This allows a bit more flexibility with the IR detached from the headpiece.

Figure 2: Handheld thermal FLIR

Night Monitoring Equipment Specifications

Night Vision Goggle Technical Specifications

- Generation: 3 U.S.
- Resolution: 64 lp/mm (Min)
- Film: Thin-filmed
- Magnification: 1x
- Field of View: 40º
- Objective Lens: 25mm f/1.2
- Eyepiece Lens EFL: 26 mm
- Diopter Adjustment: +2 to -6
- Interpupillary Adjustment: 55 to 71 mm
- Range of Focus: 20cm to infinity
- Battery Type: Two (2) AA batteries
- Weight w/batteries: 24 oz / 680 grams
- Dimensions: 6 3/8”(L) x 6”(W) x 3”(H)
- Operating Temperature: -51°C to +52° C
- Weather Resistant: Yes
- IR Illuminator: Yes (built in)

Thermal Acquisition Clip-On Technical Specifications

- Field of View: 20° circular (centered)
- Magnification: 1X, optical unity
- Sensor: 320 x 240 Vox uncooled LWIR microbolometer
- Display Brightness: Adjustable
- Polarity: White hot/black hot
- Calibration: Manual
- Range: Detection – 300m, Recognition – 260m
- Compatibility: PVS-7
- Interface: Standard quick connect
- Battery Type: CR123, 3V lithium
- Battery Life: >3.0 hours (23°C), 2.5 hours (0°C)
- Dimensions: 38 x 64 x 89 mm (W x H x L)
- Weight: 166g with battery

Forward–looking Infrared (FLIR) Monocular Technical Specifications

- Dimensions: 5.5”(L) x 2.7”(W) x 1.9”(H)
- Weight: 0.46 pounds
- Detector Type: 320 x 256 V0x Microbolometer
- FOV: 24° x 19° (NTSC)
- Refresh Rate: 60 Hz
- Video Output: Digital Video
- Optical Magnification: 1x
- Display: Quad-VGA (1280 x 960) FLCOS
- Battery Type: One CR123A 3V Lithium Battery
- USB Power: 5 VDC

Passive Acoustic Monitoring (PAM) Equipment

The PAM equipment comprises the following items:

- 250m Hydrophone Array Cable containing 2 Low Frequency hydrophones (10Hz to 24kHz), 2 Ultra Broadband hydrophones (200Hz to 200kHz), and 2 Broadband hydrophones (2kHz to 200kHz)
- 100m deck cable
- Electronic data capture and processing unit including:
  - Headphones RF transmitter
  - Fireface audio interface
  - Rackmount PC
  - Buffer interface unit
- Integral screen and keyboard
- Backup System

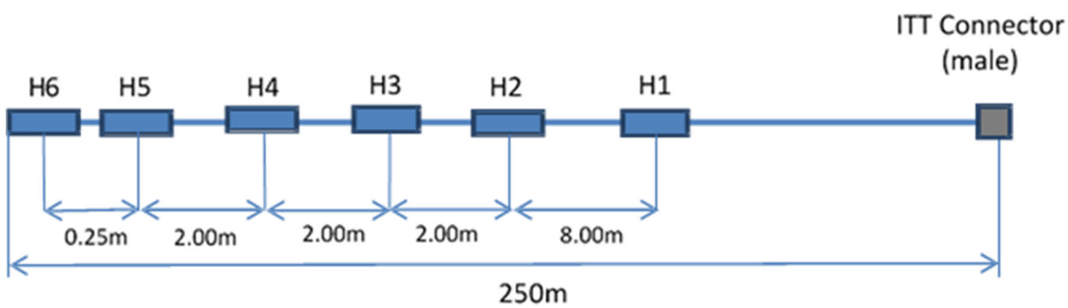
6-Channel Hydrophone Array

The array includes six hydrophones arranged in three pairs of identical specification with appropriate physical separation to provide direction0finding (bearings) to marine mammals and localization using Target Motion Analysis (TMA).

- The front pair (H1 and H2, 8m separation) consists of two “Low Frequency” hydrophones with a response of 10 Hz to 24 KHz.
- The middle pair (H3 and H4, 2m separation) consists of two “Broadband” hydrophones with a response of 200 Hz to 200 kHz.
- The rear pair (H5 and H6, 0.25m separation) consists of two “Standard” hydrophones with a response of 2 kHz to 200 kHz.

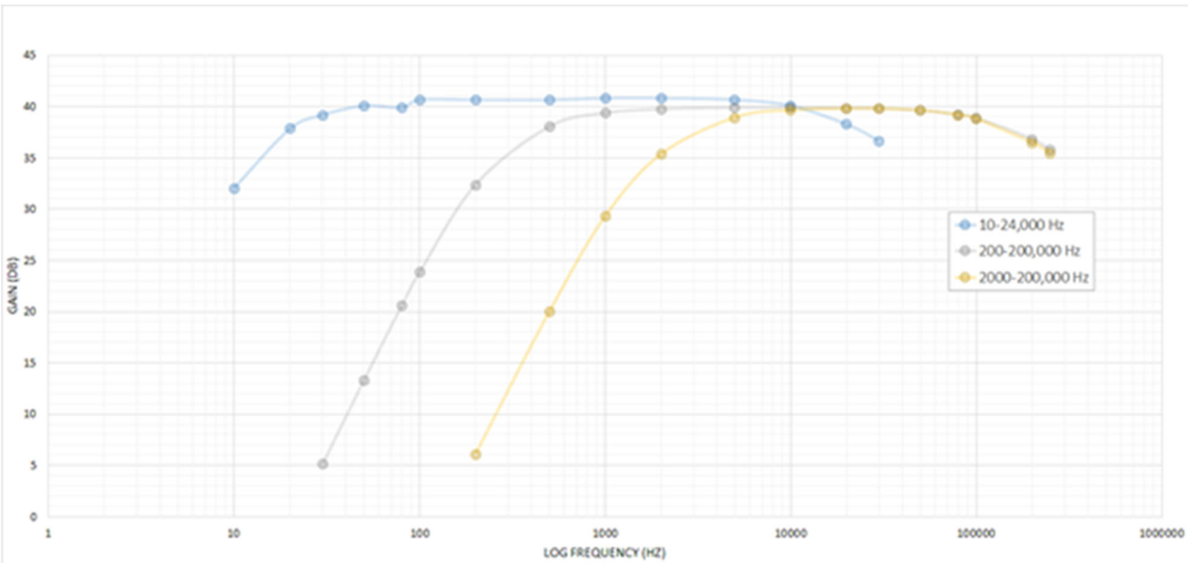
The “Low Frequency” hydrophones are configured to detect very low frequency vocalizations while the “Broadband” and “Standard” hydrophones are configured to detect low-mid frequency and mid-high vocalizations respectively. These three pairs of hydrophones provide the capability to detect the full range of marine mammal vocalizations anticipated to be encountered.

Simulation exercises have been completed using the PAMGuard software to verify that they within-pari separation provides consistently accurate bearings to a range of marine mammal vocalizations. Test signals used in these exercises simulated right whale up-calls, broadband sperm whale clicks, delphinid whistles, and narrow band high frequency harbor porpoise clicks. Anecdotal reports from surveys utilizing Seiche PAM systems with simultaneous visual and acoustic monitoring indicate that the acoustic range estimates have been sufficiently accurate for decision-making on whether vocal animals are within or beyond a 500m mitigation zone.



Frequency Response Curves

Frequency response curves provide a standard for demonstrating hydrophone sensitivity over a range of frequencies. A flat response between the frequencies of interest is desirable, indicating consistent sensitivity across the band of interest. The frequency response curves provided were generated from 10 Hz to 24 kHz, 200 Hz to 200 kHz, and 2 kHz to 200 kHz hydrophone elements (including pre-amps) of a Seiche towed array and are representative of the response curves for the 6 Hydrophone Array. The frequency response curves for each element within the arrays (main system and spare) used on the survey will be generated as part of the calibration process prior to their dispatch.



APPENDIX B

Required Documentation and Permits

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

INCIDENTAL HARASSMENT AUTHORIZATION

Vineyard Northeast, LLC (Vineyard Northeast) and their designees are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to incidentally harass marine mammals, under the following conditions:

1. This incidental harassment authorization (IHA) is valid for one year from the date of issuance.

2. This IHA authorizes take incidental to marine site characterization surveys in the Outer Continental Shelf Lease Area OCS-A 0522 and OCS-A 0544 and potential offshore export cable corridor (OECC) routes to landfall locations from Massachusetts to New Jersey.

3. General Conditions

   (a) A copy of this IHA must be in the possession of Vineyard Northeast, the vessel operators, the lead protected species observers (PSO), and any other relevant designees of Vineyard Northeast while conducting activities subject to this IHA.

   (b) The species and/or stocks authorized for taking are listed in Table 1. Taking is authorized take by Level B harassment only and is limited to the species and/or stocks and numbers listed in Table 1.

   (c) The taking by injury, serious injury, or death of any of the species/stocks listed in Table 1 or any taking of any species/stock of marine mammal not listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.

   (d) Vineyard Northeast must instruct relevant vessel personnel with regard to the authority of the protected species monitoring team, and must ensure that relevant vessel personnel and the protected species monitoring team participate in a joint onboard briefing (hereafter PSO briefing), led by the vessel operator and lead PSO, prior to beginning survey activities to ensure that responsibilities, communication procedures, monitoring protocols, safety and operational procedures, and IHA requirements are clearly understood. This PSO briefing must be repeated when relevant new personnel (*e.g.*, PSOs, acoustic source operator) join the survey operations before work commences.

   (e) The acoustic source must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source must be avoided.

(f) Vineyard Northeast must abide by the relevant Project Design Criteria (PDC 4, 5 and 7) of the programmatic consultation completed by NMFS' Greater Atlantic Regional Fisheries Office on June 29, 2021 (revised September 2021), pursuant to section 7 of the Endangered Species Act (ESA).

4. <u>Mitigation Requirements</u>

(a) Vineyard Northeast must employ qualified, NMFS-approved visual PSOs (see Section 5 of this IHA). When specified acoustic sources (impulsive: sparkers and boomers; non-impulsive: non-parametric sub-bottom profilers) are operating, a minimum of one PSO must be on duty, per source vessel, during daylight hours (civil sunrise to civil sunset) and two PSOs must be on duty, per source vessel, during nighttime hours.

(b) Visual monitoring must begin no less than 30 minutes prior to initiation of specified acoustic sources (see condition 4(a) of this IHA) and must continue until 30 minutes after use of specified acoustic sources ceases.

(c) PSOs must establish and monitor applicable Shutdown Zones (see Table 3). These zones must be based upon the radial distance from the acoustic source (rather than being based around the vessel itself).

(d) Pre-start clearance and ramp-up – PSOs must establish and monitor applicable pre-start clearance zones (see Table 3) A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source, when technically feasible. Operators must ramp up sources to half power for 5 minutes and then proceed to full power. A 30-minute pre-start clearance observation period must occur prior to the start of ramp-up (or initiation of source use if ramp-up is not technically feasible). All operators must adhere to the following pre-start clearance and ramp-up requirements:

(i) The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time must not be less than 60 minutes prior to the planned ramp-up to allow the PSOs time to monitor the Shutdown Zones for 30 minutes prior to the initiation of ramp-up (pre-start clearance). During this 30-minute pre-start clearance period, the entire applicable Shutdown Zone must be visible, except as indicated in (viii) below.

(ii) Ramp-ups must be scheduled so as to minimize the time the source activated.

(iii) A PSO conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO that the Shutdown Zone is clear prior to proceeding.

(iv) Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zone.

(v) The operator must establish and maintain clear lines of communication directly between PSO(s) on duty and crew controlling the acoustic source to ensure that mitigation commands are conveyed swiftly while allowing PSOs to maintain watch.

(vi) Ramp-up must not be initiated if any marine mammal is within the applicable Shutdown Zone. If a marine mammal is observed within the applicable Shutdown Zone during the 30-minute pre-start clearance period, ramp-up must not begin until the animal(s) has been observed exiting the zones or until an additional period has elapsed with no further sightings (15 minutes for small odontocetes and pinnipeds and 30 minutes for all other species).

(vii) PSOs must monitor the Shutdown Zone 30 minutes before and during ramp-up, and ramp-up must cease and the source must be shut down upon observation of a marine mammal within the applicable Shutdown Zone.

(viii) Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid nighttime activation.

(ix) If the acoustic source is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual observation and no detections of marine mammals have occurred within the applicable Shutdown Zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.

(e) Shutdown requirements

(i) Any PSO on duty has the authority to call for shut down of the acoustic source if a marine mammal is detected within the applicable Shutdown Zone.

(ii) The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed and implemented swiftly while allowing PSOs to maintain watch.

(iii) When the acoustic source is active and a marine mammal appears within or enters the applicable Shutdown Zone, the acoustic source must be shut down (Table 3). When shutdown is instructed by a PSO, the acoustic source must be immediately deactivated and any dispute resolved only following deactivation.

(iv) The shutdown requirement is waived for small delphinids[1] and pinnipeds, as provided in paragraphs (A) and (B) below.

(A) If a delphinid (individual belonging to the genera of the Family *Delphinidae*) or pinniped included in Table 1 is visually detected within the Shutdown Zone, no shutdown is required.

(B) If there is uncertainty regarding identification of a marine mammal species (*i.e.*, whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived or one of the species with a larger Shutdown Zone), PSOs must use best professional judgment in making the decision to call for a shutdown.

(v) Upon implementation of shutdown, the source may be reactivated after the marine mammal has been observed exiting the applicable Shutdown Zone or following a clearance period (15 minutes for harbor porpoises and 30 minutes for all other species; Table 3) with no further detection of the marine mammal.

(vi) Shutdown of acoustic sources is required upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met entering or within the Level B harassment zone (Table 2).

(f) Vessel Strike Avoidance – Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

(i) Vessel operators and crews must maintain a vigilant watch for all marine mammals and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A single marine mammal at the surface may indicate the presence of additional submerged animals in the vicinity of the vessel; therefore,

[1] Small delphinids include members of the following genera: *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops*.

precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (species-specific distances detailed below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish a marine mammal from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammals.

(ii) All vessels, regardless of size, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales from vessel strikes. These include all Seasonal Management Areas (SMA) (when in effect) and any Dynamic Management Areas (DMA) (when in effect). See *www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales* for specific detail regarding these areas.

(iii) Vessel speeds must be reduced to 10 knots or less when mother/calf pairs, pods, or large assemblages cetaceans are observed near a vessel.

(iv) All vessels must maintain a minimum separation distance of 500-m from right whales and other ESA-listed species. If an ESA-listed species is sighted within the relevant separation distance, the vessel must steer a course away at 10-knots or less until the 500-m separation distance has been established (Table 3). If a whale is observed but cannot be confirmed as a species that is not ESA-listed, the vessel operator must assume that it is an ESA-listed species and take appropriate action.

(v) All vessels must maintain a minimum separation distance of 100-m from non-ESA-listed whales (Table 3).

(vi) All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50-m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel; Table 3).

(vii) When a marine mammal is sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

(g) Survey activities using HRG equipment operating at or below 180 kHz are prohibited from January 1 through May 15 within the North Atlantic right whale SMA in Cape Cod Bay.

5. Monitoring Requirements

(a) Vineyard Northeast must use independent, dedicated, trained PSOs, meaning that the PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammal and mitigation requirements (including brief alerts regarding maritime hazards), and must have successfully completed an approved PSO training course for geophysical surveys. Except as provided under condition 4(f)(i) above and paragraph (b) below, visual monitoring must be performed by qualified, NMFS-approved PSOs. PSO resumes must be provided to NMFS for review and approval prior to the start of survey activities.

(b) On a case-by-case basis, non-independent observers (*e.g.*, crew members) may be approved by NMFS to act as PSOs for limited, specific duties (*i.e.*, conduct visual monitoring while the independent NMFS-approved PSO takes the required 2-hour break between 4-hour shifts) on smaller vessels with limited occupancy. Non-independent observers may be approved only for surveys operating in nearshore waters and only for daylight operations In order to be approved to act as PSOs, non-independent observers must have no duties other than marine mammal monitoring while on watch, and must be trained on protected species detection and identification, vessel strike minimization procedures, and reporting requirements in this IHA. If a whale is observed but cannot be confirmed as a species other than a right whale, the non-independent observer must assume that it is a right whale and take appropriate action (*i.e.*, call for a delay or shutdown).

(c) PSO names must be provided to NMFS by the operator for review and confirmation of their approval for specific roles prior to commencement of the survey[2]. For prospective PSOs not previously approved, or for PSOs whose approval is not current, NMFS must review and approve PSO qualifications. Resumes must include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training.

(d) NMFS may approve PSOs as conditional or unconditional. A conditionally-approved PSO may be one who is trained but has not yet attained the requisite experience. An unconditionally-approved PSO is one who has attained the necessary experience. For unconditional approval, the PSO must have a minimum of 90 days at sea performing the role during a geophysical survey, with the

[2] PSO-related inquiries should be directed to *nmfs.psoreview@noaa.gov*.

conclusion of the most recent relevant experience not more than 18 months previous.

(e) At least one of the visual PSOs aboard the vessel must be unconditionally-approved. One unconditionally-approved visual PSO must be designated as the lead for the entire PSO team. This lead should typically be the PSO with the most experience, would coordinate duty schedules and roles for the PSO team[3], and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the duty schedule must be planned such that unconditionally-approved PSOs are on duty with conditionally-approved PSOs.

(f) PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver must be submitted to NMFS and must include written justification. Alternate experience that may be considered includes, but is not limited to, (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored marine mammal surveys; and (3) previous work experience as a PSO (PSO must be in good standing and demonstrate good performance of PSO duties).

(g) PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.

(h) PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and must conduct visual observations using binoculars or night-vision equipment and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

(i) PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

(j) Any observations of marine mammal by crew members aboard any vessel associated with the survey must be relayed to the PSO team.

(k) Vineyard Northeast must work with the selected third-party PSO provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals, and to ensure that PSOs are capable of

[3] Responsibility for coordination of duty schedules and roles may be delegated, such as to a shore-based monitoring coordinator employed by the third-party observer provider.

calibrating equipment as necessary for accurate distance estimates and species identification. Such equipment, at a minimum, must include:

(i) At least one thermal (infrared) imaging device suited for the marine environment;

(ii) Reticle binoculars (*e.g.*, 7x50) of appropriate quality (at least one per PSO, plus backups);

(iii) Global Positioning Units (GPS) (at least one plus backups);

(iv) Digital cameras with a telephoto lens that is at least 300 mm or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens must also have an image stabilization system;

(v) Equipment necessary for accurate measurement of distances to marine mammals;

(vi) Compasses (at least one plus backups);

(vii) Means of communication among vessel crew and PSOs; and

(viii) Any other tools deemed necessary to adequately and effectively perform PSO tasks.

(l) Equipment specified in (i) through (viii) above may be provided by an individual PSO, the third-party PSO provider, or the operator, but Vineyard Northeast is responsible for ensuring PSOs have the proper equipment required to perform the duties specified within this IHA.

(m) During good conditions (*e.g.*, daylight hours; Beaufort sea state 3 or less), PSOs must conduct observations when the specified acoustic sources (see condition 4(a) of this IHA) are not operating for comparison of sighting rates and behavior with and without use of the specified acoustic sources and between acquisition periods, to the maximum extent practicable.

(n) Vineyard Northeast must consult the NMFS North Atlantic right whale reporting system and Whale Alert, daily and as able, for the presence of North Atlantic right whales before and throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the Lease Areas during the survey, the vessels must abide by speed restrictions in the DMA.

6. <u>Reporting Requirements</u>

(a) Vineyard Northeast must submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammal sightings (dates, times, locations, activities, associated survey activities). The draft report must also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines must include points recording any change in acoustic source status (*e.g.*, when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files must be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates must be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data must be made available. A final report must be submitted within 30 days following resolution of any comments on the draft report. All draft and final marine mammal monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov*, *nmfs.gar.incidental-take@noaa.gov* and *ITP.Esch@noaa.gov*.

(b) PSOs must use standardized electronic data forms to record data. PSOs must record detailed information about any implementation of mitigation requirements, including the distance of marine mammal to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs must record a description of the circumstances. At a minimum, the following information must be recorded:

(i) Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel;

(ii) Dates of departures and returns to port with port name;

(iii) The lease number;

(iv) PSO names and affiliations;

(v) Date and participants of PSO briefings;

(vi) Visual monitoring equipment used;

(vii) PSO location on vessel and height of observation location above water surface;

(viii) Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;

(ix) Vessel location (decimal degrees) when survey effort begins and ends and vessel location at beginning and end of visual PSO duty shifts;

(x) Vessel location at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval;

(xi) Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;

(xii) Water depth (if obtainable from data collection software);

(xiii) Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;

(xiv) Factors that may contribute to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions); and

(xv) Survey activity information (and changes thereof), such as acoustic source power output while in operation, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, end of operations, etc.).

(c) Upon visual observation of any marine mammal, the following information must be recorded:

1. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);

2. Vessel/survey activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other);

3. PSO who sighted the animal;

4. Time of sighting;

5. Initial detection method;

6. Sightings cue;

7. Vessel location at time of sighting (decimal degrees);

8. Direction of vessel's travel (compass direction);

9. Speed of the vessel(s) from which the observation was made;

10. Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level or unidentified); also note the composition of the group if there is a mix of species;

11. Species reliability (an indicator of confidence in identification);

12. Estimated distance to the animal and method of estimating distance;

13. Estimated number of animals (high/low/best);

14. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);

15. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars, or markings, shape and size of dorsal fin, shape of head, and blow characteristics);

16. Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior before and after point of closest approach);

17. Mitigation actions; description of any actions implemented in response to the sighting (*e.g.*, delays, shutdowns, ramp-up, speed or course alteration, etc.) and time and location of the action;

18. Equipment operating during sighting;

19. Animal's closest point of approach and/or closest distance from the center point of the acoustic source; and

20. Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

(d) Reporting sightings of North Atlantic right whales:

(i) If a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during surveys or during vessel transit, Vineyard Northeast must immediately report the sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System (866-755-6622).

(ii) North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via Channel 16.

(e) Reporting injured or dead marine mammals:

(i) Sightings of any injured or dead marine mammal must be reported to NMFS, regardless of the cause of injury or death. In the event that personnel involved in the survey activities discover an injured or dead marine mammal, Vineyard Northeast must report the incident as soon as feasible to the NMFS Office of Protected Resources and the NMFS New England/Mid-Atlantic Stranding Network by phone (866-755-6622) and by email (*nmfs.gar.stranding@noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*). The report must include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

2. Species identification (if known) or description of the animal(s) involved;

3. Condition of the animal(s) (including carcass condition if the animal is dead);

4. Observed behaviors of the animal(s), if alive;

5. If available, photographs or video footage of the animal(s); and

6. General circumstances under which the animal was discovered.

(ii) In the event of a ship strike of a marine mammal by any vessel involved in the survey activities, Vineyard Northeast must report the incident to NMFS OPR and the NMFS Office of Protected Resources and the NMFS New England/Mid-Atlantic Stranding Network by phone (866-755-6622) and by email (*nmfs.gar.stranding@noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*) as soon as feasible but within 24 hours. The report must include the following information:

1. Time, date, and location (latitude/longitude) of the incident;

2. Species identification (if known) or description of the animal(s) involved;

3. Vessel's speed during and leading up to the incident;

4. Vessel's course/heading and what operations were being conducted (if applicable);

5. Status of all sound sources in use;

6. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

7. Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;

8. Estimated size and length of animal that was struck;

9. Description of the behavior of the marine mammal immediately preceding and/or following the strike;

10. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;

11. Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and

12. To the extent practicable, photographs or video footage of the animal(s).

7. This Authorization may be modified, suspended or revoked if the holder fails to abide by the conditions prescribed herein (including, but not limited to, failure to comply with monitoring or reporting requirements), or if NMFS determines: (1) the authorized taking is having more than a negligible impact on the species or stocks of affected marine mammals, or (2) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

8. <u>Renewals</u> – On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities are planned or (2) the specified activities would not be completed by the time this IHA expires and a Renewal would allow for completion of the activities, provided all of the following conditions are met:

(a) A request for Renewal is received no later than 60 days prior to the needed Renewal IHA effective date (the Renewal IHA expiration date cannot extend beyond one year from expiration of this IHA).

(b) The request for Renewal must include the following:

(i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed for this IHA, are a subset of the activities, or include changes so minor that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).

(ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

(c) Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings made in support of this IHA remain valid.

7/27/2022

Kimberly Damon-Randall,
Director, Office of Protected Resources,
National Marine Fisheries Service.

Date

Table 1—Take by Level B Harassment

Taxonomic group	Common name	Scientific name	Stock	ESA-listed?	Marine mammal category as it applies to mitigation requirements in the IHA	Level B harassment takes
Cetacean (Mysticete)	North Atlantic right whale	*Eubalaena glacialis*	Western Atlantic Stock	Yes	North Atlantic right whale	40
	Blue whale	*Balaenoptera musculus*	Western Atlantic Stock	Yes	Large whale	1
	Fin whale	*Balaenoptera physalus*	Western North Atlantic Stock	Yes	Large whale	77
	Sei whale	*Balaenoptera borealis*	Nova Scotia Stock	Yes	Large whale	5
	Minke whale	*Balaenoptera acutorostrata*	Canadian East Coastal Stock	No	Large whale	42
	Humpback whale	*Megaptera novaeangliae*	West Indies DPS	No	Large whale	47
Cetacean (Odontocete)	Sperm whale	*Physeter macrocephalus*	North Atlantic Stock	Yes	Large whale	12
	Killer whale	*Orcinus orca*	Western North Atlantic Stock	No	Large odontocete	2
	False killer whale	*Pseudorca crassidens*	Western North Atlantic Stock	No	Large odontocete	5
	Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western North Atlantic Stock	No	Small odontocete	1,124
	Atlantic spotted dolphin	*Stenella frontalis*	Western North Atlantic Stock	No	Small odontocete	29
	Common bottlenose dolphin	*Tursiops truncatus*	Western North Atlantic Offshore Stock	No	Small odontocete	569
			Western North Atlantic Northern Migratory Coastal Stock			151
	Common dolphin (short-beaked)	*Delphinus delphis*	Western North Atlantic Stock	No	Small odontocete	13,904
	Risso’s dolphin	*Grampus griseus*	Western North Atlantic Stock	No	Large odontocete	101
	White-beaked dolphin	*Lagenorhyncus albirostris*	Western North Atlantic Stock	No	Small odontocete	30
	Long-finned pilot whale	*Globicephala melas*	Western North Atlantic Stock	No	Large odontocete	405
	Harbor porpoise	*Phocoena phocoena*	Western North Atlantic Stock	No	Small odontocete	2,033

Pinniped (Phocid)	Gray seal	*Halichoerus grypus*	Western North Atlantic Stock	No	Seal	418
	Harbor seal	*Phoca vitulina*	Western North Atlantic Stock	No	Seal	939

Table 2—Level B Harassment Zones

Equipment	Distance to Level B harassment threshold (m)
ET 216 CHIRP	4
GeoMarine Geo Sparker	141
Applied Acoustics AA 251 Boomer	178

Table 3—Distances for Clearance, Vessel Separation, and Shutdown Zones

<table>
<tr><th>Species</th><th>ESA-listed?</th><th>Clearance zone (m)</th><th>Vessel separation zone (m)</th><th>Shutdown zone (m)</th></tr>
<tr><td>North Atlantic right whale</td><td rowspan="5">Yes</td><td rowspan="5">500</td><td rowspan="5">500</td><td>500</td></tr>
<tr><td>Blue whale</td><td rowspan="11">100</td></tr>
<tr><td>Fin whale</td></tr>
<tr><td>Sei whale</td></tr>
<tr><td>Sperm whale</td></tr>
<tr><td>Humpback whale</td><td rowspan="14">No</td><td rowspan="14">100</td><td rowspan="2">100</td></tr>
<tr><td>Minke whale</td></tr>
<tr><td>Killer whale</td><td rowspan="12">50 (as feasible)</td></tr>
<tr><td>False killer whale</td></tr>
<tr><td>Long-finned pilot whale</td></tr>
<tr><td>Risso's dolphin</td></tr>
<tr><td>Harbor porpoise</td></tr>
<tr><td>Gray seal</td><td rowspan="7">Not required. See condition 4(e)(iv) in this IHA.</td></tr>
<tr><td>Harbor seal</td></tr>
<tr><td>Atlantic white-sided dolphin</td></tr>
<tr><td>Atlantic spotted dolphin</td></tr>
<tr><td>Common bottlenose dolphin (coastal and offshore stocks)</td></tr>
<tr><td>Common dolphin</td></tr>
<tr><td>White-beaked dolphin</td></tr>
</table>

United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

MAR 5 2019

Mr. Lars Thanning Pedersen
Vineyard Wind LLC
700 Pleasant Street
Suite 510
New Bedford, Massachusetts 02740

Dear Mr. Pedersen:

Please find enclosed one fully executed copy of Vineyard Wind LLC's (Company Number: 15010) commercial lease OCS-A 0522. The lease comprises 132,370 acres, more or less, lying within the Massachusetts Wind Energy Area, and will become effective April 1, 2019.

Please do not hesitate to contact me at our main office number, (703) 787-1300, if you have any further questions.

Sincerely,

James F. Bennett
Program Manager
Office of Renewable Energy Programs

Enclosure

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF OCEAN ENERGY MANAGEMENT **COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF** ***Paperwork Reduction Act of 1995 statement:*** *This form does not constitute an information collection as defined by 44 U.S.C. § 3501 et seq. and therefore does not require approval by the Office of Management and Budget.*	Office Sterling, VA	Renewable Energy Lease Number OCS-A 0522
	Cash Bonus and/or Acquisition Fee $135,100,000.00	Resource Type Wind
	Effective Date April 1, 2019	Block Number(s) See Addendum A

This lease, which includes any addenda hereto, is hereby entered into by and between the United States of America, ("Lessor"), acting through the Bureau of Ocean Energy Management ("BOEM"), its authorized officer, and

Lessee	Interest Held
Vineyard Wind LLC	100%

("Lessee"). This lease is effective on the date written above ("Effective Date") and will continue in effect until the lease terminates as set forth in Addendum "B." In consideration of any cash payment heretofore made by the Lessee to the Lessor and in consideration of the promises, terms, conditions, covenants, and stipulations contained herein and attached hereto, the Lessee and the Lessor agree as follows:

Section 1: Statutes and Regulations.

This lease is issued pursuant to subsection 8(p) of the Outer Continental Shelf Lands Act ("the Act"), 43 U.S.C. §§ 1331 *et seq.* This lease is subject to the Act and regulations promulgated pursuant to the Act, including but not limited to, offshore renewable energy and alternate use regulations at 30 CFR Part 585 as well as other applicable statutes and regulations in existence on the Effective Date of this lease. This lease is also subject to those statutes enacted (including amendments to the Act or other statutes) and regulations promulgated thereafter, except to the extent that they explicitly conflict with an express provision of this lease. It is expressly understood that amendments to existing statutes, including but not limited to the Act, and regulations may be made, and/or new statutes may be enacted or new regulations promulgated, which do not explicitly conflict with an express provision of this lease, and that the Lessee bears the risk that such amendments, regulations, and statutes may increase or decrease the Lessee's obligations under the lease.

Section 2: Rights of the Lessee.

(a) The Lessor hereby grants and leases to the Lessee the exclusive right and privilege, subject to the terms and conditions of this lease and applicable regulations, to: (1) submit to the Lessor for approval a Site Assessment Plan (SAP) and Construction and Operations Plan (COP) for the project identified in Addendum "A" of this lease; and (2) conduct activities in the area identified in Addendum "A" of this lease ("leased area") and/or Addendum "D" of this lease ("project easement(s)"), that are described in a SAP or COP that has been approved by the Lessor. This lease does not, by itself, authorize any activity within the leased area.

(b) The rights granted to the Lessee herein are limited to those activities described in any SAP or COP approved by the Lessor. The rights granted to the Lessee are limited by the lease-specific terms, conditions, and stipulations required by the Lessor per Addendum "C."

(c) This lease does not authorize the Lessee to conduct activities on the Outer Continental Shelf (OCS) relating to or associated with the exploration for, or development or production of, oil, gas, other seabed minerals, or renewable energy resources other than those renewable energy resources identified in Addendum "A."

Section 3: Reservations to the Lessor.

(a) All rights in the leased area and project easement(s) not expressly granted to the Lessee by the Act, applicable regulations, this lease, or any approved SAP or COP, are hereby reserved to the Lessor.

(b) The Lessor will decide whether to approve a SAP or COP in accordance with the applicable regulations in 30 CFR Part 585. The Lessor retains the right to disapprove a SAP or COP based on the Lessor's determination that the proposed activities would have unacceptable environmental consequences, would conflict with one or more of the requirements set forth in subsection 8(p)(4) of the Act (43 U.S.C. § 1337(p)(4)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.613(e)(2) or 30 CFR 585.628(f)(2). Disapproval of plans will not subject the Lessor to liability under the lease. The Lessor also retains the right to approve with modifications a SAP or COP, as provided in applicable regulations.

(c) The Lessor reserves the right to suspend the Lessee's operations in accordance with the national security and defense provisions of Section 12 of the Act and applicable regulations.

(d) The Lessor reserves the right to authorize other uses within the leased area and project easements(s) that will not unreasonably interfere with activities described in an approved SAP and/or COP, pursuant to this lease.

Section 4: Payments.

(a) The Lessee must make all rent payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, unless otherwise specified in Addendum "B."

(b) The Lessee must make all operating fee payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, as specified in Addendum "B."

Section 5: Plans.

The Lessee may conduct those activities described in Addendum "A" only in accordance with a SAP or COP approved by the Lessor. The Lessee may not deviate from an approved SAP or COP except as provided in applicable regulations in 30 CFR Part 585.

Section 6: Associated Project Easement(s).

Pursuant to 30 CFR 585.200(b), the Lessee has the right to one or more project easement(s), without further competition, for the purpose of installing gathering, transmission, and distribution cables, pipelines, and appurtenances on the OCS, as necessary for the full enjoyment of the lease, and under applicable regulations in 30 CFR Part 585. As part of submitting a COP for approval, the Lessee may request that one or more easement(s) be granted by the Lessor. If the Lessee requests that one or more easement(s) be granted when submitting a COP for approval, such project easements will be granted by the Lessor in accordance with the Act and applicable regulations in 30 CFR Part 585 upon approval of the COP in which the Lessee has demonstrated a need for such easements. Such easements must be in a location acceptable to the Lessor, and will be subject to such conditions as the Lessor may require. The project easement(s) that would be issued in conjunction with an approved COP under this lease will be described in Addendum "D" to this lease, which will be updated as necessary.

Section 7: Conduct of Activities.

The Lessee must conduct, and agrees to conduct, all activities in the leased area and project easement(s) in accordance with an approved SAP or COP, and with all applicable laws and regulations.

The Lessee further agrees that no activities authorized by this lease will be carried out in a manner that:

(a) could unreasonably interfere with or endanger activities or operations carried out under any lease or grant issued or maintained pursuant to the Act, or under any other license or approval from any Federal agency;

(b) could cause any undue harm or damage to the environment;

(c) could create hazardous or unsafe conditions; or

(d) could adversely affect sites, structures, or objects of historical, cultural, or archaeological significance, without notice to and direction from the Lessor on how to proceed.

Section 8: Violations, Suspensions, Cancellations, and Remedies.

If the Lessee fails to comply with (1) any of the applicable provisions of the Act or regulations, (2) the approved SAP or COP, or (3) the terms of this lease, including associated Addenda, the Lessor may exercise any of the remedies that are provided under the Act and applicable regulations, including, without limitation, issuance of cessation of operations orders, suspension or cancellation of the lease, and/or the imposition of penalties, in accordance with the Act and applicable regulations.

The Lessor may also cancel this lease for reasons set forth in subsection 5(a)(2) of the Act (43 U.S.C. § 1334(a)(2)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.437.

Non-enforcement by the Lessor of a remedy for any particular violation of the applicable provisions of the Act or regulations, or the terms of this lease, will not prevent the Lessor from exercising any remedy, including cancellation of this lease, for any other violation or for the same violation occurring at any other time.

Section 9: Indemnification.

The Lessee hereby agrees to indemnify the Lessor for, and hold the Lessor harmless from, any claim caused by or resulting from any of the Lessee's operations or activities on the leased area or project easement(s) or arising out of any activities conducted by or on behalf of the Lessee or its employees, contractors (including Operator, if applicable), subcontractors, or their employees, under this lease, including claims for:

a. loss or damage to natural resources,
b. the release of any petroleum or any Hazardous Materials,
c. other environmental injury of any kind,
d. damage to property,
e. injury to persons, and/or
f. costs or expenses incurred by the Lessor.

Except as provided in any addenda to this lease, the Lessee will not be liable for any losses or damages proximately caused by the activities of the Lessor or the Lessor's employees, contractors, subcontractors, or their employees. The Lessee must pay the Lessor for damage, cost, or expense due and pursuant to this Section within 90 days after written demand by the Lessor. Nothing in this lease will be construed to waive any liability or relieve the Lessee from any penalties, sanctions, or claims that would otherwise apply by statute, regulation, operation of law, or could be imposed by the Lessor or other government agency acting under such laws.

"Hazardous Material" means

1. Any substance or material defined as hazardous, a pollutant, or a contaminant under the *Comprehensive Environmental Response, Compensation, and Liability Act* at 42 U.S.C. §§ 9601(14) and (33);
2. Any regulated substance as defined by the Resource Conservation and Recovery Act ("RCRA") at 42 U.S.C. § 6991 (7), whether or not contained in or released from underground storage tanks, and any hazardous waste regulated under RCRA pursuant to 42 U.S.C. §§ 6921 *et seq.*;
3. Oil, as defined by the Clean Water Act at 33 U.S.C. § 1321(a)(1) and the Oil Pollution Act at 33 U.S.C. § 2701(23); or
4. Other substances that applicable Federal, state, tribal, or local laws define and regulate as "hazardous."

Section 10: Financial Assurance.

The Lessee must provide and maintain at all times a surety bond(s) or other form(s) of financial assurance approved by the Lessor in the amount specified in Addendum "B." As required by the applicable regulations in 30 CFR Part 585, if, at any time during the term of this lease, the Lessor requires additional financial assurance, then the Lessee must furnish the additional financial assurance required by the Lessor in a form acceptable to the Lessor within 90 days after receipt of the Lessor's notice of such adjustment.

Section 11: Assignment or Transfer of Lease.

This lease may not be assigned or transferred in whole or in part without written approval of the Lessor. The Lessor reserves the right, in its sole discretion, to deny approval of the Lessee's application to transfer or assign all or part of this lease. Any assignment will be effective on the date the Lessor approves the Lessee's application. Any assignment made in contravention of this section is void.

Section 12: Relinquishment of Lease.

The Lessee may relinquish this entire lease or any officially designated subdivision thereof by filing with the appropriate office of the Lessor a written relinquishment application, in accordance with applicable regulations in 30 CFR Part 585. No relinquishment of this lease or any portion thereof will relieve the Lessee or its surety of the obligations accrued hereunder, including but not limited to, the responsibility to remove property and restore the leased area and project easement(s) pursuant to section 13 of this lease and applicable regulations.

Section 13: Removal of Property and Restoration of the Leased Area and Project Easement(s) on Termination of Lease.

Unless otherwise authorized by the Lessor, pursuant to the applicable regulations in 30 CFR Part 585, the Lessee must remove or decommission all facilities, projects, cables, pipelines, and obstructions and clear the seafloor of all obstructions created by activities on the leased area and project easement(s) within two years following lease termination, whether by expiration, cancellation, contraction, or relinquishment, in accordance with any approved SAP, COP, or approved Decommissioning Application, and applicable regulations in 30 CFR Part 585.

Section 14: Safety Requirements.

The Lessee must:

a. maintain all places of employment for activities authorized under this lease in compliance with occupational safety and health standards and, in addition, free from recognized hazards to employees of the Lessee or of any contractor or subcontractor operating under this lease;

b. maintain all operations within the leased area and project easement(s) in compliance with regulations in 30 CFR Part 585 and orders from the Lessor and other Federal agencies with jurisdiction, intended to protect persons, property and the environment on the OCS; and

c. provide any requested documents and records, which are pertinent to occupational or public health, safety, or environmental protection, and allow prompt access, at the site of any operation or activity conducted under this lease, to any inspector authorized by the Lessor or other Federal agency with jurisdiction.

Section 15: Debarment Compliance.

The Lessee must comply with the Department of the Interior's non-procurement debarment and suspension regulations set forth in 2 CFR Parts 180 and 1400 and must communicate the requirement to comply with these regulations to persons with whom it does business related to this lease by including this requirement in all relevant contracts and transactions.

Section 16: Equal Opportunity Clause.

During the performance of this lease, the Lessee must fully comply with paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended (reprinted in 41 CFR 60-1.4(a)), and the implementing regulations, which are for the purpose of preventing employment discrimination against persons on the basis of race, color, religion, sex, or national origin. Paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended, are incorporated in this lease by reference.

Section 17: Certification of Nonsegregated Facilities.

By entering into this lease, the Lessee certifies, as specified in 41 CFR 60-1.8, that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. As used in this certification, the term "facilities" means, but is not limited to, any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees. Segregated facilities include those that are segregated by explicit directive or those that are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or otherwise; provided, that separate or single-user restrooms and necessary dressing or sleeping areas must be provided to assure privacy as appropriate. The Lessee further agrees that it will obtain identical certifications from proposed contractors and subcontractors prior to awarding contracts or subcontracts unless they are exempt under 41CFR 60-1.5.

Section 18: Notices.

All notices or reports provided from one party to the other under the terms of this lease must be in writing, except as provided herein and in the applicable regulations in 30 CFR Part 585. Written notices and reports must be delivered to the Lessee's or Lessor's Lease Representative, as specifically listed in Addendum "A," either electronically, by hand, by facsimile, or by United States first class mail, adequate postage prepaid. Each party must, as soon as practicable, notify the other of a change to their Lessee's or Lessor's Contact Information listed in Addendum "A" by a written notice signed by a duly authorized signatory and delivered by hand or United States first class mail, adequate postage prepaid. Until such notice is delivered as provided in this section, the last recorded contact information for either party will be deemed current for service of all notices and reports required under this lease. For all operational matters, notices and reports must be provided to the party's Operations Representative, as specifically listed in Addendum "A," as well as the Lease Representative.

Section 19: Severability Clause.

If any provision of this lease is held unenforceable, all remaining provisions of this lease will remain in full force and effect.

Section 20: Modification.

Unless otherwise authorized by the applicable regulations in 30 CFR Part 585, this lease may be modified or amended only by mutual agreement of the Lessor and the Lessee. No such modification or amendment will be binding unless it is in writing and signed by duly authorized signatories of the Lessor and the Lessee.

Lessee	Lessor
Vineyard Wind LLC	The United States of America
(Signature of Authorized Officer)	(Signature of Authorized Officer)
Iain Henderson	James F. Bennett
(Name of Signatory)	(Name of Signatory)
CFO	Program Manager, Office of Renewable Energy Programs
(Title)	(Title)
February 20, 2019	March 5, 2019
(Date)	(Date)

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "A"

DESCRIPTION OF LEASED AREA AND LEASE ACTIVITIES

Lease Number OCS-A 0522

I. Lessor and Lessee Contact Information

Lessee Company Number: 15010

(a) Lessor's Contact Information

	Lease Representative	**Operations Representative**
Title	Program Manager	Same as Lease Representative.
Address	U.S. Department of the Interior Bureau of Ocean Energy Management 45600 Woodland Road Sterling, Virginia 20166	
Phone	(703) 787-1300	
Fax	(703) 787-1708	
Email	renewableenergy@boem.gov	

(b) Lessee's Contact Information

	Lease Representative	**Operations Representative**
Name	ERICH STEPHENS	SAME AS LEASE REPRESENTATIVE
Title	CDO	
Address	700 PLEASANT ST SUITE 510 NEW BEDFORD MA 02740	
Phone	(401) 487-3320	
Fax		
Email	estephens@vineyardwind.com	

II. Description of Leased Area

The total acreage of the leased area is approximately 132,370 acres.

This area is subject to later adjustment, in accordance with applicable regulations (*e.g.*, contraction, relinquishment).

Lease OCS-A 0522

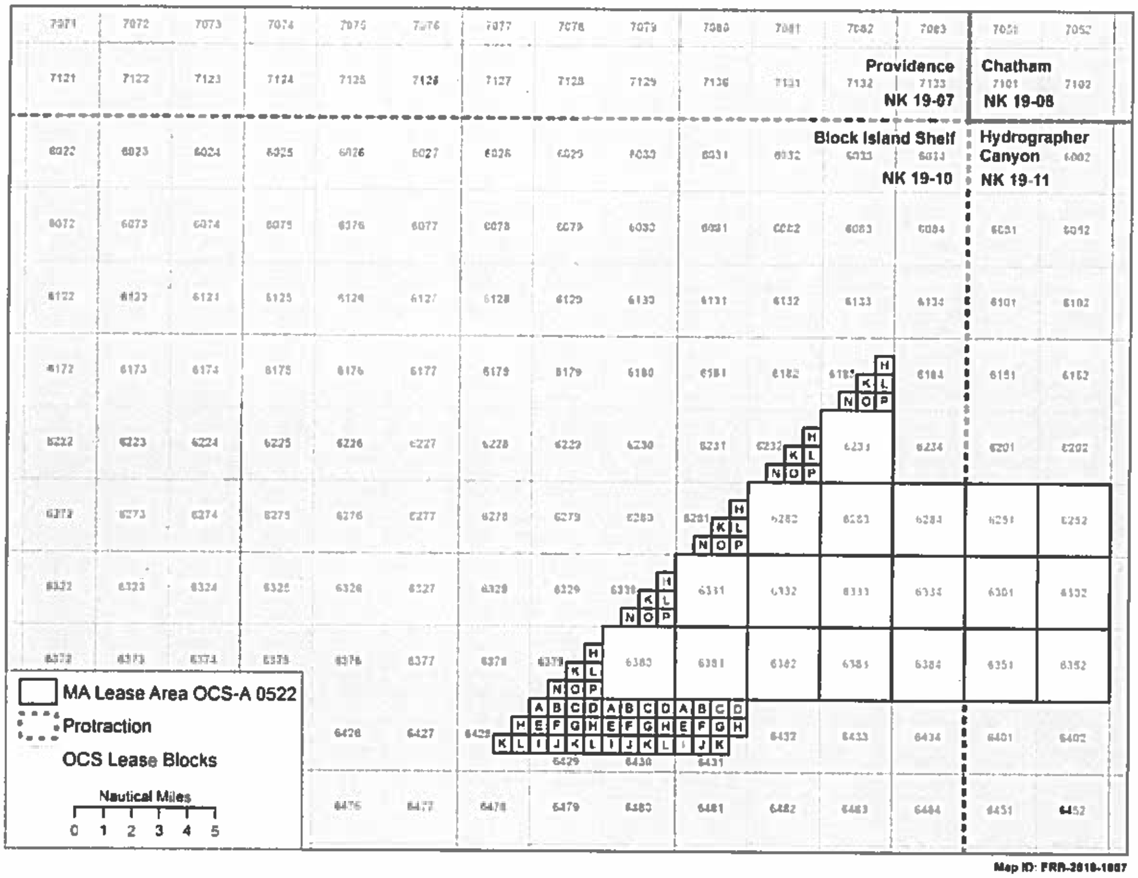
The following Blocks or portions of Blocks lying within Official Protraction Diagram Block Island Shelf NK19-10, are depicted on the map below and comprise 98,210 acres, more or less.

1) Block 6183, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
2) Block 6232, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
3) Block 6233, All of Block
4) Block 6281, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
5) Block 6282, All of Block
6) Block 6283, All of Block
7) Block 6284, All of Block
8) Block 6330, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
9) Block 6331, All of Block
10) Block 6332, All of Block
11) Block 6333, All of Block
12) Block 6334, All of Block
13) Block 6379, SE1/4 of NE1/4, SE1/4 of SW1/4, SE1/4
14) Block 6380, All of Block
15) Block 6381, All of Block
16) Block 6382, All of Block
17) Block 6383, All of Block
18) Block 6384, All of Block
19) Block 6428, SE1/4 of NE1/4, N1/2 of SE1/4
20) Block 6429, N1/2, N1/2 of S1/2
21) Block 6430, N1/2, N1/2 of S1/2
22) Block 6431, N1/2, N1/2 of SW1/4, NW1/4 of SE1/4

The following Blocks or portions of Blocks lying within Official Protraction Diagram Hydrographer Canyon NK19-11, are depicted on the map below and comprise 34,160 acres, more or less.

23) Block 6251, All of Block
24) Block 6252, All of Block
25) Block 6301, All of Block
26) Block 6302, All of Block
27) Block 6351, All of Block
28) Block 6352, All of Block

For the purposes of these calculations, a full Block is 2,304 hectares. The acreage of a hectare is 2.471043930.



III. Renewable Energy Resource

Wind

IV. Description of the Project

A project to generate energy using wind turbine generators and any associated resource assessment activities, located on the Outer Continental Shelf in the leased area, as well as associated offshore substation platforms, inner array cables, and subsea export cables.

V. Description of Project Easement(s)

Once approved, the Lessor will incorporate Lessee's project easement(s) in this lease as ADDENDUM "D."

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "B"

LEASE TERM AND FINANCIAL SCHEDULE

Lease Number OCS-A 0522

I. Lease Term

The duration of each term of the lease is described below. The terms may be extended or otherwise modified in accordance with applicable regulations in 30 C.F.R. Part 585.

Lease Term	**Duration**
Preliminary Term	1 year
Site Assessment Term	5 years
Operations Term	33 years

Schedule: Addendum "C" includes a schedule and reporting requirements for conducting site characterization activities.

Renewal: The Lessee may request renewal of the operations term of this lease, in accordance with applicable regulations in 30 CFR Part 585. The Lessor, at its discretion, may approve a renewal request to conduct substantially similar activities as were originally authorized under this lease or in an approved plan. The Lessor will not approve a renewal request that involves development of a type of renewable energy not originally authorized in the lease. The Lessor may revise or adjust payment terms of the original lease as a condition of lease renewal.

II. Definitions

"Lease Issuance Date" refers to the date on which this lease has been signed by *both* the Lessee and the Lessor.

"Effective Date" has the same meaning as "effective date" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.237.

"Lease Anniversary" refers to the anniversary of the Effective Date of the lease.

"End Date" refers to the earlier of a) the last calendar day of the last month of the Operations Term; or b) the date on which the lease terminates in the event of a lease termination.

"Commercial Operations" means the generation of electricity or other energy product for commercial use, sale, or distribution.

"Commercial Operation Date," or "COD," refers to the date on which the Lessee first begins Commercial Operations on the lease.

"Delivery Point" is the meter identified in the COP where the Lessee's facility interconnects with the electric grid to deliver electricity for sale.

An individual wind generation turbine is said to be "available for Commercial Operations" on or after the first day that it engages in Commercial Operations on the lease; and to be no longer available for Commercial Operations on or after the day when it is permanently decommissioned. These dates are determined by the Construction and Operations Plan (COP).

III. Payments

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make payments as described below.

(a) ***Rent.*** The Lessee must pay rent as described below:

Rent payments prior to the COD, or prior to the lease End Date in the event that the lease terminates prior to the COD, are calculated by multiplying the acres in the leased area times the rental rate per acre as follows:

Lease OCS-A 0522

- Acres in Leased Area: 132,370
- Annual Rental Rate: $3.00 per acre or fraction thereof
- Rental Fee for Entire Leased Area: $3.00 x 132,370 = $397,110

The first year's rent payment of $397,110 is due within 45 days of the date that the lease is received by the Lessee for execution. Rent for the entire leased area for the next year and for each subsequent year is due on or before each Lease Anniversary through the year in which the COD occurs. The rent for each year subsequent to the COD on the imputed portion of the lease not authorized for Commercial Operations is due on or before each Lease Anniversary. The imputed portion of the lease that is not authorized for Commercial Operations at each Lease Anniversary in year t, S_t, and the corresponding Adjusted Annual Rent Payment will be determined as follows:

(A) $S_t = \left(1 - \frac{M_t'}{MAX(M_t': for\ all\ t \geq 2)}\right)$

(B) $Adjusted\ Annual\ Rent\ Payment = S_t * Rental\ Fee\ for\ Entire\ Leased\ Area$

Where:
S_t = Portion of the lease not authorized for Commercial Operations in year t based on the definition of t in Section III (b) (4) below.

M_t' = Actual Nameplate capacity expressed in megawatts (MW) rounded to the nearest second decimal in year t of Commercial Operations on the lease as defined in Section III (b) (4) below, prior to any adjustments as specified in the most recent approved COP for turbine maintenance, replacements, repowering, or decommissioning. For our purposes nameplate capacity is the maximum rated electric output the turbines of the wind farm facility under commercial operations can produce at their rated wind speed designated by the turbine's manufacturer.

$MAX(M_t')$ = Highest value of M_t' projected in the most recent approved version of the COP to be achieved in any year of Commercial Operations on the lease.

The Adjusted Annual Rent Payment calculated in Equation (A) herein, will be rounded up to the nearest dollar. The annual rent payments will be set forth in Addendum "E" when the COP is initially approved or subsequently revised.

Consider an example of a 1,000 MW project on a lease with an Effective Date of January 1, 2014 and a COD of January 1, 2022 on a lease area consisting of 100,000 acres as follows:

Payment (Jan. 1st)	M_t' (MW)	$MAX(M_t')$ (MW)	$\left(1-\frac{M_t'}{MAX(M_t')}\right)$	Rental Fee for Entire Area	Payment Amount
2014	0		1.0		$300,000
...	...		...		...
2021	0		1.0		$300,000
2022	500		0.5		$150,000
2023	500		0.5		$150,000
2024	500	1,000	0.5	$300,000	$150,000
2025	800		0.2		$60,000
2026	800		0.2		$60,000
2027	800		0.2		$60,000
2028	1,000		0.0		$0

In the event a revised COP is approved by BOEM that identifies an alternative installation schedule that differs from the previously-approved COP, the Lessee must make subsequent payments based on the revised installation schedule. In addition, the Lessee must make a payment equal to the sum of any incremental annual rent payments that would have been due at the Lease Anniversary of prior years based on the differences between the Initial Installation Schedules specified in the previously-approved COP and the revised COP, plus interest on the annual balances, in accordance with 30 CFR 1218.54.

Consider an example whereby the initial COP specified an installation schedule with all 1,000 MW online at the COD, i.e., M_t' is 1,000 MW at COD. The following table demonstrates how the back rent payments would be calculated if the project was initially scheduled as a single phase, but then later determined to be the three-phase project as shown in the previous example in a revised COP approved prior to the payment due on January 1, 2023.

Payment (Jan. 1st)	Initial M_t' (MW)	Revised M_t' (MW)	Single-Phase Payment Amount	Three-Phase Payment Amount	Back Rent Payment Amount	Subsequent Rent Payment Amount
2014	0	0	$300,000	$300,000	$0	$0
...	...	...	...	...	...	...
2021	0	0	$300,000	$300,000	$0	$0
2022	1,000	500	$0	$150,000	$150,000	$0
2023	1,000	500	$0	$150,000	$0	$150,000
2024	1,000	500	$0	$150,000	$0	$150,000
2025	1,000	800	$0	$60,000	$0	$60,000
2026	1,000	800	$0	$60,000	$0	$60,000
2027	1,000	800	$0	$60,000	$0	$60,000
2028	1,000	1,000	$0	0	$0	$0

The last rent payment prior to Commercial Operations being authorized on the entire lease area, i.e., the year in which the value of S_t is equal to zero, or prior to the lease End Date, in the event that the lease terminates prior to Commercial Operations being authorized on the entire lease area, will represent the final rent payment, unless a revised COP identifying an alternative maximum initial capacity is approved by BOEM. All rent payments, including the last rent payment, are payable for the full year and will not be prorated to the COD or other installation milestones. The COD is equivalent to the authorization date for the first phase of development on the lease, to be updated based on the initial or revised approved COP documentation. The schedule of rent payments on the lease is defined in Addendum "E". All rent payments, except for the first 6-month rent payment, must be made as required in 30 CFR 1218.51. Late rent payments will be charged interest in accordance with 30 CFR 1218.54.

(1) ***Project Easement.***

Rent for any project easement(s) is described in ADDENDUM "D".

(2) ***Relinquishment.***

If the Lessee submits an application for relinquishment of a portion of the leased area within the first 45 calendar days following the date that the lease is received by the Lessee for execution, and the Lessor approves that application, no rent payment will be due on that relinquished portion of the leased area. Later relinquishments of any leased area will reduce the Lessee's rent payments due the year following the Lessor's approval of the relinquishment, through a reduction in the Acres in Leased Area and the corresponding Rental Fee for the Entire Leased Area and any related Adjusted Annual Rent Payments.

(b) ***Operating Fee.*** The Lessee must pay an operating fee as described below:

(1) **Initial Operating Fee Payment.**

The Lessee must pay an initial prorated operating fee within 45 calendar days after the COD. The initial operating fee payment covers the first year of Commercial Operations on the lease and will be calculated in accordance with subsection (4) below, using an operating fee rate of 0.02 and a capacity factor of 0.4.

(2) **Annual Operating Fee Payments.**

The Lessee must pay the operating fee for each subsequent year of Commercial Operations on or before each Lease Anniversary following the formula in subsection (4) below. The Lessee must calculate each operating fee annually subsequent to the initial operating fee payment using an operating fee rate of 0.02 through the thirty-three year operations term of the lease. The capacity factor of 0.4 will remain in effect until the Lease Anniversary of the year in which the Lessor adjusts the capacity factor.

(3) **Final Operating Fee Payment.**

The final operating fee payment is due on the Lease Anniversary prior to the End Date. The final operating fee payment covers the last year of Commercial Operations on the lease and will be calculated in accordance with the formula in subsection (4) below.

(4) **The formula for calculating the operating fee in year *t*.**

F_t	=	M_t	*	H	*	c_p	*	P_t	*	r_t
(annual operating fee)		(nameplate capacity)		(hours per year)		(capacity factor)		(power price)		(operating fee rate)

Where:

t =	the year of Commercial Operations on the lease starting from each Lease Anniversary, where *t* equals 1 represents the year beginning on the Lease Anniversary prior to, or on, the COD.
F_t =	the dollar amount of the annual operating fee in year *t*.
M_t =	the nameplate capacity expressed in megawatts (MW) rounded to the nearest second decimal place in year *t* of Commercial Operations on the lease. The value of M_t, reflecting the availability of turbines, will be determined based on the COP. This value will be adjusted to reflect any modifications to the COP approved by BOEM as of the date each operating fee payment is due, in accordance with the calculation in Equation 1, for each year of Commercial Operations on the lease.

$$(1) \quad M_t = \sum_{w=1}^{W_t}\left(N_w * \left[\frac{\left(\sum_{d=1}^{D} E_{w,t,d}\right)}{D}\right]\right)$$

Where:

W_t = Number of individual wind generation turbines, *w*, that will be available for Commercial Operations during any day of the year, *t*, per the COP.

N_w = Nameplate capacity of individual wind generation turbine, *w*, per the COP expressed in MW.

$E_{w,t,d}$ = Indicates whether individual wind generation turbine, *w*, will be available for Commercial Operations on day *d* of year *t*. The value is set to 1 for any day in year *t* for which the condition is true, i.e., the wind turbine will be available for Commercial Operations, and zero for any day in year *t* for which the condition is false, i.e., the wind turbine will not be available for Commercial Operations. The month of February is always assumed to have 28 days for purposes of this calculation, where March 1st will be counted as the first day of Commercial Operations if Commercial Operations commence on February 29th of a leap year.

D = Days in the year set equal to 365 in all years for purposes of this calculation.

M_t may be reduced only in the event that installed capacity is permanently decommissioned per the COP. M_t will not be changed in response to routine or unplanned maintenance of units, including the temporary removal of a nacelle for off-site repair or replacement with a similar unit.

EXAMPLE: Assume that the Lease Anniversary is January 1st, the COD is July 1, 2018, that the facility will ultimately have 100 individual wind generation turbines with a nameplate capacity of 5.0 MW each, and that the COP specifies the following, cumulative installation schedule for wind turbines to become available for Commercial Operations:

- July 1, 2018 (COD): 20 turbines (20 new units);
- October 1, 2018: 45 turbines (25 new units);
- January 1, 2019: 50 turbines (5 new units);
- July 1, 2019: 65 turbines (15 new units);
- January 1, 2020: 95 turbines (30 new units);
- February 29, 2020: 100 turbines (5 new units).

Further assume that the COP calls for 50 of the turbines to be decommissioned after September 30, 2039 (t = 22), and that the remaining turbines are decommissioned at the End Date of March 15, 2040 ($t = 23$).

The value of M_t would be estimated as demonstrated in Table 1a for each year of Commercial Operations on the lease in this example.

Table 1a: Example of M_t Calculations for Installation and Decommissioning

t	Turbines	MW	Commercial Operations Period	Comm. Ops. Days	Days in Year	Share of Days	MW	M_t
1	20	100	Jul. 1st to Dec. 31st	184	365	50.41%	50.41	81.92
	25	125	Oct. 1st to Dec. 31st	92		25.21%	31.51	
2	50	250	Jan. 1st to Dec. 31st	365		100.00%	250.00	287.81
	15	75	Jul. 1st to Dec. 31st	184		50.41%	37.81	
3	95	475	Jan. 1st to Dec. 31st	365		100.00%	475.00	495.96
	5	25	Mar. 1st to Dec. 31st	306		83.84%	20.96	
4	100	500	Jan. 1st to Dec. 31st	365		100.00%	500.00	500.00
...	...	...	...	...		...	...	...
21	100	500	Jan. 1st to Dec. 31st	365		100.00%	500.00	500.00
22	50	250	Jan. 1st to Dec. 31st	365		100.00%	250.00	436.98
	50	250	Jan. 1st to Sep. 30th	273		74.79%	186.98	
23	50	250	Jan. 1st to Mar. 15th	74		20.27%	50.68	50.68

To illustrate the impact of decommissioning a portion of the individual wind generation turbines and replacing them with units of greater capacity on the calculation of M_t, assume that at the end of March 31, 2022, 10 units are to be made unavailable due to decommissioning, and that the incremental units have a capacity of 7.0 MW and are expected to be made available for Commercial Operations on September 15, 2022. The impact on M_t in 2022 and in subsequent years starting in 2023 and continuing until decommissioning is illustrated in Table 1b.

Table 1b: Example of M_t Calculations for Repowering

t	Turbines	MW	Commercial Operations Period	Comm. Ops. Days	Days in Year	Share of Days	MW	M_t
5	90 (5.0)	450	Jan. 1st to Dec. 31st	365	365	100.00%	450.00	483.04
	10 (5.0)	50	Jan. 1st. to Mar. 31st	90		24.66%	12.33	
	10 (7.0)	70	Sep. 15th to Dec. 31st	108		29.59%	20.71	
6	90 (5.0)	450	Jan. 1st to Dec. 31st	365		100.00%	450.00	520.00
	10 (7.0)	70	Jan. 1st to Dec. 31st	365		100.00%	70.00	

H = the number of hours in the year for billing purposes which is equal to 8,760 for all years of Commercial Operations on the lease.

c_p = the "Capacity Factor" in Performance Period p, which represents the share of anticipated generation of the facility that is delivered to where the Lessee's facility interconnects with the electric grid (i.e. the Delivery Point) relative to its generation at continuous full power operation at the nameplate capacity, expressed as a decimal between zero and one.

The initial Capacity Factor (C_0) will be set to 0.4.

The Capacity Factor will be subject to adjustment at the end of each Performance Period. After the sixth year of Commercial Operations on the lease has concluded, the Lessee will utilize data gathered from years two through six of Commercial Operations on the lease and propose a revised Capacity Factor to be used to calculate subsequent annual payments, as provided for in Table 2 below. A similar process will be conducted at the conclusion of each five-year Performance Period, thereafter.

Table 2: Definition of Performance Periods

Performance Period (p)	Commercial Operation Years (t)	Payments Affected by Adjustment	Capacity Factor (C)	Date End Year (n)
0 (COD)	Not Applicable	Payments 1 to 7	C_0=0.4	--
1	t = 2 to 6	Payments 8 to 12	C_1	n_1=6
2	t = 7 to 11	Payments 13 to 17	C_2	n_2=11
3	t = 12 to 16	Payments 18 to 22	C_3	n_3=16
4	t = 17 to 21	Payments 23 to 27	C_4	n_4=21
5	t = 22 to 26	Payments 28 to 32	C_5	n_5=26
6	t = 27 to 31	Payment 33	C_6	n_6=31

Adjustments to the Capacity Factor

The Actual 5-year Average Capacity Factor (Xp) is calculated for each Performance Period after COD ($p > 0$) per Equation 2 below. Xp represents the sum of actual, metered electricity generation in megawatt-hours (MWh) at the Delivery Point to the electric grid (A_t) divided by the amount of electricity generation in MWh that would have been produced if the facility operated continuously at its full, stated capacity (M_t) in all of the hours (h_t) in each year, t, of the corresponding five-year period.

(2) $$X_p = \frac{\sum_{t=n-4}^{n} A_t}{\left(\sum_{t=n-4}^{n} M_t * h_t\right)}$$

Where:

M_t = Nameplate Capacity as defined above.

n = "Date End Year" value for the Performance Period, p, as defined in Table 2.

p = Performance Period as defined in Table 2.

A_t = Actual generation in MWh associated with each year of Commercial Operations, t, on the lease that is transferred at the Delivery Point; Delivery Point meter data supporting the values submitted for annual actual generation must be recorded, preserved, and timely provided to the Lessor upon request. In the event the Lessor requires the assistance of the Lessee in obtaining information useful in verifying

	such information, for example by waiving confidentiality with respect to data held by a third party, such assistance must be timely provided. h_t = Hours in the year on which the Actual Generation associated with each year of Commercial Operations, *t*, on the lease is based; this definition of "hours in the year" differs from the definition of H in the operating fee equation above. The hours in the year for purposes of calculating the capacity factor must take into account the actual number of hours, including those in leap years. The value of the Capacity Factor at the outset of Commercial Operations ($p = 0$) is set to 0.4 as stated in equation 3: **(3)** $c_0 = 0.4$ The value of the Capacity Factor corresponding to each Performance Period (c_p) is set according to equations 4A, 4B, and 4C as follows for each value of *p* greater than zero. The Capacity Factor is set equal to the Actual 5-Year Average Capacity Factor provided that the value falls within a range of plus or minus 10 percent of the previous Performance Period's capacity factor. **(4A)** $c_p = X_p \text{ for } c_{p-1} * 0.90 \le X_p \le c_{p-1} * 1.10$ **(4B)** $c_p = c_{p-1} * 0.90 \text{ for } X_p < c_{p-1} * 0.90$ **(4C)** $c_p = c_{p-1} * 1.10 \text{ for } X_p > c_{p-1} * 1.10$ All values for c_p must be rounded to the nearest third decimal place.
P_t =	a measure of the annual average wholesale electric power price expressed in dollars per MW hour. The Lessee must calculate P_t at the time each operating fee payment is due, subject to approval by the Lessor. The Base Price (P_b) must equal the weighted average of the peak and off-peak spot price indices for the Northeast – Massachusetts Hub power market for the most recent year of data available as reported by the Federal Energy Regulatory Commission (FERC). If FERC stops publishing this data or the specified location of the data changes over time, the Lessor must specify an alternate source of data and methodology that is approximately equivalent. The peak and off-peak price indices must be weighted 52.0% and 48.0%, respectively, for purposes of estimating the weighted index value for the Base Price. For example, in the March 12, 2012 State of the Markets Report the peak price index for 2011 was $51.99/MWh and the corresponding off-peak price index for 2011 was $33.94/MWh, resulting in a weighted index value for the Base Price for 2011 (P_{2011}) of $43.33/MWh (=52.0% * $51.99 / MWh + 48.0% *$33.94 / MWh). The calculation of P_b must be

rounded up to the nearest, second decimal place.

The Base Price must be adjusted for inflation from the year associated with the published spot prices to the year in which the operating fee is to be paid as shown in equations (5A) and (5B):

$$\textbf{(5A)}\quad P_t = P_b * \left(\frac{GDP_g}{GDP_{g-1}}\right)^{y-g} * \left(\frac{GDP_g}{GDP_b}\right) \text{ for } g \geq b$$

$$\textbf{(5B)}\quad P_t = P_b * \left(\frac{GDP_g}{GDP_{g-1}}\right)^{y-b} \quad \text{for } g < b$$

Where:

GDP = Annual Implicit Price Deflators for Gross Domestic Product (GDP deflator index) published by the U.S. Bureau of Economic Analysis (BEA) for the specified period.

If BEA stops publishing the data required for this calculation, or the specified location of the data changes over time, the Lessor will specify an alternative source of data and methodology that it considers approximately equivalent.

b = The most recent year for which FERC reports the appropriate electricity spot price data expressed as the year, e.g., 2009, as in the illustrative example below.

g = The most recent year for which GDP deflator indices are available from BEA expressed as the year, e.g., 2011, as in the illustrative example below.

y = The year the annual payment is due expressed as the year corresponding to the value of t described above, e.g., 2013, as in the illustrative example below.

The second term on the right-hand side of equation (5A) represents a projected annual change in the index of inflation employing the last year of data available from BEA, while the third term represents the cumulative change in the index of inflation up to the previous year.

Example:

The following hypothetical example is provided to illustrate the methodology using Equation (5A) and the illustrative values provided for *b, g,* and *y* above, applied to historical GDP deflator data. If the actual FERC price indices are based on 2009 data and the GDP deflator indices are available for 2011, the inflation-adjusted price index value would be determined from equation (5A) as follows for a payment occurring in $y = 2013$:

	$P_{t(2013)} = P_{2009} * \left(\frac{GDP_{2011}}{GDP_{2010}}\right)^{2013-2011} * \left(\frac{GDP_{2011}}{GDP_{2009}}\right) = \frac{\$38.40}{MWh} * \left(\frac{113.361}{110.992}\right)^{2} * \left(\frac{113.361}{109.729}\right) = \frac{\$41.38}{MWh}$ Note: The current GDP deflator index is 113.361 for 2011, 110.992 for 2010, and 109.729 for 2009 (last revised by BEA on April 27, 2012); the FERC index price for the year 2009 is $38.40/MWh (On-peak: $44.60/MWh; Off-peak: $31.68/MWh; last revised March 12, 2012). Although 2011 FERC prices are available, the 2009 prices are used in the example to illustrate the concept. The Lessor and the Lessee will use the latest FERC price indices and revised BEA GDP deflator index values at the time the pricing adjustments are made. The source of data used in the calculations must be noted in the Lessee's documentation supporting their estimate of the value of P_t each year for review and approval by the Lessor.
r_t =	the operating fee rate of 0.02 (2%).

(c) ***Reporting, Validation, Audits, and Late Payments.***

The Lessee must submit the values used in the operating fee formula to the Lessor at the time the annual payment based on these values is made. Submission of this and other reporting, validation, audit and late payment information as requested by the Lessor must be sent to the Lessor using the contact information indicated in Addendum "A", unless the Lessor directs otherwise. Failure to submit the estimated values and the associated documentation on time to the Lessor may result in penalties as specified in applicable regulations.

Within 60 days of the submission by the Lessee of the annual payment, the Lessor will review the data submitted and validate that the operating fee formula was applied correctly. If the Lessor validation results in a different operating fee amount, the amount of the annual operating fee payment will be revised to the amount determined by the Lessor.

The Lessor also reserves the right to audit the meter data upon which the Actual 5-year Average Capacity Factor is based at any time during the lease term. If, as a result of such audit, the Lessor determines that any annual operating fee payment was calculated incorrectly, the Lessor has the right to correct any errors and collect the correct annual operating fee payment amount.

If the annual operating fee is revised downward as a result of the Lessee's calculations, as validated by the Lessor, or an audit of meter data conducted by the Lessee or Lessor, the Lessee will be refunded the difference between the amount of the payment received and the amount of the revised annual operating fee, without interest. Similarly, if the payment amount is revised upward, the Lessee is required to pay the difference between the amount of the payment received and the amount of the revised annual operating fee, plus interest on the balance, in accordance with 30 CFR § 1218.54.

Late operating fee payments will be charged interest in accordance with 30 CFR § 1218.54.

IV. Financial Assurance

The Lessor will base the determination for the amounts of all Site Assessment Plan (SAP), COP, and decommissioning financial assurance requirements on estimates of the cost to meet all accrued lease obligations. The Lessor determines the amount of supplemental and decommissioning financial assurance requirements on a case-by-case basis. The amount of financial assurance required to meet all lease obligations includes:

(a) **Initial Financial Assurance.** Prior to the Lease Issuance date, the Lessee must provide an initial lease-specific bond, or other approved means of meeting the Lessor's initial financial assurance requirements in an amount equal to $100,000.

(b) **Additional Financial Assurance.** In addition to the initial lease-specific financial assurance discussed above, the Lessee is also required to provide additional supplemental bonds associated with the SAP and COP, or other form of financial assurances and a decommissioning bond or other approved means of meeting the Lessee's decommissioning obligations.

(1) Prior to the Lessor's approval of a SAP, the Lessor will require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, and location of all facilities involved in the site assessment activities planned in the SAP, and estimates of the costs to meet all accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of $100,000. The Lessee may meet these obligations by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.

(2) Prior to the Lessor's approval of a COP, the Lessor may require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, location of all facilities, activities and Commercial Operations planned in the COP, and estimates of the costs to meet all accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of $100,000 and an additional supplemental bond or other form of financial assurance required with the SAP. The Lessee may meet this obligation by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.

(3) The Lessor will require a decommissioning bond or other form of financial assurance based on the anticipated decommissioning costs in accordance with applicable BOEM regulations (30 CFR 585.515-537). The decommissioning obligation must be guaranteed through an acceptable form of financial assurance and will be due according to the schedule beginning before commencement of the installation of commercial facilities on a date or dates to be determined by the Lessor.

(c) **Adjustments to Financial Assurance Amounts.** The Lessor reserves the right to adjust the amount of any financial assurance requirement (initial, supplemental, or decommissioning) associated with this lease and/or reassess the Lessee's cumulative lease obligations, including decommissioning obligations, at any time. If the Lessee's cumulative lease obligations and/or liabilities increase or decrease, the Lessor will notify the Lessee of any intended adjustment to the financial assurance requirements and provide the Lessee an opportunity to comment in accordance with applicable BOEM regulations.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "C"

LEASE-SPECIFIC TERMS, CONDITIONS, AND STIPULATIONS

Lease Number OCS-A 0522

The Lessee's rights to conduct activities on the leased area are subject to the following terms, conditions, and stipulations. The Lessor reserves the right to impose additional terms and conditions incident to the future approval or approval with modifications of plans, such as a Site Assessment Plan (SAP) or Construction and Operations Plan (COP).

1 DEFINITIONS

1.1 Definition of "Archaeological Resource": The term "archaeological resource" has the same meaning as "archaeological resource" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.112.

1.2 Definition of "Dynamic Management Area (DMA)": The term "DMA" refers to a temporary area designated by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and consisting of a circle around a confirmed North Atlantic right whale sighting. The radius of this circle expands incrementally with the number of whales sighted, and a buffer is included beyond the core area to allow for whale movement. Mandatory or voluntary speed restrictions may be applied by NOAA NMFS within DMAs. Information regarding the location and status of applicable DMAs is available from the NMFS Office of Protected Resources.

1.3 Definition of "Effective Date": The term "Effective Date" has the same meaning as "effective date" in BOEM regulations provided in 30 CFR 585.237.

1.4 Definition of "Geological and Geophysical Survey (G&G Survey)": The term "G&G Survey" serves as a collective term for surveys that collect data on the geology of the seafloor and landforms below the seafloor. High resolution geophysical surveys and geotechnical (sub-bottom) exploration are components of G&G surveys.

1.5 Definition of "Geotechnical Exploration": The term "Geotechnical Exploration," also referred to as "Sub-bottom Sampling," or "Geotechnical Testing," is used to collectively refer to site specific sediment and underlying geologic data acquired from the seafloor and the sub-bottom and includes geotechnical surveys utilizing deep borings, vibracores, and cone penetration tests.

1.6 Definition of "High Resolution Geophysical Survey (HRG Survey)": The term "HRG Survey" means a marine remote-sensing survey using, but not limited to, such equipment as side-scan sonar, magnetometer, shallow and medium (Seismic) penetration sub-bottom profiler systems, narrow beam or multibeam echo sounder, or other such equipment employed for the purposes of providing data on geological conditions, identifying shallow hazards, identifying archaeological resources, charting bathymetry, and gathering other site characterization information.

1.7 Definition of "Protected Species": The term "protected species" includes marine mammals (those protected under the Endangered Species Act and those protected under the Marine Mammal Protection Act), sea turtles, sturgeon, and giant manta ray.

1.8 Definition of "Protected-Species Observer": The term "protected-species observer," or "PSO," means an individual who is trained in the shipboard identification and behavior of protected species.

1.9 Definition of "Ramp-up": The term "ramp-up" means the process of incrementally increasing the acoustic source level of the survey equipment when conducting HRG surveys until it reaches the operational setting.

1.10 Definition of "Site Assessment Activities": The term "site assessment activities" or "site assessment," has the same meaning as "site assessment activities" in 30 CFR 585.112.

1.11 Definition of "Qualified Marine Archaeologist": The term "qualified marine archaeologist" means a person retained by the Lessee who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44738-44739), and has experience analyzing marine geophysical data.

2 SCHEDULE

2.1 Site Characterization

2.1.1 Survey Plan(s). Prior to conducting survey activities in support of the submission of a plan, the Lessee must submit to the Lessor at least one complete survey plan. Each distinct survey effort (e.g., mobilization) must be addressed by a survey plan, although a single survey plan may cover more than one effort. Each survey plan must include details and timelines of the surveys to be conducted on this lease necessary to support the submission of a plan (i.e., necessary to satisfy the information requirements in the applicable regulations, including but not limited to 30 CFR 585.606, 610, 611, 621, 626, 627). Each survey plan must include a description of historic property identification surveys that will be conducted to gather the information required by BOEM to complete review of a plan under the National Historic Preservation Act (e.g., offshore and onshore archaeological surveys and surveys within the viewshed of proposed renewable energy structures). Each survey plan must be consistent with the Lessee's Fisheries Communication Plan (see 4.1.3) and include a description of the Lessee's intentions to coordinate with the U.S. Coast Guard to prepare a Notice to Mariners for the specific survey activities described in the survey plan.

The Lessee must submit each survey plan to the Lessor at least 30 calendar days prior to the date of the required pre-survey meeting with the Lessor (See 2.1.2). Prior to the commencement of any survey activities described in the survey plan, the Lessee must modify each survey plan to address any comments the Lessor submits to the Lessee on the contents of the survey plan in a manner deemed satisfactory by the Lessor.

2.1.2 Pre-Survey Meeting(s) with the Lessor. At least 60 days prior to the initiation of survey activities in support of the submission of a plan (i.e., SAP and/or COP), the Lessee must hold a pre-survey meeting with the Lessor to discuss the applicable proposed survey plan and timelines. The Lessee must ensure the presence at this meeting of a Qualified Marine Archaeologist and any other relevant subject matter experts (e.g., terrestrial archaeologist, architectural historians) related to the proposed historic property identification surveys described in the survey plan unless otherwise authorized by the Lessor. The Lessor may request the presence of other relevant subject matter experts at this meeting.

2.2 Progress Reporting

2.2.1 Semi-Annual Progress Report. The Lessee must submit to the Lessor a semi-annual (i.e., every six months) progress report through the duration of the site assessment term that includes a brief narrative of the overall progress since the last progress report, or – in the case of the first report – since the Effective Date. The progress report must include an update regarding progress in executing the activities included in the survey plan(s), and include as an enclosure an updated survey plan(s) accounting for any modifications in schedule.

3 NATIONAL SECURITY AND MILITARY OPERATIONS

The Lessee must comply with the requirements specified in stipulations 3.1, 3.2 and 3.3 when conducting site characterization activities in support of plan (i.e., SAP and/or COP) submittal.

3.1 Hold and Save Harmless

Whether compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the Lessee assumes all risks of damage or injury to persons or property, which occur in, on, or above the Outer Continental Shelf (OCS), to any persons or to any property of any person or persons in connection with any activities being performed by the Lessee in, on, or above the OCS, if such injury or damage to such person or property occurs by reason of the activities of any agency of the United States Government, its contractors, or subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter "the appropriate command headquarters") listed in the contact information provided as an enclosure to this lease.

Notwithstanding any limitation of the Lessee's liability in Section 9 of the lease, the Lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the command headquarters, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

3.2 Evacuation or Suspension of Activities

3.2.1 General. The Lessee hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations and/or require evacuation on this lease in the interest of national security pursuant to Section 3(c) of this lease.

3.2.2 Notification. Every effort will be made by the appropriate military agency to provide as much advance notice as possible of the need to suspend operations and/or evacuate. Advance notice will normally be given before requiring a suspension or evacuation. Temporary suspension of operations may include, but is not limited to the evacuation of personnel and appropriate sheltering of personnel not evacuated. "Appropriate sheltering" means the protection of all Lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances and will be implemented by an order (oral and/or written) from the BOEM Office of Renewable Energy Programs (OREP) Program Manager, after consultation with the appropriate command headquarters or other appropriate military agency, or higher Federal authority. The appropriate command headquarters, military agency, or higher authority will provide information to allow the Lessee to assess the degree of risk to, and provide sufficient protection for, the Lessee's personnel and property.

3.2.3 Duration. Suspensions or evacuations for national security reasons will not generally exceed seventy-two (72) hours; however, any such suspension may be extended by order of the OREP Program Manager. During such periods, equipment may remain in place, but all operations, if any, must cease for the duration of the temporary suspension if so directed by the OREP Program Manager. Upon cessation of any temporary suspension, the OREP Program Manager will immediately notify the Lessee such suspension has terminated and operations on the leased area can resume.

3.2.4 Lessee Point-of-Contact for Evacuation/Suspension Notifications. The Lessee must inform the Lessor of the persons/offices to be notified to implement the terms of 3.2.2 and 3.2.3.

3.2.5 Coordination with Command Headquarters. The Lessee must establish and maintain early contact and coordination with the appropriate command headquarters, in order to avoid or minimize the potential to conflict with and minimize the potential effects of conflicts with military operations.

3.2.6 Reimbursement. The Lessee is not entitled to reimbursement for any costs or expenses associated with the suspension of operations or activities or the evacuation of property or personnel in fulfillment of the military mission in accordance with 3.2.1 through 3.2.5 above.

3.3 Electromagnetic Emissions

The Lessee, prior to entry into any designated defense operating area, warning area, or water test area, for the purpose of commencing survey activities undertaken to support SAP or COP submittal must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters.

4 STANDARD OPERATING CONDITIONS

4.1 General

4.1.1 Vessel Strike Avoidance Measures. The Lessee must ensure that all vessels conducting activities in support of plan (i.e., SAP and COP) submittal, including those transiting to and from local ports and the lease area, comply with the vessel-strike avoidance measures specified in stipulations 4.1.1.1 through 4.1.1.8.3, except under extraordinary circumstances when complying with these requirements would put the safety of the vessel or crew at risk.

4.1.1.1 The Lessee must ensure that vessel operators and crews maintain a vigilant watch for marine mammals (whales, dolphins, porpoises, seals), sea turtles, and giant manta rays, and slow down or stop their vessel to avoid striking these protected species.

4.1.1.2 The Lessee must ensure that vessels 19.8 meters (m) (65 feet [ft]) in length or greater that operate between November 1 through July 31, operate at speeds of 10 knots (11.5 mph) or less.

4.1.1.3 The Lessee must ensure that vessel operators monitor NMFS North Atlantic Right Whale reporting systems (e.g., the Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) from November 1 through July 31 and whenever a DMA is established within any area vessels operate.

4.1.1.4 The Lessee must ensure that all vessel operators comply with 10 knot (18.5 kilometers per hour [km/hr]) speed restrictions in any DMA.

4.1.1.5 The Lessee must ensure that all vessel operators reduce vessel speed to 10 knots or less when mother/calf pairs, pods, or large assemblages of marine mammals are observed near an underway vessel.

4.1.1.6 North Atlantic Right Whales.

4.1.1.6.1 The Lessee must ensure all vessels maintain a separation distance of 500 m (1,640 ft) or greater from any sighted North Atlantic right whale or unidentified large marine mammal.

4.1.1.6.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 500 m (1,640 ft) of any North Atlantic right whale:

4.1.1.6.2.1 If underway, any vessel must steer a course away from any North Atlantic right whale at 10 knots (18.5 km/h) or less until the 500 m (1,640 ft) minimum separation distance has been established (except as provided in 4.1.1.6.2.2).

4.1.1.6.2.2 If a North Atlantic right whale is sighted within 100 m (328 ft) to an underway vessel, the vessel operator must immediately reduce speed and promptly shift the engine to neutral. The vessel operator must not engage the engines until the North Atlantic right whale has moved beyond 100 m (328 ft), at which point the Lessee must comply with 4.1.1.6.2.1.

4.1.1.6.2.3 If a vessel is stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 100 m (328 ft), at which point the Lessee must comply with 4.1.1.6.2.1.

4.1.1.7 Large Whales other than the North Atlantic Right Whale.

4.1.1.7.1 The Lessee must ensure all vessels maintain a separation distance of 100 m (328 ft) or greater from any sighted Endangered Species Act (ESA)-listed whales or humpback whales.

4.1.1.7.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 m (328 ft) of whale:

4.1.1.7.2.1 If underway, the vessel must reduce speed and shift the engine to neutral, and must not engage the engines until the whale has moved beyond 100 m (328 ft).

4.1.1.7.2.2 If stationary, the vessel must not engage engines until the whale has moved beyond 100 m (328 ft).

4.1.1.8 Small Cetaceans (Dolphins and Porpoises), Seals, Giant Manta Rays, and Sea Turtles.

4.1.1.8.1 The Lessee must ensure that all vessels underway do not divert to approach any small cetacean, seal, sea turtle, or giant manta ray.

4.1.1.8.2 The Lessee must ensure that all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted small cetacean, seal, sea turtles, or giant manta ray, except when a small cetacean or seal approaches the vessel, in which case, the Lessee must follow 4.1.1.8.3 below.

4.1.1.8.3 If a small cetacean or seal approaches any vessel underway, the vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to the animal.

4.1.1.9 Vessel Operator Briefing. The Lessee must ensure that all vessel operators are briefed to ensure they are familiar with the requirements specified in 4.1.1.

4.1.2 Marine Trash and Debris Prevention. The Lessee must ensure that vessel operators, employees, and contractors actively engaged in activity in support of a plan (i.e., SAP and COP) submittal are briefed on marine trash and debris awareness and elimination, as described in the BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination") or any NTL that supersedes this NTL, except that the Lessor will not require the Lessee to post placards. The Lessee must ensure that these vessel operator employees and contractors receive training on the environmental and socioeconomic impacts associated with marine trash and debris and their responsibilities for ensuring that trash and debris are not intentionally or accidentally discharged into the marine environment. Briefing materials on marine debris awareness, elimination, and protected species are available at http://oocmain.theooc.us/page41.html.

4.1.3 Fisheries Communications Plan (FCP) and Fisheries Liaison. The Lessee must develop a publicly available FCP that describes the strategies that the Lessee intends to use for communicating with fisheries stakeholders prior to and during activities in support of the submission of a plan. The FCP must include the contact information for an individual retained by the Lessee as its primary point of contact with fisheries stakeholders (i.e., Fisheries Liaison). If the Lessee does not develop a project website, the FCP must be made available to the Lessor and the public upon request.

4.1.4 Entanglement Avoidance.

4.1.4.1 The Lessee must ensure that any structures or devices attached to the seafloor for continuous periods greater than 24 hours use the best available mooring systems for minimizing the risk of entanglement or entrainment of marine mammals, manta rays and sea turtles, while still ensuring the safety and integrity of the structure or device. The best available mooring system may include, but is not limited to, vertical and float lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs.

4.1.4.2 All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables or similar equipment types that prevent lines from looping or wrapping around animals, or entrapping protected species.

4.1.4.3 Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.

4.1.4.4 If an entangled live or dead marine protected species is reported, the Lessee must provide any assistance to authorized stranding response personnel as requested by BOEM or NMFS.

4.2 Archaeological Survey Requirements

4.2.1 Archaeological Survey Required. The Lessee must provide the results of an archaeological survey with its plans.

4.2.2 Qualified Marine Archaeologist. The Lessee must ensure that the analysis of archaeological survey data collected in support of plan (e.g., SAP and/or COP) submittal and the preparation of archaeological reports in support of plan submittal are conducted by a Qualified Marine Archaeologist.

4.2.3 Tribal Pre-Survey Meeting. The Lessee must invite by certified mail the Narragansett Indian Tribe, the Mashpee Wampanoag Tribe, and the Wampanoag Tribe of Gay Head (Aquinnah) to a tribal pre-survey meeting. The purpose of this meeting will be for the Lessee and the Lessee's Qualified Marine Archaeologist to discuss the Lessee's Survey Plan and consider requests to monitor portions of the archaeological survey and the geotechnical exploration activities, including the visual logging and analysis of geotechnical samples (e.g., cores, etc.). The meeting must be held subsequent to the pre-survey meeting with the Lessor (see 2.1.2). Invitation to the tribal pre-survey meeting must be made at least 15 calendar days prior to the date of the proposed tribal pre-survey meeting. The meeting must be scheduled for a date at least 30 calendar days prior to commencement of survey activities performed in support of plan submittal and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated date for the meeting must be identified in the timeline of activities described in the applicable survey plan (see 2.1.1).

4.2.4 Geotechnical Exploration. The Lessee may only conduct geotechnical exploration activities performed in support of plan (i.e., SAP and/or COP) submittal in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. Except as allowed by the Lessor under 4.2.6, the geotechnical exploration activities must avoid potential archaeological resources by a minimum of 50 m (164 ft), and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. A Qualified Marine Archaeologist must certify, in the

Lessee's archaeological reports, that geotechnical exploration activities did not impact potential historic properties identified as a result of the HRG surveys performed in support of plan submittal, except as follows: in the event that the geotechnical exploration activities did impact potential historic properties identified in the archaeological surveys without the Lessor's prior approval, the Lessee and the Qualified Marine Archaeologist who prepared the report must instead provide a statement documenting the extent of these impacts.

4.2.5 Monitoring and Avoidance. The Lessee must inform the Qualified Marine Archaeologist that he or she may be present during HRG surveys and bottom-disturbing activities performed in support of plan (i.e., SAP and/or COP) submittal to ensure avoidance of potential archaeological resources, as determined by the Qualified Marine Archaeologist (including bathymetric, seismic, and magnetic anomalies; side scan sonar contacts; and other seafloor or sub-surface features that exhibit potential to represent or contain potential archaeological sites or other historic properties). In the event that this Qualified Marine Archaeologist indicates that he or she wishes to be present, the Lessee must facilitate the Qualified Marine Archaeologist's presence, as requested by the Qualified Marine Archaeologist, and provide the Qualified Marine Archaeologist the opportunity to inspect data quality.

4.2.6 No Impact without Approval. In no case may the Lessee knowingly impact a potential archaeological resource without the Lessor's prior approval.

4.2.7 Post-Review Discovery Clauses. If the Lessee, while conducting geotechnical exploration or any other bottom-disturbing site characterization activities in support of plan (i.e., SAP and COP) submittal and after review of the location by a Qualified Marine Archaeologist under 4.2.4, discovers an unanticipated potential archaeological resource, such as the presence of a shipwreck (e.g., a sonar image or visual confirmation of an iron, steel, or wooden hull, wooden timbers, anchors, concentrations of historic objects, piles of ballast rock) or evidence of a pre-contact archaeological site (e.g. stone tools, pottery or other pre-contact artifacts) within the project area, the Lessee must:

4.2.7.1 Immediately halt seafloor/bottom-disturbing activities within the area of discovery;

4.2.7.2 Notify the Lessor within 24 hours of discovery;

4.2.7.3 Notify the Lessor in writing via report to the Lessor within 72 hours of its discovery;

4.2.7.4 Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until the Lessor has made an evaluation and instructs the applicant on how to proceed; and

4.2.7.5 Conduct any additional investigations as directed by the Lessor to determine if the resource is eligible for listing in the National Register of Historic Places

(30 CFR 585.802(b)). The Lessor will do this if: (1) the site has been impacted by the Lessee's project activities; or (2) impacts to the site or to the area of potential effect cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the National Register of Historic Places, the Lessor will tell the Lessee how to protect the resource or how to mitigate adverse effects to the site. If the Lessor incurs costs in protecting the resource, under Section 110(g) of the National Historic Preservation Act, the Lessor may charge the Lessee reasonable costs for carrying out preservation responsibilities under the OCS Lands Act (30 CFR 585.802(c-d)).

4.3 **Geological and Geophysical (G&G) Survey Requirements**

4.3.1 General. The Lessee must ensure that all vessels conducting activity in support of a plan (i.e., SAP and COP) submittal comply with the geological and geophysical survey requirements specified in 4.3 except under extraordinary circumstances when complying with these requirements would put the safety of the vessel or crew at risk.

4.3.2 Visibility. The Lessee must not conduct G&G surveys in support of plan (i.e., SAP and COP) submittal at night or if any observation conditions (e.g., darkness, rain, fog, and sea state) prevent visual monitoring of the HRG survey exclusion zone (see 4.3.6.1) or the geotechnical exploration exclusion zone (see 4.3.7.1), except as allowed under 4.3.3.

4.3.3 Nighttime Survey Requirements. If the Lessee intends to conduct G&G survey operations in support of plan submittal at night or when visual observation is otherwise impaired, the Lessee must use PSOs supplemented with night vision technology and a passive acoustic monitoring system to monitor the exclusion zone. The Lessee must submit to the Lessor an alternative monitoring plan detailing the monitoring methodology (e.g., active or passive acoustic monitoring technologies). No nighttime surveys may begin until the Lessor determines that the alternative monitoring plan is adequate to monitor for protected species.

4.3.4 Protected-Species Observer. The Lessee must ensure that the exclusion zone for all G&G surveys performed in support of plan (i.e., SAP and COP) submittal is monitored by NMFS-approved protected-species observers.

4.3.4.1 The Lessor must ensure all PSOs and Passive Acoustic Monitoring (PAM) Operators have completed a PSO and/or PAM training program, as appropriate. PSOs must be approved by NMFS prior to the start of a survey. Instructions and application requirements to become a NMFS-approved PSO can be found at: https://www.greateratlantic.fisheries.noaa.gov/protected/esaobserver/index.html.

4.3.4.2 No later than 7 calendar days prior to the scheduled start of survey activities that require PSOs, the Lessee must provide to the Lessor a list of PSOs that will implement best management practices (BMPs) during survey work. The Lessee must provide the Lessor a current approval from NMFS that indicates the PSOs are currently qualified to work on survey, and documentation or certificate of individual PSOs' successful completion of a commercial PSO training course and/or PAM operator course with an overall examination score of 80% or greater (Baker et. al 2013 available at https://www.fisheries.noaa.gov/resource/document/national-standards-protected-species-observer-and-data-management-program).

4.3.4.3 The Lessee must submit a PSO/PAM Operator schedule showing the number of PSOs/PAM Operators used is sufficient to effectively monitor the affected area identified for each project (e.g., surveys or pile driving) according to the following: a) PSOs/PAM must not be on watch for more than 4 consecutive hours, with at least a 2-hour break after a 4-hour watch, unless otherwise accepted by the Lessor; b) PSOs/PAM must not work for more than 12 hours in any 24-hour period (Baker et al. 2013).

4.3.4.4 The Lessee must ensure PSO data is collected in accordance with standard reporting forms, software tools, and electronic data forms approved by BOEM for the particular activity.

4.3.5 Observation Location and Optical Device Availability. The Lessee must ensure that monitoring occurs from the highest available vantage point on the associated operational platform, allowing for 360-degree scanning. The Lessee must ensure that reticle binoculars and other suitable equipment are available to each observer to adequately perceive and monitor protected marine species within the exclusion zone during surveys conducted in support of plan (i.e., SAP and COP) submittal.

4.3.6 High-Resolution Geophysical Surveys. Stipulations specific to HRG surveys conducted in support of plan (i.e., SAP and COP) submittal where one or more acoustic sound sources is operating at frequencies below 200 kHz are provided in 4.3.6.1 through 4.3.6.9.

4.3.6.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter radius exclusion zone around the sound source for ESA-listed whales and sea turtles. In the case of the North Atlantic right whale, the Lessee must observe a minimum separation distance of 500 m (1,640 ft), as required under 4.1.1.6.1. Exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of Incidental Take Authorizations (ITAs) provided by the National Marine Fisheries Service. If an ITA is not required, default exclusion zones of 100 m (328 ft) for harbor porpoises and humpback whales, and 50 m (164 ft) for all other non-listed marine mammals must be established around each vessel conducting HRG survey activities.

4.3.6.2 High Resolution Geophysical Sound Source Verification. No later than 45 calendar days prior to the commencement of survey activities , the Lessee must submit the results of sound source verification for any active acoustic devices that may be used. The Lessee must submit sound source verification results containing the frequencies, source level (dB re 1μPa), and modeled distances to most current guidance specified by the Lessor for ear injury and behavioral disturbance in the survey area. If existing data is available, the analysis must provide an explanation why the existing data is expected to be representative for the equipment in the area to be surveyed. This explanation must include a discussion of any differences between the equipment tested and the equipment to be used, a discussion of any differences in propagation characteristics conditions (depth, water temperature and bottom conditions), and an explanation for how those differences would affect sound propagation and injury and behavioral disturbance distances. No surveys may begin until the Lessor determines that the sound source verification use of existing information is acceptable.

4.3.6.3 If the existing SSV information is not acceptable, the Lessee must submit to the Lessor a sound source verification plan for field measurements of any HRG equipment that will be used, no later than 30 calendar days prior to the commencement of survey activities. Acoustic measurements must be sufficient to establish the following: frequencies, source level (Peak, SEL, and RMS sound pressure levels re 1 μPa at 1 m), and the sound exposure distance for ear injury and behavioral harassment thresholds for marine mammal hearing groups, sea turtles, and fish specified by the Lessor. The Lessee must take these sound measurements from at least three reference distances at two depths (i.e., a depth at mid-water and a depth at approximately 1 m above the seafloor). The results of the field measurements must be provided to the Lessor for review at least 24 hours in advance of commencing a survey.

4.3.6.3.1 If the Lessor determines that the exclusion zone does not encompass the sound-exposure threshold for ear injury to protected species, the Lessor will consult with NMFS and may impose additional requirements on the Lessee.

4.3.6.4 <u>Modification of Exclusion Zone per Lessee Request</u>. The Lessee may use the field verification results to request modification of the exclusion zone for the specific HRG survey equipment under consideration. Any new exclusion zone radius proposed by the Lessee must be based on the most conservative field measurements of the largest exclusion zone and diving behavior of the protected species in the survey area. The Lessee may periodically reevaluate the modified zone using the field verification procedures described in 4.3.6.3. The Lessee must obtain Lessor approval of any new exclusion zone before it is implemented.

4.3.6.5 <u>Clearance of Exclusion Zone</u>. The Lessee must ensure that active acoustic sound sources will not be activated until the PSO has reported the exclusion zone clear of all marine mammals and sea turtles for 60 minutes.

4.3.6.6 <u>Electromechanical Survey Equipment Ramp-Up</u>. The Lessee must ensure that, when technically feasible, a "ramp-up" of the electromechanical survey equipment occurs at the start or re-start of HRG survey activities. A ramp-up would begin with the power of the smallest acoustic equipment for the HRG survey at its lowest power output. The power output would be gradually turned up and other acoustic sources added in a way such that the source level would increase in steps not exceeding 6 dB per 5-minute period.

4.3.6.7 Shut Down for Protected Species. The Lessee must ensure that anytime a protected species is sighted within the exclusion zone defined in 4.3.6.1, the PSO must notify the Resident Engineer or other authorized individual, and call for an immediate shutdown of the electromechanical survey equipment. HRG survey equipment may be allowed to continue operating if marine mammals voluntarily approach the vessel (e.g., to bow ride) when the sound sources are at full operating power. The vessel operator must comply immediately with such a call by the PSO. Any disagreement or discussion must occur only after shut-down. Subsequent restart of the electromechanical survey equipment may only occur following clearance of the exclusion zone (see 4.3.6.5) and implementation of ramp-up procedures (see 4.3.6.6).

4.3.6.8 Pauses in Electromechanical Survey Sound Source. The Lessee must ensure that, if the electromechanical sound source shuts down for reasons other than encroachment into the exclusion zone by a whale or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the electromechanical survey equipment commences only after clearance of the exclusion zone (see 4.3.6.5) and implementation of ramp-up procedures (see 4.3.6.6). If the pause is less than 20 minutes the equipment may be restarted as soon as practicable at its operational level as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of marine mammals and sea turtles. If visual surveys were not continued diligently during the pause of 20-minutes or less, the Lessee must clear the exclusion zone, as described in 9.3.6.5, and implement ramp-up procedures, as described in 4.3.6.6, prior to restarting the electromechanical survey equipment.

4.3.7 Geotechnical Exploration. Stipulations specific to geotechnical exploration limited to borings and vibracores and conducted in support of plan (i.e., SAP and COP) submittal are provided in 4.3.7.1 through 4.3.7.6.

4.3.7.1 Establishment of Default Exclusion Zones. A default exclusion zone distance of 500 m (1,640 ft) for North Atlantic right whales and other listed species must be monitored around each vessel conducting geotechnical survey activities where North Atlantic right whales are expected to occur. If surveys are conducted in an area where North Atlantic right whales are not expected to occur, a default exclusion zone of 200 m (656 ft) for other large whales and sea turtles must be established around each vessel conducting HRG survey activities. Exclusion zones for non-listed marine mammals will be determined through project-specific mitigation and monitoring requirements of ITAs provided by the NMFS. If an ITA is not required, default exclusion zones of 100 m (328 ft) for harbor porpoises and humpback whales, and 50 m (164 ft) for all other non-listed marine mammals must be established around each vessel conducting HRG survey activities.

4.3.7.2 Geotechnical Sound Source Verification. No later than 45 calendar days prior to the commencement of any surveys with any geotechnical survey equipment producing underwater sound levels, the Lessee must submit existing information on the sound levels produced by the equipment. If adequate information on the equipment is not available, the Lessor may require the Lessee to submit a plan to the Lessor for field verification of the sound source levels and of any geotechnical survey equipment operating at frequencies below 200 kHz. The Lessor must approve this verification plan prior to the commencement of the survey. The Lessor may require the Lessee to modify the plan in a manner deemed satisfactory by the Lessor.

4.3.7.2.1 If the Lessor determines that the exclusion zone is not effective to minimize impacts to protected species, the Lessor may impose additional requirements on the Lessee, including, but not limited to, required expansion of this exclusion zone.

4.3.7.3 Clearance of Exclusion Zone. The Lessee must ensure that the geotechnical sound source is not activated until the PSO has reported the exclusion zone clear of all marine mammals and sea turtles for 60 minutes.

4.3.7.4 Modification of Exclusion Zone per Lessee Request. If the Lessee wishes to modify the default exclusion zone for specific geotechnical exploration equipment, the Lessee must submit a plan for verifying the sound source levels of the specific geotechnical exploration equipment to the Lessor. The plan must demonstrate how the field verification activities will comply with the requirements of 4.3.7.2. The Lessor may require that the Lessee modify the plan to address any comments the Lessor submits to the Lessee on the contents of the plan in a manner deemed satisfactory to the Lessor prior to the commencement of field verification activities. Any new exclusion zone radius proposed by the Lessee must be based on the sound exposure distance for ear injury or behavioral harassment thresholds for marine mammal hearing groups, sea turtles, and fish as defined by the Lessor. The Lessee must use this modified zone for all subsequent use of field-verified equipment. The Lessee may periodically reevaluate the modified zone using the field verification procedures described in 4.3.7.2. The Lessee must obtain Lessor approval of any new exclusion zone before it is implemented.

4.3.7.5 Shut Down for Whales and Sea Turtles. If any whales or sea turtles are sighted at or within the exclusion zone, an immediate shut-down of the geotechnical survey equipment is required. The vessel operator must comply immediately with such a call by the PSO. Any disagreement or discussion must occur only after shut-down. Subsequent restart of the geotechnical survey equipment may only occur following clearance of the exclusion zone (see 4.3.7.3).

4.3.7.6 Pauses in Geotechnical Survey Sound Source. The Lessee must ensure that, if the geotechnical sound source shuts down for reasons other than encroachment into the exclusion zone by a whale or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the geotechnical survey equipment commences only following clearance of the exclusion zone (see 4.3.7.3). If the pause is less than 20 minutes, the equipment may be restarted as soon as practicable as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of marine mammals and sea turtles. If visual surveys were not continued diligently during the pause of 20 minutes or less, the Lessee must clear the exclusion zone, as described in 4.3.7.3, prior to restarting the geotechnical survey equipment.

4.4 Reporting Requirements

4.4.1 The Lessee must ensure compliance with the following reporting requirements for site characterization activities performed in support of plan (i.e., SAP and COP) submittal and must use the contact information provided as an enclosure to this lease, or updated contact information as provided by the Lessor, to fulfill these requirements:

4.4.2 Field Verification of Exclusion Zone Preliminary Report. The Lessee must report the results of any required sound source verification of the exclusion zone for G&G survey equipment operating below 200 kHz to the Lessor and NMFS prior to using the equipment during survey activities conducted in support of plan submittal. The Lessee must include in its report a preliminary interpretation of the results for all sound sources, which will include details of the operating frequencies, sound pressure levels (SPLs) (measured in Peak, SEL, and RMS), the distance to the ear injury and behavior thresholds, frequency bands measured, as well as associated latitude/longitude positions, ranges, depths and bearings between sound sources and receivers.

4.4.3 Reports of Survey Activities and Observations. The Lessee must provide the Lessor with reports every 90 calendar days following the completion of HRG or geotechnical exploration activities, and a final report at the conclusion of the HRG or geotechnical exploration activities. Each report must include a summary of survey activities, all PSO and incident reports (See Appendices A and B), and an estimate of the number of listed marine mammals, sea turtles, and sturgeon observed and/or taken during these survey activities. The final report must contain a detailed analysis and interpretation of the sound source verification data, if such data was collected by the Lessee.

4.4.4 Reporting Injured or Dead Protected Species. The Lessee must ensure that sightings of any injured or dead protected species (e.g., marine mammals, sea turtles, giant manta ray or sturgeon) are reported to the Lessor, NMFS, and the NMFS Greater Atlantic (Northeast) Region's Stranding Hotline (866-755-6622 or current) within 24 hours of sighting, regardless of whether the injury or death is caused by a vessel. In addition, if the injury or death was caused by a collision with a project-related vessel, the Lessee must ensure that the Lessor is notified of the incident within 24 hours. The Lessee must use the form provided in Appendix A to ADDENDUM "C" to report the sighting or incident. If the Lessee's activity is responsible for the injury or death, the Lessee must ensure that the vessel assist in any salvage effort as requested by NMFS.

4.4.5 Reporting Observed Impacts to Protected Species.

4.4.5.1 The Lessee must report any observed takes of listed marine mammals, sea turtles sturgeon, or giant manta ray resulting in injury or mortality within 24 hours to the Lessor and NMFS.

4.4.5.2 The Lessee must record any observed injuries or mortalities using the form provided in Appendix A to ADDENDUM "C".

4.4.6 Protected Species Observer Reports. The Lessee must ensure that the PSOs record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided in Appendix B to ADDENDUM "C".

4.4.7 Marine Mammal Protection Act Authorization(s). If the Lessee is required to obtain an authorization pursuant to section 101(a)(5) of the Marine Mammal Protection Act prior to conducting survey activities in support of plan submittal, the Lessee must provide to the Lessor a copy of the authorization prior to commencing these activities.

5 SITING CONDITIONS

5.1 **Vessel Transit Corridors.** In its COP project design, Lessee must extend any BOEM-approved vessel transit corridors in adjacent lease areas, unless BOEM determines that such corridors are not necessary or can be modified. Lessee may not construct any surface structures in such vessel transit corridors.

5.2 **Surface Structure Setback.** In its COP project design, the Lessee must incorporate a 750 m setback from any shared lease boundary within which the Lessee may not construct any surface structures, unless the Lessee and the adjacent lessee agree to a smaller setback, the Lessee submits such agreement to BOEM, and BOEM approves it.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

APPENDIX A TO ADDENDUM "C"

Lease Number OCS-A 0522

Incident Report: Protected Species Injury or Mortality

Photographs/Video should be taken of all injured or dead animals.

Observer's full name: ______________________________

Reporter's full name: ______________________________

Species Identification: ______________________________

Name and type of platform: ______________________________

Date animal observed: ______________ Time animal observed: ______________

Date animal collected: ______________ Time animal collected: ______________

Environmental conditions at time of observation (i.e. tidal stage, Beaufort Sea State, weather):

____

____

Water temperature (°C) and depth (m/ft) at site: ______________________________

Describe location of animal and events 24 hours leading up to, including and after, the incident (incl. vessel speeds, vessel activity and status of all sound source use):

____

____

____

____

____

Photograph/Video taken: YES / NO If Yes, was the data provided to NMFS? YES / NO
(Please label *species, date, geographic site* and *vessel name* when transmitting photo and/or video)

Date and Time reported to NMFS Stranding Hotline: ______________________________

<u>Sturgeon Information</u>: *(please designate cm/m or inches and kg or lbs)*

Species:____

Fork length (or total length):____________________Weight:____________________

Condition of specimen/description of animal: __________________________________

____

____

Fish Decomposed: NO SLIGHTLY MODERATELY SEVERELY

Fish tagged: YES / NO If Yes, *please record all tag numbers.*

Tag #(s):____

Genetic samples collected: YES / NO

Genetics samples transmitted to:__________________________on____/_____/20__

<u>Sea Turtle Species Information</u>: *(please designate cm/m or inches)*

Species:____________________________Weight (kg or lbs):__________________

Sex: Male Female Unknown

How was sex determined?:____

Straight carapace length:_________________Straight carapace width:______________

Curved carapace length:__________________Curved carapace width:_______________

Plastron length:_________________________Plastron width:____________________

Tail length:_____________________________Head width:______________________

Condition of specimen/description of animal:_________________________________

____

____

Existing Flipper Tag Information

Left:________________________________Right:__________________________

PIT Tag#:____

Miscellaneous:

Genetic biopsy collected: YES NO Photographs taken: YES NO

Turtle Release Information:

Date:________________________________Time:__________________________

Latitude:_____________________________Longitude:_______________________

State:______________________________County:______________________

Remarks: (note if turtle was involved with tar or oil, gear or debris entanglement, wounds, or mutilations, propeller damage, papillomas, old tag locations, etc.)__________

____

____

____

<u>Marine Mammal information</u>: *(please designate cm/m or ft/inches)*

Length of marine mammal (note direct or estimated): ____________________

Weight (*if possible, kg or lbs*):______________________________________

Sex of marine mammal (if possible):____________________________________

How was sex determined?:____

Confidence of Species Identification: SURE UNSURE BEST GUESS

Description of Identification characteristics of marine mammal:______________

____

____

____

____

Genetic samples collected: YES / NO

Genetic samples transmitted to:________________________on____/_____/20__

Fate of marine mammal:____

____

____

____

Description of Injuries Observed:_______________________________________

____

____

____

Other Remarks/Drawings:____

____

____

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

APPENDIX B TO ADDENDUM "C"

Lease Number OCS-A 0522

REQUIRED DATA ELEMENTS FOR PROTECTED SPECIES OBSERVER REPORTS

The Lessee must ensure that the PSO record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided below:

1. Vessel name;
2. PSOs' names and affiliations;
3. Date;
4. Time and latitude/longitude when daily visual survey began;
5. Time and latitude/longitude when daily visual survey ended; and
6. Average environmental conditions during visual surveys including:
    a. Wind speed and direction;
    b. Sea state (glassy, slight, choppy, rough, or Beaufort scale);
    c. Swell (low, medium, high, or swell height in meters); and
    d. Overall visibility (poor, moderate, good).
7. Species (or identification to lowest possible taxonomic level);
8. Certainty of identification (sure, most likely, best guess);
9. Total number of animals;
10. Number of juveniles;
11. Description (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics);
12. Direction of animal's travel relative to the vessel (preferably accompanied by a drawing);
13. Behavior (as explicit and detailed as possible, noting any observed changes in behavior);
14. Activity of vessel when sighting occurred.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "D"

PROJECT EASEMENT

Lease Number OCS-A 0522

This section includes a description of the Project Easement(s), if any, associated with this lease, and the financial terms associated with it. This section will be updated as necessary.

I. Rent

The Lessee must begin submitting rent payments for any project easement associated with this lease commencing on the date that BOEM approves the Construction and Operations Plan (COP) or modification of the COP describing the project easement. Annual rent for a project easement 200 feet wide, centered on the transmission cable, is $70.00 per statute mile. For any additional acreage required, the Lessee must also pay the greater of $5.00 per acre per year or $450.00 per year.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "E"

RENT SCHEDULE

Lease Number OCS-A 0522

This section includes a description of the schedule for rent payments that will be determined after the Construction and Operations Plan has been approved or approved with modifications. This section will be updated as necessary.

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make rent payments as described below.

Alternative Monitoring Plan

for

Lease OCS-A 0522 Survey Plan
Geophysical, Geotechnical, and Environmental Site Characterization Campaign in Support of a Construction and Operations Plan

In accordance with Lease stipulation 4.3.3, OCS-A 0522 LLC submits this Alternative Monitoring Plan detailing the monitoring methodology for conducting geophysical surveys at night and during low visibility conditions. In addition to the measures set forth in the applicable Incidental Harassment Authorization (IHA), the following additional measures that have been previously approved by BOEM will be implemented to conduct monitoring at night or when visibility is impaired.

1. PAM operator(s) will work in coordination with the PSO to support survey activities at night and/or as needed during periods when visual observations may be impaired. In order to ensure the active monitoring of the HRG survey exclusion zones, as well as the 500 meter minimum separation distance from the NARW.*

2. During nighttime operations, the PAM Operator will work in co- ordination with the PSO on watch to attempt to verify and localize any marine mammal detections. During periods of low visibility (as determined by the lead PSO), including nighttime operations, if a NARW is detected acoustically, but cannot be localized, all sound sources operating below 200 kHz will be shutdown. If acoustic detection occurs for any other marine mammal or sea turtle encroaching upon the exclusion zones, shutdown procedures will be conducted as described above.*

3. Visual Nighttime Monitoring: In addition to the use of PAM during nighttime operations, PSOs will be equipped with Night Vision Binoculars (NVBs), Clip on Thermal Imagers (COTI) and/or handheld infrared light emitting diode spotlights. PSOs will monitor the exclusion zone and the 500 meter minimum vessel separation distance from the NARW using the night vision technology.

4. Monitoring equipment will be calibrated when possible throughout the duration of survey and true distances measured using the ships radar will be compared to those measured using visual and acoustic monitoring equipment.

*The only exception to the use of PAM is when nearshore survey work in shallower water is conducted with smaller vessels that cannot accommodate both PSOs and PAM operators. In those limited cases, PSOs will be equipped with Night Vision Binoculars (NVBs), Clip on Thermal Imagers (COTI) and/or handheld infrared light emitting diode spotlights.

<table>
<tr><td rowspan="3">UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY
MANAGEMENT

COMMERCIAL LEASE OF
SUBMERGED LANDS FOR
RENEWABLE ENERGY DEVELOPMENT
ON THE
OUTER CONTINENTAL SHELF

Paperwork Reduction Act of 1995 statement: This form does not constitute an information collection as defined by 44 U.S.C. § 3501 et seq. and therefore does not require approval by the Office of Management and Budget.</td><td>Office

Sterling, VA</td><td>Renewable Energy Lease Number

OCS-A 0544</td></tr>
<tr><td>Cash Bonus and/or Acquisition Fee</td><td>Resource Type

Wind</td></tr>
<tr><td>Effective Date</td><td>Block Number(s)

See Addendum A</td></tr>
</table>

This lease, which includes any addenda hereto, is hereby entered into by and between the United States of America, ("Lessor"), acting through the Bureau of Ocean Energy Management ("BOEM"), its authorized officer, and

Lessee	Interest Held
	100%

("Lessee"). This lease is effective on the date written above ("Effective Date") and will continue in effect until the lease terminates as set forth in Addendum "B." In consideration of any cash payment heretofore made by the Lessee to the Lessor and in consideration of the promises, terms, conditions, covenants, and stipulations contained herein and attached hereto, the Lessee and the Lessor agree as follows:

Section 1: Statutes and Regulations.

This lease is issued pursuant to subsection 8(p) of the Outer Continental Shelf Lands Act ("the Act"), 43 U.S.C. §§ 1331 *et seq.* This lease is subject to the Act and regulations promulgated pursuant to the Act, including but not limited to, offshore renewable energy and alternate use regulations at 30 CFR Part 585 as well as other applicable statutes and regulations in existence on the Effective Date of this lease. This lease is also subject to those statutes enacted (including amendments to the Act or other statutes) and regulations promulgated thereafter, except to the extent that they explicitly conflict with an express provision of this lease. It is expressly understood that amendments to existing statutes, including but not limited to the Act, and regulations may be made, and/or new statutes may be enacted or new regulations promulgated, which do not explicitly conflict with an express provision of this lease, and that the Lessee bears the risk that such amendments, regulations, and statutes may increase or decrease the Lessee's obligations under the lease.

Section 2: Rights of the Lessee.

(a) The Lessor hereby grants and leases to the Lessee the exclusive right and privilege, subject to the terms and conditions of this lease and applicable regulations, to:

(1) submit to the Lessor for approval a Site Assessment Plan (SAP) and Construction and Operations Plan (COP) for the project identified in Addendum "A" of this lease; and (2) conduct activities in the area identified in Addendum "A" of this lease ("leased area") and/or Addendum "D" of this lease ("project easement(s)"), that are described in a SAP or COP that has been approved by the Lessor. This lease does not, by itself, authorize any activity within the leased area.

(b) The rights granted to the Lessee herein are limited to those activities described in any SAP or COP approved by the Lessor. The rights granted to the Lessee are limited by the lease-specific terms, conditions, and stipulations required by the Lessor per Addendum "C."

(c) This lease does not authorize the Lessee to conduct activities on the Outer Continental Shelf (OCS) relating to or associated with the exploration for, or development or production of, oil, gas, other seabed minerals, or renewable energy resources other than those renewable energy resources identified in Addendum "A."

Section 3: Reservations to the Lessor.

(a) All rights in the leased area and project easement(s) not expressly granted to the Lessee by the Act, applicable regulations, this lease, or any approved SAP or COP, are hereby reserved to the Lessor.

(b) The Lessor will decide whether to approve a SAP or COP in accordance with the applicable regulations in 30 CFR Part 585. The Lessor retains the right to disapprove a SAP or COP based on the Lessor's determination that the proposed activities would have unacceptable environmental consequences, would conflict with one or more of the requirements set forth in subsection 8(p)(4) of the Act (43 U.S.C. § 1337(p)(4)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.613(e)(2) or 30 CFR 585.628(f)(2). Disapproval of plans will not subject the Lessor to liability under the lease. The Lessor also retains the right to approve with modifications a SAP or COP, as provided in applicable regulations.

(c) The Lessor reserves the right to suspend the Lessee's operations in accordance with the national security and defense provisions of Section 12 of the Act and applicable regulations.

(d) The Lessor reserves the right to authorize other uses within the leased area and project easements(s) that will not unreasonably interfere with activities described in an approved SAP and/or COP, pursuant to this lease.

Section 4: Payments.

(a) The Lessee must make all rent payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, unless otherwise specified in Addendum "B."

(b) The Lessee must make all operating fee payments to the Lessor in accordance with applicable regulations in 30 CFR Part 585, as specified in Addendum "B."

Section 5: Plans.

The Lessee may conduct those activities described in Addendum "A" only in accordance with a SAP or COP approved by the Lessor. The Lessee may not deviate from an approved SAP or COP except as provided in applicable regulations in 30 CFR Part 585.

Section 6: Associated Project Easement(s).

Pursuant to 30 CFR 585.200(b), the Lessee has the right to one or more project easement(s), without further competition, for the purpose of installing gathering, transmission, and distribution cables, pipelines, and appurtenances on the OCS, as necessary for the full enjoyment of the lease, and under applicable regulations in 30 CFR Part 585. As part of submitting a COP for approval, the Lessee may request that one or more easement(s) be granted by the Lessor. If the Lessee requests that one or more easement(s) be granted when submitting a COP for approval, such project easements will be granted by the Lessor in accordance with the Act and applicable regulations in 30 CFR Part 585 upon approval of the COP in which the Lessee has demonstrated a need for such easements. Such easements must be in a location acceptable to the Lessor, and will be subject to such conditions as the Lessor may require. The project easement(s) that would be issued in conjunction with an approved COP under this lease will be described in Addendum "D" to this lease, which will be updated as necessary.

Section 7: Conduct of Activities.

The Lessee must conduct, and agrees to conduct, all activities in the leased area and project easement(s) in accordance with an approved SAP or COP, and with all applicable laws and regulations.

The Lessee further agrees that no activities authorized by this lease will be carried out in a manner that:

(a) could unreasonably interfere with or endanger activities or operations carried out under any lease or grant issued or maintained pursuant to the Act, or under any other license or approval from any Federal agency;

(b) could cause any undue harm or damage to the environment;

(c) could create hazardous or unsafe conditions; or

(d) could adversely affect sites, structures, or objects of historical, cultural, or archaeological significance, without notice to and direction from the Lessor on how to proceed.

Section 8: Violations, Suspensions, Cancellations, and Remedies.

If the Lessee fails to comply with (1) any of the applicable provisions of the Act or regulations, (2) the approved SAP or COP, or (3) the terms of this lease, including associated Addenda, the Lessor may exercise any of the remedies that are provided under the Act and applicable regulations, including, without limitation, issuance of cessation of operations orders, suspension or cancellation of the lease, and/or the imposition of penalties, in accordance with the Act and applicable regulations.

The Lessor may also cancel this lease for reasons set forth in subsection 5(a)(2) of the Act (43 U.S.C. § 1334(a)(2)), or for other reasons provided by the Lessor pursuant to 30 CFR 585.437.

Non-enforcement by the Lessor of a remedy for any particular violation of the applicable provisions of the Act or regulations, or the terms of this lease, will not prevent the Lessor from exercising any remedy, including cancellation of this lease, for any other violation or for the same violation occurring at any other time.

Section 9: Indemnification.

The Lessee hereby agrees to indemnify the Lessor for, and hold the Lessor harmless from, any claim caused by or resulting from any of the Lessee's operations or activities on the leased area or project easement(s) or arising out of any activities conducted by or on behalf of the Lessee or its employees, contractors (including Operator, if applicable), subcontractors, or their employees, under this lease, including claims for:

a. loss or damage to natural resources,
b. the release of any petroleum or any Hazardous Materials,
c. other environmental injury of any kind,
d. damage to property,
e. injury to persons, and/or
f. costs or expenses incurred by the Lessor.

Except as provided in any addenda to this lease, the Lessee will not be liable for any losses or damages proximately caused by the activities of the Lessor or the Lessor's employees, contractors, subcontractors, or their employees. The Lessee must pay the Lessor for damage, cost, or expense due and pursuant to this Section within 90 days after written demand by the Lessor. Nothing in this lease will be construed to waive any liability or relieve the Lessee from any penalties, sanctions, or claims that would otherwise apply by statute, regulation, operation of law, or could be imposed by the Lessor or other government agency acting under such laws.

"Hazardous Material" means

1. A "hazardous substance" or a "pollutant or contaminant" as defined by the *Comprehensive Environmental Response, Compensation, and Liability Act* at 42 U.S.C. §§ 9601(14) and (33);
2. Any "regulated substance" as defined by the Resource Conservation and Recovery Act ("RCRA") at 42 U.S.C. § 6991(7), whether or not contained in or released from underground storage tanks, and any hazardous waste regulated under RCRA pursuant to 42 U.S.C. §§ 6921 *et seq.*;
3. "Oil," as defined by the Clean Water Act at 33 U.S.C. § 1321(a)(1) and the Oil Pollution Act at 33 U.S.C. § 2701(23); or
4. Other substances that applicable Federal, state, tribal, or local laws define and regulate as "hazardous."

Section 10: Financial Assurance.

The Lessee must provide and maintain at all times a surety bond(s) or other form(s) of financial assurance approved by the Lessor in the amount specified in Addendum "B." As required by the applicable regulations in 30 CFR Part 585, if, at any time during the term of this lease, the Lessor requires additional financial assurance, then the Lessee must furnish the additional financial assurance required by the Lessor in a form acceptable to the Lessor within 90 days after receipt of the Lessor's notice of such adjustment.

Section 11: Assignment or Transfer of Lease.

This lease may not be assigned or transferred in whole or in part without written approval of the Lessor. The Lessor reserves the right, in its sole discretion, to deny approval of the Lessee's application to transfer or assign all or part of this lease. Any assignment will be effective on the date the Lessor approves the Lessee's application. Any assignment made in contravention of this section is void.

Section 12: Relinquishment of Lease.

The Lessee may relinquish this entire lease or any officially designated subdivision thereof by filing with the appropriate office of the Lessor a written relinquishment application, in accordance with applicable regulations in 30 CFR Part 585. No relinquishment of this lease or any portion thereof will relieve the Lessee or its surety of the obligations accrued hereunder, including but not limited to, the responsibility to remove property and restore the leased area and project easement(s) pursuant to section 13 of this lease and applicable regulations.

Section 13: Removal of Property and Restoration of the Leased Area and Project Easement(s) on Termination of Lease.

Unless otherwise authorized by the Lessor, pursuant to the applicable regulations in 30 CFR Part 585, the Lessee must remove or decommission all facilities, projects, cables, pipelines, and obstructions and clear the seafloor of all obstructions created by activities on the leased area and project easement(s) within two years following lease termination, whether by expiration, cancellation, contraction, or relinquishment, in accordance with any approved SAP, COP, or approved Decommissioning Application, and applicable regulations in 30 CFR Part 585.

Section 14: Safety Requirements.

The Lessee must:

a. maintain all places of employment for activities authorized under this lease in compliance with occupational safety and health standards and, in addition, free from recognized hazards to employees of the Lessee or of any contractor or subcontractor operating under this lease;

b. maintain all operations within the leased area and project easement(s) in compliance with regulations in 30 CFR Part 585 and orders from the Lessor and other Federal agencies with jurisdiction, intended to protect persons, property and the environment on the OCS; and

c. provide any requested documents and records, which are pertinent to occupational or public health, safety, or environmental protection, and allow prompt access, at the site of any operation or activity conducted under this lease, to any inspector authorized by the Lessor or other Federal agency with jurisdiction.

Section 15: Debarment Compliance.

The Lessee must comply with the Department of the Interior's non-procurement debarment and suspension regulations set forth in 2 CFR Parts 180 and 1400 and must communicate the requirement to comply with these regulations to persons with whom it does business related to this lease by including this requirement in all relevant contracts and transactions.

Section 16: Equal Opportunity Clause.

During the performance of this lease, the Lessee must fully comply with paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended (reprinted in 41 CFR 60-1.4(a)), and the implementing regulations, which are for the purpose of preventing employment discrimination against persons on the basis of race, color, religion, sex, or national origin. Paragraphs (1) through (7) of Section 202 of Executive Order 11246, as amended, are incorporated in this lease by reference.

Section 17: Certification of Nonsegregated Facilities.

By entering into this lease, the Lessee certifies, as specified in 41 CFR 60-1.8, that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. As used in this certification, the term "facilities" means, but is not limited to, any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees. Segregated facilities include those that are segregated by explicit directive or those that are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or otherwise; provided, that separate or single-user restrooms and necessary dressing or sleeping areas must be provided to assure privacy as appropriate. The Lessee further agrees that it will obtain identical certifications from proposed contractors and subcontractors prior to awarding contracts or subcontracts unless they are exempt under 41 CFR 60-1.5.

Section 18: Notices.

All notices or reports provided from one party to the other under the terms of this lease must be in writing, except as provided herein and in the applicable regulations in 30 CFR Part 585. Written notices and reports must be delivered to the Lessee's or Lessor's Lease Representative, as specifically listed in Addendum "A," either electronically, by hand, by facsimile, or by United States first class mail, adequate postage prepaid. Each party must, as soon as practicable, notify the other of a change to their Lessee's or Lessor's Contact Information listed in Addendum "A" by a written notice signed by a duly authorized signatory and delivered by hand or United States first class mail, adequate postage prepaid. Until such notice is delivered as provided in this section, the last recorded contact information for either party will be deemed current for service of all notices and reports required under this lease. For all operational matters, notices and reports must be provided to the party's Operations Representative, as specifically listed in Addendum "A," as well as the Lease Representative.

Section 19: Severability Clause.

If any provision of this lease is held unenforceable, all remaining provisions of this lease will remain in full force and effect.

Section 20: Modification.

Unless otherwise authorized by the applicable regulations in 30 CFR Part 585, this lease may be modified or amended only by mutual agreement of the Lessor and the Lessee. No such modification or amendment will be binding unless it is in writing and signed by duly authorized signatories of the Lessor and the Lessee.

	The United States of America
Lessee	Lessor
(Signature of Authorized Officer)	(Signature of Authorized Officer)
(Name of Signatory)	(Name of Signatory)
(Title)	(Title)
(Date)	(Date)

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "A"

DESCRIPTION OF LEASED AREA AND LEASE ACTIVITIES

Lease Number OCS-A 0544

I. Lessor and Lessee Contact Information

Lessee Company Number: ____________________

(a) Lessor's Contact Information

	Lease Representative	**Operations Representative**
Title	Program Manager, Office of Renewable Energy Programs	Same as Lease Representative
Address	U.S. Department of the Interior Bureau of Ocean Energy Management 45600 Woodland Road Sterling, Virginia 20166	
Phone	(703) 787-1300	
Fax	(703) 787-1708	
Email	renewableenergy@boem.gov	

(b) Lessee's Contact Information

	Lease Representative	**Operations Representative**
Name		
Title		
Address		
Phone		
Fax		
Email		

II. Description of Leased Area

The total acreage of the leased area is approximately 43,056 acres.

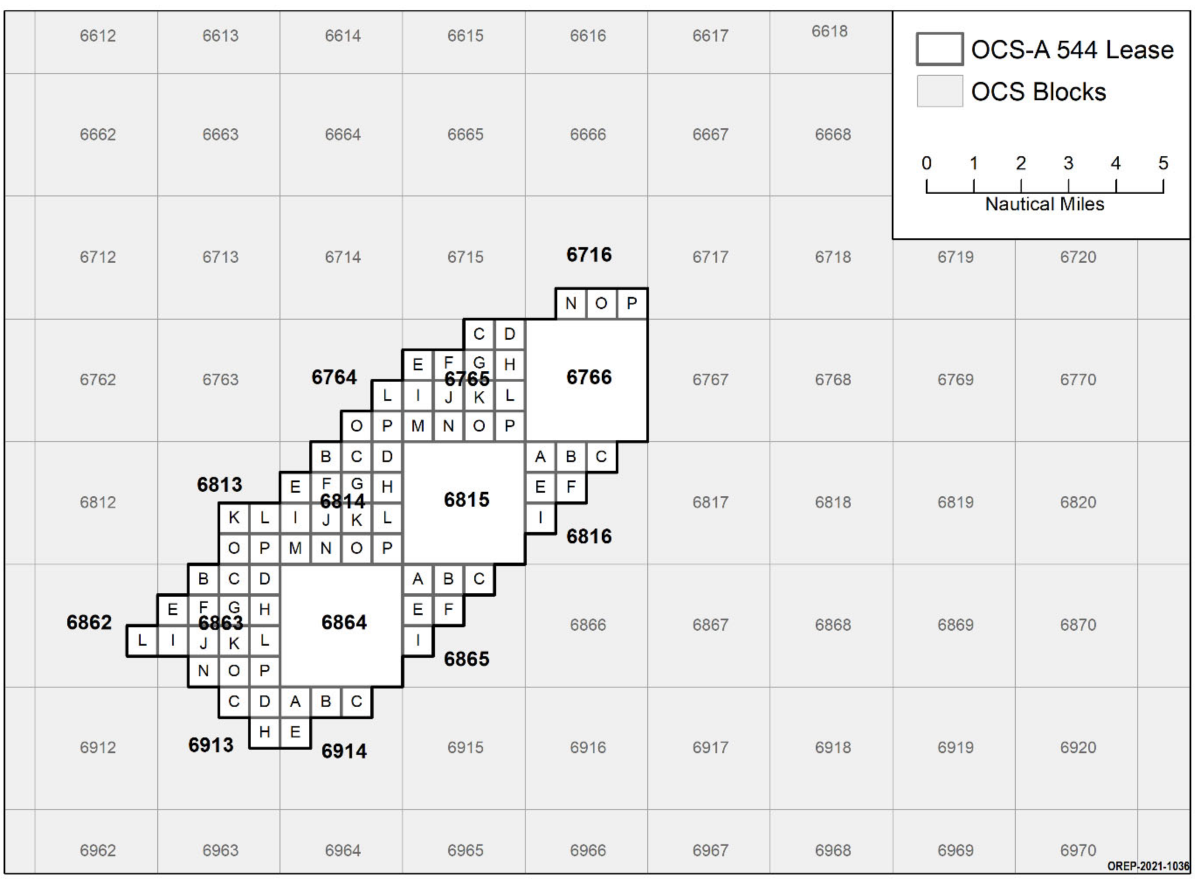
This area is subject to later adjustment, in accordance with applicable regulations (*e.g.*, contraction, relinquishment).

Lease OCS-A 0544
The following Blocks or portions of Blocks lying within Official Protraction Diagram New York NK18-12, are depicted on the map below and comprise 43,056 acres, more or less.

1) Block 6716, SE1/4 of SW1/4, S1/2 of SE1/4
2) Block 6764, E1/2 of SE1/4, SW1/4 of SE1/4
3) Block 6765, E1/2, S1/2 of NW1/4, SW1/4
4) Block 6766, All of Block
5) Block 6813, SE1/4
6) Block 6814, E1/2, E1/2 of NW1/4, SW1/4 of NW1/4, SW1/4
7) Block 6815, All of Block
8) Block 6816, NW1/4 of NE1/4, NW1/4, NW1/4 of SW1/4
9) Block 6862, NE1/4 of SE1/4
10) Block 6863, E1/2, E1/2 of NW1/4, SW1/4 of NW1/4, N1/2 of SW1/4, SE1/4 of SW1/4
11) Block 6864, All of Block
12) Block 6865, NW1/4 of NE1/4, NW1/4, NW1/4 of SW1/4
13) Block 6913, N1/2 of NE1/4, SE1/4 of NE1/4
14) Block 6914, NW1/4 of NE1/4, N1/2 of NW1/4, SW1/4 of NW1/4

For the purposes of these calculations, a full Block is 2,304 hectares. The acreage of a hectare is 2.471043930.

New York Bight - Hudson North Lease Area (OCS-A 544)



III. Renewable Energy Resource

Wind

IV. Description of the Project

A project to generate energy using wind turbine generators and any associated resource assessment activities, located on the Outer Continental Shelf in the leased area, as well as associated offshore substation platforms, inter-array cables, and subsea export cables.

V. Description of Project Easement(s)

Once approved, the Lessor will incorporate Lessee's project easement(s) in this lease as ADDENDUM "D."

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "B"

LEASE TERM AND FINANCIAL SCHEDULE

Lease Number OCS-A 0544

I. Lease Term

The duration of each term of the lease is described below. The terms may be extended or otherwise modified in accordance with applicable regulations in 30 CFR Part 585.

Lease Term	**Duration**
Preliminary Term	1 year
Site Assessment Term	5 years
Operations Term	33 years

Schedule: Addendum "C" includes a schedule and reporting requirements for conducting site characterization activities.

Renewal: The Lessee may request renewal of the operations term of this lease, in accordance with applicable regulations in 30 CFR Part 585. The Lessor, at its discretion, may approve a renewal request to conduct substantially similar activities as were originally authorized under this lease or in an approved plan. The Lessor will not approve a renewal request that involves development of a type of renewable energy not originally authorized in the lease. The Lessor may revise or adjust payment terms of the original lease as a condition of lease renewal.

II. Definitions

"Lease Issuance Date" refers to the date on which this lease has been signed by *both* the Lessee and the Lessor.

"Effective Date" has the same meaning as "effective date" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.237.

"Lease Anniversary" refers to the anniversary of the Effective Date of the lease.

"End Date" refers to the earlier of a) the last calendar day of the last month of the Operations Term; or b) the date on which the lease terminates in the event of a lease termination for another reason under 30 CFR 585.432.

"Commercial Operations" means the generation of electricity or other energy product for commercial use, sale, or distribution.

"Commercial Operation Date," or "COD," refers to the date on which the Lessee first begins Commercial Operations on the lease.

"Delivery Point" is the meter identified in the Construction and Operations Plan (COP) where the Lessee's facility interconnects with the electric grid to deliver electricity for sale.

An individual wind generation turbine is said to be "available for Commercial Operations" on or after the first day that it engages in Commercial Operations on the lease; and to be no longer available for Commercial Operations on or after the day when it is permanently decommissioned. These dates are determined by the COP, the Facility Design Report (FDR) or Fabrication Installation Report (FIR).

III. Payments

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make payments as described below.

(a) ***Rent.*** The Lessee must pay rent as described below:

Rent payments prior to the COD, or prior to the lease End Date in the event that the lease terminates prior to the COD, are calculated by multiplying the acres in the leased area times the rental rate per acre. The acreage for your lease is documented in Addendum A. For example:

- Acres: 100,000
- Annual Rental Rate: $3.00 per acre or fraction thereof
- Rental Fee for Entire Leased Area: $3.00 x 100,000 = $300,000

The first year's rent payment is due within 45 days of the date that the lease is received by the Lessee for execution, in accordance with 30 CFR 585.503. Rent for the entire leased area for the next year and for each subsequent year is due on or before each Lease Anniversary through the year in which the COD occurs. The rent for each year subsequent to the COD on the imputed portion of the lease not authorized for Commercial Operations is due on or before each Lease Anniversary.

Once a portion of the lease begins commercial operations, rent will only be due for the undeveloped or non-operating acreage. The rent calculation becomes a three-step process:

(1) rent is calculated on the portion of the lease not authorized for commercial operations.

(2) rent is calculated on the portion of the lease authorized for commercial operations, but without operating turbines.

(3) the sum of (1) and (2) yield the rent due.

Step (1): The Lessee will continue to pay rent at the lease rate for acreage outside the approved commercial project area. The demarcation between acreage for a commercial project and undeveloped acreage will be defined in the COP or supplemental documents approved by BOEM. For example, if the total lease acreage is 100,000 acres and exactly three-quarters of the lease acreage is approved for commercial operations, 25,000 acres is not authorized for commercial operations.

- Acres: 25,000
- Annual Rental Rate: $3.00 per acre or fraction thereof
- Rental Fee for Undeveloped Leased Area: $3.00 x 25,000 = $75,000

Step (2): Acreage for the approved project area subject to rent will be the complement of the operating name plate capacity divided by the total nameplate capacity, $\frac{M_t}{\sum N_w}$, as defined in Section III (b) (4) below, prior to any adjustments as specified in the most recent approved COP for turbine maintenance, replacements, repowering, or decommissioning. If contiguous acreage for an approved project cannot be developed due to buffers or other surface occupancy restrictions, it will be considered part of the operating area of the lease and covered by the lease's operating fee payment.

- Acres: 75,000
- Annual Rental Rate: $3.00 per acre or fraction thereof
- Rental Fee for Undeveloped Acreage Authorized for Commercial Operations: $3.00 x 75,000 x $(1 - \frac{M_t}{\sum N_w})$ = $Rent

Using the summed capacity of 14.21 megawatt (MW) from the 30 MW project in Table 1 from Section III (b) (4) below, the rental calculation for the project area is: $3.00 x 75,000 x (1 - 0.473667) = $118,425

Step (3): Summing the rent due in steps (1) & (2): $75,000 + $118,425 = $193,425.

- The Adjusted Annual Rent Payment will be rounded up to the nearest dollar.

All rent payments must be made as required in 30 CFR 1218.51. Late rent payments will be charged interest in accordance with 30 CFR 1218.54.

Advance lease rent and operating fee payments are due annually, before the lease anniversary date. All rent payments, including the last rent payment, are payable for the full year and will not be prorated to the COD or other installation milestones. If the installation schedule proceeds more quickly than projected by the lessee, lease payments may need to be reconciled. The Lessee should work with BOEM's Office of Renewable Energy Programs and the Office of Natural Resources Revenue on any payment reconciliation as instructed in Section III (c).

(1) ***Project Easement.***

Rent for any project easement(s) is described in ADDENDUM "D".

(2) ***Relinquishment.***

If the Lessee submits an application for relinquishment of a portion of the leased area within the first 45 calendar days following the date that the lease is received by the Lessee for execution, and the Lessor approves that application, no rent payment will be due on that relinquished portion of the leased area. Later relinquishments of any leased area will reduce the Lessee's rent payments due the year following the Lessor's approval of the relinquishment, through a reduction in the Acres in Leased Area and the corresponding Rental Fee for the Entire Leased Area and any related Adjusted Annual Rent Payments.

(b) ***Operating Fee.*** The Lessee must pay an operating fee as described below:

(1) **Initial Operating Fee Payment.**

The Lessee must pay an initial prorated operating fee within 45 calendar days after the COD. The initial operating fee payment covers the first year of Commercial Operations on the lease and will be calculated in accordance with subsection (4) below, using an operating fee rate of 0.02 and a capacity factor of 0.4.

(2) **Annual Operating Fee Payments.**

The Lessee must pay the operating fee for each subsequent year of Commercial Operations on or before each Lease Anniversary following the formula in subsection (4) below. The Lessee must calculate each operating fee annually subsequent to the initial operating fee payment using an operating fee rate of 0.02 through the thirty-three year operations term of the lease. If the Lessor determines that the Lessee has met the threshold for the supply chain incentive under section 7.2 of Addendum C, then the operating fee rate will be 0.01 instead of 0.02 for five years starting the year after the Lessor makes the determination. After five years at 0.01, the operating fee rate will be 0.02 for the remainder of the lease. The capacity factor of 0.4 will remain in effect until the Lease Anniversary of the year in which the Lessor adjusts the capacity factor.

(3) **Final Operating Fee Payment.**

The final operating fee payment is due on the Lease Anniversary prior to the End Date. The final operating fee payment covers the last year of Commercial Operations on the lease and will be calculated in accordance with the formula in subsection (4) below.

(4) **The formula for calculating the operating fee in year *t*.**

F_t	=	M_t	*	H	*	c_p	*	P_t	*	r_t
(annual operating fee)		(nameplate capacity)		(hours per year)		(capacity factor)		(power price)		(operating fee rate)

Where:

t =	the year of Commercial Operations on the lease starting from each Lease Anniversary, where *t* equals 1 represents the year beginning on the Lease Anniversary prior to, or on, the COD.
F_t =	the dollar amount of the annual operating fee in year *t*.
M_t =	the nameplate capacity expressed in megawatts (MW) rounded to the nearest second decimal place in year *t* of Commercial Operations on the lease. The capacity calculation is a two-step process: (1) scaling each turbine's nameplate capacity in proportion to the number of days in the year that it is operational and (2) summing these scaled values across all turbines. The value of M_t, reflecting the availability of turbines, will be determined based on the FDR or FIR. This value will be adjusted to reflect any changes to installed capacity approved by BOEM as of the date each operating fee payment is due, in accordance with the calculation in Equation 1, for each year of Commercial Operations on the lease. **(1)** $M_t = \sum_{w=1}^{W_t} \left(N_w \; x \left[\frac{Y_{w,t}}{D} \right] \right)$

Where:

W_t = Number of individual wind generation turbines, w, that will be available for Commercial Operations during any day of the year, t, per the FDR or FIR.

N_w = Nameplate capacity of individual wind generation turbine, w, per the FDR or FIR expressed in MW.

$Y_{w,t}$ = Number of days that turbine w is commercially available during year.

D = Days in the year set equal to 365 in all years for purposes of this calculation.

M_t may be reduced only in the event that installed capacity is permanently decommissioned. M_t will not be changed in response to routine or unplanned maintenance of units, including the temporary removal of a nacelle for off-site repair or replacement with a similar unit.

EXAMPLE: Table 1 illustrates the calculations represented by Equation (1) for a single lease year for a lease on which the lessee plans to erect six turbines, each with a nameplate capacity of 5 MW. Based on the days in each turbine's commercial operations period (column B), the exhibit shows the number of days during the year that the turbine is available for operation. Dividing this value by 365 (column D) yields the percent of days during the year that the turbine is available for operation (column E). For each turbine, the resulting percentage (column E) is multiplied by its nameplate capacity (column A) to calculate its scaled capacity for the year (column F). The individual values in column F are then summed across all six turbines to calculate total capacity (Mt).

Table 1: Example of M_t Calculations for Installation

Turbine	Nameplate Capacity (N_w) [A]	Days in Turbine's Commercial operations Period [B]	Number of days Turbine is available for operation in year t ($Y_{w,t}$) [C]	Number of days in the Year [D]	Percent of days available for Commercial Operation $\left(\frac{Y_{w,t}}{D}\right)$ [E = C ÷ D]	Turbine capacity scaled based on percent of days in commercial operation $N_w \times \frac{Y_{w,t}}{D}$ [F = A × E]
#1	5	January 1 to December 31	365	365	100%	5.00
#2	5	January 1 to December 31	365	365	100%	5.00
#3	5	October 1 to December 31	92	365	25.2%	1.26
#4	5	October 1 to December 31	92	365	25.2%	1.26
#5	5	October 1 to December 31	92	365	25.2%	1.26
#6	5	December 1 to December 31	31	365	8.5%	0.42
Available capacity summed across all turbines: $M_t = \sum_{w=1}^{W_t}\left(N_w \times \left[\frac{Y_{w,t}}{D}\right]\right)$ = 14.21						

The same calculation would be performed for the lease during the decommissioning phase.

H =	the number of hours in the year for billing purposes which is equal to 8,760 for all years of Commercial Operations on the lease.
c_p =	the "Capacity Factor" in Performance Period p, which represents the share of anticipated generation of the facility that is delivered to where the Lessee's facility interconnects with the electric grid (i.e. the Delivery Point) relative to its generation at continuous full power operation at the nameplate capacity, expressed as a decimal between zero and one. The initial Capacity Factor (c_0) will be set to 0.4. The Capacity Factor will be subject to adjustment at the end of each Performance Period. After the sixth year of Commercial Operations on the lease has concluded, the Lessee will utilize data gathered from years two through six of Commercial Operations on the lease and propose a revised Capacity Factor to be used to calculate subsequent annual payments, as provided for in Table 2 below. A similar process will be conducted at the conclusion of each five-year Performance Period, thereafter.

Table 2: Definition of Performance Periods

Performance Period (p)	Commercial Operation Years (t)	Payments Affected by Adjustment	Capacity Factor (c)	Date End Year (n)
0 (COD)	Not Applicable	Payments 1 to 7	c_0=0.4	--
1	t = 2 to 6	Payments 8 to 12	c_1	n_1=6
2	t = 7 to 11	Payments 13 to 17	c_2	n_2=11
3	t = 12 to 16	Payments 18 to 22	c_3	n_3=16
4	t = 17 to 21	Payments 23 to 27	c_4	n_4=21
5	t = 22 to 26	Payments 28 to 32	c_5	n_5=26
6	t = 27 to 31	Payment 33	c_6	n_6=31

Adjustments to the Capacity Factor

The Actual 5-year Average Capacity Factor (Xp) is calculated for each Performance Period after COD ($p > 0$) per Equation 2 below. Xp represents the sum of actual, metered electricity generation in megawatt-hours (MWh) at the Delivery Point to the electric grid (A_t) divided by the amount of electricity generation in MWh that would have been produced if the facility operated continuously at its full, stated capacity (M_t) in all of the hours (h_t) in each year, t, of the corresponding five-year period.

$$\textbf{(2)}\ X_p = \frac{\sum_{t=n-4}^{n} A_t}{\left(\sum_{t=n-4}^{n} M_t \; x \; h_t\right)}$$

Where:

M_t = Nameplate Capacity as defined above.

n = "Date End Year" value for the Performance Period, p, as defined in Table 2.

p = Performance Period as defined in Table 2.

A_t = Actual generation in MWh associated with each year of Commercial Operations, t, on the

	lease that is transferred at the Delivery Point; Delivery Point meter data supporting the values submitted for annual actual generation must be recorded, preserved, and timely provided to the Lessor upon request. The generation data for the facility must be the same data reported on the Energy Information Administration's EIA-923. h_t = Hours in the year on which the Actual Generation associated with each year of Commercial Operations, *t*, on the lease is based; this definition of "hours in the year" differs from the definition of H in the operating fee equation above. The hours in the year for purposes of calculating the capacity factor must take into account the actual number of hours, including those in leap years. The value of the Capacity Factor at the outset of Commercial Operations (*p = 0*) is set to 0.4 as stated in equation 3: **(3)** $c_0 = 0.4$
P_t =	a measure of the annual average wholesale electric power price expressed in dollars per MW hour. The Lessee must calculate P_t at the time each operating fee payment is due, subject to approval by the Lessor. The Price (P_t) must equal the simple average of the "on-the-hour" spot price indices for the *NYISO NYC-J* power market for the most recent calendar year of data available as reported by the Federal Energy Regulatory Commission (FERC). Alternatively, P_t may be based on aggregated data from commercial subscription services such as S&P Global Market Intelligence Platform or Hitachi ABB Velocity Suite. BOEM will post the power price data it intends to use for the lessee's reference. The source of data used in the calculations must be noted in the Lessee's documentation supporting their estimate of the value of Pt each year for review and approval by the Lessor. BOEM will use the posted prices to verify the lessee's calculations.
r_t =	the operating fee rate of 0.02 (2%) or 0.01 (1%), as applicable.

(c) ***Reporting, Validation, Audits, and Late Payments.***

The Lessee must submit the values used in the operating fee formula to the Lessor at the time the annual payment based on these values is made. Submission of this and other reporting, validation, audit and late payment information as requested by the Lessor must be sent to the Lessor using the contact information indicated in Addendum "A", unless the Lessor directs otherwise. Failure to submit the estimated values and the associated documentation on time to the Lessor may result in penalties as specified in applicable regulations.

Within 60 days of the submission by the Lessee of the annual payment, the Lessor will review the data submitted and validate that the operating fee formula was applied correctly. If the Lessor validation results in a different operating fee amount, the amount of the annual operating fee payment will be revised to the amount determined by the Lessor.

The Lessor also reserves the right to audit the meter data upon which the Actual 5-year Average Capacity Factor is based at any time during the lease term. If, as a result of such audit, the Lessor determines that any annual operating fee payment was calculated incorrectly, the Lessor has the right to correct any errors and collect the correct annual operating fee payment amount.

If the annual operating fee is revised downward as a result of the Lessee's calculations, as validated by the Lessor, or an audit of meter data conducted by the Lessee or Lessor, the Lessee will be refunded the difference between the amount of the payment received and the amount of the revised annual operating fee, without interest. Similarly, if the payment amount is revised upward, the Lessee is required to pay the difference between the amount of the payment received and the amount of the revised annual operating fee, plus interest on the balance, in accordance with 30 CFR § 1218.54.

Late operating fee payments will be charged interest in accordance with 30 CFR § 1218.54.

IV. <u>Financial Assurance</u>

The Lessor will base the determination for the amounts of all Site Assessment Plan (SAP), COP, and decommissioning financial assurance requirements on estimates of the cost to meet all accrued lease obligations. The Lessor will determine the amount of supplemental and decommissioning financial assurance requirements on a case-by-case basis. The amount of financial assurance required to meet all lease obligations includes:

(a) **Initial Financial Assurance.** Prior to the Lease Issuance date, the Lessee must provide an initial lease-specific bond, or other approved means of meeting the Lessor's initial financial assurance requirements in an amount equal to $100,000.

(b) **Additional Financial Assurance.** In addition to the initial lease-specific financial assurance discussed above, the Lessee is also required to provide additional supplemental bonds associated with the SAP and COP, or other form of financial assurances and a decommissioning bond or other approved means of meeting the Lessee's decommissioning obligations.

(1) Prior to the Lessor's approval of a SAP, the Lessor will require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, and location of all facilities involved in the site assessment activities planned in the SAP, and estimates of the costs to meet all accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of $100,000. The Lessee may meet these obligations by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.

(2) Prior to the Lessor's approval of a COP, the Lessor may require an additional supplemental bond or other form of financial assurance in an amount determined by the Lessor based on the complexity, number, location of all facilities, activities and Commercial Operations planned in the COP, and estimates of the costs to meet all

accrued obligations, in accordance with applicable BOEM regulations (30 CFR 585.515-537). The supplemental financial assurance requirement is in addition to the initial lease-specific financial assurance in the amount of $100,000 and an additional supplemental bond or other form of financial assurance required with the SAP. The Lessee may meet this obligation by providing a new bond or other acceptable form of financial assurance, or increasing the amount of its existing bond or other form of financial assurance.

(3) The Lessor will require a decommissioning bond or other form of financial assurance based on the anticipated decommissioning costs in accordance with applicable BOEM regulations (30 CFR 585.515-537). The decommissioning obligation must be guaranteed through an acceptable form of financial assurance and will be due according to the schedule beginning before commencement of the installation of commercial facilities on a date or dates to be determined by the Lessor.

(c) **Adjustments to Financial Assurance Amounts.** The Lessor reserves the right to adjust the amount of any financial assurance requirement (initial, supplemental, or decommissioning) associated with this lease and/or reassess the Lessee's cumulative lease obligations, including decommissioning obligations, at any time. If the Lessee's cumulative lease obligations and/or liabilities increase or decrease, the Lessor will notify the Lessee of any intended adjustment to the financial assurance requirements and provide the Lessee an opportunity to comment in accordance with applicable BOEM regulations.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "C"

LEASE-SPECIFIC TERMS, CONDITIONS, AND STIPULATIONS

Lease Number OCS-A 0544

The Lessee's rights to conduct activities on the leased area are subject to the following terms, conditions, and stipulations. The Lessor reserves the right to impose additional terms and conditions incident to the future approval or approval with modifications of plans, such as a Site Assessment Plan (SAP) or Construction and Operations Plan (COP).

1 DEFINITIONS

1.1 Definition of "Archaeological Resource": The term "archaeological resource" has the same meaning as "archaeological resource" in the Bureau of Ocean Energy Management (BOEM) regulations provided in 30 CFR 585.112.

1.2 Definition of "Effective Date": The term "Effective Date" has the same meaning as "effective date" in BOEM regulations provided in 30 CFR 585.237.

1.3 Definition of "Geological and Geophysical Survey (G&G Survey)": The term "G&G Survey" serves as a collective term for surveys that collect data on the geology of the seafloor and landforms below the seafloor. High resolution geophysical surveys and geotechnical (sub-bottom) exploration are components of G&G surveys.

1.4 Definition of "Geotechnical Exploration": The term "Geotechnical Exploration," also referred to as "Sub-bottom Sampling," or "Geotechnical Testing," is used to collectively refer to site specific sediment and underlying geologic data acquired from the seafloor and the sub-bottom and includes geotechnical surveys utilizing deep borings, vibracores, and cone penetration tests.

1.5 Definition of "High Resolution Geophysical Survey (HRG Survey)": The term "HRG Survey" means a marine remote-sensing survey using, but not limited to, such equipment as side-scan sonar, magnetometer, shallow and medium (Seismic) penetration sub-bottom profiler systems, narrow beam or multibeam echo sounder, or other such equipment employed for the purposes of providing data on geological conditions, identifying shallow hazards, identifying archaeological resources, charting bathymetry, and gathering other site characterization information.

1.6 Definition of "Protected Species": The term "protected species" includes marine mammals (those protected under the Endangered Species Act and those protected under the Marine Mammal Protection Act), sea turtles, sturgeon, and giant manta ray.

1.7 Definition of "Site Assessment Activities": The term "site assessment activities" or "site assessment," has the same meaning as "site assessment activities" in 30 CFR 585.112.

1.8 Definition of "Qualified Marine Archaeologist": The term "qualified marine archaeologist" means a person retained by the Lessee who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44738- 44739), and has experience analyzing marine geophysical data.

2 SITE CHARACTERIZATION

2.1 **Survey Plan(s):** Prior to conducting each physical, biological, or cultural resources survey in support of the submission of a plan, the Lessee must submit to the Lessor a survey plan. Each distinct survey effort (e.g., mobilization) must be addressed by a survey plan, although a single survey plan may cover more than one survey effort and may cover multiple types of activities (e.g., geotechnical and geophysical surveys on lease and along cable routes).

Each survey plan must include details of activities to be conducted and timelines of each survey effort necessary to support the submission of a plan (i.e., necessary to satisfy the information requirements in the applicable regulations, including but not limited to 30 CFR 585.606, 610, 611, 621, 626, 627, et al.). The Lessor will not accept survey plans that do not provide sufficient detail for review, including but not limited to specific description and illustration of the geographic areas to be surveyed, specific discussion of the survey methods and equipment to be employed, and a schedule of survey activities.

The Lessee must demonstrate compliance with each of the lease stipulations in Section 4 of Addendum "C" and include any waiver requests in its initial survey plan. Each survey plan must be consistent with the Lessee's Fisheries Communication Plan (FCP) (see 3.1.2.1) and Native American Tribal Communications Plan (NATCP) (see 3.1.2.2), and include a description of the Lessee's intentions to coordinate with the U.S. Coast Guard (USCG) to prepare a Notice to Mariners for the specific survey activities described in the survey plan.

The Lessee must submit a survey plan to the Lessor at least 90 calendar days prior to commencement of any survey activities described in the survey plan. Within 30 calendar days from receipt, the Lessor may request the Lessee modify the survey plan to address any comments the Lessor submits to the Lessee on the contents of the survey plan. Comments must be addressed by the Lessee in a manner deemed satisfactory by the Lessor prior to commencement of the survey activities. If the Lessor does not respond with comments or objections within 30 calendar days of receipt of the survey plan, the Lessee may proceed with the survey activities per the proposed schedule. The lack of Lessor comment or objection to the survey plan does not ensure acceptance of the survey results with the SAP and/or COP. If the Lessee is proposing a fisheries survey that could result in the take of species listed under the Endangered Species Act, additional time should be allowed for consultation and/or permits authorizing the activity (see Section 5.1.4).

2.2 Pre-Survey Meeting(s) with the Lessor: If requested by the Lessor, the Lessee must hold a pre-survey meeting with the Lessor prior to the commencement of survey activities to discuss the applicable survey plan. The Lessee must ensure the presence at this meeting of any relevant subject matter experts, as requested by the Lessor.

3 REPORTING

3.1 **Progress Report**: The Lessee must submit to the Lessor a progress report every six months (unless BOEM directs otherwise) through the duration of the site assessment term that includes a brief narrative of the overall progress since the last progress report, or – in the case of the first report – since the Effective Date. Within 60 calendar days from receipt, the Lessor may request the Lessee modify the progress report to address any comments the Lessor submits to the Lessee on the contents of the document. The Lessee must address comments in a manner deemed satisfactory by the Lessor. Should the Lessee not address the comments provided by the Lessor in a timely and adequate manner, BOEM reserves the right to require specific mitigation such as, but not limited to, third party verification/mediation at the Lessee's expense, adjustment of required reporting frequency, or designation that the Lease is not in good standing. This obligation does not expire at the end of the site assessment term and continues until approval of a Construction and Operations Plan.

3.1.1 Engagement: The Lessee shall make reasonable efforts to consult with "Tribes and parties," that may be potentially affected by the project activities on the OCS, which include, but are not limited to:

- Coastal Communities
- Commercial and Recreational Fishing Industries
- Educational and Research Institutions
- Environmental and Public Interest Non-Governmental Organizations
- Federal, State, and Local Agencies
- Federally recognized Tribes (see 5.3.3)
- Mariners and the Maritime Industry
- Ocean Users
- Submarine Cable Operators
- Underserved Communities, as defined in Section 2 of Executive Order 13985

The Lessee shall make reasonable efforts to implement the project in a manner that minimizes, mitigates, and/or redresses the project's adverse effects, if any, on Tribes and parties. To facilitate consultation under this section, the Lessee should work collaboratively with federal, state, and local governments, community organizations, and Tribes.

The Progress Report must:

- Identify Tribes and parties applicable to the project;
- Document, and update for subsequent reports, engagement with Tribes and parties since the previous reporting period;
- Document potential adverse effects from the Lessee's project to the interests of Tribes and parties;
- Document how, if at all, the design or implementation of the project has been informed by or altered to address these potential effects (including by investing in, or directing benefits to Tribes and parties).
- The report must also include a description of any anticipated or scheduled engagement activities for the next reporting period.
- The report must also include feedback from engagement with Tribes and parties regarding transmission planning, prior to proposing any export cable route.
- The report must provide information that can be made available to the public and posted on the BOEM website.

The intent of this requirement is to improve Lessee communication and transparency with Tribes, parties, and the general public, and to encourage lessees to identify and engage with underserved communities, including environmental justice communities that may be disproportionately impacted by the Project's OCS activities, in order to avoid, minimize, and mitigate potential adverse effects by, for example, investing in these communities.

BOEM will protect privileged or confidential information that you submit, as required by the Freedom of Information Act (FOIA) and 30 CFR 585.113. Exemption 4 of FOIA applies to "trade secrets and commercial or financial information that you submit that is privileged or confidential." 5 U.S.C. 552(b)(4). If you wish to protect the confidentiality of such information, clearly mark it ''Contains Privileged or Confidential Information'' and consider submitting such information as a separate attachment. BOEM will not disclose such information, except as required by FOIA. Information that is not labeled as privileged or confidential may be regarded by BOEM as suitable for public release. Further, BOEM will not treat as confidential aggregate summaries of otherwise nonconfidential information.

3.1.2 Communication Plans: The Progress Report must include a section with plan(s) on how the Lessee will communicate with fisheries, federally recognized Tribes, and agencies (see 3.1.2.1, 3.1.2.2, 3.1.2.3). In addition to the plans, each progress report should provide updates on the progress of communication efforts with those and other affected stakeholder or ocean user groups during the reporting period (see 3.1.1).

3.1.2.1 Fisheries Communications Plan and Fisheries Liaison: The Lessee must develop a draft FCP and make it publicly available within 120 days of lease execution. The Lessee must update and refine the FCP from time to time, in response to feedback obtained by engagement with Tribes and parties and BOEM consultation. If the Lessee does not develop a project website, the Lessee must make the FCP available to the Lessor and the public upon request. The plan must include the following:

- A description of the strategies that the Lessee intends to use for communicating with commercial and recreational fisheries prior to and during activities in support of the submission of a plan (e.g. SAP or a COP). This description must include mechanisms to distribute notices to Federal and state fisheries license holders known to operate near the lease area through a local "Notice to Mariners" and outreach to, e.g., Fisheries Management Councils, newsletters, websites, Fisheries Liaison Officers and/or Fisheries Representatives, and applicable state agencies.
- The contact information for an individual retained by the Lessee as its primary point of contact with commercial and recreational fisheries (i.e., Fisheries Liaison).
- The strategy and general timing of discussions with commercial and recreational fisheries regarding the reduction of conflicts with facility designs, pursuant to Lease stipulation 3.1.1.
- A process to file a complaint with the offshore wind operator and seek the replacement of or compensate for lost gear.
- Plans to coordinate with commercial and recreational fisheries to identify peak fishing seasons and, to the extent practicable, avoid interaction offshore between survey vessels and commercial fishermen.

Additionally, the Lessee is required to (i) notify applicable ocean users two weeks in advance of any geological and geophysical survey activities and, (ii) provide an annual summary of filed complaint claims and outcomes to BOEM to better understand the frequency and extent of gear interactions.

3.1.2.2 Native American Tribes Communication Plan: The Lessee must develop a publicly available NATCP that describes the strategies that the Lessee intends to use for communicating with federally recognized Tribes, and that should outline specific methods for engaging with and disseminating information to federally recognized Tribes with cultural and/or historical ties to the lease area. The NATCP must include the contact information for an individual retained by the Lessee as its primary point of contact with federally recognized Tribes (i.e., a Tribal Liaison). The NATCP should include detailed information and protocols for regular engagement with federally recognized Tribes including, but not limited to, the types of engagement activities (e.g., one-on-one meetings, group meetings, open houses, open information sharing meetings, etc.); the frequency of proposed engagements/meetings (e.g., monthly, quarterly, bi-annually, annually, etc.); meeting locations and/or virtual platforms; and contact information (e.g., telephone numbers, email addresses, website addresses, etc.). The Lessee must make the NATCP available to the Lessor and the federally recognized Tribes upon request. The Lessee must provide a draft NATCP to BOEM and federally recognized Tribes for review and comment, and hold a meeting with federally recognized Tribes to discuss the NATCP, within 120 days of lease execution. The Lessee must invite federally recognized Tribes with cultural and historical ties to the lease area to participate in the development of the NATCP. If a federally recognized Tribe wishes to participate, the Lessee should request that the Tribe designate a Tribal Representative from each Tribe to serve as the Tribe's primary point of contact for communicating with the Lessee. If a federally recognized Tribe does not wish to participate in the development of the NATCP, the Lessee is no longer required to include them in NATCP communications. If a Tribe does not respond to outreach from the Lessee, the Lessee will continue to invite the Tribe to participate in NATCP engagement opportunities until the Tribe provides a written response to the Lessee or Lessor.

3.1.2.3 Agency Communication Plan (ACP): The Lessee must develop a publicly available ACP that describes the strategies that the Lessee intends to use for communicating with federal, state and local agencies with authority related to the lease area and should outline specific methods for engaging with and disseminating information related to permits and trust resources to these agencies. The purpose of the ACP is to ensure early and active information sharing, focused discussion of potential issues, and collaborative identification of solutions in order to improve the quality and efficiency of various agency decision-making processes, and to promote the sustainable development of offshore wind energy projects. The ACP must include the contact information for an individual retained by the Lessee as its primary point of contact with agencies, (i.e., an Agency Liaison). The ACP should include detailed information and protocols for regular engagement with permitting and resource agencies including, but not limited to, the types of engagement activities (e.g., one-on-one meetings, interagency meetings, open information sharing meetings, etc.); the frequency of proposed engagements/meetings (e.g., monthly, quarterly, bi-annually, annually, etc.); meeting locations and/or virtual platforms; and contact information (e.g., telephone numbers, email addresses, etc.). The Lessee must make the ACP available to the Lessor and other agencies upon request. The Lessee must provide a draft ACP to BOEM and other permitting and resource agencies with authority related to the lease area for review and comment, and host a meeting with each interested agency, to discuss the ACP within 120 days of lease execution. Meetings may include multiple agencies. The Lessee must invite agencies with permitting roles and/or resource expertise to participate in the ACP. The Lessee should request that the agency designate a primary point of contact(s) for communicating with the Lessee. If an agency states in writing to the Lessee or Lessor that it does not wish to participate in the ACP, the Lessee need no longer include that agency in ACP communications and must document this change in the ACP. If an agency does not respond to outreach from the Lessee, the Lessee will continue to invite the agency to participate in ACP engagement opportunities until the agency provides a response. Note that a decision to not participate in the ACP in no way changes the agency regulatory authority or the need to communicate with that agency. The Lessee must update the ACP or provide other written summary of how the Lessee used information gained during agency engagement to inform project planning and development.

3.1.2.4 Coordinated Engagement: To the maximum extent practicable, the Lessee must coordinate engagement activities for Tribes and parties (see Section 3.1.1) with other regional lessees and document their activities in the Progress Report. Lessee(s) must design coordinated engagement activities to decrease the communication and consultation burden on Tribes and parties. BOEM appreciates that not all engagement can be coordinated.

3.1.3 Survey Plans: The progress report must include an update regarding progress in executing the activities included in the survey plan(s), and include as an enclosure an updated survey plan(s) accounting for any modifications in schedule.

4 NATIONAL SECURITY AND MILITARY OPERATIONS

4.1 **Hold and Save Harmless**: Whether compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the Lessee assumes all risks of damage or injury to persons or property, which occur in, on, or above the Outer Continental Shelf (OCS), to any persons or to any property of any person or persons in connection with any activities being performed by the Lessee in, on, or above the OCS, if such injury or damage to such person or property occurs by reason of the activities of any agency of the United States Government, its contractors, or subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter "the appropriate command headquarters") listed in the contact information provided as an enclosure to this lease.

Notwithstanding any limitation of the Lessee's liability in Section 9 of the lease, the Lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the command headquarters, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

4.2 **Evacuation or Suspension of Activities:**

4.2.1 General: The Lessee hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations and/or require evacuation on this lease in the interest of national security consistent with Section 3(c) of this lease.

4.2.2 Notification: Every effort will be made by the appropriate military agency to provide as much advance notice as possible of the need to suspend operations and/or evacuate. Advance notice will normally be given before requiring a suspension or evacuation. Temporary suspension of operations may include, but is not limited to the evacuation of personnel and appropriate sheltering of personnel not evacuated. "Appropriate sheltering" means the protection of all Lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances and will be implemented by an order (oral and/or written) from the BOEM, Office of Renewable Energy Programs (OREP) Program Manager, after consultation with the appropriate command headquarters or other appropriate military agency, or higher Federal authority. The appropriate command headquarters, military agency, or higher authority will provide information to allow the Lessee to assess the degree of risk to, and provide sufficient protection for, the Lessee's personnel and property.

4.2.3 Duration: Suspensions or evacuations for national security reasons will not generally exceed seventy-two (72) hours; however, any such suspension may be extended by order of the OREP Program Manager. During such periods, equipment may remain in place, but all operations, if any, must cease for the duration of the temporary suspension if so directed by the OREP Program Manager. Upon cessation of any temporary suspension, the OREP Program Manager will immediately notify the Lessee such suspension has terminated and operations on the leased area can resume.

4.2.4 Lessee Point-of-Contact for Evacuation/Suspension Notifications: The Lessee must inform the Lessor of the persons/offices to be notified to implement the terms of 4.2.2 and 4.2.3.

4.2.5 Coordination with Command Headquarters: The Lessee must establish and maintain early contact and coordination with the appropriate command headquarters, in order to avoid or minimize the potential to conflict with and minimize the potential effects of conflicts with military operations.

4.2.6 Reimbursement: The Lessee is not entitled to reimbursement for any costs or expenses associated with the suspension of operations or activities or the evacuation of property or personnel in fulfillment of the military mission in accordance with 4.2.1 through 4.2.5 above.

4.3 **Electromagnetic Emissions**:_The Lessee, prior to entry into any designated defense operating area, warning area, or water test area, for the purpose of commencing survey activities undertaken to support SAP or COP submittal must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters.

5 STANDARD OPERATING CONDITIONS

5.1 General Requirements

5.1.1 Prior to the start of operations, the Lessee must hold a briefing to establish responsibilities of each involved party, define the chains of command, discuss communication procedures, provide an overview of monitoring procedures, and review operational procedures. This briefing must include all relevant personnel, crew members and Protected Species Observers (PSOs). New personnel must be briefed as they join the work in progress.

5.1.2 The Lessee must ensure that all vessel operators and crew members, including PSOs, are familiar with, and understand, the requirements specified in this ADDENDUM "C".

5.1.3 The Lessee must ensure that a copy of ADDENDUM "C" and the Project Design Criteria and Best Management Practices listed in Appendix B of the NMFS Letter of Concurrence issued by the National Marine Fisheries Service (NMFS) on June 29, 2021, is made available on every project-related vessel. The 2021 Biological Assessment and letter of concurrence may be found here: (https://www.boem.gov/environmental-consultations).

5.1.4 Endangered Species Act (ESA) Consultation for Biological Surveys: The Lessee must consult with BOEM, the NMFS, and the U.S. Fish and Wildlife Service (USFWS) prior to designing and conducting biological surveys intended to support offshore renewable energy plans that could interact with ESA-listed species. Please see the 2021 Biological Assessment (BA)and letter of concurrence here: (https://www.boem.gov/renewable-energy/nmfs-esa-consultations) for data collection activities that have been previously consulted upon.

5.2 Protected Species

5.2.1 Protected Species: Unless otherwise authorized by BOEM, Lessee's OCS activities must comply with the standards in the Project Design Criteria and Best Management Practices found in BOEM's notice (https://www.boem.gov/sites/default/files/documents// PDCs%20and%20BMPs%20for%20Atlantic%20Data%20Collection%2011222021.pdf) last revised on November 22, 2021. The 2021 BA and letter of concurrence from which these measures were derived may be found here: (https://www.boem.gov/renewable-energy/nmfs-esa-consultations). At the Lessee's option, the Lessee, its operators, personnel, and contractors may satisfy this requirement by complying with the NMFS-approved measures to safeguard protected species that are most current at the time an activity is undertaken under this lease, including but not limited to new or updated versions of the 2021 BA or 2021 NMFS Letter of Concurrence, or through new or activity-specific consultations.

5.3 Archaeological Survey Requirements

5.3.1 Archaeological Survey Required: The Lessee must provide the results of an archaeological survey with its plans.

5.3.2 Qualified Marine Archaeologist: The Lessee must ensure that the analysis of archaeological survey data collected in support of plan (e.g., SAP and/or COP) submittal and the preparation of archaeological reports in support of plan submittal are conducted by a Qualified Marine Archaeologist.

5.3.3 Tribal Pre-Survey Meeting: The Lessee must coordinate a tribal pre-survey meeting by sending a letter through certified mail, and following up with email or phone calls as necessary, to the following Tribes:

- Absentee-Shawnee Tribe of Indians of Oklahoma;
- Delaware Tribe of Indians;
- Eastern Shawnee Tribe of Oklahoma;

- Mashantucket Pequot Tribal Nation;
- Mashpee Wampanoag Tribe;
- Mohegan Tribe of Connecticut;
- Shawnee Tribe;
- Stockbridge-Munsee Community Band of Mohican Indians;
- The Delaware Nation;
- The Narragansett Indian Tribe;
- The Shinnecock Indian Nation; and
- Wampanoag Tribe of Gay Head (Aquinnah).

The purpose of this meeting will be for the Lessee and the Lessee's Qualified Marine Archaeologist to discuss the Lessee's Survey Plan and consider requests to monitor portions of the archaeological survey and the geotechnical exploration activities, including the visual logging and analysis of geotechnical samples (e.g., cores, etc.). Notification of the tribal pre-survey meeting must be sent at least 15 calendar days prior to the date of the proposed tribal pre-survey meeting. The meeting must be scheduled for a date at least 30 calendar days prior to commencement of survey activities performed in support of plan submittal and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated date for the meeting must be identified in the timeline of activities described in the applicable survey plan (see 2.1). The Lessee must provide the Lessor with documentation of compliance with this stipulation prior to commencement of surveys.

5.3.4 Geotechnical Exploration: The Lessee may only conduct geotechnical exploration activities performed in support of plan (i.e., SAP and/or COP) submittal in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. Except as allowed by the Lessor under 4.2.6, the geotechnical exploration activities must avoid potential archaeological resources by a minimum of 50 meters (164 feet), and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. A Qualified Marine Archaeologist must certify, in the Lessee's archaeological reports, that geotechnical exploration activities did not impact potential historic properties identified as a result of the HRG surveys performed in support of plan submittal, except as follows: in the event that the geotechnical exploration activities did impact potential historic properties identified in the archaeological surveys without the Lessor's prior approval, the Lessee and the Qualified Marine Archaeologist who prepared the report must instead provide a statement documenting the extent of these impacts.

5.3.5 Monitoring and Avoidance: The Lessee must inform the Qualified Marine Archaeologist that he or she may elect to be present during HRG surveys and bottom-disturbing activities performed in support of plan (i.e., SAP and/or COP) submittal to ensure avoidance of potential archaeological resources, as determined by the Qualified Marine Archaeologist (including bathymetric, seismic, and magnetic anomalies; side scan sonar contacts; and other seafloor or sub-surface features that exhibit potential to represent or contain potential archaeological sites or other historic properties). In the event that the Qualified Marine Archaeologist indicates that he or she wishes to be present, the Lessee must reasonably facilitate the Qualified Marine Archaeologist's presence, as requested by the

Qualified Marine Archaeologist, and provide the Qualified Marine Archaeologist the opportunity to inspect data quality.

5.3.6 No Impact without Approval: In no case may the Lessee knowingly impact a potential archaeological resource without the Lessor's prior approval.

5.3.7 Post-Review Discovery Clauses: If the Lessee, while conducting geotechnical exploration or any other bottom-disturbing site characterization activities in support of plan (i.e., SAP and COP) submittal and after review of the location by a Qualified Marine Archaeologist under 4.2.4, discovers an unanticipated potential archaeological resource, such as the presence of a shipwreck (e.g., a sonar image or visual confirmation of an iron, steel, or wooden hull, wooden timbers, anchors, concentrations of historic objects, piles of ballast rock) or evidence of a pre-contact archaeological site (e.g. stone tools, pottery or other pre-contact artifacts) within the project area, the Lessee must:

5.3.7.1 Immediately halt seafloor/bottom-disturbing activities within the area of discovery;

5.3.7.2 Notify the Lessor within 24 hours of discovery;

5.3.7.3 Notify the Lessor in writing via report to the Lessor within 72 hours of its discovery;

5.3.7.4 Keep the location of the discovery confidential and take no action that may adversely impact the archaeological resource until the Lessor has made an evaluation and instructs the applicant on how to proceed; and

5.3.7.5 If (1) the site has been impacted by the Lessee's project activities; or (2) impacts to the site or to the area of potential effect cannot be avoided, conduct additional investigations, as directed by the Lessor, to determine if the resource is eligible for listing in the National Register of Historic Places (30 CFR 585.802(b)). If investigations indicate that the resource is potentially eligible for listing in the National Register of Historic Places, the Lessor will inform the Lessee how to protect the resource or how to mitigate adverse effects to the site. If the Lessor incurs costs in protecting the resource, then, under Section 110(g) of the National Historic Preservation Act, the Lessor may charge the Lessee reasonable costs for carrying out preservation responsibilities under the OCS Lands Act (30 CFR 585.802(c-d)).

5.4 Avian and Bat Survey and Reporting Requirements

5.4.1 Lighting: Any lights used to aid marine navigation by the lessee during construction, operations, and decommissioning of a meteorological buoy must meet USCG requirements for private aids to navigation [https://www.uscg.mil/forms/cg/CG_2554.pdf] and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development [https://www.boem.gov/2021-lighting-and-marking-guidelines]. For any additional lighting, the lessee must use such lighting only when necessary, and the lighting must be hooded downward and directed when possible, to reduce upward illumination and illumination of adjacent waters.

5.4.2 Motus Wildlife Tracking System: To help address information gaps on offshore movements of birds and bats, including ESA-listed species, the Lessee must install Motus stations on meteorological or environmental data buoys in coordination with U.S. Fish and Wildlife Service's Offshore Motus network.

5.4.3 Bird Deterrents: To minimize the attraction of birds, the Lessee must install bird deterrent devices (e.g., anti-perching), where appropriate.

5.4.4 Avian Annual Reporting: The Lessee must provide an annual report to the Lessor and USFWS using the contact information provided as an Enclosure to this lease, or updated contact information as provided by the Lessor. This report must document any dead or injured birds or bats found during activities conducted in support of plan submittal. The first report must be submitted within 6 months of the start of the first survey conducted in support of plan submittal, and subsequent reports must be submitted annually thereafter until all surveys in support of plan submittal have concluded and all such birds and bats have been reported. If surveys are not conducted in a given year, the annual report may consist of a simple statement to that effect. An annual report must be provided to BOEM and USFWS documenting any dead (or injured) birds or bats found on vessels and structures during construction, operations, and decommissioning. The report must contain the following information: the name of species, date found, location, a picture to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory, available at https://www.pwrc.usgs.gov/bbl/.

5.4.5 Survey Results and Data: The Lessee must provide the results of avian surveys and data to BOEM and USFWS with its plans.

6 PROJECT LABOR AGREEMENTS

The Lessee must make every reasonable effort to enter a Project Labor Agreement(s) (PLA) covering the construction stage of any project proposed for the leased area.

7 SUPPLY CHAIN

7.1 **Supply Chain Statement of Goals**: The Lessee must submit to the Lessor a statement of goals in which the Lessee will describe any plans by Lessee for contributing to the creation of a robust and resilient US-based offshore wind supply chain. The Statement of Goals must include the Lessee's plans for investments in supply chain improvements, if any, to support the offshore wind industry, including investments in:

- Installation, downpipe, survey and other vessels,
- Port infrastructure,
- Grid upgrades,
- Research & development,
- Manufacturing of components and facilities,
- Supply chain architecture like fabrication and assembly halls, port storage, laydown areas,
- Dry docks and navigation channels,
- Onshore and offshore docking and refueling stations for autonomous vehicles,
- Workforce diversity, training, and development, and
- Ensuring equal access to contracting opportunities.

Annually following COP approval, the Lessee must send updates to the Lessor on the Supply Chain Statement of Goals, and the Lessee's progress in meeting those goals. This information may be provided as part of the certification of compliance statement pursuant to 30 CFR 585.633(b).

The Lessee must submit an evaluation of the Lessee's success in meeting these goals no later than the last required Fabrication and Installation Report submission. The Lessee must submit a version of the Statement of Goals, updates, and final report that do not contain confidential information, so that BOEM can make them publicly available.

7.2 **Supply Chain Operating Fee Credit**: To promote the development of the United States' offshore wind supply chain, the Lessee is encouraged to procure major offshore wind components domestically. The Lessee may be eligible for an operating fee rate of 1% for a period of five years. To qualify, the Lessee must satisfy four or more of the following conditions:

- All nacelles for the project are assembled in the United States;
- All turbine blades are manufactured in the United States;
- All towers are manufactured in the United States;
- All foundations are manufactured in the United States;
- All transition pieces are manufactured in the United States;
- All inter-array cables are manufactured in the United States;
- All export cables are manufactured in the United States;
- The offshore substations are manufactured in the United States.

The domestic assembly and manufacturing conditions described above must be meaningful and substantial, as determined by BOEM. For example, a nacelle that is assembled abroad with minor components added in the United States would not satisfy the requirement.

To qualify for the operating fee credit, Lessees must request the credit and must provide to BOEM evidence that four or more of the above-listed conditions were met. Upon BOEM's review and determination that the requesting Lessee has met the criteria to earn the operating fee rate adjustment, the operating fee rate starting in the year after the completion of the review and determination will be 0.01 for five years.

8 SITING CONDITIONS

8.1 **Surface Structure Layout and Orientation**: This lease area, OCS-A 0544, is located adjacent to the existing BOEM lease area OCS-A 0512. In the Lessee's proposed project design in the COP, the Lessee must endeavor to design a surface structure layout that contains two common lines of orientation between OCS-A 0512 and OCS-A 0544 (as described in Navigation and Vessel Inspection Circular 01-19). If the Lessee and the neighboring BOEM lessee (i.e., the lessee for OCS-A 0512) cannot agree on such a surface structure layout, the OCS-A 0544 Lessee must incorporate a 2 nmi setback from the boundary of the neighboring lease, within which the OCS-A 0544 Lessee must not construct any surface structures. Rent will be collected on all areas assigned to the Lessee, as outlined in Addendum A, regardless of potential restrictions.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "D"

PROJECT EASEMENT

Lease Number OCS-A 0544

This section includes a description of the Project Easement(s), if any, associated with this lease, and the financial terms associated with it. This section will be updated as necessary.

I. Rent

The Lessee must begin submitting rent payments for any project easement associated with this lease commencing on the date that BOEM approves the Construction and Operations Plan or modification of the COP describing the project easement. Annual rent for a project easement 200 feet wide, centered on the transmission cable, is $70.00 per statute mile. For any additional acreage required, the Lessee must also pay the greater of $5.00 per acre per year or $450.00 per year.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "E"

RENT SCHEDULE

Lease Number OCS-A 0544

This section includes a description of the schedule for rent payments that will be determined if the Construction and Operations Plan has been approved or approved with modifications. BOEM will update this section as necessary.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

Lease Number OCS-A 0544

CONTACT INFORMATION FOR REPORTING REQUIREMENTS

The following contact information must be used for the reporting and coordination requirements specified in ADDENDUM “C”, Stipulation 5.4:

United States Fleet Forces (USFF) N46
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551
(757) 836-6206

All Other Reporting Requirements in Stipulation 5.3:

Bureau of Ocean Energy Management

Environment Branch for Renewable Energy

Phone: 703-787-1340

Email: renewable_reporting@boem.gov

ENCLOSURE

Alternative Monitoring Plan

for

Lease OCS-A 0522 Survey Plan
Geophysical, Geotechnical, and Environmental Site Characterization Campaign in Support of a Construction and Operations Plan

In accordance with Lease stipulation 4.3.3, OCS-A 0522 LLC submits this Alternative Monitoring Plan detailing the monitoring methodology for conducting geophysical surveys at night and during low visibility conditions. In addition to the measures set forth in the applicable Incidental Harassment Authorization (IHA), the following additional measures that have been previously approved by BOEM will be implemented to conduct monitoring at night or when visibility is impaired.

1. PAM operator(s) will work in coordination with the PSO to support survey activities at night and/or as needed during periods when visual observations may be impaired. In order to ensure the active monitoring of the HRG survey exclusion zones, as well as the 500 meter minimum separation distance from the NARW.*

2. During nighttime operations, the PAM Operator will work in co- ordination with the PSO on watch to attempt to verify and localize any marine mammal detections. During periods of low visibility (as determined by the lead PSO), including nighttime operations, if a NARW is detected acoustically, but cannot be localized, all sound sources operating below 200 kHz will be shutdown. If acoustic detection occurs for any other marine mammal or sea turtle encroaching upon the exclusion zones, shutdown procedures will be conducted as described above.*

3. Visual Nighttime Monitoring: In addition to the use of PAM during nighttime operations, PSOs will be equipped with Night Vision Binoculars (NVBs), Clip on Thermal Imagers (COTI) and/or handheld infrared light emitting diode spotlights. PSOs will monitor the exclusion zone and the 500 meter minimum vessel separation distance from the NARW using the night vision technology.

4. Monitoring equipment will be calibrated when possible throughout the duration of survey and true distances measured using the ships radar will be compared to those measured using visual and acoustic monitoring equipment.

*The only exception to the use of PAM is when nearshore survey work in shallower water is conducted with smaller vessels that cannot accommodate both PSOs and PAM operators. In those limited cases, PSOs will be equipped with Night Vision Binoculars (NVBs), Clip on Thermal Imagers (COTI) and/or handheld infrared light emitting diode spotlights.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT
OFFICE OF RENEWABLE ENERGY PROGRAMS
ATLANTIC OCS REGION

Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection
(Latest Revision: 11/22/2021)

The Bureau of Ocean Energy Management (BOEM) has completed a programmatic consultation with the National Marine Fisheries Service (NMFS) under section 7 of the Endangered Species Act (ESA). On June 29, 2021, NMFS issued a Letter of Concurrence under the ESA that covers site characterization (high resolution geophysical (HRG), geotechnical, and biological surveys) and site assessment/data collection (deployment, operation, and retrieval of meteorological and oceanographic data buoys) activities associated with Atlantic OCS leases.[1] As a result of this consultation, Project Design Criteria (PDCs) and Best Management Practices (BMPs) associated with the mitigation, monitoring, and reporting conditions have been developed for those data collection activities covered in the consultation.[2] These PDCs and BMPs collectively implement the ESA requirements for these offshore wind activities on the Atlantic Outer Continental Shelf as of June 29, 2021. Previous lease stipulations on existing leases issued prior to March 13, 2020 remain binding or the conditions in a lease may otherwise be amended. Similar to the requirements for threatened and endangered species and critical habitat under the ESA, BOEM has revised the mitigation, monitoring, and reporting conditions for all marine mammals as they pertain to leases.

Definitions

1. Definition of "Dynamic Management Area (DMA)": The term "DMA" refers to a temporary area designated by the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) based on visual sightings documenting the presence of three or more right whales within a discrete area.

2. Definition of “ESA-Listed Species”: The term ESA-listed species means threatened or endangered species of marine mammal, sea turtle, fish, or coral listed under the Endangered Species Act.

3. Definition of “Geophysical Survey”: The term geophysical survey means sub-bottom profiler devices including any boomers, sparkers, or bubble guns that produces noise to record geophysical data that to which the mitigation, monitoring, and reporting for operation of the sound source.

[1] https://www.boem.gov/renewable-energy/final-nlaa-osw-programmatic
[2] https://www.boem.gov/renewable-energy/orep-data-collection-ba-final

4. Definition of “Geotechnical Survey": The term "geotechnical survey" is used to collectively refer to any physical testing or sampling of the surface or sub-surface of the seafloor.

5. Definition of “Large Whale”: The term “large whale” means baleen whales (North Atlantic right whales, fin whales, sei whales, blue whales, humpback whales, and minke whales); sperm whales; and any unidentified whale.

6. Definition of “Live Bottom Features”: The term “live bottom features” means all sensitive live bottom habitats including submerged aquatic vegetation and consolidated seabed features for this measure such as pavement, scarp walls, and deep/cold-water coral reefs, and shallow/mesophotic reefs as defined in the CMECS Geologic Substrate Classifications.

7. Definition of “Protected Species”: The term protected species” means all threatened and endangered marine species listed under the Endangered Species Act and all marine mammals.

8. Definition of "Ramp-up": The term "ramp-up" means the process of incrementally increasing the acoustic source level of the survey equipment when conducting HRG surveys until it reaches the operational setting.

9. Definition of “Small Cetacean”: The term small cetacean refers to any species of dolphin in the family *Delphinidae* and harbor porpoises in the family *Phocoenidae*.

10. Definition of “Slow Zone”: The term “Slow Zone” refers to announcements by NOAA Fisheries that North Atlantic right whales have been either acoustically detected or visually within a defined area. Slow Zones are inclusive of Dynamic Management Areas.

PDC 1. Avoid Live Bottom Features

BMP 1.1 All vessel anchoring and any seafloor-sampling activities are restricted from seafloor areas with consolidated seabed features including pavement, scarp walls, and deep/cold-water coral reefs and shallow/mesophotic reefs as defined in the Coastal and Marine Ecological Classification Standard for geologic substrate classifications. All vessel anchoring and seafloor sampling must also occur at least 150 m from any known locations of threatened or endangered coral species. All sensitive live bottom habitats (eelgrass, cold-water corals, etc.) should be avoided as practicable. All vessels in coastal waters will operate in a manner to minimize propeller wash and seafloor disturbance and transiting vessels should follow deep-water routes (e.g., marked channels), as practicable, to reduce disturbance to sturgeon and sawfish habitat.

PDC 2. Avoid Spawning and Developmental Habitat of Sturgeon

BMP 2.1 No geotechnical or bottom disturbing activities will take place during the spawning/rearing season within freshwater reaches of rivers where Atlantic or shortnose sturgeon spawning occurs. Any survey plan that includes geotechnical or other benthic sampling activities in freshwater reaches (salinity 0-0.5 ppt) of such rivers will identify a time of year restriction that will avoid such activities during the time of year when Atlantic sturgeon spawning and rearing of early life stages occurs in that river. Appropriate time of year restrictions include the following:

River	**No Work Window**	**Area Affected**
Hudson	April – July	Upstream of the Delaware Memorial Bridge
Delaware	April – July	Upstream of Newburgh, NY - Beacon Bridge/Rt 84

This table will be supplemented with additional rivers as may be necessary.

PDC 3: Marine Debris Awareness and Elimination

BMP 3.1 Marine Debris Awareness Training. The Lessee must ensure that vessel operators, employees, and contractors engaged in offshore activities pursuant to the approved COP complete marine trash and debris awareness training annually. The training consists of two parts: (1) viewing a marine trash and debris training video or slide show (described below); and (2) receiving an explanation from management personnel that emphasizes their commitment to the requirements. The marine trash and debris training videos, training slide packs, and other marine debris related educational material may be obtained at https://www.bsee.gov/debris or by contacting BSEE. The training videos, slides, and related material may be downloaded directly from the website. Operators engaged in marine survey activities must continue to develop and use a marine trash and debris awareness training and certification process that reasonably assures that their employees and contractors are in fact trained. The training process must include the following elements:

- Viewing of either a video or slide show by the personnel specified above;
- An explanation from management personnel that emphasizes their commitment to the requirements;
- Attendance measures (initial and annual); and
- Recordkeeping and the availability of records for inspection by DOI.

BMP 3.2 Training Compliance Report. By January 31 of each year, the Lessee must submit to DOI an annual report that describes its marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. The Lessee must send the reports via email to BOEM (at renewable_reporting@boem.gov) and to BSEE (at marinedebris@bsee.gov).

BMP 3.3 Marking. Materials, equipment, tools, containers, and other items used in

OCS activities, which are of such shape or configuration that they are likely to snag or damage fishing devices, and could be lost or discarded overboard, must be clearly marked with the vessel or facility identification and properly secured to prevent loss overboard. All markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they may be exposed.

BMP 3.4 Recovery and Prevention. The Lessee must recover marine trash and debris that is lost or discarded in the marine environment while performing OCS activities when such incident is likely to: (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to marine trash or debris that could entangle or be ingested by marine protected species; or (b) significantly interfere with OCS uses (e.g., because the marine trash or debris is likely to snag or damage fishing equipment, or presents a hazard to navigation). The Lessee must notify DOI within 48 hours when recovery activities are: (i) not possible because conditions are unsafe; or (ii) not practicable because the marine trash and debris released is not likely to result in any of the conditions listed in (a) or (b) above. Notwithstanding this notification, DOI may still order the Lessee to recover the lost or discarded marine trash and debris if DOI finds the reasons provided by the Lessee in the notification unpersuasive. If the marine trash and debris is located within the boundaries of a potential archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact DOI for approval before conducting any recovery efforts.

Recovery of the marine trash and debris should be completed as soon as practicable, but no later than 30 calendar days from the date on which the incident occurred. If the Lessee is not able to recover the marine trash or debris within 48 hours, the Lessee must submit a recovery plan to DOI explaining the recovery activities to recover the marine trash or debris (Recovery Plan). The Lessee must submit the Recovery Plan no later than 10 calendar days from the date on which the incident occurred. Unless DOI objects within 48 hours of the filing of the Recovery Plan, the Lessee can proceed with the activities described in the Recovery Plan. The Lessee must request and obtain approval of a time extension if recovery activities cannot be completed within 30 calendar days from the date on which the incident occurred. The Lessee must enact steps to prevent similar incidents and must submit a description of these actions to BOEM and BSEE within 30 calendar days from the date on which the incident occurred.

BMP 3.5 Reporting. The Lessee must report to DOI (using the email address listed on DOI's most recent incident reporting guidance) all lost or discarded marine trash and debris. This report must be made monthly and submitted no later than the fifth day of the following month. The Lessee is not required to submit a report for those months in which no marine trash and debris was lost or discarded. The report must include the following:

- Project identification and contact information for the Lessee,
- operator, and/or contractor;
- The date and time of the incident;
- The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);

- A detailed description of the dropped object, including dimensions (approximate length, width, height, and weight) and composition (e.g., plastic, aluminum, steel, wood, paper, hazardous substances, or defined pollutants);
- Pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available;
- An indication of whether the lost or discarded item could be: a magnetic anomaly of greater than 50 nanoTesla; a seafloor target of greater than 1.6 feet (0.5 meters); or a sub-bottom anomaly of greater than 1.6 feet (0.5 meters) when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profile in accordance with DOI's most recent, applicable guidance;
- An explanation of how the object was lost; and
- A description of immediate recovery efforts and results.

In addition to the foregoing, the Lessee must submit a report within 48 hours of the incident (48-hour Report) if the marine trash or debris could: (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to marine trash or debris that could entangle, or be ingested by, marine protected species; or (b) significantly interfere with OCS uses (e.g., because the marine trash or debris is likely to snag or damage fishing equipment, or presents a hazard to navigation). The information in the 48-hour Report must be the same as that listed for the monthly report, but only for the incident that triggered the 48-hour Report. The Lessee must report to DOI if the object is recovered and, as applicable, describe any substantial variance from the activities described in the Recovery Plan that were required during the recovery efforts. The Lessee must include and address information on unrecovered marine trash and debris in the description of the site clearance activities provided in the decommissioning application required under 30 C.F.R. § 585.906.

PDC 4: Minimize Interactions with Protected Species during Geophysical Survey Operations

Per conditions of the existing ESA Section 7 consultation, the Lessee must implement the following measures for all vessels towing boomer, sparker, or bubble gun categories of equipment. Shutdown, pre-start clearance, and ramp-up procedures are not required during HRG survey operations using only other sources (e.g., ultra short baselines, fathometers, parametric shallow penetration sub-bottom profilers, hull-mounted non-parametric sub-bottom profiler/CHIRP systems, side-scan sonars, pingers, acoustic releases, echosounders, and instruments attached to submersible vehicles (HOV/AUV/ROVs)).

BMP 4.1 For situational awareness a Monitoring Zone (500 m in all directions) for ESA-listed species must be monitored around all vessels operating boomer, sparkers, or bubble gun equipment.

4.1.1 The Monitoring Zone must be monitored by approved third-party PSOs at all times and any observed listed species must be recorded (see reporting requirements below).

4.1.2 Any observations of ESA-listed species by crew members aboard any vessel associated with the survey must be relayed to the PSO on duty.

4.1.3 For monitoring around the autonomous surface vessel (ASV) where remote PSO monitoring must occur from the mother vessel, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. PSOs must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft. In addition, night-vision goggles with thermal clip-ons and a handheld spotlight must be provided and used such that PSOs can focus observations in any direction around the mother vessel and/or the ASV.

BMP 4.2 To minimize exposure to noise that could be disturbing, a 500 m Shutdown Zone for North Atlantic right whales and unidentified whales, and a 100 m Shutdown Zone for all other ESA-listed whales visible at the surface must be established around each vessel operating boomer, sparker, or bubble gun equipment.

4.2.1 The Shutdown Zone(s) must be monitored by third-party PSOs at all times when boomer, sparker, or bubble gun categories of equipment is being operated and all observed ESA-listed species must be recorded (see reporting requirements below).

4.2.2 If an ESA-listed whale is detected within or entering the respective Shutdown Zone, any boomer, sparker, or bubble gun categories of equipment that requires PSOs must be shut off until the minimum separation distance is re-established and the measures in (4.3) are carried out (500 m for North Atlantic right whales and 100 m for other ESA-listed whales).

4.2.3 A PSO must notify the survey crew that a shutdown of all active boomer, sparker, and bubble gun acoustic sources is immediately required. The vessel operator and crew must comply immediately with any call for a shutdown by the PSO. Any disagreement or discussion must occur only after shutdown.

BMP 4.3 For non-ESA-listed marine mammals, the Lessee must comply with NMFS permit conditions of any applicable Incidental Take Authorization (ITA) received under the Marine Mammal Protection Act. If an ITA is not required, the Lessee must adhere to the following measures for non-ESA-listed marine mammals for which incidental take has not been authorized.

4.3.1 Prior to powering up survey equipment, a 328-foot (100-meter) clearance zone must be clear of all small cetaceans and seals for 15 minutes; and humpback whales, minke whales, Kogia, and beaked whales for 30 minutes.

4.3.2 If any non-ESA-listed marine mammal is observed within the clearance zone during the monitoring period, the clock must be paused for 15 or 30 minutes depending on the species sighted. If the PSO confirms that the animal has exited the shutdown zone and is headed away from the survey vessel, the clock that was paused may resume.

4.3.3 The clock will reset to respective clearance time if the marine mammal dives and is not resighted by the PSO.

4.3.4 A shutdown zone of 100 meters must be established around the survey vessel. For non-ESA-listed marine mammals, a shutdown of impulsive acoustic sources is required upon observation of a species entering the shutdown zone.

4.3.5 If delphinids from the genera *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops* and seals are visually detected approaching the vessel or towed acoustic sources, shutdown is not required. If there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgment in making the decision to call for a shutdown.

4.3.6 If the Shutdown Zone(s) cannot be adequately monitored for protected species (i.e., a PSO determines conditions, including at night or other low-visibility conditions, are such that animals cannot be reliably sighted within the Shutdown Zone(s), the survey must be stopped until such time that the Shutdown Zone(s) can be reliably monitored.

<u>BMP 4.4</u> Before any noise-producing survey equipment is deployed, the Monitoring Zones (500 meters for all ESA-listed species and 200 meters for non-ESA-listed marine mammals) must be monitored for 30 minutes of pre-clearance observation.

4.4.1 If any protected species is observed within the respective Monitoring Zone during the 30-minute pre-clearance period, the 30-minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30-minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.

<u>BMP 4.5</u> A "ramp up" of the boomer, sparker, or bubble gun survey equipment must occur at the start or re-start of geophysical survey activities when technically feasible. A ramp up must begin with the power for the geophysical survey ramped up half power for 5 minutes, and then to full power.

<u>BMP 4.6</u> Following a shutdown for any reason, ramp up of the equipment may begin immediately only if: (a) <u>the shutdown is less than 30 minutes, (b)</u> visual monitoring of the Shutdown Zone(s) continued throughout the shutdown, (<u>c</u>) the animal(s) causing the shutdown was visually followed and confirmed by PSOs to be outside of the Shutdown Zone(s) and heading away from the vessel, and (<u>d</u>) the Shutdown Zone(s) remains clear of all ESA-listed species. If all the conditions above are not met, the Monitoring Zone (500

m for all ESA-listed species) must be monitored for 30 minutes of pre-clearance observation before noise-producing equipment can be turned back on.

BMP 4.7 In order for geophysical surveys to be conducted at night or during low-visibility conditions, PSOs must be able to effectively monitor the Clearance and Shutdown Zone(s). No surveys may occur if the Clearance and Shutdown Zone(s) cannot be reliably monitored for the presence of ESA-listed species.

4.7.1 An Alternative Monitoring Plan (AMP) must be submitted to BOEM detailing the monitoring methodology that will be used during nighttime and low-visibility conditions and an explanation of how it will be effective at ensuring that the Shutdown Zone(s) can be maintained during nighttime and low-visibility survey operations. The plan must be submitted 60 days before survey operations are set to begin.

4.7.2 The plan must include technologies that have the technical feasibility to detect ESA-listed species in the Clearance and Shutdown Zones. Night-vision equipment (i.e., night-vision goggles and/or infrared technology) must be available for use during nighttime monitoring.

4.7.3 PSOs should be trained and experienced with any AMP technology used.

4.7.4 The AMP must describe how calibration will be performed, for example, by including observations of known objects at set distances and under various lighting conditions. This calibration could be performed during mobilization and periodically throughout the survey operation.

4.7.5 PSOs shall make nighttime observations from a platform with no visual barriers, due to the potential for the reflectivity from bridge windows or other structures to interfere with the use of the night vision optics.

BMP 4.8 To minimize risk to North Atlantic right whales, no surveys may occur in Cape Cod Bay from January 1 - May 15 of any year (in an area beginning at 42°04′56.5″ N-070°12′00.0″ W; thence north to 42°12′00.0″ N-070°12′00.0″ W; thence due west to charted mean high water line; thence along charted mean high water within Cape Cod Bay back to beginning point).

BMP 4 .9 Boomer, sparker, or bubble gun sound sources used within the Southeast Right Whale Critical Habitat Unit 2 during the calving and nursing season (December-March) shall not operate at frequencies between 7 kHz and 35 kHz at night or poor visibility (i.e., anytime AMP methods are required).

BMP 4.10 At times when multiple survey vessels using boomer, sparker, or bubble gun categories of equipment are operating within a lease, adjacent lease areas, or exploratory cable routes, a minimum separation distance must be maintained between survey vessels to ensure that sound sources do not overlap.

BMP 4.11 To minimize disturbance to the Northwest Atlantic Ocean Distinct Population Segment of loggerhead sea turtles, a voluntary pause in sparker operation should be implemented for all vessels operating in nearshore critical habitat for loggerhead sea turtles. These conditions apply to critical habitat boundaries for nearshore reproductive habitats LOGG N-3 through LOGG N-16 (79 FR 39855) from April 1 to September 30. Following pre-clearance procedures in 4.1, if any loggerhead or other unidentified sea turtles is observed within a 100-meter monitoring zone during a survey, sparker operation should be paused by turning off the sparker until the sea turtle is beyond 100-meters of the survey vessel. If the animal dives or visual contact is otherwise lost, sparker operation may resume after a minimum 2-minute pause following the last sighting of the animal.

BMP 4.12 Any visual observations of listed species by crew or project personnel must be communicated to PSOs on-duty.

BMP 4.13 During good conditions (e.g., daylight hours; Beaufort scale 3 or less) when survey equipment is not operating, to the maximum extent practicable, PSOs must conduct observations for listed species for comparison of sighting rates and behavior with and without use of active geophysical survey equipment. Any observed listed species must be recorded regardless of any mitigation actions required.

PDC 5. Minimize Vessel Interactions with Protected Species

The Lessee must ensure all vessels associated with survey activities (transiting or actively surveying) must comply with the vessel strike avoidance measures specified below. The only exception is when the safety of the vessel or crew necessitates deviation from these requirements. If any such incidents occur, they must be reported as outlined below.

BMP 5.1 Vessel captain and crew must maintain a vigilant watch for all protected species and reduce speed, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any listed species. The presence of a single individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised. If pinnipeds or small delphinids of the following genera: *Delphinus*, *Lagenorhynchus*, *Stenella*, and *Tursiops* are visually detected approaching the vessel (i.e., to bow ride) or towed equipment, vessel speed reduction, course alteration, and shutdown are not required.

BMP 5.2 Anytime a survey vessel is underway (transiting or surveying), the vessel must maintain a 500 m minimum separation distance from ESA-listed species and a PSO must monitor a Vessel Strike Avoidance Zone (500 m or greater from any sighted ESA-listed species or other unidentified large marine mammal visible at the surface) to ensure detection of that animal in time to take necessary measures to avoid striking the animal. If the survey vessel does not require a PSO for the type of survey equipment used, a trained crew lookout may be used as required in 5.3. For monitoring around the autonomous surface vessels, regardless of the equipment it may be operating, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. A dedicated operator must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft.

5.2.1 Survey plans must include identification of vessel strike avoidance measures, including procedures for equipment shut down and retrieval, communication between PSOs/crew lookouts, equipment operators, and the captain, and other measures necessary to avoid vessel strikes while maintaining vessel and crew safety. If any circumstances are anticipated that may preclude the implementation of this PDC, they must be clearly identified in the survey plan and alternative procedures outlined in the plan to ensure minimum distances are maintained and vessel strikes can be avoided.

5.2.2 All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of listed species. The expectation and process for reporting of protected species sighted during surveys must be clearly communicated and posted in highly visible locations aboard all project vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so.

5.2.3 A minimum separation distance of 500 m from all ESA-listed whales (including unidentified large whales) must be maintained around all surface vessels at all times.

5.2.4 If an ESA-listed whale or large unidentified whale is observed within 500 m of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. Vessels may also shift to idle if feasible.

5.2.5 If a large whale is sighted within 200 m of the forward path of a vessel, the vessel operator must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the large whale has moved beyond 500 m.

5.2.6 If a sea turtle or manta ray is sighted at any distance within the operating vessel's forward path, the vessel operator must slow down to 4 knots and steer away (unless unsafe to do so). The vessel may resume normal vessel operations once the vessel has passed the individual.

5.2.7 During times of year when sea turtles are known to occur in the survey area, vessels must avoid transiting through areas of visible jellyfish aggregations or floating vegetation (e.g., sargassum lines or mats). In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.

5.2.8 Vessels operating in water depths with less than four feet of clearance between the vessel and the bottom should maintain speeds no greater than 4 kts to minimize risk of vessel strikes on sturgeon and sawfish.

BMP 5.3 The Lessee must ensure a PSO or crew lookout is posted during all times to avoid interactions with ESA-listed species when a vessel is underway (transiting or surveying) by monitoring in all direction.

5.3.1 Visual observers monitoring the vessel separation distances from ESA-listed species can be either PSOs or crew members (if PSOs are not required). If the trained lookout is a vessel crew member, this must be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. All observations must be recorded per reporting requirements in 8.

5.3.2 Regardless of monitoring duties, all crew members responsible for navigation duties must receive site-specific training on ESA-listed species sighting/reporting and vessel strike avoidance measures.

5.3.3 Vessels underway must not divert their course to approach any ESA-listed species and marine mammals.

BMP 5.4 Regardless of vessel size, vessel operators must reduce vessel speed to 10 knots (18.5 mph) or less while operating in any Seasonal Management Area (SMA) and Dynamic Management Area (DMA) or Slow Zone triggered by visual detections of North Atlantic right whales. An exception to this requirement is for vessels operating in areas within a portions of a visually designated DMA or Slow Zone where it is not reasonable to expect the presence of North Atlantic right whales (e.g., Long Island Sound, shallow harbors).

BMP 5.5 BOEM encourages increased vigilance through the required best management practices to minimize vessel interactions with protected species, by reducing speeds to 10 knots or less when operating within an acoustically triggered slow zone, and when feasible, avoid Slow Zones.

BMP 5.6 The Lessee must ensure all vessel operators check for information regarding mandatory or voluntary ship strike avoidance (SMAs and DMAs (or Slow Zones that are also designated as DMAs) and daily information regarding North Atlantic right whale sighting locations. These media may include, but are not limited to: NOAA weather radio, U.S. Coast Guard NAVTEX and channel 16 broadcasts, Notices to Mariners, the Whale Alert app, or WhaleMap website.

5.6.1 North Atlantic right whale Sighting Advisory System info can be accessed at: https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html

5.6.2 Information about active SMAs, DMAs, and Slow Zones can be accessed at: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales

PDC 6: Minimize Risk During Buoy Deployment, Operations, and Retrieval

The Lessee must ensure any mooring systems used during survey activities must be designed to prevent potential entanglement or entrainment of listed species, and in the unlikely event that entanglement does occur, ensure proper reporting of entanglement events according to the measures specified below.

BMP 6.1 The Lessee must ensure that any buoys attached to the seafloor use the best available mooring systems. Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of listed species while ensuring the safety and integrity of the structure or device.

BMP 6.2 All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables, or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species.

BMP 6.3 Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.

BMP 6.4 During all buoy deployment and retrieval operations, buoys should be lowered and raised slowly to minimize risk to listed species and benthic habitat. Additionally, PSOs or trained project personnel (if PSOs are not required) should monitor for listed species in the area prior to and during deployment and retrieval and work should be stopped if listed species are observed within 500 meters of the vessel to minimize entanglement risk.

BMP 6.5 If a live or dead marine protected species becomes entangled, operators must immediately contact the applicable stranding network coordinator using the reporting contact details (see Reporting Requirements section) and provide any on-water assistance requested.

BMP 6.6 All buoys must be properly labeled with owner and contact information.

PDC 7: Protected Species Observers

The Lessee must use qualified third-party PSOs to observe Clearance and Shutdown Zones for boomer, sparker, or bubble gun categories of acoustic sources with the exception of parametric subbottom profilers or ultra short baseline equipment.

BMP 7.1 All PSOs must have completed a BOEM-approved PSO training program and have received NMFS approval to act as a PSO for geophysical surveys. The Lessee must provide to BOEM upon request, documentation of NMFS approval as PSOs for geophysical activities in the Atlantic and copies of the most recent training certificates of individual PSOs' successful completion of a commercial PSO training course with an overall examination score of 80% or greater. Instructions and application requirements to become a NMFS- approved PSO can be found at: https://www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers.

BMP 7.2 Crew members serving as lookouts when PSOs are not required must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.

BMP 7.3 PSOs deployed for geophysical survey activities must be employed by a third-party observer provider. While the vessel is underway, they must have no other tasks than to conduct observational effort, record data, and communicate with and instruct relevant vessel crew to the presence of listed species and associated mitigation requirements. PSOs on duty must be clearly listed on daily data logs for each shift.

7.3.1 Non-third-party observers may be approved by NMFS on a case-by-case basis for limited, specific duties in support of approved, third-party PSOs.

BMP 7.4 A minimum of one PSO (assuming PDC 5 is met) must be observing for listed species at all times that boomer, sparker, or bubble gun equipment is operating, or a minimum of one PSO or one Trained Lookout when the survey vessel is actively transiting during daylight hours (30 minutes prior to civil sunrise and through 30 minutes following civil sunset). The Lessee must include a PSO schedule showing that the number of PSOs used is sufficient to effectively monitor the affected area for the project (e.g., surveys) and record the required data. PSOs must not be on watch for more than 4 consecutive hours, with at least a 1-hour break after a 4-hour watch. PSOs must not work for more than 12 hours in any 24-hour period.

BMP 7.5 Visual monitoring must occur from the most appropriate vantage point on the associated operational platform that allows for 360-degree visual coverage around the vessel. If 360-degree visual coverage is not possible from a single vantage point, multiple PSOs must be on watch to ensure such coverage.

BMP 7.6 The Lessee must ensure that suitable equipment is available to each PSO to adequately observe the full extent of the Monitoring and Shutdown Zones during all vessel operations and meet all reporting requirements. The following equipment must be available:

7.6.1 Visual observations must be conducted using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

7.6.2 Rangefinders (at least one per PSO, plus backups) or reticle binoculars (e.g., 7 x 50) of appropriate quality (at least one per PSO, plus backups) to estimate distances to listed species located in proximity to the vessel and Monitoring and Shutdown Zone(s).

7.6.3 Digital cameras with a telephoto lens that is at least 300 mm or equivalent on a full-frame single lens reflex (SLR). The camera or lens should also have an image stabilization system. Cameras should be used to record sightings and verify species identification whenever possible.

7.6.4 An laptop or tablet to collect and record data electronically.

7.6.5 Global Positioning Units (GPS) if data collection/reporting software does not have built-in positioning functionality.

7.6.6 PSO data must be collected in accordance with standard data reporting, software tools, and electronic data submission standards approved by BOEM for the particular activity.

7.6.7 Any other tools deemed necessary to adequately perform PSO tasks.

PDC 8: Reporting Requirements. The Lessee must ensure that monthly reporting of survey activities is submitted to BOEM (at renewable_reporting@boem.gov) by the PSO provider on the 15th of each month for each vessel conducting survey work. Any editing, review, and quality assurance checks must be completed only by the PSO provider prior to submission to BOEM. The PSOs may record data electronically, but the data fields listed below must be recorded and exported to an Excel file. Alternatively, BOEM has developed an Excel spreadsheet with all the necessary data fields that is available upon request. The Lessee must submit final monthly reports to BOEM in coordination with PSO Providers within 90 calendar days following completion of a survey. Final monthly reports must contain vessel departure and return ports, PSO names and training certifications, the PSO provider contact information, dates of the survey, a vessel track, a summary of all PSO documented sightings of protected species, survey equipment shutdowns that occurred, any vessel strike-avoidance measures taken, takes of protected species that occurred, and any observed injured or dead protected species. PSOs must be approved by NMFS prior to the start of a survey, and the Lessee must submit documentation of NMFS' approval upon request to BOEM (at renewable_reporting@boem.gov). Application requirements to become a NMFS-approved PSO for geological and geophysical surveys can be obtained by sending an inquiry to nmfs.psoreview@noaa.gov. DOI will work with the Lessee to ensure that DOI does not release confidential business information found in the monitoring reports.

BMP 8.1 Instructions for HRG Survey Reports. The following data fields for PSO reports of geological and geophysical surveys must be reported in Excel format (.xml file):

Survey Information:

- Project name
- Lease number
- State Coastal Zones
- Survey Contractor
- Survey Type
- Reporting start and end dates
- Visual monitoring equipment used;
- Distance finding method used
- PSO names (last, first), training certification, and affiliation
- PSO location and observation height above sea surface

Operations Information:

- Vessel name(s)
- Sound sources including equipment type, power levels, and frequencies used
- Greatest RMS source level

- Dates of departures and returns to port with port name;

Monitoring Effort Information:

- Date (YYYY-MM-DD)
- Source status at time of observation (on/off)
- Number of PSOs on duty
- Start time of observations for each shift in UTC (HH:MM)
- End time of observations for each shift in UTC (HH:MM)
- Duration of visual observations of protected species
- Wind speed (knots), from direction
- Swell (meters)
- Water depth (meters)
- Visibility (km)
- Glare severity
- Block name and number
- Location: Latitude and Longitude
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Duration of pre-clearance visual monitoring
- Time of day of pre clearance (day/night)
- Time power-up/ramp-up began
- Time equipment full power was reached
- Duration of power-up/ramp-up (if conducted)
- Time survey activity began (equipment on)
- Time survey activity ended (equipment off)
- Survey Duration
- Did a shutdown/power-down occur?
    - Time shutdown was called for (UTC)
    - Time equipment was shut down (UTC)
- Vessel location (latitude/longitude, decimal degrees) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts; recorded at :30 intervals if obtainable from data collection software
- Habitat or prey observations
- Marine debris sighted

Detection Information (in addition to the Survey, Operation, and Monitoring fields)

- Date (YYYY-MM-DD)
- Sighting ID (multiple sightings of the same animal or group should use the same ID)
- Time at first detection in UTC (YY-MMDDT HH:MM)
- Time at last detection in UTC (YY-MM-DDT HH:MM)
- PSO name(s) (Last, First) on duty
- Effort (ON=Hammer On; OFF=Hammer Off)
- Start time of observations

- End time of observations
- Compass heading of vessel (degrees)
- Beaufort scale
- Precipitation
- Cloud coverage (%)
- Sightings including common name and scientific name
- Certainty of identification
- Number of adults
- Number of juveniles
- Total number of animals or estimated group size
- Bearing to animal(s) when first detected (ship heading + clock face)
- Distance determination method
- Distance from vessel (e.g., reticle distance in meters)
- Description of unidentified animals (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to survey activity and distance from source vessel)
- Direction of travel/first approach (relative to vessel)
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- If any bow-riding behavior observed, record total duration during detection (HH:MM)
- Initial heading of animal(s) (degrees)
- Final heading of animal(s) (degrees)
- Shutdown zone size during detection (meters)
- Was the animal inside the shutdown zone? (Y/N)
- Closest distance to vessel (reticle distance in meters)
- Time at closest approach (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)
- If observed/detected during ramp-up/power-up: first distance (reticle distance in meters), closest distance (reticle distance in meters), last distance (reticle distance in meters), behavior at final detection
- Did a shutdown/power-down occur? (Y/N)
- Time shutdown was called for (UTC)
- Time equipment was shut down (UTC)
- Detections with PAM

BMP 8.2 The Lessee must submit a final monitoring report to BOEM (renewable_reporting@boem.gov) and NMFS (nmfs.gar.incidental-take@noaa.gov) within 90 days after completion of yearly survey activities. The report must fully document the methods and monitoring protocols, summarize the data recorded during monitoring, estimate the number of listed species that may have been taken during survey activities, describe, assess and compare the effectiveness of mitigation and monitoring measures. Any photos or videos taken by PSOs must be included in the report. Factors that may be contributing to impaired observations during active surveys, such as environmental conditions or equipment malfunctions, must be described. PSO raw sightings and trackline data must also be provided with the final monitoring report.

BMP 8.3 Reporting sightings of North Atlantic right whales:

8.4.1 If a North Atlantic right whale is observed at any time by a PSO or project personnel during surveys or vessel transit, the Lessee or PSO must report sighting within two hours of occurrence when practicable and no later than 24 hours after occurrence. In the event of a sighting of a right whale that is dead, injured, or entangled, efforts must be made to make such reports as quickly as possible to the appropriate regional NOAA stranding hotline (from Maine-Virginia report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343). Right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the WhaleAlert App (http://www.whalealert.org/).

8.4.2 Further information on reporting a right whale sighting can be found at: https://apps-nefsc.fisheries.noaa.gov/psb/surveys/documents/20120919_Report_a_Right_Whale.pdf

BMP 8.4 In the event of a vessel strike of a protected species by any survey vessel, the Lessee must immediately report the incident to BOEM (renewable_reporting@boem.gov) and NMFS (nmfs.gar.incidental-take@noaa.gov) and the NOAA stranding hotline: From Maine-Virginia, report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343. The report must include the following information:

- Name, telephone, and email or the person providing the report;
- The vessel name;
- The Lease Number;
- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable); Status of all sound sources in use;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (wave height, wind speed, light, cloud cover, weather, water depth);
- Estimated size and length of animal that was struck;
- Description of the behavior of the species immediately preceding and following the strike;
- If available, description of the presence and behavior of any other protected species immediately preceding the strike;
- Disposition of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, last sighted direction of travel, status unknown, disappeared); and

- To the extent practicable, photographs or video footage of the animal(s).

BMP 8.5 Detected or Impacted Protected Species Reporting. The Lessee is responsible for reporting dead or injured protected species, regardless of whether they were observed during operations or due to Lessee activities. The Lessee must report any potential take, strikes, or dead/injured protected species caused by Project vessels to the NMFS Protected Resources Division (nmfs.gar.incidental-take@noaa.gov), NOAA Fisheries 24-hour Stranding Hotline number (866-755-6622), BOEM (at renewable_reporting@boem.gov), and BSEE (at protectedspecies@bsee.gov) as soon as practicable, but no later than 24 hours from the time the incident took place (Detected or Impacted Protected Species Report). In the event that an injured or dead marine mammal or sea turtle is sighted, regardless of the cause, the Lessee must report the incident to the NMFS Protected Resources Division (nmfs.gar.incidental-take@noaa.gov), NMFS 24-hour Stranding Hotline number (866-755-6622), BOEM (at renewable_reporting@boem.gov), and BSEE (at protectedspecies@bsee.gov)) as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours from the sighting (Protected Species Incident Report). Staff responding to the hotline call will provide any instructions for the handling or disposing of any injured or dead protected species by individuals authorized to collect, possess, and transport sea turtles.

8.5.1 The Protected Species Incident Report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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[illegible]
[illegible]

June 29, 2021

James F. Bennett
Program Manager, Office of Renewable Energy Programs
U.S. Department of the Interior
Bureau of Ocean Energy Management
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

Dear Mr. Bennett:

We have completed consultation pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, concerning the effects of certain site assessment and site characterization activities to be carried out to support the siting of offshore wind energy development projects off the U.S. Atlantic coast. The Bureau of Ocean Energy Management (BOEM) is the lead federal agency for this consultation. BOEM's request for consultation included a biological assessment (BA) that was finalized in February 2021 and was supplemented with modified Project Design Criteria (PDC) and supplemental information through June 11, 2021. The activities considered in this consultation may occur in the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area; see Figure 1 in Appendix A) and adjacent coastal waters over the next 10 years (i.e., June 2021 – June 2031). Other action agencies include the U.S. Army Corps of Engineers (USACE), the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the National Marine Fisheries Service's (NMFS) Office of Protected Resources (OPR).

ACTION AREA AND PROPOSED ACTIONS

As defined in 50 CFR 402.02, "programmatic consultation is a consultation addressing an agency's multiple actions on a program, region, or other basis. Programmatic consultations allow NMFS to consult on the effects of programmatic actions such as: (1) Multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas; and, (2) A proposed program, plan, policy, or regulation providing a framework for future proposed actions." This programmatic consultation considers category 1--multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas.

The survey activities considered in this consultation are geophysical and geotechnical surveys and the deployment, operation, and retrieval of environmental data collection buoys. These frequent, similar activities are expected to be implemented along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area). The meteorological buoys and geophysical and geotechnical surveys are expected to occur to support the potential future siting of offshore wind turbines, cables, and associated offshore facilities such as substations or service platforms.

Action Agencies

As noted above, the activities considered here may be authorized, funded, or carried out by BOEM, the DOE, the EPA, the USACE, and NMFS. The roles of these action agencies are described here.

BOEM

The Outer Continental Shelf Lands Act (OCSLA), as amended, mandates the Secretary of the Interior (Secretary), through BOEM, to manage the siting and development of the Outer Continental Shelf (OCS) for renewable energy facilities. BOEM is delegated the responsibility for overseeing offshore renewable energy development in Federal waters (30 C.F.R. Part 585). Through these regulations, BOEM oversees responsible offshore renewable energy development, including the issuance of leases for offshore wind development. This consultation considers the effects of certain data collection activities (geophysical and geotechnical surveys and deployment of meteorological buoys) that may be undertaken to support offshore wind development. BOEM regulations require that a lessee provide the results of shallow hazard, geological, geotechnical, biological, and archaeological surveys with its Site Assessment Plan and Construction and Operations Plan (see 30 C.F.R. 585.610(b) and 30 C.F.R. 585.626(a)). BOEM also funds data collection projects, such as seafloor mapping through the Environmental Studies Program (ESP). The activities considered here may or may not occur in association with a BOEM lease. This consultation does not obviate the need for an appropriate consultation to occur on lease issuance or the approval of a Site Assessment Plan or Construction and Operations Plan.

DOE

The DOE's Office of Energy Efficiency and Renewable Energy (EERE) provides federal funding (financial assistance) in support of renewable energy technologies. EERE's Wind Energy Technologies Office invests in energy science research and development activities that enable the innovations needed to advance U.S. wind systems, reduce the cost of electricity, and accelerate the deployment of wind power, including offshore wind. EERE's Water Power Technologies Office enables research, development, and testing of emerging technologies to advance marine energy. DOE's financial assistance in support of renewable energy projects could have consequences for listed species in federal or state waters. Data collection activities that may be supported by DOE and are considered in this programmatic consultation include deployment of meteorological buoys and geotechnical and geophysical surveys.

EPA

Section 328(a) of the Clean Air Act (CAA) (42 U.S.C. § 7401 *et seq.*) as amended by Public Law 101-549 enacted on November 15, 1990, required the EPA to establish air pollution control requirements for OCS sources subject to the OCSLA for all areas of the OCS, except those located in the Gulf of Mexico west of 87.5 degrees longitude (near the border of Florida and Alabama),[1] in order to attain and maintain Federal and State ambient air quality standards and comply with the provisions of part C of title I of the Act.[2] To comply with this statutory mandate, on September 4, 1992, EPA promulgated "Outer Continental Shelf Air Regulations" at 40 C.F.R. part 55. (57 Fed. Reg. 40,791). 40 C.F.R part 55 also established procedures for

[1] Public Law 112-74, enacted on December 23, 2011, amended § 328(a) to add an additional exception from EPA regulation for OCS sources "located offshore of the North Slope Borough of the State of Alaska."
[2] Part C of title I contains the Prevention of Significant Deterioration of Air Quality (PSD) requirements.

implementation and enforcement of air pollution control requirements for OCS sources. 40 C.F.R. § 55.2 states:

> OCS source means any equipment, activity, or facility, which:
> (1) Emits or has the potential to emit any air pollutant;
> (2) Is regulated or authorized under OCSLA (43 U.S.C. § 1331 *et seq.*); and,
> (3) Is located on the OCS or in or on waters above the OCS.
> This definition shall include vessels only when they are:
> (1) Permanently or temporarily attached to the seabed and erected thereon and used for the purpose of exploring, developing, or producing resources therefrom …; or
> (2) Physically attached to an OCS facility, in which case only the stationary sources aspects of the vessels will be regulated.

As described in the BA, where activities considered in this consultation emit or will have the potential to emit air pollutants and are located on the OCS or in or on waters above the OCS, the activities may be subject to the 40 C.F.R. part 55 requirements, including the 40 C.F.R. § 55.6 permitting requirements. Such activities are expected to be limited to vessel operations and some meteorological buoys.

USACE

Of the activities considered in this consultation, the deployment of meteorological buoys and carrying out geotechnical surveys may require authorization from the USACE. The USACE has regulatory responsibilities under Section 10 of the Rivers and Harbors Act of 1899 to approve/permit any structures or activities conducted below the mean high water line of navigable waters of the United States. The USACE also has responsibilities under Section 404 of the Clean Water Act (CWA) to prevent water pollution, obtain water discharge permits and water quality certifications, develop risk management plans, and maintain such records. A USACE Nationwide Permit (NWP) 5 or Regional General Permit (RGP) for Scientific Measurement Devices is required for devices and scientific equipment whose purpose is to record scientific data through such means as meteorological stations (which would include buoys); water recording and biological observation devices, water quality testing and improvement devices, and similar structures. In New England States, RGPs are required instead of the NWP. As stated in both types of permit, "*upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to preconstruction elevations,*" as prescribed by Section 404 of the CWA (U. S. Army Corps of Engineers 2012).

Consideration of Potential Issuance of Incidental Harassment Authorizations for Survey Activities

The Marine Mammal Protection Act (MMPA), and its implementing regulations, allows, upon request, the incidental take of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographic region. Incidental take is an unintentional, but not unexpected, "take." Upon receipt and review of an adequate and complete application, NMFS OPR may authorize the incidental take of marine mammals incidental to the marine site characterization surveys pursuant to the MMPA, if the required findings are made. Proponents of some survey activities considered here may be required to obtain Incidental Take Authorizations (ITAs) under the MMPA. Therefore, the Federal actions considered in this consultation include the issuance of ITAs for survey activities described herein. Those ITAs may or may not provide MMPA take authorization for marine mammal species that are also listed under the ESA. As noted above, we have determined that all activities considered (inclusive of all PDC and BMPs) in this consultation will have no effect or are not likely to adversely affect any species listed under the ESA. By definition, that means that no take, as defined in the ESA, is anticipated. However, given the differences in the definitions of "harassment" under the MMPA and ESA, it is possible the site characterization surveys could result in harassment, as defined under the MMPA, but meet the ESA definition of "not likely to adversely affect." This consultation addresses such situations.

Under the MMPA (16 U.S.C. §1361 et seq.), take is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" and further defined by regulation (50 C.F.R. §216.3). Harassment is defined under the MMPA as any act of pursuit, torment, or annoyance which: has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B Harassment). As defined in the MMPA, Level B harassment does not include an act that has the potential to injure a marine mammal or marine mammal stock in the wild.

Under the ESA, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." Harm is defined by regulation (50 C.F.R. §222.102) as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding, or sheltering." NMFS does not have a regulatory definition of "harass." However, on December 21, 2016, NMFS issued interim guidance[3] on the term "harass," under the ESA, defining it as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." The NMFS interim ESA definition of "harass" is not equivalent to MMPA Level B harassment. Due to the differences in the definition of "harass" under the MMPA and ESA, there may be activities that result in effects to a marine mammal that would meet the threshold for harassment under both the MMPA and the ESA, while other activities may result in effects that would meet the threshold for harassment under the MMPA but not under the ESA. This issue is addressed further in the Marine Mammals section of this letter.

For this consultation, we considered NMFS' interim guidance on the term "harass" under the ESA when evaluating whether the proposed activities are likely to harass ESA-listed species, and we considered the available scientific evidence to determine the likely nature of the behavioral responses and their potential fitness consequences. As explained below, we determined that the effects to ESA-listed marine mammals resulting from the survey activities considered here would be insignificant and not result in harassment per NMFS' interim guidance on harassment under the ESA.

[3] NMFS Policy Directive 02-110-19; available at *https://media.fisheries.noaa.gov/dam-migration/02-110-19.pdf*; last accessed March 25, 2021.

Activities Considered in this Programmatic Consultation

The survey activities that are considered here consist of high resolution geophysical (HRG) and geotechnical surveys designed to characterize benthic and subsurface conditions and deployment, operation, and retrieval of environmental data collection buoys. A complete description of representative survey equipment to be used is included in Appendix A (Tables A.1 and A.2). Additionally, this consultation considers effects of deploying, operating, and retrieving buoys equipped with scientific instrumentation to collect oceanographic, meteorological, and biological data. All activities considered here will comply with a set of PDC (see Appendix B). We also consider the effects of vessel traffic associated with these activities. All vessels carrying out these activities, including during transits, will comply with measures outlined in Appendix B regardless of the equipment used or the sound levels/frequency at which equipment is operating. This consultation does not consider the effects of any survey activities that have the potential to result in directed or incidental capture or collection of any ESA-listed species (e.g., trawl surveys in areas where ESA-listed sea turtles occur).

This consultation does not evaluate the construction of any commercial electricity generating facilities or transmission cables with the potential to export electricity. Consistent with our understanding of the relevant regulations, BOEM has indicated that any such proposals for installation of electricity generating facilities (i.e., installation of wind turbines) or transmission cables would be a separate federal action (including authorization from BOEM) requiring a separate section 7 consultation. "Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR §402.02; see also 50 CFR §402.17). The construction, operation, and/or decommissioning of any offshore wind facility or appurtenant facilities (e.g., cables, substations, etc.) are not consequences of the proposed survey activities considered here as they are not reasonably certain to occur. As such, this consultation does not consider these activities.

Action Area

The action area is defined by regulation as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The Action Area for this consultation includes the areas to be surveyed and where buoys will be deployed, areas where increased levels of noise will be experienced as well as the vessel transit routes between existing Atlantic coast ports and the survey area. This area encompasses all effects of the proposed action considered here.

Surveys considered in this programmatic consultation will take place at depths 100-meters (m) or less within the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area) located on the Atlantic Outer Continental Shelf (OCS) and may also occur along potential cable corridor routes in nearshore waters of Atlantic coast states. The three planning areas extend from the US/Canada border in the north to Palm Bay, Florida in the south. The North, Mid-Atlantic, and South Atlantic planning areas together extend seaward from the U.S./Canadian border in the North to Palm Bay, Florida in the South. For the purposes of this consultation, the action area includes the Atlantic Renewable Energy Regions in OCS waters out to the 100 m depth contour in the North Atlantic, extending from waters offshore Maine to New Jersey; Mid-Atlantic, extending from waters offshore Delaware to North Carolina; and the South Atlantic extending from waters offshore South Carolina to east-central Florida and the adjacent coastal waters to the Atlantic coast (see Figure 1 in Appendix A for map of the action area). The offshore extent of the action area is defined by the anticipated maximum water depth where potential offshore wind facilities could be constructed. The seaward limit for siting a wind energy facility on the OCS is approximately 25 nautical miles (nm) (46.3 kilometers [km]) from shore or 100 m (328 feet [ft.]) water depth due to economic viability limitations. The current fixed foundation technologies are limited to depths of about 60 m. Although the majority of site assessment and site characterization activities will occur in water <60 m to accommodate the depth limitations in support of fixed foundations for wind turbine generators, floating foundations may be used in water depths >60 m in the future.

IMPLEMENTATION, TRACKING, AND REPORTING FOR THIS PROGRAMMATIC CONSULTATION

As noted above, activities considered in this consultation may be authorized, funded, or carried out by one or more action agencies. When one of these action agencies identifies a proposed activity that they believe falls within the scope of this programmatic consultation, they will first identify a lead action agency for the review (we anticipate that in most cases this will be BOEM). They will then review the activity to confirm that it is consistent with the activities covered by this consultation, including a review to confirm that all relevant PDCs (as outlined in Appendix B) will be implemented. The lead action agency for the activity will send written correspondence to the NMFS Greater Atlantic Regional Fisheries Office (GARFO) (nmfs.gar.esa.section7@noaa.gov) providing a brief summary of the proposed activity, including location and duration, and the agency's determination that the proposed activity is consistent with the scope of activities considered in this consultation. The action agency will also confirm in writing that all relevant PDCs will be implemented. If NMFS GARFO has any questions about the activity or determines it is not within the scope of this consultation, a written reply will be provided to the action agency within 15 calendar days. Activities that are determined to not be within the scope of this consultation can be modified by the action agency to bring them within the scope of this consultation or the action agency can request a stand-alone ESA section 7 consultation outside of this programmatic consultation.

To provide flexibility while maintaining the intent of this programmatic consultation, if an action agency proposes use of an equipment type different than described in this consultation, but can demonstrate that the acoustic characteristics are similar to the representative equipment described in Table A.2 and that implementation of the PDCs will result in the same effects considered here, this can be described when the survey plan is transmitted to us. Similarly, it is possible to consider modifications to the PDCs for a particular survey plan when the lead action agency can demonstrate that the same conservation benefit or risk reduction can be achieved with an alternate proposal.

In order to track activities carried out under this programmatic consultation, by February 15 of each year, BOEM, as the lead agency for this programmatic consultation, will provide a written report to NMFS documenting the activities that occurred under the scope of this consultation in the previous year (e.g., the report for 2021 activities will be due by February 15, 2022). This annual report will also transmit any monitoring reports and any reports of instances where PDCs were not implemented (e.g., where human safety prevented implementation of an otherwise required speed reduction). Following the receipt of the annual report, a meeting will be held if necessary to review and update any PDCs and to update the list of representative equipment.

ESA-LISTED SPECIES AND CRITICAL HABITAT CONSIDERED IN THIS CONSULTATION

In their BA, BOEM described the ESA-listed species and critical habitats that occur along the U.S. Atlantic coast. Of the species listed in the BA, we have determined that oceanic whitetip shark (*Carcharhinus longimanus*), Nassau grouper (*Epinephelus striatus*)[4], staghorn coral (*Acropora cervicornis*), elkhorn coral (*Acropora palmata*), pillar coral (*Dendrogyra cylindrus*), rough cactus coral (*Mycetophyllia ferox*), lobed star coral (*Orbicella annularis*), mountainous star coral (*Orbicella faveolata*), and boulder star coral (*Orbicella franksi*) do not occur in the action area.

ESA-Listed Species in the Action Area

The following listed species occur in the action area and are considered in this consultation:

Table 1. ESA-listed species that may be affected by the proposed action.

Common Name	Scientific Name	ESA Status
Marine Mammals – Cetaceans		
North Atlantic right whale	*Eubalaena glacialis*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Blue whale	*Balaenoptera musculus*	Endangered
Sea Turtles		
Loggerhead turtle - Northwest Atlantic DPS	*Caretta*	Threatened
Green turtle - North Atlantic DPS and South Atlantic DPS	*Chelonia mydas*	Threatened
Kemp’s ridley turtle	*Lepidochelys kempii*	Endangered

[4] Nassau grouper may occur in nearshore and offshore waters in the Florida Straits Planning Area but are not known to occur in nearshore or offshore waters of the South Atlantic Planning Area (NMFS 2013)

Leatherback turtle	*Dermochelys coriacea*	Endangered
Hawksbill turtle	*Eretmochelys imbricata*	Endangered
Fishes		
Atlantic salmon	*Salmo salar*	Endangered
Atlantic sturgeon	*Acipenser oxyrinchus*	Endangered
New York Bight DPS		Endangered
Chesapeake Bay DPS		Endangered
Carolina DPS		Endangered
South Atlantic DPS		Endangered
Gulf of Maine DPS		Threatened
Giant Manta Ray	*Manta birostris*	Threatened
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Smalltooth sawfish	*Pristis pectinate*	Endangered

BOEM has determined the proposed action is not likely to adversely affect any of these species. We concur with this determination based on the rationale presented below. More information on the status of the species and critical habitat considered in this consultation, as well as relevant listing documents, status reviews, and recovery plans, can be found within the BA and on NMFS webpages accessible at: *https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html*, *https://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/index.html*, and *https://www.fisheries.noaa.gov/species-directory*.

Critical Habitat in the Action Area

The action area overlaps, at least in part, with critical habitat designated for all five DPSs of Atlantic sturgeon, North Atlantic right whales, and the Northwest Atlantic Ocean DPS of loggerhead sea turtles. While critical habitat is designated for some of the other species considered in this consultation, that critical habitat does not occur in the action area. Critical habitat for the Gulf of Maine DPS of Atlantic salmon is limited to certain mainstem rivers in the State of Maine. At this time, we do not know of any geotechnical or geophysical survey activities that are likely to occur in those waters. As such, the proposed action will not overlap with critical habitat designated for the Gulf of Maine DPS of Atlantic salmon. BOEM determined that the activities considered here may affect, but are not likely to adversely affect critical habitat designated for the five DPSs of Atlantic sturgeon or the Northwest Atlantic DPS of loggerhead sea turtles. We concur with these determinations based on the rationale presented in the Effects of the Action section below.

BOEM determined that the activities considered here would have no effect on critical habitat designated for North Atlantic right whales. We agree with this determination as described briefly below.

Critical Habitat designated for the North Atlantic Right Whale

On January 27, 2016, NMFS issued a final rule designating critical habitat for North Atlantic right whales (81 FR 4837). Critical habitat includes two areas (Units) located in the Gulf of Maine and Georges Bank Region (Unit 1) and off the coast of North Carolina, South Carolina, Georgia and Florida (Unit 2). Geophysical and geotechnical surveys and met buoy deployment may occur in Unit 1 and Unit 2. Note that there are seasonal restrictions on certain acoustic survey equipment in Unit 1 and Unit 2 (PDC 4); however, these seasonal restrictions are in place to further reduce the potential for effects to right whales in these areas and are not related to effects on the features of that critical habitat.

Consideration of Potential Effects to Unit 1

As identified in the final rule (81 FR 4837), the physical and biological features essential to the conservation of the North Atlantic right whale that provide foraging area functions in Unit 1 are: The physical oceanographic conditions and structures of the Gulf of Maine and Georges Bank region that combine to distribute and aggregate *C. finmarchicus* for right whale foraging, namely prevailing currents and circulation patterns, bathymetric features (basins, banks, and channels), oceanic fronts, density gradients, and temperature regimes; low flow velocities in Jordan, Wilkinson, and Georges Basins that allow diapausing *C. finmarchicus* to aggregate passively below the convective layer so that the copepods are retained in the basins; late stage *C. finmarchicus* in dense aggregations in the Gulf of Maine and Georges Bank region; and diapausing *C. finmarchicus* in aggregations in the Gulf of Maine and Georges Bank region.

The activities considered here will not affect the physical oceanographic conditions and structures of the region that distribute and aggregate *C. finmarchicus* for foraging. This is because the activities considered here have no potential to affect currents and circulation patterns, flow velocities, bathymetric features (basins, banks, and channels), oceanic fronts, density gradients, or temperature regimes. Therefore, we have determined that the activities considered in this programmatic consultation will have no effect on Unit 1 of right whale critical habitat.

Consideration of Potential Effects to Unit 2

As identified in the final rule (81 FR 4837), the physical and biological features essential to the conservation of the North Atlantic right whale, which provide calving area functions in Unit 2, are: (i) Sea surface conditions associated with Force 4 or less on the Beaufort Scale; (ii) Sea surface temperatures of 7 °C to 17 °C; and, (iii) Water depths of 6 to 28 meters, where these features simultaneously co-occur over contiguous areas of at least 231 nmi^2 of ocean waters during the months of November through April. When these features are available, they are selected by right whale cows and calves in dynamic combinations that are suitable for calving, nursing, and rearing, and which vary, within the ranges specified, depending on factors such as weather and age of the calves.

The activities considered here will have no effect on the features of Unit 2; this is because geophysical and geotechnical surveys, met buoys, and vessel operations do not affect sea surface state, water temperature, or water depth. Therefore, we have determined that the activities considered in this programmatic consultation will have no effect on Unit 2 of right whale critical habitat

EFFECTS OF THE ACTION ON NMFS LISTED SPECIES AND CRITICAL HABITAT

Potential effects of the proposed action on listed species can be broadly categorized into the following categories: (1) effects to individual animals of exposure to noise associated with the survey activities (HRG, geotechnical), (2) effects of buoy deployment, operation, and retrieval; (3) effects to habitat from survey activities (including consideration of effects to Atlantic sturgeon and loggerhead critical habitat), and (4) effects of vessel use.

Effects of Exposure to Noise Associated With Survey Activities

Here we consider effects of noise associated with HRG and geotechnical surveys on ESA-listed species. Noise associated with meteorological buoys and vessel operations is discussed in those sections of this consultation.

Acoustic Thresholds

Due to the different hearing sensitivities of different species groups, NMFS uses different sets of acoustic thresholds to consider effects of noise on ESA-listed species. Below, we present information on thresholds considered for ESA-listed whales, sea turtles, and fish considered in this consultation.

ESA-listed Whales

NMFS *Technical Guidance for Assessing the Effects of Anthropogenic Noise on Marine Mammal Hearing* compiles, interprets, and synthesizes scientific literature to produce updated acoustic thresholds to assess how anthropogenic, or human-caused, sound affects the hearing of all marine mammals under NMFS jurisdiction (NMFS 2018[5]). Specifically, it identifies the received levels, or thresholds, at which individual marine mammals are predicted to experience temporary or permanent changes in their hearing sensitivity for acute, incidental exposure to underwater anthropogenic sound sources. As explained in the document, these thresholds represent the best available scientific information. These acoustic thresholds cover the onset of both temporary (TTS) and permanent hearing threshold shifts (PTS).

[5] See *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance* for more information.

Table 2. Impulsive acoustic thresholds identifying the onset of permanent threshold shift and temporary threshold shift for ESA-listed whales (NMFS 2018).

Hearing Group	Generalized Hearing Range[6]	Permanent Threshold Shift Onset[7]	Temporary Threshold Shift Onset
Low-Frequency Cetaceans (LF: baleen whales)	7 Hz to 35 kHz	Lpk,flat: 219 dB LE,LF,24h: 183 dB	Lpk,flat: 213 dB LE,LF,24h: 168 dB
Mid-Frequency Cetaceans (MF: sperm whales)	150 Hz to 160 kHz	Lpk,flat: 230 dB LE,MF,24h: 185 dB	Lpk,flat: 224 dB LE,MF,24h: 170 dB

These thresholds are a dual metric for impulsive sounds, with one threshold based on peak sound pressure level (0-pk SPL) that does not incorporate the duration of exposure, and another based on cumulative sound exposure level (SEL_{cum}) that does incorporate exposure duration. The two metrics also differ in regard to considering information on species hearing. The cumulative sound exposure criteria incorporate auditory weighting functions, which estimate a species group's hearing sensitivity, and thus susceptibility to TTS and PTS, over the exposed frequency range, whereas peak sound exposure level criteria do not incorporate any frequency dependent auditory weighting functions.

Additionally, NMFS considers exposure to impulsive/intermittent noise greater than 160 dB re 1uPa rms to have the potential to result in Level B harassment, as defined under the MMPA (which does not necessarily equate to ESA harassment). This value is based on observations of behavioral responses of baleen whales (Malme et al. 1983; Malme et al. 1984; Richardson et al. 1986; Richardson et al. 1990), but is used for all marine mammal species.

Sea Turtles

In order to evaluate the effects of exposure to the survey noise by sea turtles, we rely on the available scientific literature. Sea turtles are low frequency hearing specialists, typically hearing frequencies from 30 Hz to 2 kHz, with a range of maximum sensitivity between 100 to 800 Hz (Ridgway et al. 1969, Lenhardt 1994, Bartol et al. 1999, Lenhardt 2002, Bartol and Ketten 2006). Currently, the best available data regarding the potential for noise to cause behavioral disturbance come from studies by O'Hara and Wilcox (1990) and McCauley et al. (2000), who experimentally examined behavioral responses of sea turtles in response to seismic airguns. O'Hara and Wilcox

[6] Represents the generalized hearing range for the entire group as a composite (i.e., all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on approximately 65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall et al. 2007).

[7] $L_{pk,flat}$: unweighted ($_{flat}$) peak sound pressure level (L_{pk}) with a reference value of 1 µPa; $L_{E,XF,24h}$: weighted (by species group; $_{LF}$: Low Frequency, or $_{MF}$: Mid-Frequency) cumulative sound exposure level (L_E) with a reference value of 1 μPa^2-s and a recommended accumulation period of 24 hours ($_{24h}$)

(1990) found that loggerhead turtles exhibited avoidance behavior at estimated sound levels of 175 to 176 dB re: 1 μPa (rms) (or slightly less) in a shallow canal. McCauley et al. (2000) reported a noticeable increase in swimming behavior for both green and loggerhead turtles at received levels of 166 dB re: 1 μPa (rms). At 175 dB re: 1 μPa (rms), both green and loggerhead turtles displayed increased swimming speed and increasingly erratic behavior (McCauley et al. 2000). Based on these data, we assume that sea turtles would exhibit a behavioral response when exposed to received levels of 175 dB re: 1 μPa (rms) and higher.

In order to evaluate the effects of exposure to the survey noise by sea turtles that could result in physical effects, we relied on the available literature related to the noise levels that would be expected to result in sound-induced hearing loss (i.e., temporary threshold shift (TTS) or permanent threshold shift (PTS)); we relied on acoustic thresholds for PTS and TTS for impulsive sounds developed by the U.S. Navy for Phase III of their programmatic approach to evaluating the environmental effects of their military readiness activities (U.S. Navy 2017). At the time of this consultation, we consider these the best available data since they rely on all available information on sea turtle hearing and employ the same statistical methodology to derive thresholds as in NMFS recently issued technical guidance for auditory injury of marine mammals (NMFS 2018). Below we briefly detail these thresholds and their derivation. More information can be found in the U.S. Navy's Technical report on the subject (U.S. Navy 2017).

To estimate received levels from airguns and other impulsive sources expected to produce TTS in sea turtles, the U.S. Navy compiled all sea turtle audiograms available in the literature in an effort to create a composite audiogram for sea turtles as a hearing group. Since these data were insufficient to successfully model a composite audiogram via a fitted curve as was done for marine mammals, median audiogram values were used in forming the hearing group's composite audiogram. Based on this composite audiogram and data on the onset of TTS in fishes, an auditory weighting function was created to estimate the susceptibility of sea turtles to TTS. Data from fishes were used since there are currently no data on TTS for sea turtles and fishes are considered to have hearing more similar to sea turtles than do marine mammals (Popper et al. 2014). Assuming a similar relationship between TTS onset and PTS onset as has been described for humans and the available data on marine mammals, an extrapolation to PTS susceptibility of sea turtles was made based on the methods proposed by (Southall et al. 2007). From these data and analyses, dual metric thresholds were established similar to those for marine mammals: one threshold based on peak sound pressure level (0-pk SPL) that does not incorporate the auditory weighting function nor the duration of exposure, and another based on cumulative sound exposure level (SEL_{cum}) that incorporates both the auditory weighting function and the exposure duration (Table 3).

Table 3. Acoustic thresholds identifying the onset of permanent threshold shift and temporary threshold shift for sea turtles exposed to impulsive sounds (U.S. Navy 2017, McCauley et al. 2000).

Hearing Group	Generalized Hearing Range	Permanent Threshold Shift Onset	Temporary Threshold Shift Onset	Behavioral Response
Sea Turtles	30 Hz to 2 kHz	204 dB re: 1 μPa²·s SEL_{cum}	189 dB re: 1 μPa²·s SEL_{cum}	175 dB re: 1 μPa (rms)
		232 dB re: 1 μPa SPL (0-pk)	226 dB re: 1 μPa SPL (0-pk)	

Marine Fish
There are no criteria developed for considering effects to ESA-listed fish specific to HRG equipment. However, all of the equipment that operates within a frequency that these fish species are expected to respond to, produces intermittent or impulsive sounds; therefore, it is reasonable to use the criteria developed for impact pile driving, seismic, and explosives when considering effects of exposure to this equipment (FHWG 2008). However, unlike impact pile driving, which produces repetitive impulsive noise in a single location, the geophysical survey sound sources are moving; therefore, the potential for repeated exposure to multiple pulses is much lower when compared to pile driving. We expect fish to react to noise that is disturbing by moving away from the sound source and avoiding further exposure. Injury and mortality is only known to occur when fish are very close to the noise source and the noise is very loud and typically associated with pressure changes (i.e., impact pile driving or blasting).

The Fisheries Hydroacoustic Working Group (FHWG) was formed in 2004 and consists of biologists from NMFS, United States Fish and Wildlife Service, Federal Highway Administration, USACE, and the California, Washington, and Oregon Department of Transportations, supported by national experts on underwater sound producing activities that affect fish and wildlife species of concern. In June 2008, the agencies signed an MOA documenting criteria for assessing physiological effects of impact pile driving on fish. The criteria were developed for the acoustic levels at which physiological effects to fish could be expected. It should be noted, that these are onset of physiological effects (Stadler and Woodbury, 2009), and not levels at which fish are necessarily mortally damaged. These criteria were developed to apply to all fish species. The interim criteria are:

- Peak SPL: 206 dB re 1 μPa
- SELcum: 187 B re 1μPa^2-s for fishes 2 grams or larger (0.07 ounces).
- SELcum: 183 dB re 1μPa^2-s for fishes less than 2 grams (0.07 ounces).

At this time, these criteria represent the best available information on the thresholds at which physiological effects to ESA-listed marine fish are likely to occur. It is important to note that physiological effects may range from minor injuries from which individuals are anticipated to completely recover with no impact to fitness to significant injuries that will lead to death. The severity of injury is related to the distance from the noise source and the duration of exposure. The closer to the source and the greater the duration of the exposure, the higher likelihood of significant injury. Use of the 183 dB re 1 μPa^2-s cSEL threshold, is not appropriate for this consultation because all sturgeon in the action area will be larger than 2 grams. Physiological effects could range from minor injuries that a fish is expected to completely recover from with no impairment to survival to major injuries that increase the potential for mortality, or result in death.

We use 150 dB re: 1 μPa RMS as a threshold for examining the potential for behavioral responses by individual listed fish to noise with frequency less than 1 kHz. This is supported by information provided in a number of studies (Andersson et al. 2007, Purser and Radford 2011, Wysocki et al. 2007). Responses to temporary exposure of noise of this level is expected to be a range of responses indicating that a fish detects the sound, these can be brief startle responses or in the worst case, we expect that listed fish would completely avoid the area ensonified above 150 dB re: 1 uPa rms. Popper et al. (2014) does not identify a behavioral threshold but notes that the potential for behavioral disturbance decreases with the distance from the source.

HRG Acoustic Sources

HRG surveys are used for a number of site characterization purposes: locating shallow hazards, cultural resources, and hard-bottom areas; evaluating installation feasibility; assisting in the selection of appropriate foundation system designs; and determining the variability of subsurface sediments. The equipment typically used for these surveys includes: Bathymetry/Depth Sounder; Magnetometer; Seafloor Imagery/Side-Scan Sonar; Shallow and Medium (Seismic) Penetration Sub-bottom Profilers (e.g., CHIRPs, boomers, bubble guns). This consultation does not consider the use of seismic airguns because this equipment is not required for site characterization activities to support offshore wind development (due to the shallow sediment depths that need to be examined, compared to the miles into the seabed that are examined for oil and gas exploration where airguns are used).

As described in the BA, BOEM completed a desktop analysis of nineteen HRG sources in Crocker and Fratantonio (2016) to evaluate the distance to thresholds of concern for listed species (see tables in Appendix A). Equipment types or frequency settings that would not be used for the survey purposes by the offshore wind industry were not included in this analysis. To provide the maximum impact scenario for these calculations, the highest power levels and most sensitive frequency setting for each hearing group were used when the equipment had the option for multiple user settings. All sources were analyzed at a tow speed of 2.315 m/s (4.5 knots), which is the expected speed vessels will travel while towing equipment. PTS cumulative exposure distances were calculated for the low-frequency hearing group (sei, fin, and North Atlantic right whales), the mid-frequency group (sperm whales), and for a worst-case exposure scenario of 60 continuous minutes for sea turtles and fish.

Tables 4 and 5 describe the greatest distances to thresholds of concern for the various equipment types analyzed by BOEM. It is important to note that as different species groups have different hearing sensitivities, not all equipment operates within the hearing threshold of all species considered here. Complete tables are included in Appendix B of BOEM’s BA.

Table 1. Summary of greatest PTS Exposure Distances from mobile HRG Sources at Speeds of 4.5 knots.

HRG SOURCE	PTS DISTANCE (m)								
	Highest Source Level (dB re 1 µPa)	**Sea Turtles**		**Fish[b]**		**Baleen Whales**		**Sperm Whales[c]**	
Mobile, Impulsive, Intermittent Sources									
		Peak	*SEL*	*Peak*	*SEL*	*Peak*	*SEL*	*Peak*	*SEL*
Boomers, Bubble Guns	176 dB SEL 207 dB RMS 216 PEAK	0	0	3.2	0	0	0.3	0	0
Sparkers	188 dB SEL 214 dB RMS 225 PEAK	0	0	9	0	2	12.7	0	0.2
Chirp Sub-Bottom Profilers	193 dB SEL 209 dB RMS 214 PEAK	NA	NA	NA	NA	0	1.2	0	0.3
Mobile, Non-impulsive, Intermittent Sources									
Multi-beam echosounder (100 kHz)	185 dB SEL 224 dB RMS 228 PEAK	NA	NA	NA	NA	NA	NA	0	0.5
Multi-beam echosounder (>200 kHz) (mobile, non-impulsive, intermittent)	182 dB SEL 218 dB RMS 223 PEAK	NA	NA	NA	NA	NA	NA	NA	NA
Side-scan sonar (>200 kHz) (mobile, non-impulsive, intermittent)	184 dB SEL 220 dB RMS 226 PEAK	NA	NA	NA	NA	NA	NA	NA	NA

[a] Sea turtle PTS distances were calculated for 203 cSEL and 230 dB peak criteria from Navy (2017).
[b] Fisheries Hydroacoustic Working Group (2008).
[c] PTS injury distances for listed marine mammals were calculated with NOAA's sound exposure spreadsheet tool using sound source characteristics for HRG sources in Crocker and Fratantonio (2016)
NA = not applicable due to the sound source being out of the hearing range for the group.

Using the same sound sources for the PTS analysis, BOEM calculated the distances to 175 dB re 1 µPa rms for sea turtles, 160 dB re 1 µPa rms for marine mammals, and 150 dB re 1 µPa rms for fish were calculated using a spherical spreading model (20 LogR) (Table 5). BOEM has conservatively used the highest power levels for each sound source reported in Crocker and Fratantonio (2016). Additionally, the spreadsheet and geometric spreading models do not consider the tow depth and directionality of the sources; therefore, these are likely overestimates of actual disturbance distances.

Table 5. Summary of greatest disturbance distances by equipment type.

HRG SOURCE	DISTURBANCE DISTANCE (m)			
	Sea Turtles (175 dB re 1uPa rms)	Fish (150 dB re 1uPa rms)	Baleen Whales (160 dB re 1uPa rms)	Sperm Whales (160 dB re 1uPa rms)
Boomers, Bubble Guns	40	708	224	224
Sparkers	90	1,996[a]	502	502
Chirp Sub-Bottom Profilers	2	32	10	10
Multi-beam Echosounder (100 kHz)	NA	NA	NA	<369[b]
Multi-beam Echosounder (>200 kHz)	NA	NA	NA	NA
Side-scan Sonar (>200 kHz)	NA	NA	NA	NA

a – the calculated distance to the 150 dB rms threshold for the Applied Acoustics Dura-Spark is 1,996m; however, the distances for other equipment in this category is significantly smaller
b – this distance was recalculated using the NMFS spreadsheet following receipt of the BA.
NA = not applicable due to the sound source being out of the hearing range for the group.

Marine Mammals
Considering peak noise levels, the equipment resulting in the greatest isopleth to the marine mammal PTS threshold is the sparker (2.0 m for baleen whales, 0 m for sperm whales; Table A.3). Considering the cumulative threshold (24 hour exposure), the greatest distance to the PTS threshold is 12.7 m for baleen whales and 0.5 m for sperm whales. Animals in the survey area during the HRG survey are unlikely to incur any hearing impairment due to the characteristics of the sound sources, considering the source levels (176 to 205 dB re 1 μPa-m) and generally very short pulses and duration of the sound. Individuals would have to make a very close approach and

also remain very close to vessels operating these sources (<13 m) in order to receive multiple exposures at relatively high levels, as would be necessary to have the potential to result in any hearing impairment. Kremser et al. (2005) noted that the probability of a whale swimming through the area of exposure when a sub-bottom profiler emits a pulse is small—because if the animal was in the area, it would have to pass the transducer at close range in order to be subjected to sound levels that could cause PTS and would likely exhibit avoidance behavior to the area near the transducer rather than swim through at such a close range. Further, the restricted beam shape of many of HRG survey devices planned for use makes it unlikely that an animal would be exposed more than briefly during the passage of the vessel. The potential for exposure to noise that could result in PTS is even further reduced by the clearance zone and the use of PSOs to all for a shutdown of equipment operating within the hearing range of ESA-listed whales should a right whale or unidentified large whale be detected within 500 m or 100 m for an identified sei, fin, or sperm whale, see PDC 4. Based on these considerations, it is extremely unlikely that any ESA-listed whale will be exposed to noise that could result in PTS.

Masking is the obscuring of sounds of interest to an animal by other sounds, typically at similar frequencies. Marine mammals are highly dependent on sound, and their ability to recognize sound signals amid other sounds is important in communication and detection of both predators and prey (Tyack 2000). Although masking is a phenomenon which may occur naturally, the introduction of loud anthropogenic sounds into the marine environment at frequencies important to marine mammals increases the severity and frequency of occurrence of masking. The components of background noise that are similar in frequency to the signal in question primarily determine the degree of masking of that signal. In general, little is known about the degree to which marine mammals rely upon detection of sounds from conspecifics, predators, prey, or other natural sources. In the absence of specific information about the importance of detecting these natural sounds, it is not possible to predict the impact of masking on marine mammals (Richardson et al., 1995). In general, masking effects are expected to be less severe when sounds are transient than when they are continuous. Masking is typically of greater concern for those marine mammals that utilize low-frequency communications, such as baleen whales, because of how far low-frequency sounds propagate. NMFS has previously concluded that marine mammal communications would not likely be masked appreciably by the sub-bottom profiler signals given the directionality of the signals for most HRG survey equipment types planned for use for the types of surveys considered here and the brief period when an individual mammal is likely to be within its beam (see for example, 86 FR 22160). Based on this, any effects of masking on ESA-listed whales will be insignificant.

For equipment that operates within the functional hearing range (7 Hz to 35 kHz) of baleen whales, the area ensonified by noise greater than 160 dB re: 1uPa rms will extend no further than 502 m from the source (sparkers; the distance for chirp (10 m) and boomers and bubble guns (224 m) is smaller (Table A.5)). For equipment that operates within the functional hearing range of sperm whales (150 Hz to 160 kHz), the area ensonified by noise greater than 160 dB re: 1uPa rms will extend no further than 369 m from the source (100 kHz Multi-beam echosounder; the distance for sparkers (502 m), boomers and bubble guns (224 m), and chirp (10 m) is smaller; Table A.5).

Given that the distance to the 160 dB re: 1 uPa rms threshold extends beyond the required Shutdown Zone, it is possible that ESA-listed whales will be exposed to potentially disturbing levels of noise during the surveys considered here. We have determined that, in this case, the exposure to noise above the MMPA Level B harassment threshold (160 dB re: 1uPa rms) will result in effects that are insignificant. We expect that the result of this exposure would be, at worst, temporary avoidance of the area with underwater noise louder than this threshold, which is a reaction that is considered to be of low severity and with no lasting biological consequences (e.g., Ellison et al. 2007). The noise source itself will be moving. This means that any co-occurrence between a whale, even if stationary, will be brief and temporary. Given that exposure will be short (no more than a few seconds, given that the noise signals themselves are short and intermittent and because the vessel towing the noise source is moving) and that the reaction to exposure is expected to be limited to changing course and swimming away from the noise source only far/long enough to get out of the ensonified area (502 m or less, depending on the noise source), the effect of this exposure and resulting response will be so small that it will not be able to be meaningfully detected, measured or evaluated and, therefore, is insignificant. Further, the potential for disruption to activities such as breeding, feeding (including nursing), resting, and migrating is extremely unlikely given the very brief exposure to any noise (given that the source is traveling and the area ensonified at any given moment is so small). Any brief interruptions of these behaviors are not anticipated to have any lasting effects. Because the effects of these temporary behavioral changes are so minor, it is not reasonable to expect that, under the NMFS' interim ESA definition of harassment, they are equivalent to an act that would "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering."

Sea Turtles

None of the equipment being operated for these surveys that overlaps with the hearing range (30 Hz to 2 kHz) for sea turtles has source levels loud enough to result in PTS or TTS based on the peak or cumulative exposure criteria (Table A.4). Therefore, physical effects are extremely unlikely to occur.

As explained above, we assume that sea turtles would exhibit a behavioral response when exposed to received levels of 175 dB re: 1 µPa (rms) and are within their hearing range (below 2 kHz). For boomers and bubble guns the distance to this threshold is 40 m, and is 90 m for sparkers and 2 m for chirps (Table A.5). Thus, a sea turtle would need to be within 90 m of the source to be exposed to potentially disturbing levels of noise. We expect that sea turtles would react to this exposure by swimming away from the sound source; this would limit exposure to a short time period, just the few seconds it would take an individual to swim away to avoid the noise.

The risk of exposure to potentially disturbing levels of noise is reduced by the use of PSOs to monitor for sea turtles. As required by the PDC 4, a Clearance Zone (500 m in all directions) for ESA-listed species must be monitored around all vessels operating equipment at a frequency of less than 180 kHz. At the start of a survey, equipment cannot be turned on until the Clearance Zone is clear for at least 30 minutes. This condition is expected to reduce the potential for sea turtles to be exposed to noise that may be disturbing. However, even in the event that a sea turtle is submerged and not seen by the PSO, in the worst case, we expect that sea turtles would avoid the area ensonified by the survey equipment that they can perceive. Because the area where increased underwater noise will be experienced is transient and increased underwater noise will only be experienced in a particular area for only seconds, we expect any effects to behavior to be minor and limited to a temporary disruption of normal behaviors, temporary avoidance of the ensonified area and minor additional energy expenditure spent while swimming away from the noisy area. If foraging or migrations are disrupted, we expect that they will quickly resume once the survey vessel has left the area. No sea turtles will be displaced from a particular area for more than a few minutes. While the movements of individual sea turtles will be affected by the sound associated with the survey, these effects will be temporary (seconds to minutes) and localized (avoiding an area no larger than 90 m) and there will be only a minor and temporary impact on foraging, migrating or resting sea turtles. For example, BOEM calculated that for a survey with equipment being towed at 3 knots, exposure of a turtle that was within 90 m of the source would last for less than two minutes. We also note that, to minimize disturbance to the Northwest Atlantic Ocean DPS of loggerhead sea turtles, a voluntary pause in sparker operation will be implemented for all vessels operating in nearshore critical habitat for loggerhead sea turtles if any loggerhead or other sea turtle is observed within a 100 m Clearance Zone during a survey. This will further reduce the potential for behavioral disturbance.

Given the intermittent and short duration of exposure to any potentially disturbing noise from HGR equipment, major shifts in habitat use or distribution or foraging success are not expected. Effects to individual sea turtles from brief exposure to potentially disturbing levels of noise are expected to be minor and limited to a brief startle, short increase in swimming speed and/or short displacement, and will be so small that they cannot be meaningfully measured, detected, or evaluated; therefore, effects are insignificant.

Marine Fish

Of the equipment that may be used for geophysical surveys, only equipment that operates at a frequency within the estimated hearing range of the ESA-listed fish that may occur in the action area (i.e., frequency less than 1 kHz; Lovell et al. 2005; Meyer et al. 2010) may affect these species. Generally, this includes sparkers, boomers, and bubble guns (see Table A.2). All other survey equipment operates at a frequency higher than the ESA-listed fish considered here are expected to hear; therefore, we do not expect any effects to ESA-listed fish exposed to increased underwater noise from the other higher frequency survey equipment. Due to their typically submerged nature, monitoring clearance or shutdown zones for marine fish is not expected to be effective. As required by PDC 4, the surveys will use a ramp up procedure; that is, noise producing equipment will not be used at full energy right away. This gives any fish in the immediate area a “warning” and an opportunity to leave the area before the full energy of the survey equipment is used.

As explained above, the available information suggests that for noise exposure to result in physiological impacts to the fish species considered here, received levels need to be at least 206 dB re: 1uPa peak sound pressure level (SPLpeak) or at least 187 dB re: u1Pa cumulative. The peak thresholds are exceeded only very close to the noise source (<3.2 m for the boomers/bubble guns and <9 m for the sparkers (see Table A.4); the cumulative threshold is not exceeded at any distance. As such, in order to be exposed to peak sound pressure levels of 206 dB re: 1uPa from any of these sources, an individual fish would need to be within 9 m of the source (Table A.4). This is extremely unlikely to occur given the dispersed nature of the distribution of ESA-listed fish in the action area, the use of a ramp up procedure, the moving and intermittent/pulsed characteristic of the noise source, and the expectation that ESA-listed fish will swim away, rather than towards the noise source. Based on this, no physical effects to any ESA-listed fish, including injury or mortality, are expected to result from exposure to noise from the geophysical surveys.

We use 150 dB re: 1 µPa root mean square (RMS) sound pressure level (SPL) as a threshold for examining the potential for behavioral responses to underwater noise by ESA-listed fish. This is supported by information provided in a number of studies (Andersson et al. 2007, Purser and Radford 2011, Wysocki et al. 2007). In the worst case, we expect that ESA-listed fish would completely avoid an area ensonified above 150 dB re: 1uPa rms for the period of time that noise in that area was elevated. The calculated distances to the 150 dB re: 1 uPa rms threshold for the boomers/bubble guns, sparkers, and sub-bottom profilers is 708 m, 1,996 m, and 32 m, respectively (Table A.5). It is important to note that BOEM has conservatively used the highest power levels for each sound source reported in Crocker and Fratantonio (2016) to calculate these distances; thus, they likely overestimate actual sound fields.

Because the area where increased underwater noise will be experienced is transient (because the survey vessel towing the equipment is moving), increased underwater noise will only be experienced in a particular area for a short period of time. Given the transient and temporary nature of the increased noise, we expect any effects to behavior to be minor and limited to a temporary disruption of normal behaviors, potential temporary avoidance of the ensonified area and minor additional energy expenditure spent while swimming away from the noisy area. If foraging, resting, or migrations are disrupted, we expect that these behaviors will quickly resume once the survey vessel has left the area (i.e., in seconds to minutes, given its traveling speed of 3 – 4.5 knots). Therefore, no fish will be displaced from a particular area for more than a few minutes. While the movements of individual fish will be affected by the sound associated with the survey, these effects will be temporary and localized and these fish are not expected to be excluded from any particular area and there will be only a minimal impact on foraging, migrating, or resting behaviors. Sustained shifts in habitat use or distribution or foraging success are not expected. Effects to individual fish from brief exposure to potentially disturbing levels of noise are expected to be limited to a brief startle or short displacement and will be so small that they cannot be meaningfully measured, detected, or evaluated; therefore, effects of exposure to survey noise are insignificant.

Acoustic Effects - Geotechnical Surveys

Geotechnical surveys generally do not use active acoustic sources, but may have some low-level ancillary sounds associated with them. As described in the BA, the loudest noises are from drilling associated with obtaining bore samples. Small-scale drilling noise associated with bore samples taken in shallow water has been measured to produce broadband sounds centered at 10 Hz with source levels at 71-89 dB re 1 µPa rms and 75-97 dB re 1 µPa peak depending on the water depth of the work site (Willis et al. 2010). Another study reported measured drilling noise from a small jack-up rig at 147 – 151 db re 1 µPa rms in the 1 Hz to 22 kHz range at 10 m from source (Erbe and McPherson 2017).

Noise associated with geotechnical surveys is below the level that we expect may result in physiological or behavioral responses by any ESA-listed species considered here. As such, effects to listed whales, sea turtles, or fish from exposure to this noise source are extremely unlikely to occur.

Meteorological Buoys

A meteorological buoy (met buoy) is designed to collect meteorological data for a period of four-five years. During this time, data will be collected and transmitted to onshore facilities. The operation of the meteorological data collection instrumentation (i.e., light detection and ranging remote sensing technology (LIDAR) and Acoustic Doppler Current Profilers (ADCP)) will have no effect on any listed species as it does not operate in any way that could result in effects to listed species. Bathymetric LIDAR uses water-penetrating green light to also measure seafloor and riverbed elevations. ADCP uses extremely high frequency sound (well above the hearing frequency of any species considered in this consultation) to measure water currents. No other acoustic effects from the deployment of the met buoys are anticipated.

Buoys will be deployed and retrieved by vessels; maintenance will also be carried out from vessels. Potential effects of vessel traffic for all activities considered in this consultation is addressed below. PDCs for siting the buoy will result in avoidance of anchoring buoys on any sensitive habitats (i.e., placement will occur on unconsolidated and uncolonized areas only, avoiding eelgrass, corals, etc.) (see PDC 1). Buoys will be anchored to a clump weight anchor and attached to the anchor with heavy chain. We have considered the potential for any listed species, including whales and/or sea turtles, to interact with the buoy and to become entangled in the buoy or mooring system and have determined that this is extremely unlikely to occur for the reasons outlined below.

In order for an entanglement to occur, an animal must first encounter the gear, which has an extremely low likelihood based on the number of buoys and total area where buoys may be deployed (Atlantic OCS). BOEM predicts that up to two met buoys could be deployed in any potential lease area, for a maximum of 60 buoys deployed in the entirety of the Atlantic OCS. Given the small number of buoys and their dispersed locations on the OCS, the potential for encounter between an individual whale or sea turtle and a buoy is extremely low. However even if there is co-occurrence between an individual animal and one or more buoys, entanglement is extremely unlikely to occur. This is because the buoy will be attached to the anchor with heavy gauge chain, which reduces the risk of entanglement due to the tension that the buoy will be under and the gauge of the chain, which prevents any slack in the chain that could result in an entanglement (see PDC 6). There have been no documented incidences of any listed species, including whales or sea turtles, entangled in United States Coast Guard navigational buoys, which have a similar mooring configuration to these met buoys, but also far outnumber the potential number of deployed met buoys (there are 1000s of navigational buoys within the range of ESA-listed whales and sea turtles and no recorded entanglements). Based on the analysis herein, it is extremely unlikely that any ESA-listed species will interact with the buoy and anchor system such that it becomes entangled. As such, effects are extremely unlikely to occur.

Effects to Habitat

Vibracores and grab samples may be used to document habitat types during geophysical and geotechnical survey activities. Both of these survey methods will result in temporary disturbance of the benthos and a potential temporary loss of benthic resources. Additionally, bottom disturbance will occur in the area where a met buoy is anchored.

The vibracores and grab samples will affect an extremely small area (approximately 0.1 to 2.7 ft^2) at each sampling location, with sampling locations several hundred meters apart. While the vibracore and grab sampler will take a portion of the benthos that will be brought onto the ship, because of the small size of the sample and the nature of the removal, there is little to no sediment plume associated with the sampling. While there may be some loss of benthic species at the sample sites, including potential forage items for listed species that feed on benthic resources, the amount of benthic resources potentially lost will be extremely small and limited to immobile individuals that cannot escape capture during sampling. As such a small area will be disturbed and there will be a large distance between disturbed areas, recolonization is expected to be rapid. The amount of potential forage lost for any benthic feeding species is extremely small, localized, and temporary. While the area of the bottom impacted by the anchoring of the met buoy is larger (i.e., several meters in diameter), as stated above, there will be a small number of buoys deployed along the entire Atlantic OCS. Any loss of benthic resources will be small, temporary, and localized.

These temporary, isolated reductions in the amount of benthic resources are not likely to have a measurable effect on any foraging activity or any other behavior of listed species; this is due to the small size of the affected areas in relation to remaining available habitat in the OCS and the temporary nature of any disturbance. As effects to listed species will be so small that they cannot be meaningfully measured, detected, or evaluated, effects are insignificant.

Other Considerations – Geotechnical Surveys
The PDCs include a seasonal prohibition on any activities involving disturbance of the bottom in areas where early life stages of Atlantic or shortnose sturgeon may occur (see PDC 2). The seasonal prohibition is designed to avoid any activity that could disturb potential spawning or rearing substrate during the time of year that spawning or rearing may occur in that river. This PDC will also ensure that no bottom disturbing survey activities will occur at a time that eggs or other immobile or minimally mobile early life stages of sturgeon are present. This will ensure that sampling activities will not result in the disturbance, injury, or mortality of any sturgeon. Based on this, any effects to sturgeon spawning habitat or early life stages are extremely unlikely to occur.

Atlantic Sturgeon Critical Habitat
Critical habitat has been designated for all five DPSs of Atlantic sturgeon (82 FR 39160; effective date September 18, 2017). While there is no Atlantic sturgeon critical habitat in the three Atlantic Renewable Energy Regions located on the Atlantic OCS, survey activities along potential cable routes, including vessel transits, may occur within Atlantic sturgeon critical habitat. While BOEM anticipates that activities would be limited to overlapping with critical habitat designated in the Hudson, Delaware, and James rivers for the New York Bight and Chesapeake Bay DPSs respectively, the conclusions reached here apply to critical habitat designated for all five DPSs.

The PDCs include a seasonal prohibition on any geophysical and geotechnical survey activities involving disturbance of the bottom in freshwater (salinity less than 0.5 parts per thousand (ppt)) areas designated as critical habitat for any DPS of Atlantic sturgeon (see PDC # 2 for more detail). The PDCs also require operation of vessels in a way that ensures that vessel activities do not result in disturbance of bottom habitat.

In order to determine if the proposed action may affect critical habitat, we consider whether it would impact the habitat in a way that would affect its ability to support reproduction and recruitment. Specifically, we consider the effects of the action on the physical features of the proposed critical habitat. The Physical and Biological Features (PBFs) essential for Atlantic sturgeon conservation identified in the final rule (82 FR 39160) are:

> (1) Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0 to 0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;
>
> (2) Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development;
>
> (3) Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (i) Unimpeded movement of adults to and from spawning sites; (ii) Seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and, (iii) Staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river.
>
> (4) Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (i) Spawning; (ii) Annual and interannual adult, subadult, larval, and juvenile survival; and, (iii) Larval, juvenile, and subadult growth, development, and recruitment (e.g., 13 degrees Celsius [°C] to 26 °C for spawning habitat and no more than 30 °C for juvenile rearing habitat, and 6 milligrams per liter (mg/L) dissolved oxygen (DO) or greater for juvenile rearing habitat).

PBF 1: Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0–0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages

In considering effects to PBF 1, we consider whether the proposed action will have any effect on areas of hard substrate in low salinity waters that may be used for settlement of fertilized eggs, refuge, growth, and development of early life stages; therefore, we consider effects of the action on hard bottom substrate and any change in the value of this feature in the action area.

Vessel operations during transits or surveys would not affect hard bottom habitat in the part of the river with salinity less than 0.5 ppt, because they would not impact the river bottom in any way or change the salinity of portions of the river where hard bottom is found. Similarly, geophysical surveys use acoustics to accurately map the seafloor, which would not impact any hard bottom that is present.

Grab samples, geotechnical surveys, and any other activity that may affect hard bottom is prohibited in areas with salinity less than 0.5 ppt during the time of year that these areas may be used for spawning or rearing (PDC 2). Given the very small footprint of all survey activities that may affect the hard bottom (3-4 inch diameter area would be disturbed during sampling) and the spacing of sampling several hundred meters apart, any effects to hard bottom substrate from survey activities outside of the time of year when these areas may be used for spawning and rearing would be small, localized, and dispersed. Given the dynamic nature of river sediments and the small area that will be disturbed, we expect that substrate conditions will recover to pre-survey conditions within days to weeks of sampling occurring. As such, any effects to hard bottom substrate and the value of this feature in the action area or to any of the critical habitat units as a whole are temporary and so small that they cannot be meaningfully measured, evaluated, or detected and, therefore, are insignificant.

PBF 2: Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development

In considering effects to PBF 2, we consider whether the proposed action will have any effect on areas of soft substrate within transitional salinity zones between the river mouth and spawning sites for juvenile foraging and physiological development; therefore, we consider effects of the action on soft substrate and salinity and any change in the value of this feature in the action area.

Project vessels (whether transiting or surveying) do not have the potential to effect salinity. Vessels are expected to maintain a minimum of 4-feet clearance with the river bottom (see PDC 2) and, therefore, effects to the soft substrate are extremely unlikely. The vessels' operations would not preclude or significantly delay the development of soft bottom habitat in the transitional salinity zone because they would not impact salinity or the river bottom in any way. Similarly, geophysical surveys use acoustics to accurately map the bottom, which would not affect any soft substrate that is present.

Grab samples and geotechnical surveys may impact soft substrate; however, given the very small footprint of any such activities (3-4 inch diameter area would be disturbed during sampling) and the spacing of sampling locations several hundred meters apart, any effects to soft substrate would be small, localized, and dispersed. Given the dynamic nature of river sediments and the small area that will be disturbed, we expect that substrate conditions will recover to pre-survey conditions within days to weeks of sampling occurring. As such, any effects to soft substrate and the value of this feature in the action area, are extremely unlikely or so small that they cannot be meaningfully measured, evaluated, or detected.

PBF 3: Water absent physical barriers to passage between the river mouth and spawning sites

In considering effects to PBF 3, we consider whether the proposed action will have any effect on water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: unimpeded movements of adults to and from spawning sites; seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and; staging, resting, or holding of subadults or spawning condition adults. We also consider whether the proposed action will affect water depth or water flow, as if water is too shallow it can be a barrier to sturgeon movements, and an alteration in water flow could similarly impact the movements of sturgeon in the river, particularly early life stages that are dependent on downstream drift. Therefore, we consider effects of the action on water depth and water flow and whether the action results in barriers to passage that impede the movements of Atlantic sturgeon.

Survey activities, including vessel transits, will have no effect on this feature as they will not have any effect on water depth or water flow and will not be physical barriers to passage for any life stage of Atlantic sturgeon that may occur in this portion of the action area. As explained above, noise associated with the geotechnical surveys is below the threshold that would be expected to result in any disturbance of sturgeon; therefore, noise associated with geotechnical surveys will not affect the habitat in any way that would affect the movement of Atlantic sturgeon. Similarly, while HRG surveys may affect the movement of individual sturgeon, the effects are short-term and transient; noise is not expected to result in a barrier to passage. Based on this analysis, any effects to PBF 3 will be insignificant.

PBF 4: Water with the temperature, salinity, and oxygen values that, combined, provide for DO values that support successful reproduction and recruitment and are within the temperature range that supports the habitat function

In considering effects to PBF 4, we consider whether the proposed action will have any effect on water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: spawning; annual and interannual adult, subadult, larval, and juvenile survival; and larval, juvenile, and subadult growth, development, and recruitment. Therefore, we consider effects of the action on temperature, salinity and DO needs for Atlantic sturgeon spawning and recruitment. These water quality conditions are interactive and both temperature and salinity influence the DO saturation for a particular area. We also consider whether the action will have effects to access to this feature, temporarily or permanently and consider the effect of the action on the action area’s ability to develop the feature over time. Survey activities, including vessel transit, will have no effect on this feature as they will not have any effect on temperature, salinity or dissolved oxygen.

Summary of effects to Atlantic sturgeon critical habitat
We have determined that the effects of the activities considered here will be insignificant on PBFs 1, 2, and 3, and will have no effects to PBF 4. As such, the activities considered here are not likely to adversely affect Atlantic sturgeon critical habitat designated for any of the five DPSs.

Critical Habitat Designated for the Northwest Atlantic Ocean DPS of Loggerhead Sea Turtles
Critical habitat for the Northwest Atlantic Ocean DPS of loggerhead sea turtles was designated in 2014 (79 FR 39855). Specific areas for designation include 38 occupied marine areas within the range of the Northwest Atlantic Ocean DPS. These areas contain one or a combination of habitat

types: Nearshore reproductive habitat, winter area, breeding areas, constricted migratory corridors, and/or *Sargassum* habitat. There is no critical habitat designated in the North Atlantic Renewable Energy Region. Winter, breeding, and migratory habitat occur in the Mid-Atlantic and South Atlantic regions of the action areas; there is also a small amount of overlap with *Sargassum* critical habitat on the outer edges of the action area near the 100-m isobaths. Geophysical and geotechnical surveys and met buoy deployment may take place within this critical habitat. As explained below, the activities considered in this programmatic consultation are not likely to adversely affect critical habitat designated for the Northwest Atlantic Ocean DPS of loggerheads.

Nearshore Reproductive

The PBF of nearshore reproductive habitat is described as a portion of the nearshore waters adjacent to nesting beaches that are used by hatchlings to egress to the open-water environment as well as by nesting females to transit between beach and open water during the nesting season. The occurrence of designated nearshore reproductive habitat in the action area is limited to the area between the beach to 1 mile offshore along the Atlantic coast from Cape Hatteras, North Carolina to the southern extent of the South Atlantic planning area along the Florida coast.

As described in the final rule, the primary constituent elements (PCE) that support this habitat are the following: (1) Nearshore waters directly off the highest density nesting beaches and their adjacent beaches as identified in 50 CFR 17.95(c) to 1.6 km (1 mile) offshore; (2) Waters sufficiently free of obstructions or artificial lighting to allow transit through the surf zone and outward toward open water; and, (3) Waters with minimal manmade structures that could promote predators (i.e., nearshore predator concentration caused by submerged and emergent offshore structures), disrupt wave patterns necessary for orientation, and/or create excessive longshore currents.

Met buoys will only be deployed in federal waters; therefore, no met buoys will be deployed in nearshore reproductive habitat. HRG and geotechnical surveys and associated vessel transits could occur in this nearshore habitat. The intermittent noise associated with these activities will not be an obstruction to turtles moving through the surf zone; this is because the noise that can be perceived by sea turtles would dissipate to non-disturbing levels within 90 m of the moving source (see further explanation above) and the area with potentially disturbing levels of noise would be limited to one area within 90 m of the source at any given time. Therefore, given the small geographic area affected by noise and that these effects will be temporary (experienced for no more than 2 minutes in any given area), the effects to habitat are insignificant. Any lighting associated with the surveys would be limited to lights on vessels in the ocean, this lighting would not disorient turtles the way that artificial lighting along land can. Additionally, there are no mechanisms by which the HRG and geotechnical surveys and vessel activities would promote predators or disrupt wave patterns necessary for orientation or create excessive longshore currents.

Winter

The PBF of winter habitat is described as warm water habitat south of Cape Hatteras, North Carolina near the western edge of the Gulf Stream used by a high concentration of juveniles and adults during the winter months. The one area of winter critical habitat identified in the final rule extends from Cape Hatteras at the 20 m depth contour straight across 35.27° N. lat. to the 100 m (328 ft.) depth contour, south to Cape Fear at the 20 m (66 ft.) depth contour (approximately

33.47° N. lat., 77.58° W. long.) extending in a diagonal line to the 100 m (328 ft.) depth contour (approximately 33.2° N. lat., 77.32° W. long.). This southern diagonal line (in lieu of a straight latitudinal line) was chosen to encompass the loggerhead concentration area (observed in satellite telemetry data) and identified habitat features, while excluding the less appropriate habitat (e.g., nearshore waters at 33.2° N. lat.). PCEs that support this habitat are the following: (1) Water temperatures above 10°C from November through April; (2) Continental shelf waters in proximity to the western boundary of the Gulf Stream; and, (3) Water depths between 20 and 100 m.

Met buoy deployment/operation, HRG and geotechnical surveys, and vessel transits that may occur within the designated winter habitat will have no effect on this habitat because they will not: affect or change water temperatures above 10° C from November through April; affect continental shelf waters in proximity to the western boundary of the Gulf Stream; or, affect or change water depths between 20 and 100 m.

Breeding
The PBFs of concentrated breeding habitat are sites with high densities of both male and female adult individuals during the breeding season. Two units of breeding critical habitat are identified in the final rule. One occurs in the action area – a concentrated breeding site located in the nearshore waters just south of Cape Canaveral, Florida. The PCEs that support this habitat are the following: (1) High densities of reproductive male and female loggerheads; (2) Proximity to primary Florida migratory corridor; and, (3) Proximity to Florida nesting grounds.

Met buoys, HRG and geotechnical surveys, and vessel transits will not affect the habitat in the breeding units in a way that would change the density of reproductive male or female loggerheads. This is because (as explained fully above), any effects to distribution of sea turtles will be limited to intermittent, temporary disturbance limited to avoidance of an area no more than 90m from the survey vessel. The impacts to habitat from temporary increases in noise will be so small that they will be insignificant.

Constricted Migratory Corridors
The PBF of constricted migratory habitat is high use migratory corridors that are constricted (limited in width) by land on one side and the edge of the continental shelf and Gulf Stream on the other side. The final rule describes two units of constricted migratory corridor habitat. The constricted migratory corridor off North Carolina serves as a concentrated migratory pathway for loggerheads transiting to neritic foraging areas in the north, and back to winter, foraging, and/or nesting areas in the south. The constricted migratory corridor in Florida stretches from the westernmost edge of the Marquesas Keys (82.17° W. long.) to the tip of Cape Canaveral (28.46° N. lat.) and partially overlaps with the action area (i.e., the designated habitat extends further south than the action area). PCEs that support this habitat are the following: (1) Constricted continental shelf area relative to nearby continental shelf waters that concentrate migratory pathways; and, (2) Passage conditions to allow for migration to and from nesting, breeding, and/or foraging areas.

Noise associated with the survey activities considered here will have minor and temporary effects on winter habitat; however, as explained fully above, any effects to sea turtles will be limited to intermittent, temporary disturbance or avoidance of an area no more than 90m from the survey vessel. These temporary and intermittent increases in underwater noise will have insignificant effects on the conditions of the habitat that will not result in any decreased ability or availability of habitat for passage of sea turtles. No other activities will affect passage of loggerhead sea turtles in the wintering habitat.

Sargassum

The PBF of loggerhead *Sargassum* habitat is developmental and foraging habitat for young loggerheads where surface waters form accumulations of floating material, especially *Sargassum*. Two areas are identified in the final rule – the Atlantic Ocean area and the Gulf of Mexico area. The Atlantic Ocean area extends from the Gulf of Mexico along the northern/western boundary of the Gulf Stream and east to the outer edge of the U.S. EEZ. There is a small amount of overlap between the action area and the Atlantic Ocean *Sargassum* critical habitat unit on the outer edges of the action area near the 100-m isobaths. PCEs that support this habitat are the following: (i) Convergence zones, surface-water downwelling areas, the margins of major boundary currents (Gulf Stream), and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads; (ii) *Sargassum* in concentrations that support adequate prey abundance and cover; (iii) Available prey and other material associated with *Sargassum* habitat including, but not limited to, plants and cyanobacteria and animals native to the *Sargassum* community such as hydroids and copepods; and, (iv) Sufficient water depth and proximity to available currents to ensure offshore transport (out of the surf zone), and foraging and cover requirements by *Sargassum* for post-hatchling loggerheads, i.e., >10 m depth.

Given the distance from shore, met buoy deployment is not anticipated in areas designated as *Sargassum* critical habitat. The occasional project vessel transits, HRG and geotechnical surveys that may occur within the designated *Sargassum* habitat will have no effect on: conditions that result in convergence zones, surface-water downwelling areas, the margins of major boundary currents (Gulf Stream), and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads; the concentration of *Sargassum*; the availability of prey within *Sargassum*; or the depth of water in any area. This is because these activities do not affect hydrological or oceanographic processes, no *Sargassum* will be removed due to survey activities, and the intermittent noise associated with surveys will not affect the availability of prey within *Sargassum*.

Summary of effects to critical habitat

Any effects to designated critical habitat will be insignificant. Therefore, the survey activities considered in this programmatic consultation are not likely to adversely affect critical habitat designated for the Northwest Atlantic DPS of loggerhead sea turtles.

Vessel Traffic

The HRG and geotechnical surveys are carried out from vessels. Additionally, vessels will be used to transport met buoys to and from deployment sites and to carry out any necessary inspections. As described in BOEM's BA, survey operations involve slow moving vessels, traveling at no more than 3-4.5 knots. HRG and geotechnical surveys typically involve one to three survey vessels operating within the area to be surveyed; up to approximately 36 areas may be surveyed over the 10-year period considered here. During transits to or from survey locations, these vessels would travel at a maximum speed of around 12 knots. Met buoy deployment, retrieval, and inspection will also involve one or two vessels at a time; a total of 60 buoys are considered in this consultation. These vessels will typically travel at speeds of 12 knots or less; however, service vessels (limited to one trip per month per buoy) may travel at speeds of up to 25 knots (BOEM 2021).

Marine Mammals

As detailed in Appendix B, a number of Best Management Practices (BMPs) (see PDC 5), designed to reduce the risk of vessel strike, will be implemented for all activities covered by this programmatic consultation, including the following requirements:

1. All vessel operators and crews will maintain a vigilant watch for marine mammals at all times, and slow down or stop their vessel to avoid any interaction.
2. PSOs monitoring a Vessel Strike Avoidance Zone during all vessel operations.
3. Complying with speed restrictions in North Atlantic right whale management areas including Seasonal Management Areas (SMAs), active Dynamic Management Areas (DMAs)/visually triggered Slow Zones.
4. Daily monitoring of the NMFS North Atlantic right whale reporting systems.
5. Reducing vessel speeds to ≤10 knots when mother/calf pairs, pods, or large assemblages of ESA-listed marine mammals are observed.
6. Maintaining >500 m separation distance from all ESA-listed whales or an unidentified large marine mammal; if a whale is sighted within 200 m of the forward path of the vessel, then reducing speed and shifting the engines into neutral, and must not be engaged until the whale has move outside of the vessel’s path and beyond 500 m.

An examination of all known ship strikes from all shipping sources (civilian and military) indicates vessel speed is a principal factor in whether a vessel strike results in death of a whale (Kelley et al. 2020; Knowlton and Kraus 2001; Laist et al., 2001; Jensen and Silber 2003; Vanderlaan and Taggart 2007). In assessing records with known vessel speeds, Laist et al. (2001) found a direct relationship between the occurrence of a whale strike and the speed of the vessel involved in the collision. The authors concluded that most deaths occurred when a vessel was traveling in excess of 24.1 km/h (14.9 mph; 13 knots (kn)). Additionally, Kelley et al (2020) found that collisions that create stresses in excess of 0.241 megapascals were likely to cause lethal injuries to large whales and through biophysical modeling that vessels of all sizes can yield stresses higher than this critical level. Survey vessels will typically travel slowly (less than 4.5 knots) as necessary for data acquisition, will have PSOs monitoring for whales, and will adjust vessel operations as necessary to avoid striking whales during survey operations and transits. The only times that survey vessels will operate at speeds above 4 knots is during transit to and from the survey site where they may travel at speeds up to 12 knots (although several circumstances described below will restrict speed to 10 knots), a number of measures (see PDC 5) will be in place to minimize the risk of strike during these transits. Slow operating speeds mean that vessel operators have more time to react and steer the vessel away from a whale. The use of dedicated PSOs to keep a constant watch for whales and to alert vessel operators of any sightings also allows vessel operators to avoid striking any sighted whales.

As noted above, vessels used to inspect and maintain met buoys may travel at speeds up to 25 knots. This vessel traffic will be an extremely small increase in the amount of vessel traffic in the action area (i.e., if 60 buoys are deployed this would be a maximum of 60 trips per month spread out along the entire Atlantic OCS), which is transited by thousands of vessels each day. These vessels are subject to all of the vessel related BMPs (see PDC 5) noted above, including use of a dedicated lookout, vessel strike avoidance procedures, and requirements to slow down to 10 knots in areas where North Atlantic right whales have been documented (i.e., within SMAs, DMAs/visually triggered Slow Zones). Based on this analysis, it is extremely unlikely that a vessel associated with the survey activities considered here, when added to the environmental baseline, will strike an ESA-listed whale. We note that similar activities have taken place since at least 2012 in association with BOEM's renewable energy program and there have been no reports of any vessel strikes of marine mammals.

The frequency range for vessel noise (10 to 1000 Hz; MMS 2007) overlaps with the generalized hearing range for sei, fin, and right whales (7 Hz to 35 kHz) and sperm whales (150 Hz to 160 kHz) and would therefore be audible. Vessels without ducted propeller thrusters would produce levels of noise of 150 to 170 dB re 1 µPa-1 meter at frequencies below 1,000 Hz, while the expected sound-source level for vessels with ducted propeller thrusters level is 177 dB (RMS) at 1 meter (BOEM 2015, Rudd et al. 2015). For ROVs, source levels may be as high as 160 dB (BOEM 2021). Given that the noise associated with the operation of project vessels is below the thresholds that could result in injury, no injury is expected.

Marine mammals may experience masking due to vessel noises. For example, right whales were observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks et al. 2007) as well as increasing the amplitude (intensity) of their calls (Parks et al. 2011a; Parks et al. 2009). Right whales also had their communication space reduced by up to 84 percent in the presence of vessels (Clark et al. 2009). Although humpback whales did not change the frequency or duration of their vocalizations in the presence of ship noise, their source levels were lower than expected, potentially indicating some signal masking (Dunlop 2016).

Vessel noise can potentially mask vocalizations and other biologically important sounds (e.g., sounds of prey or predators) that marine mammals may rely on. Potential masking can vary depending on the ambient noise level within the environment, the received level and frequency of the vessel noise, and the received level and frequency of the sound of biological interest. In the open ocean, ambient noise levels are between about 60 and 80 dB re 1 µPa in the band between 10 Hz and 10 kHz due to a combination of natural (e.g., wind) and anthropogenic sources (Urick 1983), while inshore noise levels, especially around busy ports, can exceed 120 dB re 1 µPa. When the noise level is above the sound of interest, and in a similar frequency band, masking could occur. This analysis assumes that any sound that is above ambient noise levels and within an animal's hearing range may potentially cause masking. However, the degree of masking increases with increasing noise levels; a noise that is just detectable over ambient levels is unlikely to cause any substantial masking.

Vessel noise has the potential to disturb marine mammals and elicit an alerting, avoidance, or other behavioral reaction. These reactions are anticipated to be short-term, likely lasting the amount of time the vessel and the whale are in close proximity (e.g., Magalhaes et al. 2002; Richardson et al. 1995; Watkins 1981), and not consequential to the animals. Additionally, short-term masking could occur. Masking by passing ships or other sound sources transiting the action area would be short term and intermittent, and therefore unlikely to result in any substantial costs or consequences to individual animals or populations. Areas with increased levels of ambient noise from anthropogenic noise sources such as areas around busy shipping lanes and near harbors and ports may cause sustained levels of masking for marine mammals, which could reduce an animal's ability to find prey, find mates, socialize, avoid predators, or navigate.

Based on the best available information, ESA-listed whales are either not likely to respond to vessel noise or are not likely to measurably respond in ways that would significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding or sheltering. Therefore, the effects of vessel noise on ESA-listed whales are insignificant (i.e., so minor that the effect cannot be meaningfully evaluated or detected).

Sea Turtles

As detailed in Appendix B, a number of BMPs (see PDC 5), designed to reduce the risk of vessel strike, will be implemented for all activities covered by this programmatic consultation, including dedicated lookouts on board all transiting vessels, reduced speeds and avoidance of areas where sea turtles are likely to occur (e.g., Sargassum patches), and required separation distances from any observed sea turtles.

Sea turtles are vulnerable to vessel collisions because they regularly surface to breathe and often rest at or near the surface. Sea turtles often congregate close to shorelines during the breeding season, where boat traffic is denser (Schofield et al. 2007; Schofield et al. 2010) which can increase vulnerability to vessel strike in such areas, particularly by smaller, fast moving vessels. Sea turtles, with the exception of hatchlings and pre-recruitment juveniles, spend a majority of their time submerged (Renaud and Carpenter 1994; Sasso and Witzell 2006). Although, Hazel et al. (2007) demonstrated sea turtles preferred to stay within the three meters of the water's surface, despite deeper water being available. Any of the sea turtle species found in the action area can occur at or near the surface in open-ocean and coastal areas, whether resting, feeding or periodically surfacing to breathe.

While research is limited on the relationship between sea turtles, vessel strikes and vessel speeds, sea turtles are at risk of vessel strike where they co-occur with vessels. Sea turtle detection is likely based primarily on the animal's ability to see the oncoming vessel, which would provide less time to react to vessels traveling at speeds at or above 10 knots (Hazel et al. 2007). Hazel et al. (2007) examined vessel strike risk to green sea turtles and suggested that sea turtles may habituate to vessel sound and are more likely to respond to the sight of a vessel rather than the sound of a vessel, although both may play a role in eliciting responses (Hazel et al. 2007). Regardless of what specific stressor associated with vessels turtles are responding, they only appear to show responses (avoidance behavior) at approximately 10 m or closer (Hazel et al. 2007). This is a concern because faster vessel speeds also have the potential to result in more serious injuries (Work et al. 2010). Although sea turtles can move quickly, Hazel et al. (2007) concluded that at vessel speeds above 4 km/hour (2.1 knots) vessel operators cannot rely on turtles to actively avoid being struck. Thus, sea turtles are not considered reliably capable of moving out of the way of vessels moving at speeds greater than 2.1 knots.

While vessel struck sea turtles have been observed throughout their range, including in the action area, the regions of greatest concern for vessel strike are areas with high concentrations of recreational-boat traffic such as the eastern Florida coast, the Florida Keys, and the shallow coastal bays in the Gulf of Mexico (NRC 1990). In general, the risk of strike for sea turtles is considered to be greatest in areas with high densities of sea turtles and small, fast moving vessels such as recreational vessels or speed boats (NRC 1990). Similarly, Foley et al. (2019) concluded that in a study in Florida, vessel strike risk for sea turtles was highest at inlets and passes. Stetzar (2002) reports that 24 of 67 sea turtles stranded along the Atlantic Delaware coast from 1994-1999 had evidence of boat interactions (hull or propeller strike); however, it is unknown how many of these strikes occurred after the sea turtle died. There are no estimates of the total number of sea turtles struck by vessels in the Atlantic Ocean each year. Foley et al. (2019), estimated that strikes by motorized watercraft killed a mean of 1,326–4,334 sea turtles each year in Florida during 2000–2014 (considering the Atlantic and Gulf coasts of Florida). As described in NRC 1990, vessel strike risk for sea turtles in the Atlantic Ocean is highest in Florida.

The proposed survey activities will result in an increase in vessel traffic in the action area. Compared to baseline levels of vessel traffic in the action area (in its entirety and in any particular portion), the survey vessels, which will be likely two or three vessels operating in a particular survey area at a time (and spaced such that the sound fields of any noise producing equipment do not overlap), represent an extremely small fraction of total vessel traffic. For example, the U.S. Coast Guard's Atlantic Coast Port Access Route Study (ACPARS; USCG 2015), reports nearly 36,000 unique vessel transits through wind energy areas and lease areas along the Atlantic Coast. Those vessel transits represent only a fraction of the total coastal traffic as the wind energy areas and lease areas are located further offshore than most of the routes used by coastal tug traffic, for example. The U.S. Coast Guard's New Jersey PARS (USCG 2021) reports between 77,000 and 80,000 unique trips annual in the Atlantic Ocean off a portion of the coast of New Jersey in 2017-2019. This data is not wholly representative of all vessel traffic in this area as it only includes vessels carrying AIS systems, which is only required for vessels 65 feet in length or greater (although smaller vessels can utilize AIS and some do). Even if there were 3-boat surveys occurring in each of the four lease areas located in the New Jersey PARS study area, this would represent an increase of 12 vessels off New Jersey in a single year; this represents an approximately 0.01% increase in vessel traffic in that area. We expect that this increase is similar in other portions of the action area. If we assume that any increase in vessel traffic in the action area would increase the risk of vessel strike to sea turtles, then we could also assume that this would result in a corresponding increase in the number of sea turtles struck by vessels. However, it is unlikely that all vessels represent an equal increase in risk and the slow speeds (up to 4.5 knots) that the majority of vessels considered here will typically be moving, requirements to monitor for sea turtles during vessel transits, avoid or slowdown in areas where sea turtles are likely to occur, and to maintain distance from any sighted turtles, means that the risk to sea turtles from the survey vessels is considerably less than other vessels, particularly small, fast vessels operating in nearshore areas where sea turtle densities are high.

An analysis conducted by NMFS Southeast Regional Office (Barnette 2018) considered sea turtle vessel strike risk in Florida; the portion of the action area where risk is considered highest due to the concentration of sea turtles and vessels. Barnette (2018) concluded that, when using the conservative mean estimate of a sea turtle strike every 193 years (range of 135-250 years) per vessel, it would require approximately 200 new vessels introduced to an area to potentially result in a single sea turtle strike in any single year. Considering that the proposed action will introduce significantly fewer vessels in any particular area and that survey vessels will increase vessel traffic in the action area by less than 0.01%, and the measures that will be in place to reduce risk of vessel strike, as well as the slow speed of the survey vessels, we conclude that any increase in the number of sea turtles struck in the action area because of the increase in traffic resulting from survey vessels added to the environmental baseline is extremely unlikely. Therefore, effects of this increase in traffic are extremely unlikely.

The vessels used for the proposed project will produce low-frequency, broadband underwater sound below 1 kHz (for larger vessels), and higher-frequency sound between 1 kHz to 50 kHz (for smaller vessels), although the exact level of sound produced varies by vessel type.

ESA-listed turtles could be exposed to a range of vessel noises within their hearing abilities. Depending on the context of exposure, potential responses of green, Kemp’s ridley, leatherback, and loggerhead sea turtles to vessel noise disturbance, would include startle responses, avoidance, or other behavioral reactions, and physiological stress responses. Very little research exists on sea turtle responses to vessel noise disturbance. Currently, there is nothing in the available literature specifically aimed at studying and quantifying sea turtle response to vessel noise. However, a study examining vessel strike risk to green sea turtles suggested that sea turtles may habituate to vessel sound and may be more likely to respond to the sight of a vessel rather than the sound of a vessel, although both may play a role in prompting reactions (Hazel et al. 2007). Regardless of the specific stressor associated with vessels to which turtles are responding, they only appear to show responses (avoidance behavior) at approximately 10 m or closer (Hazel et al. 2007).

Therefore, the noise from vessels is not likely to affect sea turtles from further distances, and disturbance may only occur if a sea turtle hears a vessel nearby or sees it as it approaches. These responses appear limited to non-injurious, minor changes in behavior based on the limited information available on sea turtle response to vessel noise.

For these reasons, vessel noise is expected to cause minimal disturbance to sea turtles. If a sea turtle detects a vessel and avoids it or has a stress response from the noise disturbance, these responses are expected to be temporary and only endure while the vessel transits through the area where the sea turtle encountered it. Therefore, sea turtle responses to vessel noise disturbance are considered insignificant (i.e., so minor that the effect cannot be meaningfully evaluated), and a sea turtle would be expected to return to normal behaviors and stress levels shortly after the vessel passes by.

Marine Fish

The only listed fish in the action area that are known to be at risk of vessel strike are shortnose and Atlantic sturgeon and giant manta ray. Vessel activities will have no effect on Atlantic salmon or smalltooth sawfish. There is no information to indicate that Atlantic salmon are struck by vessels; therefore, we have concluded that strike is extremely unlikely to occur. A vessel strike to smalltooth sawfish is extremely unlikely; smalltooth sawfish are primarily demersal and rarely would be at risk from moving vessels. PDC 5 requires vessels to maintain sufficient clearance above the bottom and to reduce speeds to 5 knots or less in waters with less than 4 feet of clearance. These conditions, combined with the low likelihood of vessels operating in nearshore coastal waters of Florida where sawfish occur, is expected to eliminate risk of vessel strikes with smalltooth sawfish.

Giant Manta Ray

Giant manta rays can be frequently observed traveling just below the surface and will often approach or show little fear toward humans or vessels (Coles 1916), which may also make them vulnerable to vessel strikes (Deakos 2010); vessel strikes can injure or kill giant manta rays, decreasing fitness or contributing to non-natural mortality (Couturier et al. 2012; Deakos et al. 2011). However, information about interactions between vessels and giant manta rays is limited. We have at least some reports of vessel strike, including a report of five giant manta rays struck by vessels from 2016 through 2018; individuals had injuries (i.e., fresh or healed dorsal surface propeller scars) consistent with a vessel strike. These interactions were observed by researchers conducting surveys from Boynton Beach to Jupiter, Florida (J. Pate, Florida Manta Project, pers. comm. to M. Miller, NMFS OPR, 2018) and it is unknown where the manta was at the time of the vessel strike. The giant manta ray is frequently observed in nearshore coastal waters and feeding at inlets along the east coast of Florida. As recreational vessel traffic is concentrated in and around inlets and nearshore waters, this overlap exposes the giant manta ray in these locations to an increased likelihood of potential vessel strike injury especially from faster moving recreational vessels. Yet, few instances of confirmed or suspected strandings of giant manta rays are attributed to vessel strike injury. This lack of documented mortalities could also be the result of other factors that influence carcass detection (i.e., wind, currents, scavenging, decomposition etc.); however, giant manta rays appear to be able to be fast and agile enough to avoid most moving vessels, as anecdotally evidenced by videos showing rays avoiding interactions with high-speed vessels.

While there is limited available information on the giant manta ray, we expect the circumstances and factors resulting in vessel strike injury are similar between sea turtles and the giant manta ray because these species are both found in nearshore waters (including in the vicinity of inlets where vessel traffic may also be concentrated) and may spend significant time at or near the surface. Therefore, consistent with Barnette 2018, we will rely on the more robust available data on sea turtle vessel strike injury to serve as a proxy for the giant manta ray. Because the activities considered here will result in far fewer than 200 new vessels, it is extremely unlikely that any giant manta rays will be struck by new or increased vessel traffic.

Sturgeon

Here, we consider whether the increase in vessel traffic is likely to increase the risk of strike for Atlantic or shortnose sturgeon in any part of the action area. Because the increase in traffic will be limited to no more than two or three survey vessels operating in an area being surveyed at one time, the increase in vessel traffic in any portion of the action area, as well as the action area as a whole, will be extremely small.

We do not expect shortnose sturgeon to occur along the survey routes in the Atlantic Ocean because coastal migrations are extremely rare. However, Atlantic sturgeon are present in this part of the action area. Both shortnose and Atlantic sturgeon may occur in nearshore waters and rivers and bays that may be surveyed for potential cable corridors and/or may be used for survey vessel transits to or from ports.

While we know that vessels and sturgeon co-occur in many portions of their range, we have no reports of vessel strikes outside of rivers and coastal bays. The risk of strike is expected to be considerably less in the Atlantic Ocean than in rivers. This is because of the greater water depth, lack of obstructions or constrictions and the more disperse nature of vessel traffic and more disperse distribution of individual sturgeon. All of these factors are expected to decrease the likelihood of an encounter between an individual sturgeon and a vessel and also increase the likelihood that a sturgeon would be able to avoid any vessel. While we cannot quantify the risk of vessel strike in the portions of the Atlantic Ocean that overlap with the action area, we expect the risk to be considerably lower than it is within the Delaware River, which is considered one of the areas with the highest risk of vessel strike for Atlantic sturgeon.

As evidenced by reports and collections of Atlantic and shortnose sturgeon with injuries consistent with vessel strike (NMFS unpublished data[8]), both species are struck and killed by vessels in the Delaware River. Brown and Murphy (2010) reported that from 2005-2008, 28 Atlantic sturgeon carcasses were collected in the Delaware River; approximately 50% showed signs of vessel interactions. Delaware Division of Fish and Wildlife has been recording information on suspected vessel strikes since 2005. From May 2005 – March 2016, they recorded a total of 164 carcasses, 44 of which were presumed to have a cause of death attributable to vessel interaction. Estimates indicate that up to 25 Atlantic sturgeon may be struck and killed in the Delaware River annually (Fox, unpublished 2016). Information on the number of shortnose sturgeon struck and killed by vessels in the Delaware River is currently limited to reports provided to NMFS through our sturgeon salvage permit. A review of the database indicates that of the 53 records of salvaged shortnose sturgeon (2008-2016), 11 were detected in the Delaware River. Of these 11, 6 had injuries consistent with vessel strike. This is considerably less than the number of records of Atlantic sturgeon from the Delaware River with injuries consistent with vessel strike (15 out of 33 over the same time period). Based on this, we assume that more Atlantic sturgeon are struck by vessels in the Delaware River than shortnose sturgeon.

Several major ports are present along the Delaware River. In 2014, there were 42,398 one-way trips reported for commercial vessels in the Delaware River Federal navigation channel (USACE 2014). In 2020, 2,195 cargo ships visited Delaware River ports[9]. Neither of these numbers include any recreational or other non-commercial vessels, ferries, tug boats assisting other larger vessels or any Department of Defense vessels (i.e., Navy, USCG, etc.).

If we assume that any increase in vessel traffic in the Delaware River would increase the risk of vessel strike to shortnose or Atlantic sturgeon, then we could also assume that this would result in

[8] The unpublished data are reports received by NMFS and recorded as part of the sturgeon salvage program authorized under ESA permit 17273.
[9] *https://ajot.com/news/maritime-exchange-reports-2020-ship-arrivals*; last accessed March 24, 2021

a corresponding increase in the number of sturgeon struck and killed in the Delaware River. However, it is unlikely that all vessels represent an equal increase in risk, the slow speeds (4.5 knots) and shallower drafts of the survey vessels may mean that the risk to sturgeon is not as greater as faster moving deep draft cargo or tanker vessels as sturgeon may be able to more readily avoid the survey vessels and may not even overlap in the same part of the water column. The survey activities considered here will involve up to three slow-moving (up to 4.5 knots) vessels operating in a similar area. Sets of survey vessels will be dispersed along the coast and not co-occur in time or space. Even if there were four surveys in a year that transited the Delaware River (equivalent to the number of BOEM leases that are proximal to the entrance of Delaware Bay), that would be an increase of 12 vessels annually. Considering only the number of commercial one way trips in a representative year (42,398), an increase of 12 vessels operating in the Delaware River represents an approximately 0.03% increase in vessel traffic in the Delaware River navigation channel in a particular year. The actual percent increase in vessel traffic is likely even less considering that commercial traffic is only a portion of the vessel traffic in the river. Even in a worst-case scenario that assumes that all 25 Atlantic sturgeon struck and killed in the Delaware River in an average year occurred in the portion of the Delaware River that will be transited by the survey vessels, and that any increase in vessel traffic results in a proportionate increase in vessel strikes, this increase in vessel traffic would result in a hypothetical additional 0.0075 Atlantic sturgeon struck and killed in the Delaware River in a given year. Assuming a maximum case that four, 3-boat surveys transit the Delaware River every year for the 10 years considered here, that would result in a hypothetical additional 0.075 Atlantic sturgeon struck and killed in the Delaware River. Because we expect fewer strikes of shortnose sturgeon, the hypothetical increase in the number of struck shortnose sturgeon would be even less. Given this very small increase in traffic and the similar very small potential increase in risk of strike and a calculated potential increase in the number of strikes that is very close to zero, we conclude that any increase in the number of sturgeon struck because of the increase in traffic resulting from survey vessels operating in the Delaware River or Delaware Bay is extremely unlikely. BOEM has indicated that survey vessels may also transit the lower Chesapeake Bay and New York Bight/lower Hudson River. The risk of vessel strike in these areas is considered to be lower than in the Delaware River; thus, any prediction of vessel strike for the Delaware River can be considered a conservative estimate of vessel strike risk in other areas. Even applying this hypothetical increased risk for all three areas, we would estimate that a hypothetical additional 0.2 Atlantic sturgeon would be killed coast-wide over a 10-year period. As noted above, this is likely an overestimate given the slower speed of survey vessels compared to other vessels which is anticipated to reduce risk. Based on this analysis, effects of this increase in traffic are extremely unlikely. In addition, given the very small increase in risk and the calculated increase in strikes is close to zero, the effect of adding the survey vessels to the baseline cannot be meaningfully measured, detected, or evaluated; therefore, effects are also insignificant.

Vessel Noise

The vessels used for the proposed project will produce low-frequency, broadband underwater sound below 1 kHz (for larger vessels), and higher-frequency sound between 1 kHz to 50 kHz (for smaller vessels), although the exact level of sound produced varies by vessel type. In general, information regarding the effects of vessel noise on fish hearing and behaviors is limited. Some TTS has been observed in fishes exposed to elevated background noise and other white noise, a continuous sound source similar to noise produced from vessels. Caged studies on sound pressure sensitive fishes show some TTS after several days or weeks of exposure to increased background sounds, although the hearing loss appeared to recover (e.g., Scholik and Yan 2002; Smith et al. 2006; Smith et al. 2004a). Smith et al. (2004b) and Smith et al. (2006) exposed goldfish (a fish with hearing specializations, unlike any of the ESA-listed species considered in this opinion) to noise with a sound pressure level of 170 dB re 1 μPa and found a clear relationship between the amount of TTS and duration of exposure, until maximum hearing loss occurred at about 24 hours of exposure. A short duration (e.g., 10-minute) exposure resulted in 5 dB of TTS, whereas a three-week exposure resulted in a 28 dB TTS that took over two weeks to return to pre-exposure baseline levels (Smith et al. 2004b). Recovery times were not measured by researchers for shorter exposure durations, so recovery time for lower levels of TTS was not documented.

Vessel noise may also affect fish behavior by causing them to startle, swim away from an occupied area, change swimming direction and speed, or alter schooling behavior (Engas et al. 1998; Engas et al. 1995; Mitson and Knudsen 2003). Physiological responses have also been documented for fish exposed to increased boat noise. Nichols et al. (2015) demonstrated physiological effects of increased noise (playback of boat noise) on coastal giant kelpfish. The fish exhibited acute stress responses when exposed to intermittent noise, but not to continuous noise. These results indicate variability in the acoustic environment may be more important than the period of noise exposure for inducing stress in fishes. However, other studies have also shown exposure to continuous or chronic vessel noise may elicit stress responses indicated by increased cortisol levels (Scholik and Yan 2001; Wysocki et al. 2006). These experiments demonstrate physiological and behavioral responses to various boat noises that have the potential to affect species' fitness and survival, but may also be influenced by the context and duration of exposure. It is important to note that most of these exposures were continuous, not intermittent, and the fish were unable to avoid the sound source for the duration of the experiment because this was a controlled study. In contrast, wild fish are not hindered from movement away from an irritating sound source, if detected, so are less likely to subjected to accumulation periods that lead to the onset of hearing damage as indicated in these studies. In other cases, fish may eventually become habituated to the changes in their soundscape and adjust to the ambient and background noises.

All fish species can detect vessel noise due to its low-frequency content and their hearing capabilities. Because of the characteristics of vessel noise, sound produced from vessels is unlikely to result in direct injury, hearing impairment, or other trauma to ESA-listed fish. Plus, in the near field, fish are able to detect water motion as well as visually locate an oncoming vessel. In these cases, most fishes located in close proximity that detect the vessel either visually, via sound and motion in the water would be capable of avoiding the vessel or move away from the area affected by vessel sound. Thus, fish are more likely to react to vessel noise at close range than to vessel noise emanating from a greater distance away. These reactions may include physiological stress responses, or avoidance behaviors. Auditory masking due to vessel noise can potentially mask biologically important sounds that fish may rely on. However, impacts from vessel noise would be intermittent, temporary, and localized, and such responses would not be expected to compromise the general health or condition of individual fish from continuous exposures. Instead, the only impacts expected from exposure to project vessel noise for Atlantic sturgeon may include temporary auditory masking, physiological stress, or minor changes in behavior.

Therefore, similar to marine mammals and sea turtles, exposure to vessel noise for fishes could result in short-term behavioral or physiological responses (e.g., avoidance, stress). Vessel noise would only result in brief periods of exposure for fishes and would not be expected to accumulate to the levels that would lead to any injury, hearing impairment or long-term masking of biologically relevant cues. For these reasons, any effects of vessel noise on ESA-listed fish is considered insignificant (i.e., so minor that the effect cannot be meaningfully measured, detected, or evaluated).

Consideration of Effects of the Actions on Air Quality

In order to issue an OCS Air Permit for an activity considered in this consultation, EPA must conclude that the activity will not cause or contribute to a violation of applicable national ambient air quality standards (NAAQS) or prevention of significant deterioration (PSD) increments. The NAAQS are health-based standards that the EPA sets to protect public health with an adequate margin of safety. The PSD increments are designed to ensure that air quality in an area that meets the NAAQS does not significantly deteriorate from baseline levels. At this time, there is no information on the effects of air quality on listed species that may occur in the action area. However, as the PSD increments are designed to ensure that air quality in the area regulated by any OCS Air Permit do not significantly deteriorate from baseline levels, we conclude that any effects to listed species from these emissions will be so small that they cannot be meaningfully measured, detected, or evaluated and therefore are insignificant.

CONCLUSIONS

As explained above, we have determined that the actions considered here are not likely to adversely affect any ESA-listed species or critical habitat. The requirements for reviewing survey activities as they are developed will ensure that surveys carried out under this programmatic consultation do not have effects that exceed those considered here.

Reinitiation of consultation is required and shall be requested by BOEM or by NMFS where discretionary federal involvement or control over the action has been retained or is authorized by law and “(a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action.” For the activities considered here, no take is anticipated or exempted; take is defined in the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” If there is any incidental take of a listed species, reinitiation would be required. As required by the PDCs outlined in Appendix B, all observations of dead or injured listed species should be reported to us immediately.

Should you have any questions regarding this consultation, please contact Julie Crocker of my staff at (978) 282-8480 or by e-mail (*Julie.Crocker@noaa.gov*).

Sincerely,

Jennifer Anderson

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

ec: Hooker, Baker - BOEM
Burns - GARFO HSED
Bernhart - SERO
Harrison, Daly, Carduner - OPR
DOE
EPA
USACE

File Code: Sec 7 BOEM OSW site assessment programmatic (2021)
ECO ID: GARFO-2021-0999

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Appendix A – Tables and Figures

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Figure 1. Action Area for this programmatic consultation.

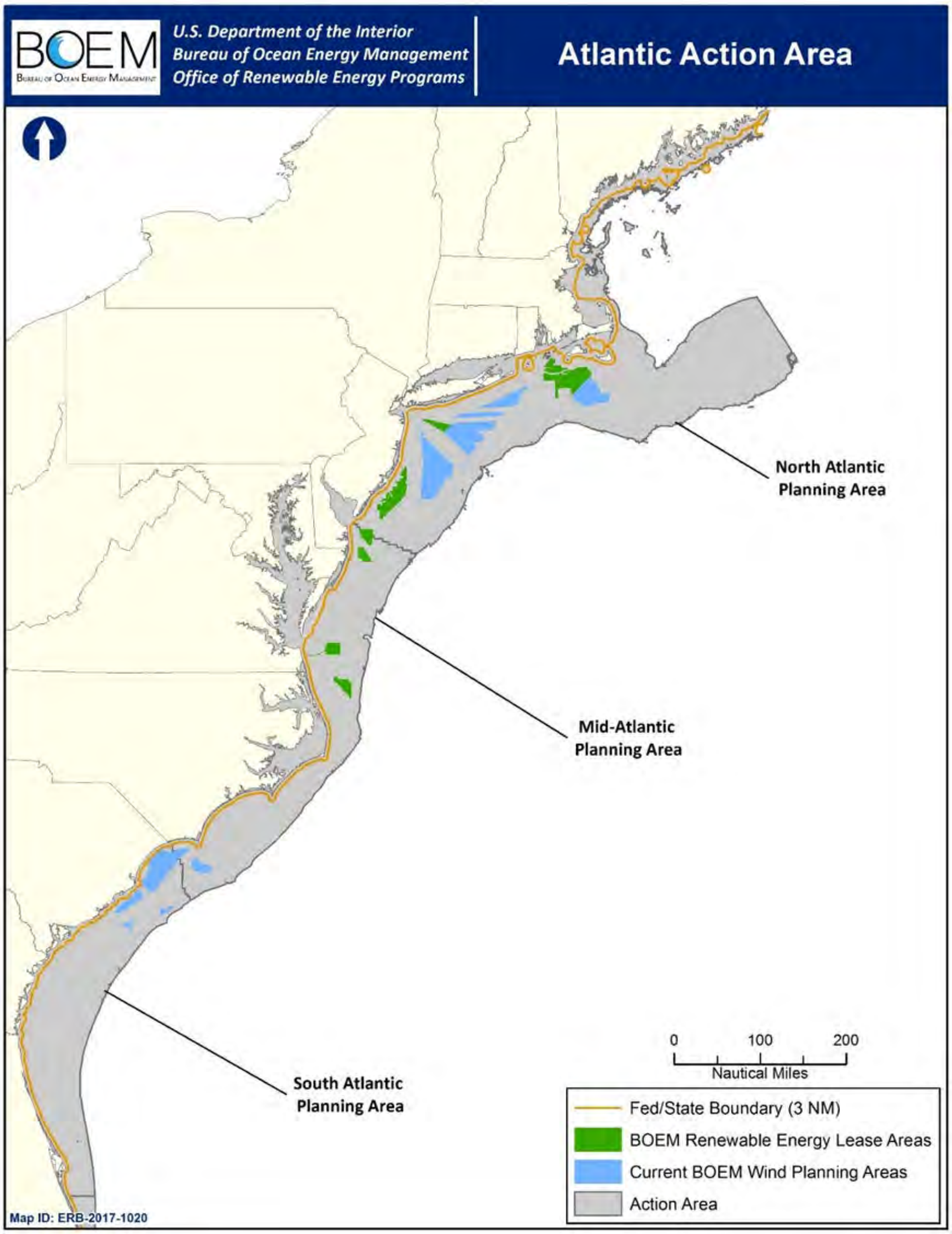


Table A.1 Description of Representative HRG Survey Equipment and Methods

Equipment Type	Data Collection and/or Survey Types	Description of the Equipment
Acoustic Corer™ (https://www.pangeosubsea.com/acoustic-corer/)	Stationary acoustic source deployed on the seafloor with low and mid frequency chirp sonars to detect shallow (15 m to 40 m) subsea hazards such as boulders, cavities, and abandoned infrastructure by generating a 3D, 12-m diameter "acoustic core" to full penetration depth (inset above).	A seabed deployed unit with dual subsurface scanning sonar heads attached to a 12-m boom. The system is set on a tripod on the seafloor. Each arm rotates 180 degrees to cover a full 360 degrees. Chirp sonars of different frequencies can be attached to each arm providing for multi-aspect depth resolution. Acoustic cores supplement geophysical surveys such as bore holes and Cone Penetration Testing.
Bathymetry/ multi-beam echosounder	Bathymetric charting	A depth sounder is a microprocessor-controlled, high-resolution survey-grade system that measures precise water depths in both digital and graphic formats. The system would be used in such a manner as to record with a sweep appropriate to the range of water depths expected in the survey area.
Magnetometer	Collection of geophysical data for shallow hazards and archaeological resources assessments	Surveys would be used to detect and aid in the identification of ferrous or other objects having a distinct magnetic signature. A sensor is typically towed as near as possible to the seafloor and anticipated to be no more than approximately 20 ft. (6 m) above the seafloor.
Shallow and Medium (Seismic) Penetration Profilers (i.e. Chirps, Sparkers, Boomers, Bubble Guns)	Collection of geophysical data for shallow hazards and archaeological resources assessments and to characterize subsurface sediments	High-resolution CHIRP System sub-bottom profiler or boomers are used to generate a profile view below the bottom of the seabed, which is interpreted to develop a geologic cross-section of subsurface sediment conditions under the track line surveyed. Another type of sub-bottom profiler that may be employed is a medium penetration system such as a boomer, bubble pulser or impulse-type system. Sub-bottom profilers are capable of penetrating sediment depth ranges of 10 ft. (3 m) to greater than 328 ft. (100 m), depending on frequency and bottom composition.
Side-Scan Sonar	Collection of geophysical data for shallow hazards and archaeological resources assessments	This survey evaluates surface and near-surface sediments, seafloor morphology, and potential surface obstructions (MMS, 2007a). A typical side-scan sonar system consists of a top-side processor, tow cable, and towfish with transducers (or "pingers") located on the sides. Typically, a lessee would use a digital dual-frequency side-scan sonar system with 300 to 500 kHz frequency ranges or greater to record continuous planimetric images of the seafloor.

Table A.2. Acoustic Characteristics of Representative HRG Survey Equipment. Note list of equipment is representative and surveys may use similar equipment and actual source levels may be below those indicated.

	Highest Measured Source Level (Highest Power Setting)						
HRG Source	**Source Setting**	**PK**	**RMS**	**SEL**	**Pulse Width (s)**	**Main Pulse Frequency (kHz)**	**Inter-Pulse Interval (s) (1/PPS)**
Mobile, Impulsive, Intermittent Sources							
AA200 Boomer Plate	250 J (low)	209	200	169	0.0008	4.3	1.0 (1 pps)
AA251 Boomer Plate	300 J (high)	216	207	176	0.0007	4.3	1.0 (1 pps)
Applied Acoustic Delta Sparker	2400 J at 1 m depth, 0.5 kHz	221	205	185	0.0095	0.5	.33333 (1-3 pps)
Applied Acoustic Dura-Spark	2400 J (high), 400 tips	225	214	188	0.0022	2.7	.33333 (1-3 pps)
Applied Acoustics S-Boom (3 AA252 boomer plates)	700 J	211	205	172	0.0006	6.2	1.0 (1 pps)
Applied Acoustics S-Boom (CSP-N Source)	1000 J	209	203	172	0.0009	3.8	.33333 (3 pps)
ELC820 Sparker	750 J (high) 1m depth	214	206	182	0.0039	1.2	1.0 (1 pps)
FSI HMS-620D Bubble Gun	Dual Channel 86 cm	204	198	173	0.0033	1.1	8.0 (1 per 8 s)
Mobile, Non-Impulsive, Intermittent Sources							
Bathyswath SWATHplus-M	100%, 234 kHz	223	218	180	0.00032	≥200 kHz	0.2000 pps (unknown)
Echotrac CV100 Single-Beam Echosounder	Power 12, 80 cycles, 200 kHz	196	193	159	0.00036	≥200 kHz	0.0500 (20 pps)
EdgeTech 424 with 3200-XS topside processor (Chirp)	100% power, 4-20 kHz	187	180	156	0.0046	7.2-11	.12500 (8 pps)

EdgeTech 512i Sub-bottom Profiler, 8.9 kHz (Chirp)	100% power, 2-12 kHz	186	180	159	0.0087	6.3-8.9	.12500 (8 pps)
EdgeTech 4200 Side-Scan	100%, 100 kHz (also a 400 kHz setting)	206	201	179	0.0072	100 kHz	.03333 (30 pps)
Klein 3000 Side-Scan	132 kHz (also capable of 445 kHz)	224	219	184	0.000343	132 kHz	.03333 (30 pps)
Klein 3900 Side-Scan	445 kHz	226	220	179	0.000084	≥200 kHz	unreported
Knudsen 3202 Sub-bottom Profiler (2 transducers), 5.7 kHz	Power 4	214	209	193	0.0217	3.3-5.7	0.25000 (4 pps)
Reson Seabat 7111 Multibeam Echosounder	100 kHz	228	224	185	0.00015	100 kHz	0.0500 (20 pps)
Reson Seabat T20P Multibeam Echosounder	200, 300, or 400 kHz	221	218	182	0.00025	≥200 kHz	0.0200 (50 pps)

Source: Highest reported source levels reported in Crocker and Fratantonio (2016).

Table 1. Predicted isopleths for peak pressure (using 20 LogR) and cSEL using NOAA's general spreadsheet tool (December 2020 Revision) to predict cumulative exposure distances using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016).

HRG SOURCE	PTS INJURY DISTANCE (m)							
	Low Frequency Cetaceans		Mid Frequency Cetaceans		High Frequency Cetaceans		Seals (Phocids)	
	PK	SEL	PK	SEL	PK	SEL	PK	SEL
AA200 Boomer Plate	0	0.1	0	0	2.2	0.9	0	0.0
AA251 Boomer Plate	0	0.3	0	0	5.0	4.7	0.0	0.2
Applied Acoustics S-Boom (3 AA252 boomer plates)	0	0.1	0	0.0	2.8	5.6	0	0.1
Applied Acoustics S-Boom (CSP-N Source)	0	0.3	0	0	2.2	3.7	0	0.2
FSI HMS-620D Bubble Gun (impulsive)	0	0	0	0	1.3	0	0	0
ELC820 Sparker (impulsive)	0	3.2	0	0	4.0	0.7	0.0	0.7

HRG SOURCE	PTS INJURY DISTANCE (m)							
	Low Frequency Cetaceans		Mid Frequency Cetaceans		High Frequency Cetaceans		Seals (Phocids)	
	PK	SEL	PK	SEL	PK	SEL	PK	SEL
Applied Acoustics Dura-Spark (impulsive)	2.0	12.7	0	0.2	14.1	47.3	2.2	6.4
Applied Acoustics Delta Sparker (impulsive)	1.3	5.7	0	0	8.9	0.1	1.4	0.3
EdgeTech 424 Sub-bottom profiler 3200-XS, 7.2 kHz	—	0	—	0	—	0.0	—	0
EdgeTech 512i Sub-bottom Profiler, 6.39 kHz	—	0	—	0	—	0.0	—	0
Knudsen 3202 Chirp Sub-bottom profiler (2 transducers), 5.7 kHz	—	1.2	—	0.3	—	35.2	—	<1
Reson Seabat 7111 Multibeam Echosounder,100 kHz	—	0	—	0.5	—	251.4	—	0.0
Reson Seabat T20P Multibeam Echosounder	—	0	—	0	—	0	—	0
Bathyswath SWATHplus-M	—	0	—	0	—	0	—	0
Echotrac CV100 Single-Beam Echosounder	—	0	—	0	—	0	—	0
Klein 3000 Side-Scan, 132 kHz	—	0	—	0.4	—	193.6	—	0.0
Klein 3000 Side-Scan, 445 kHz	—	0	—	0	—	0	—	0
Klein 3900 Side-Scan, 445 kHz	—	0	—	0	—	0	—	0

Table A.4. PTS distance for sea turtles and listed fish for impulsive HRG sound sources (60 minutes duration using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016)).

HRG SOURCE		Sea Turtles*, ESA-listed Fish			
		PTS INJURY DISTANCE (m) for Impulsive HRG Sources			
	SEL Source level	Fish cSEL[a] Distance to 187 dB (m)	Turtle cSEL[a] Distance (m)	Peak Source Level	Fish Peak Distance to 206 dB (m)
AA200 Boomer Plate	169	0	0	209	1.4
AA251 Boomer Plate	176	0	0	216	3.2
Applied Acoustics S-Boom (3 AA252 boomer plates)	172	0	0	211	2.5
Applied Acoustics S-Boom (CSP-N Source)	172	0	0	209	1.4
FSI HMS-620D Bubble Gun (impulsive)	173	0	0	204	0
ELC820 Sparker (impulsive)	182	0	0	214	4.0

HRG SOURCE		Sea Turtles*, ESA-listed Fish			
		PTS INJURY DISTANCE (m) for Impulsive HRG Sources			
	SEL Source level	Fish cSEL[a] Distance to 187 dB (m)	Turtle cSEL[a] Distance (m)	Peak Source Level	Fish Peak Distance to 206 dB (m)
Applied Acoustics Dura-Spark (impulsive)	188	1.6	0	225	9.0
Applied Acoustics Delta Sparker (impulsive)	185	1.1	0	221	5.7
EdgeTech 424 Sub-bottom profiler 3200-XS, 7.2 kHz	156	NA	NA	187	NA
EdgeTech 512i Sub-bottom Profiler, 8.9 kHz	159	NA	NA	186	NA
Knudsen 3202 Chirp Sub-bottom profiler (2 transducers), 5.7 kHz	193	NA	NA	214	NA
Reson Seabat 7111 Multibeam Echosounder,100 kHz	185	NA	NA	228	NA
Reson Seabat T20P Multibeam Echosounder	182	NA	NA	221	NA
Bathyswath SWATHplus-M	180	NA	NA	223	NA
Echotrac CV100 Single-Beam Echosounder	159	NA	NA	196	NA
Klein 3000 Side-Scan, 132 kHz	184	NA	NA	224	NA
Klein 3000 Side-Scan, 445 kHz	179	NA	NA	226	NA
EdgeTech 4200 Side-Scan, 100 kHz	169	NA	NA	206	NA
EdgeTech 4200 Side-Scan, 400 kHz	176	NA	NA	210	NA

[a] = cSEL distances were calculated by 20 log(Source Level + 10 log(1800 sec) – Threshold Level)

NA = Frequencies are out of the hearing range of the sea turtles, sturgeon, and salmon

*Sea Turtle peak pressure distances for all HRG sources are below the threshold level of 232dB.

Table A.5. Disturbances distances for marine mammals (160 dB RMS), sea turtles (175 dB RMS), and fish (150 dB RMS) using 20LogR spherical spreading loss using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016).

HRG SOURCE	DISTANCE OF POTENTIAL DISTURBANCE (m)*		
	Marine Mammals	Sea Turtles	Fish
AA200 Boomer Plate	100	18	317
AA251 Boomer Plate	224	40	708
Applied Acoustics S-Boom (3 AA252 boomer plates)	178	32	563
Applied Acoustics S-Boom (CSP-N Source)	142	26	447

FSI HMS-620D Bubble Gun	80	15	252
ELC820 Sparker	200	36	631
Applied Acoustics Dura-Spark	502	90	1,996
Applied Acoustics Delta Sparker	178	32	563
EdgeTech 424 Sub-bottom Profiler, 7.2 and 11 kHz	10	2	32
EdgeTech 512i Sub-bottom Profiler	10	2	32
Knudsen 3202 Echosounder (2 transducers)	892	NA	NA
Reson Seabat 7111 Multibeam Echosounder[1]	NA	NA	NA
Reson Seabat T20P Multibeam Echosounder[1]	NA	NA	NA
Bathyswath SWATHplus-M	NA	NA	NA
Echotrac CV100 Single-Beam Echosounder[1]	NA	NA	NA
Klein 3000 Side-Scan, 132 kHz	NA	NA	NA
Klein 3000 Side-Scan, 445 kHz	NA	NA	NA
Klein 3900 Side-scan, 445 kHz	NA	NA	NA
EdgeTech 4200 Side-Scan, 100 kHz	NA	NA	NA
EdgeTech 4200 Side-Scan, 400 kHz	NA	NA	NA

NA = Not Audible

[1] These multi-beam echosounder and side-scan sonars are only audible to mid- and high-frequency hearing groups of marine mammals.

* Disturbance distances have been round up to the next nearest whole number.

APPENDIX B

Project Design Criteria (PDC) and Best Management Practices (BMPs) for Threatened and Endangered Species for Site Characterization and Site Assessment Activities to Support Offshore Wind Projects

Any survey plan must meet the following minimum requirements specified below, except when complying with these requirements would put the safety of the vessel or crew at risk.

PDC 1: Avoid Live Bottom Features

BMPs:

1. All vessel anchoring and any seafloor-sampling activities (i.e., drilling or boring for geotechnical surveys) are restricted from seafloor areas with consolidated seabed features.[1] All vessel anchoring and seafloor sampling must also occur at least 150 m from any known locations of threatened or endangered coral species. All sensitive live bottom habitats (eelgrass, cold-water corals, etc.) should be avoided as practicable. All vessels in coastal waters will operate in a manner to minimize propeller wash and seafloor disturbance and transiting vessels should follow deep-water routes (e.g., marked channels), as practicable, to reduce disturbance to sturgeon and sawfish habitat.

PDC 2: Avoid Activities that Could Affect Early Life Stages of Atlantic Sturgeon

BMP:

1. No geotechnical or bottom disturbing activities will take place during the spawning/rearing season within freshwater reaches of rivers where Atlantic or shortnose sturgeon spawning occurs. Any survey plan that includes geotechnical or other benthic sampling activities in freshwater reaches (salinity 0-0.5 ppt) of such rivers will identify a time of year restriction that will avoid such activities during the time of year when Atlantic sturgeon spawning and rearing of early life stages occurs in that river. Appropriate time of year restrictions include the following:

River	No Work Window	Area Affected
Hudson	April – July	Upstream of the Delaware Memorial Bridge
Delaware	April – July	Upstream of Newburgh, NY - Beacon Bridge/Rt 84

This table will be supplemented with additional rivers as necessary.

PDC 3: Marine Trash and Debris Awareness and Prevention

"*Marine trash and debris*" is defined as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other solid, man-made item or material that is lost or discarded in the marine environment by the Lessee or an authorized representative of the Lessee (collectively, the

[1] Consolidated seabed features for this measure are pavement, scarp walls, and deep/cold-water coral reefs and shallow/mesophotic reefs as defined in the CMECS Geologic Substrate Classifications.

"Lessee") while conducting activities on the OCS in connection with a lease, grant, or approval issued by the Department of the Interior (DOI). To understand the type and amount of marine debris generated, and to minimize the risk of entanglement in and/or ingestion of marine debris by protected species, lessees must implement the following BMPS.

BMPs:

1. Training: All vessel operators, employees, and contractors performing OCS survey activities on behalf of the Lessee (collectively, "Lessee Representatives") must complete marine trash and debris awareness training annually. The training consists of two parts: (1) viewing a marine trash and debris training video or slide show (described below); and (2) receiving an explanation from management personnel that emphasizes their commitment to the requirements. The marine trash and debris training videos, training slide packs, and other marine debris related educational material may be obtained at https://www.bsee.gov/debris. The training videos, slides, and related material may be downloaded directly from the website. Lessee Representatives engaged in OCS survey activities must continue to develop and use a marine trash and debris awareness training and certification process that reasonably assures that they, as well as their respective employees, contractors, and subcontractors, are in fact trained. The training process must include the following elements:
    a. Viewing of either a video or slide show by the personnel specified above;
    b. An explanation from management personnel that emphasizes their commitment to the requirements;
    c. Attendance measures (initial and annual); and
    d. Recordkeeping and availability of records for inspection by DOI.

   By January 31 of each year, the Lessee must submit to DOI an annual report signed by the Lessee that describes its marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. You must send the reports via email to *renewable_reporting@boem.gov* and to *marinedebris@bsee.gov*.

2. Marking: Materials, equipment, tools, containers, and other items used in OCS activities which are of such shape or configuration that they are likely to snag or damage fishing devices, and could be lost or discarded overboard, must be clearly marked with the vessel or facility identification and properly secured to prevent loss overboard. All markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they may be exposed.

3. Recovery: Lessees must recover marine trash and debris that is lost or discarded in the marine environment while performing OCS activities when such incident is likely to: (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the entanglement of or ingestion by marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing

equipment, or present a hazard to navigation). Lessees must notify DOI when recovery activities are (i) not possible because conditions are unsafe; or (ii) not practicable because the marine trash and debris released is not likely to result in any of the conditions listed in (a) or (b) above. The lessee must recover the marine trash and debris lost or discarded if DOI does not agree with the reasons provided by the Lessee to be relieved from the obligation to recover the marine trash and debris. If the marine trash and debris is located within the boundaries of a potential archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact DOI for approval prior to conducting any recovery efforts.

Recovery of the marine trash and debris should be completed immediately, but no later than 30 days from the date in which the incident occurred. If the Lessee is not able to recover the marine trash or debris within 48 hours (*See* BMP 4. Reporting), the Lessee must submit a recovery plan to DOI explaining the recovery activities to recover the marine trash or debris ("Recovery Plan"). The Recovery Plan must be submitted no later than 10 calendar days from the date in which the incident occurred. Unless otherwise objected by DOI within 48 hours of the filing of the Recovery Plan, the Lessee can proceed with the activities described in the Recovery Plan. The Lessee must request and obtain approval of a time extension if recovery activities cannot be completed within 30 days from the date in which the incident occurred. The Lessee must enact steps to prevent similar incidents and must submit a description of these actions to BOEM and BSEE within 30 days from the date in which the incident occurred.

4. Reporting: The Lessee must report all marine trash and debris lost or discarded to DOI (using the email address listed on DOI's most recent incident reporting guidance). This report applies to all marine trash and debris lost or discarded, and must be made monthly, no later than the fifth day of the following month. The report must include the following:

    a. Project identification and contact information for the lessee, operator, and/or contractor;
    b. The date and time of the incident;
    c. The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);
    d. A detailed description of the dropped object to include dimensions (approximate length, width, height, and weight) and composition (e.g., plastic, aluminum, steel, wood, paper, hazardous substances, or defined pollutants);
    e. Pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available;
    f. Indication of whether the lost or discarded item could be a magnetic anomaly of greater than 50 nanoTesla (nT), a seafloor target of greater than 0.5 meters (m), or a sub-bottom anomaly of greater than 0.5m when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profile in accordance with DOI's applicable guidance;
    g. An explanation of how the object was lost; and

h. A description of immediate recovery efforts and results, including photos.

In addition to the foregoing, the Lessee must submit a report within 48 hours of the incident ("48-hour Report") if the marine trash or debris could (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the ingestion by or entanglement of marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing equipment, or present a hazard to navigation). The information in the 48-hour Report would be the same as that listed above, but just for the incident that triggered the 48-hour Report. The Lessee must report to DOI if the object is recovered and, as applicable, any substantial variation in the activities described in the Recovery Plan that were required during the recovery efforts. Information on unrecovered marine trash and debris must be included and addressed in the description of the site clearance activities provided in the decommissioning application required under 30 CFR § 585.906. The Lessee is not required to submit a report for those months in which no marine trash and debris was lost or discarded.

PDC 4: Minimize Interactions with Listed Species during Geophysical Survey Operations
To avoid injury of ESA-listed species and minimize any potential disturbance, the following measures will be implemented for all vessels operating impulsive survey equipment that emits sound at frequency ranges <180 kHz (within the functional hearing range of marine mammals)[2] as well as CHIRP sub bottom profilers. The Clearance Zone is defined as the area around the sound source that needs to be visually cleared of listed species for 30 minutes before the sound source is turned on. The Clearance Zone is equivalent to a minimum visibility zone for survey operations to begin (*See* BMP 6). The Shutdown Zone is defined as the area around the sound source that must be monitored for possible shutdown upon detection of protected species within or entering that zone. For both the Clearance and Shutdown Zones, these are minimum visibility distances and for situational awareness PSOs should observe beyond this area when possible.

BMPs:

1. For situational awareness a Clearance Zone extending at least (500 m in all directions) must be established around all vessels operating sources <180 kHz.
    a. The Clearance Zone must be monitored by approved third-party PSOs at all times and any observed listed species must be recorded (see reporting requirements below).
    b. For monitoring around the autonomous surface vessel (ASV) where remote PSO monitoring must occur from the mother vessel, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. PSOs must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on

[2] Note that this requirement does not apply to Parametric Subbottom Profilers, Ultra Short Baseline, echosounders or side scan sonar; the acoustic characteristics (frequency, narrow beam width, rapid attenuation) are such that no effects to listed species are anticipated.

the front of the ASV itself, providing a further forward view of the craft. In addition, night-vision goggles with thermal clip-ons and a handheld spotlight must be provided and used such that PSOs can focus observations in any direction around the mother vessel and/or the ASV.

2. To minimize exposure to noise that could be disturbing, Shutdown Zone(s) (500 m for North Atlantic right whales and 100 m for other ESA-listed whales visible at the surface) must be established around the sources operating at <180 kHz being towed from the vessel .
    a. The Shutdown Zone(s) must be monitored by third-party PSOs at all times when noise-producing equipment (<180 kHz) is being operated and all observed listed species must be recorded (see reporting requirements below).
    b. If an ESA-listed species is detected within or entering the respective Shutdown Zone, any noise-producing equipment operating below 180 kHz must be shut off until the minimum separation distance from the source is re-established (500 m for North Atlantic right whales and 100 m for other ESA-listed species, including other ESA-listed marine mammals) and the measures in (5) are carried out.
        i. A PSO must notify the survey crew that a shutdown of all active boomer, sparker, and bubble gun acoustic sources below 180 kHz is immediately required. The vessel operator and crew must comply immediately with any call for a shutdown by the PSO. Any disagreement or discussion must occur only after shutdown.
    c. If the Shutdown Zone(s) cannot be adequately monitored for ESA-listed species presence (i.e., a PSO determines conditions, including at night or other low-visibility conditions, are such that listed species cannot be reliably sighted within the Shutdown Zone(s), no equipment operating at <180 kHz can be deployed until such time that the Shutdown Zone(s) can be reliably monitored.
3. Before any noise-producing survey equipment (operating at <180 kHz) is deployed, the Clearance Zone (500 m for all listed species) must be monitored for 30 minutes of pre-clearance observation.
    a. If any ESA-listed species is observed within the Clearance Zone during the 30-minute pre-clearance period, the 30-minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30-minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.
4. When technically feasible, a “ramp up” of the electromechanical survey equipment must occur at the start or re-start of geophysical survey activities. A ramp up must begin with the power of the smallest acoustic equipment for the geophysical survey at its lowest power output. When technically feasible the power will then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually.
5. Following a shutdown for any reason, ramp up of the equipment may begin immediately only if: (a) the shutdown is less than 30 minutes, (b) visual monitoring of

the Shutdown Zone(s) continued throughout the shutdown, (c) the animal(s) causing the shutdown was visually followed and confirmed by PSOs to be outside of the Shutdown Zone(s) (500 m for North Atlantic right whales and 100 m for other ESA-listed species, including other ESA-listed marine mammals) and heading away from the vessel, and (d) the Shutdown Zone(s) remains clear of all listed species. If all (a, b, c, and d) the conditions are not met, the Clearance Zone (500 m for all listed species) must be monitored for 30 minutes of pre-clearance observation before noise-producing equipment can be turned back on.

6. In order for geophysical surveys to be conducted at night or during low-visibility conditions, PSOs must be able to effectively monitor the Clearance and Shutdown Zone(s). No may occur if the Clearance and Shutdown Zone(s) cannot be reliably monitored for the presence of ESA-listed species to ensure avoidance of injury to those species.
    a. An Alternative Monitoring Plan (AMP) must be submitted to BOEM (or the federal agency authorizing, funding, or permitting the survey) detailing the monitoring methodology that will be used during nighttime and low-visibility conditions and an explanation of how it will be effective at ensuring that the Shutdown Zone(s) can be maintained during nighttime and low-visibility survey operations. The plan must be submitted 60 days before survey operations are set to begin.
    b. The plan must include technologies that have the technical feasibility to detect all ESA-listed whales out to 500 m and sea turtles to 100 m.
    c. PSOs should be trained and experienced with the proposed alternative monitoring technology.
    d. The AMP must describe how calibration will be performed, for example, by including observations of known objects at set distances and under various lighting conditions. This calibration should be performed during mobilization and periodically throughout the survey operation.
    e. PSOs shall make nighttime observations from a platform with no visual barriers, due to the potential for the reflectivity from bridge windows or other structures to interfere with the use of the night vision optics.
7. To minimize risk to North Atlantic right whales, no surveys may occur in Cape Cod Bay from January 1 - May 15 of any year (in an area beginning at 42°04′56.5″ N-070°12′00.0″ W; thence north to 42°12′00.0″ N-070°12′00.0″ W; thence due west to charted mean high water line; thence along charted mean high water within Cape Cod Bay back to beginning point).
8. Sound sources used within the North Atlantic right whale Critical Habitat Southeastern U.S. Calving Area (i.e., Unit 2) during the calving and nursing season (December-March) shall operate at frequencies <7 kHz and >35 kHz (functional hearing range of right whales) at night or low visibility conditions.
9. At times when multiple survey vessels are operating within a lease area, adjacent lease areas, or exploratory cable routes, a minimum separation distance (to be determined on a survey specific basis, dependent on equipment being used) must be maintained between survey vessels to ensure that sound sources do not overlap.
10. To minimize disturbance to the Northwest Atlantic Ocean DPS of loggerhead sea turtles, a voluntary pause in sparker operation should be implemented for all vessels

operating in nearshore critical habitat for loggerhead sea turtles. These conditions apply to critical habitat boundaries for nearshore reproductive habitats LOGG N-3 through LOGG N-16 (79 FR 39855) from April 1 to September 30. Following pre-clearance procedures, if any loggerhead or other unidentified sea turtles is observed within a 100 m Clearance Zone during a survey, sparker operation should be paused by turning off the sparker until the sea turtle is beyond 100 m of the survey vessel. If the animal dives or visual contact is otherwise lost, sparker operation may resume after a minimum 2-minute pause following the last sighting of the animal.

11. Any visual observations of listed species by crew or project personnel must be communicated to PSOs on-duty.
12. During good conditions (e.g., daylight hours; Beaufort scale 3 or less) when survey equipment is not operating, to the maximum extent practicable, PSOs must conduct observations for protected species for comparison of sighting rates and behavior with and without use of active geophysical survey equipment. Any observed listed species must be recorded regardless of any mitigation actions required.

PDC 5: Minimize Vessel Interactions with Listed Species

All vessels associated with survey activities (transiting [i.e., travelling between a port and the survey site] or actively surveying) must comply with the vessel strike avoidance measures specified below. The only exception is when the safety of the vessel or crew necessitates deviation from these requirements. If any such incidents occur, they must be reported as outlined below under Reporting Requirements (PDC 8). The Vessel Strike Avoidance Zone is defined as 500 m or greater from any sighted ESA-listed species or other unidentified large marine mammal.

BMPs:

1. Vessel captain and crew must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any listed species. The presence of a single individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised. If pinnipeds or small delphinids of the following genera: Delphinus, Lagenorhynchus, Stenella, and Tursiops are visually detected approaching the vessel (i.e., to bow ride) or towed equipment, vessel strike avoidance and shutdown is not required.
2. Anytime a survey vessel is underway (transiting or surveying), the vessel must maintain a 500 m minimum separation distance and a PSO must monitor a Vessel Strike Avoidance Zone (500 m or greater from any sighted ESA-listed species or other unidentified large marine mammal visible at the surface) to ensure detection of that animal in time to take necessary measures to avoid striking the animal. If the survey vessel does not require a PSO for the type of survey equipment used, a trained crew lookout may be used (see #3). For monitoring around the autonomous surface vessels, regardless of the equipment it may be operating, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. A dedicated operator must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be

installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft.

a. Survey plans must include identification of vessel strike avoidance measures, including procedures for equipment shut down and retrieval, communication between PSOs/crew lookouts, equipment operators, and the captain, and other measures necessary to avoid vessel strike while maintaining vessel and crew safety. If any circumstances are anticipated that may preclude the implementation of this PDC, they must be clearly identified in the survey plan and alternative procedures outlined in the plan to ensure minimum distances are maintained and vessel strikes can be avoided.
b. All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of listed species. The expectation and process for reporting of protected species sighted during surveys must be clearly communicated and posted in highly visible locations aboard all project vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so.
c. The Vessel Strike Avoidance Zone(s) are a minimum and must be maintained around all surface vessels at all times.
d. If a large whale is identified within 500 m of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. Vessels may also shift to idle if feasible.
e. If a large whale is sighted within 200 m of the forward path of a vessel, the vessel operator must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the large whale has moved beyond 500 m.
f. If a sea turtle or manta ray is sighted within the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless unsafe to do so) and steer away as possible. The vessel may resume normal operations once the vessel has passed the individual.
g. During times of year when sea turtles are known to occur in the survey area, vessels must avoid transiting through areas of visible jellyfish aggregations or floating vegetation (e.g., sargassum lines or mats). In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
h. Vessels operating in water depths with less than 4 ft. clearance between the vessel and the bottom should maintain speeds no greater than 4 knots to minimize vessel strike risk to sturgeon and sawfish.

3. To monitor the Vessel Strike Avoidance Zone, a PSO (or crew lookout if PSOs are not required) must be posted during all times a vessel is underway (transiting or surveying) to monitor for listed species in all directions.

   a. Visual observers monitoring the vessel strike avoidance zone can be either PSOs or crew members (if PSOs are not required). If the trained lookout is a vessel crew member, this must be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. All observations must be recorded per reporting requirements.
   b. Regardless of monitoring duties, all crew members responsible for navigation duties must receive site-specific training on ESA-listed species sighting/reporting and vessel strike avoidance measures.
4. Regardless of vessel size, vessel operators must reduce vessel speed to 10 knots (18.5 mph) or less while operating in any Seasonal Management Area (SMA), Dynamic Management Area (DMA)/Slow Zones triggered by visual detection of North Atlantic right whales. The only exception to this requirement is for vessels operating in areas within a DMA/visually triggered Slow Zone where it is not reasonable to expect the presence of North Atlantic right whales (e.g. Long Island Sound, shallow harbors). Reducing vessel speed to 10 knots or less while operating in Slow Zones triggered by acoustic detections of North Atlantic right whales is encouraged.
5. Vessels underway must not divert their course to approach any listed species.
6. All vessel operators must check for information regarding mandatory or voluntary ship strike avoidance (SMAs, DMAs, Slow Zones) and daily information regarding North Atlantic right whale sighting locations. These media may include, but are not limited to: NOAA weather radio, U.S. Coast Guard NAVTEX and channel 16 broadcasts, Notices to Mariners, the Whale Alert app, or WhaleMap website.
   a. North Atlantic right whale Sighting Advisory System info can be accessed at: https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html
   b. Information about active SMAs, DMAs, and Slow Zones can be accessed at: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales

PDC 6: Minimize Risk During Buoy Deployment, Operations, and Retrieval
Any mooring systems used during survey activities prevent any potential entanglement or entrainment of listed species, and in the unlikely event that entanglement does occur, ensure proper reporting of entanglement events according to the measures specified below.

BMPs:
1. Ensure that any buoys attached to the seafloor use the best available mooring systems. Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of listed species while ensuring the safety and integrity of the structure or device.
2. All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species.
3. Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.

4. During all buoy deployment and retrieval operations, buoys should be lowered and raised slowly to minimize risk to listed species and benthic habitat. Additionally, PSOs or trained project personnel (if PSOs are not required) should monitor for listed species in the area prior to and during deployment and retrieval and work should be stopped if listed species are observed within 500 m of the vessel to minimize entanglement risk.
5. If a live or dead marine protected species becomes entangled, you must immediately contact the applicable NMFS stranding coordinator using the reporting contact details (see Reporting Requirements section) and provide any on-water assistance requested.
6. All buoys must be properly labeled with owner and contact information.

PDC 7: Protected Species Observers
Qualified third-party PSOs to observe Clearance and Shutdown Zones must be used as outlined in the conditions above.

BMPs:
1. All PSOs must have completed an approved PSO training program and must receive NMFS approval to act as a PSO for geophysical surveys. Documentation of NMFS approval for geophysical survey activities in the Atlantic and copies of the most recent training certificates of individual PSOs' successful completion of a commercial PSO training course with an overall examination score of 80% or greater must be provided upon request. Instructions and application requirements to become a NMFS-approved PSO can be found at: *www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers*.
2. In situations where third-party party PSOs are not required, crew members serving as lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.
3. PSOs deployed for geophysical survey activities must be employed by a third-party observer provider. While the vessel is underway, they must have no other tasks than to conduct observational effort, record data, and communicate with and instruct relevant vessel crew to the presence of listed species and associated mitigation requirements. PSOs on duty must be clearly listed on daily data logs for each shift.
   a. Non-third-party observers may be approved by NMFS on a case-by-case basis for limited, specific duties in support of approved, third-party PSOs.
4. A minimum of one PSO (assuming condition 5 is met) must be on duty observing for listed species at all times that noise-producing equipment <180 kHz is operating, or the survey vessel is actively transiting during daylight hours (i.e. from 30 minutes prior to sunrise and through 30 minutes following sunset). Two PSOs must be on duty during nighttime operations. A PSO schedule showing that the number of PSOs used is sufficient to effectively monitor the affected area for the project (e.g., surveys) and record the required data must be included. PSOs must not be on watch for more than 4 consecutive hours, with at least a 2-hour break after a 4-hour watch. PSOs must not be on active duty observing for more than 12 hours in any 24-hour period.
5. Visual monitoring must occur from the most appropriate vantage point on the associated operational platform that allows for 360-degree visual coverage around the vessel. If

360-degree visual coverage is not possible from a single vantage point, multiple PSOs must be on watch to ensure such coverage.

6. Suitable equipment must be available to each PSO to adequately observe the full extent of the Clearance and Shutdown Zones during all vessel operations and meet all reporting requirements.
   a. Visual observations must be conducted using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
   b. Rangefinders (at least one per PSO, plus backups) or reticle binoculars (e.g., 7 x 50) of appropriate quality (at least one per PSO, plus backups) to estimate distances to listed species located in proximity to the vessel and Clearance and Shutdown Zone(s).
   c. Digital full frame cameras with a telephoto lens that is at least 300 mm or equivalent. The camera or lens should also have an image stabilization system. Used to record sightings and verify species identification whenever possible.
   d. A laptop or tablet to collect and record data electronically.
   e. Global Positioning Units (GPS) if data collection/reporting software does not have built-in positioning functionality.
   f. PSO data must be collected in accordance with standard data reporting, software tools, and electronic data submission standards approved by BOEM and NMFS for the particular activity.
   g. Any other tools deemed necessary to adequately perform PSO tasks.

PDCs 8: Reporting Requirements

To ensure compliance and evaluate effectiveness of mitigation measures, regular reporting of survey activities and information on listed species will be required as follows.

BMPs:

1. Data from all PSO observations must be recorded based on standard PSO collection and reporting requirements. PSOs must use standardized electronic data forms to record data. The following information must be reported electronically in a format approved by BOEM and NMFS:

   Visual Effort:
   a. Vessel name;
   b. Dates of departures and returns to port with port name;
   c. Lease number;
   d. PSO names and affiliations;
   e. PSO ID (if applicable);
   f. PSO location on vessel;
   g. Height of observation deck above water surface (in meters);
   h. Visual monitoring equipment used;
   i. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;
   j. Vessel location (latitude/longitude, decimal degrees) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts; recorded at 30 second intervals if obtainable from data collection software, otherwise at practical regular interval;

k. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;
l. Water depth (if obtainable from data collection software) (in meters);
m. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort scale, Beaufort wind force, swell height (in meters), swell angle, precipitation, cloud cover, sun glare, and overall visibility to the horizon;
n. Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (e.g., vessel traffic, equipment malfunctions);
o. Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (i.e., pre-clearance survey, ramp-up, shutdown, end of operations, etc.);

Visual Sighting (all Visual Effort fields plus):

a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
b. Vessel/survey activity at time of sighting;
c. PSO/PSO ID who sighted the animal;
d. Time of sighting;
e. Initial detection method;
f. Sightings cue;
g. Vessel location at time of sighting (decimal degrees);
h. Direction of vessel’s travel (compass direction);
i. Direction of animal’s travel relative to the vessel;
j. Identification of the animal (e.g., genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
k. Species reliability;
l. Radial distance;
m. Distance method;
n. Group size; Estimated number of animals (high/low/best);
o. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
p. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
q. Detailed behavior observations (e.g., number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
r. Mitigation Action; Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action.
s. Behavioral observation to mitigation;
t. Equipment operating during sighting;
u. Source depth (in meters);

   v. Source frequency;
   w. Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
   x. Time entered shutdown zone;
   y. Time exited shutdown zone;
   z. Time in shutdown zone;
   aa. Photos/Video
2. The project proponent must submit a final monitoring report to BOEM and NMFS (to *renewable_reporting@boem.gov* and *nmfs.gar.incidental-take@noaa.gov*) within 90 days after completion of survey activities. The report must fully document the methods and monitoring protocols, summarizes the survey activities and the data recorded during monitoring, estimates of the number of listed species that may have been taken during survey activities, describes, assesses and compares the effectiveness of monitoring and mitigation measures. PSO sightings and effort data and trackline data in Excel spreadsheet format must also be provided with the final monitoring report.
3. Reporting sightings of North Atlantic right whales:
   a. If a North Atlantic right whale is observed at any time by a PSO or project personnel during surveys or vessel transit, sightings must be reported within two hours of occurrence when practicable and no later than 24 hours after occurrence. In the event of a sighting of a right whale that is dead, injured, or entangled, efforts must be made to make such reports as quickly as possible to the appropriate regional NOAA stranding hotline (from Maine-Virginia report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343). Right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the WhaleAlert App (http://www.whalealert.org/).
   b. Further information on reporting a right whale sighting can be found at: *https://apps-nefsc.fisheries.noaa.gov/psb/surveys/documents/20120919_Report_a_Right_Whale.pdf*
4. In the event of a vessel strike of a protected species by any survey vessel, the project proponent must immediately report the incident to BOEM (*renewable_reporting@boem.gov*) and NMFS (*nmfs.gar.incidental-take@noaa.gov*) and for marine mammals to the NOAA stranding hotline: from Maine-Virginia, report to 866-755-6622, and from North Carolina-Florida to 877-942-5343 and for sea turtles from Maine-Virginia, report to 866-755-6622, and from North Caroline-Florida to 844-732-8785. The report must include the following information:
   a. Name, telephone, and email or the person providing the report;
   b. The vessel name;
   c. The Lease Number;
   d. Time, date, and location (latitude/longitude) of the incident;
   e. Species identification (if known) or description of the animal(s) involved;
   f. Vessel's speed during and leading up to the incident;
   g. Vessel's course/heading and what operations were being conducted (if applicable);
   h. Status of all sound sources in use;

   i. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
   j. Environmental conditions (wave height, wind speed, light, cloud cover, weather, water depth);
   k. Estimated size and length of animal that was struck;
   l. Description of the behavior of the species immediately preceding and following the strike;
   m. If available, description of the presence and behavior of any other protected species immediately preceding the strike;
   n. Disposition of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, last sighted direction of travel, status unknown, disappeared); and
   o. To the extent practicable, photographs or video footage of the animal(s).
5. Sightings of any injured or dead listed species must be immediately reported, regardless of whether the injury or death is related to survey operations, to BOEM (*renewable_reporting@boem.gov*), NMFS (*nmfs.gar.incidental-take@noaa.gov*), and the appropriate regional NOAA stranding hotline (from Maine-Virginia report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343 for marine mammals and 844-732-8785 for sea turtles). If the project proponent’s activity is responsible for the injury or death, they must ensure that the vessel assist in any salvage effort as requested by NMFS. When reporting sightings of injured or dead listed species, the following information must be included:
   a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
   b. Species identification (if known) or description of the animal(s) involved;
   c. Condition of the animal(s) (including carcass condition if the animal is dead);
   d. Observed behaviors of the animal(s), if alive;
   e. If available, photographs or video footage of the animal(s); and
   f. General circumstances under which the animal was discovered.
6. Reporting and Contact Information:
   a. Dead and/or Injured Protected Species:
      1. NMFS Greater Atlantic Region’s Stranding Hotline: 866-755-6622
      2. NMFS Southeast Region’s Stranding Hotline: 877-942-5343 (marine mammals), 844-732-8785 (sea turtles)
   ii. Injurious Takes of Endangered and Threatened Species:
      1. NMFS Greater Atlantic Regional Office, Protected Resources Division (*nmfs.gar.incidental-take@noaa.gov*)
      2. BOEM Environment Branch for Renewable Energy, Phone: 703-787-1340, Email: *renewable_reporting@boem.gov*

OMB Control Number: 1014-0023
OMB Approved Expiration Date: November 30, 2018

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT (BSEE) GULF OF MEXICO OUTER CONTINENTAL SHELF (OCS) REGION

BSEE NTL No. 2015-G03 Effective Date: December 17, 2015

NOTICE TO LESSEES AND OPERATORS (NTL) OF FEDERAL OIL, GAS, AND SULPHUR LEASES AND PIPELINE RIGHT-OF-WAY HOLDERS IN THE OCS, GULF OF MEXICO OCS REGION

Marine Trash and Debris Awareness and Elimination

This NTL is being issued pursuant to 30 CFR 250.103, and 250.300, to provide information on the Offshore Operators Committee (OOC) marine trash and debris awareness training video and slide show. This NTL also provides the mailing and email addresses for submitting annual training reports. This NTL supersedes and replaces NTL No. 2012-G01, effective January 1, 2012, on this subject and applies to all existing and future oil and gas operations in the Gulf of Mexico OCS unless and until expressly superseded.

Background

Marine trash and debris pose a threat to fish, marine mammals, sea turtles, and other marine animals; cause costly delays and repairs for commercial and recreational boating interests; detract from the aesthetic quality of recreational shore fronts; and increase the cost of beach and park maintenance. As oil and gas industry activities expand into deeper waters, the number of species of protected marine animals exposed to marine debris is increasing and now includes the sperm whale, an endangered species, as well as other marine mammals and five species of sea turtles. The discharge of garbage and debris has been the subject of strict laws, such as MARPOL-Annex V and the Marine Debris Act, 33 U.S.C. 1951 *et seq.*, and regulations imposed by various agencies including the United States Coast Guard and the Environmental Protection Agency

Since oil and gas operations in the Gulf of Mexico may contribute to this problem, 30 CFR 250.300(a) and (b)(6) prohibit you from discharging containers and other materials into the marine environment, and 30 CFR 250.300(c) and (d) require you to make durable identification markings on skid-mounted equipment, portable containers, spools or reels, and drums, and to record and report such items when lost overboard to the District Manager through facility daily operations reports. Therefore, in accordance with 30 CFR 250.300(a) and (b)(6), you should exercise special caution when you handle and transport small items and packaging materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass that can be lost in the marine environment and washed ashore. Increasing your workers' awareness of the problem and emphasizing their responsibilities will help reduce the litter problem further and control the unintended loss of items such as empty buckets, hard hats, shrink wrap, strip lumber and pipe thread protectors.

Marine Trash and Debris Placards

You should continue to post placards that include each of the information text boxes in Appendix 1 of this NTL in prominent places on all fixed and floating production facilities that have sleeping or food preparation capabilities and on mobile drilling units engaged in oil and gas operations in the Gulf of Mexico OCS. Each of the placards depicted, with the language specified, should be displayed on an approximately 5x8 inch format or larger. These signs should be displayed at line-of-sight height at or near boat landings and heliports, in mess areas, and in the recreation or training or orientation area. One or more areas may be omitted if there is insufficient space. These notices should be referenced, and their contents explained, during any initial orientation given on the facility for visitors or occupants. Placards should be sturdy enough to withstand the local environment and should be replaced when damage or wear compromises readability.

Marine Trash and Debris Awareness Training

All of your offshore employees and those contractors actively engaged in your offshore operations (*e.g.*, wireline operators, contract lease operators, and maintenance or construction crews) should complete marine trash and debris awareness training annually.

The training for employees and contractors consists of two parts: (1) viewing a marine trash and debris training video or slide show; and (2) receiving an explanation from management personnel of the lessee or designated lease operator that emphasizes their commitment to the message of this NTL.

You may obtain the marine trash and debris training video, training slide packs, and other marine debris related educational material produced by the OOC, through the OOC website at http://www.theooc.us/marinedebris.html. The video and slides are offered in English and Spanish versions and the video is available as a DVD or VHS tape. The video, slides, and related material may also be downloaded directly from the website.

Marine Trash and Debris Awareness Training and Certification Process

You should continue to develop and use a marine trash and debris awareness training and certification process that reasonably assures that the employees and contractors specified above are in fact trained. Your training process should include the following elements:

1) viewing of either the video or the slide show by the personnel specified above using one of the following methods:
   a) attendance at periodic meetings held for this purpose;
   b) as part of several scheduled training components;
   c) web-based training with email notification; or
   d) training by a third-party contractor;
2) an explanation from the management that conveys the commitment of the company to achieve the objectives of the trash and debris containment requirement;
3) attendance measures (initial and annual); and
4) recordkeeping and availability of records for inspection by BSEE.

By January 31st of each year, you should provide BSEE with an annual report (1-2 pages) signed by a company official that describes your marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. A sample annual report/certification letter is available at the OOC website above. You should send the report by email to marinedebris@bsee.gov.

In lieu of emailing the report, you may send a printed copy to:

Bureau of Safety and Environmental Enforcement
Gulf of Mexico OCS Region
Office of Environmental Compliance (MS GE466)
1201 Elmwood Park Blvd.
New Orleans, Louisiana 70123

Guidance Document Statement

BSEE issues NTLs as guidance documents in accordance with 30 CFR 250.103 to clarify or provide more detail about certain BSEE regulatory requirements and to outline the information you must provide in your various submittals. Under that authority, this NTL sets forth a policy on, and an interpretation of, a regulatory requirement that provides a clear and consistent approach to complying with the requirements.

Paperwork Reduction Act of 1995 (PRA) Statement

The PRA (44 U.S.C. 3501 et seq.) requires us to inform you that we collect the information described in this NTL to ensure that you conduct operations in a manner that will not jeopardize threatened or endangered species or destroy or adversely modify critical habitat that has been designated for those species. We protect all proprietary information submitted according to the Freedom of Information Act and 30 CFR 250.197. An agency may not conduct or sponsor a collection of information unless it displays a currently valid Office of Management and Budget (OMB) Control Number. We estimate the hour burden to be 1 hour for the training video request; 3 hours relating to recordkeeping; and 1.5 hours for each annual report and certification. The placard postings are exempt from the PRA requirements. Direct comments regarding the burden or any other aspect of this information collection to the BSEE Information Collection Clearance Officer; 45600 Woodland Rd., Sterling, VA 20166.

In addition, this NTL refers to information collection requirements under 30 CFR 250, Subpart C. OMB has approved all of the information collection requirements in these regulations and assigned OMB Control Number 1014-0023.

Contact

Submit any questions regarding this NTL by e-mail to: marinedebris@bsee.gov.

Lars Herbst

Lars Herbst
Regional Director
Gulf of Mexico OCS Region

Appendix I

Marine Debris Placards

WHAT IS MARINE DEBRIS?

Marine debris is any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other man-made item or material that is lost or discarded in the marine environment. Marine debris may be intentionally dumped, accidentally dropped, or indirectly deposited. Whatever the source, marine debris is a direct result of human activities on land and at sea. Depending upon its composition, marine debris may sink to the seafloor, drift in the water column, or float on the surface of the sea. Certain debris, such as plastics, can persist for hundreds of years in the marine environment without decomposing.

WARNING!

YOUR ACTIONS MAY SUBJECT YOU TO SEVERE LEGAL CONSEQUENCES!

The disposal and/or discharge of any solid waste anywhere in the marine environment (other than ground-up food particles) is strictly prohibited by U.S. Coast Guard and Environmental Protection Agency regulations. THIS INCLUDES MATERIALS OR DEBRIS ACCIDENTALLY LOST OVERBOARD.

The disposal of equipment, cables, chains, containers or other materials into offshore waters is prohibited by the Bureau of Safety and Environmental Enforcement (30 CFR 250.300(b)(6)). THIS INCLUDES MATERIALS OR DEBRIS ACCIDENTALLY LOST OVERBOARD.

ATTENTION!

MARINE DEBRIS MAY CAUSE SEVERE ECOLOGICAL DAMAGE!

Marine debris discarded or lost from offshore and coastal sources may injure or kill fish, marine mammals, sea turtles, seabirds and other wildlife.

Thousands of marine animals, including marine mammals, sea turtles and seabirds, die every year from entanglement in fishing line, strapping bands, discarded ropes and nets and plastic six-pack rings. Additionally, unknown numbers of marine animals die each year from internal injury, intestinal blockage and starvation as a result of ingesting marine debris.

Marine debris fouls boat propellers and clogs water intake ports on engines thereby endangering the safety of fishermen and boaters and resulting in heavy loss of time and money.

Marine debris detracts from the aesthetic quality of recreational beaches and shorelines and increases the cost of park and beach maintenance.

ATTENTION!

SECURE ALL LOOSE ARTICLES!

NOAA Fisheries now expects petroleum industry personnel to pick up and recover any articles lost overboard from boats and offshore structures as safety conditions permit. Additionally, 30 CFR 250.300 (d) requires recording and reporting items lost overboard to the District Manager through facility daily operations reports.

Protect marine animals, as well as your valuable time and money, by doing the following to prevent accidental loss of these items:

Properly securing all materials, equipment, and personal belongings. Articles such as hardhats, life vests, sunglasses, cigarette lighters, parts bags, buckets, shrink wrap, strip lumber, and pipe thread protectors become marine debris when lost overboard.

Making sure that all trash receptacles have tight fitting lids and that the lids are used.

Providing and using secure cigarette butt containers. Cigarette butts are one of the most common forms of marine debris. Many cigarette butts contain some form of plastic and do not decompose in the ocean. Cigarette butts pose a major threat to marine wildlife as they resemble food and cause gut blockages and starvation when ingested.

Do your part to eliminate marine debris. Encourage others to be responsible about marine debris by making suggestions to secure potential marine debris on your boat or structure or by participating in a beach cleanup.

DEPARTMENT OF HOMELAND SECURITY
U.S. Coast Guard

OMB Approval: 1625-0011
Expiration Date: 05/31/2021

PRIVATE AIDS TO NAVIGATION APPLICATION

(See attached instructions and copy of Code of Federal Regulations, Title 33, Chap. 1, Part 66)

NO PRIVATE AID TO NAVIGATION MAY BE AUTHORIZED UNLESS A COMPLETED APPLICATION FORM HAS BEEN RECEIVED (14 U.S.C. 83; 33 CFR. 66. 01-5).

1. ACTION REQUESTED FOR PRIVATE AIDS TO NAVIGATION: ☐ A. ESTABLISH AND MAINTAIN ☐ B. DISCONTINUE ☐ C. CHANGE ☐ D. TRANSFER OWNERSHIP

2. DATE ACTION TO START:

3. AIDS WILL BE OPERATED: ☐ A. YEAR-ROUND ☐ B. TEMPORARILY UNTIL ☐ C. SEASONAL FROM TO

4. NECESSITY FOR AID *(Continue in Block 8)*

5. GENERAL LOCALITY

6. AUTHORIZING PERMIT FOR THIS STRUCTURE OR BUOY
USACE ☐ PERMIT AND/ OR STATE ☐ PERMIT (Valid Permit Number)

FOR DISTRICT COMMANDERS ONLY		**7. APPLICANT WILL FILL IN APPLICABLE REMAINING COLUMNS**										
			LIGHT							STRUCTURE	
LIGHT LIST NUMBER	NAME OF AID	NO. OR LTR (7a)	FLASH PERIOD (7b)	FLASH LENGTH (7c)	COLOR (7d)	POSITION (7e)	DEPTH OF WATER (7f)	CANDELA (7g)	FOCAL PLANE HEIGHT (7h)	TYPE, COLOR, AND HEIGHT ABOVE GROUND (7i)	REMARKS *(See instructions)* *(7j)*

8. ADDITIONAL COMMENTS

9a. NAME AND ADDRESS OF PERSON IN DIRECT CHARGE OF THE AID(S)

9b. TELEPHONE NO.

9c. E-MAIL ADDRESS

10a. NAME AND ADDRESS OF PERSON OR CORPORATION AT WHOSE EXPENSE THE AID(S) WILL BE MAINTAINED

10b. THE APPLICANT AGREES TO SAVE THE COAST GUARD HARMLESS WITH RESPECT TO ANY CLAIM OR CLAIMS THAT MAY RESULT ARISING FROM THE ALLEGED NEGLIGENCE OF THE MAINTENANCE OR OPERATION OF THE APPROVED AID(S).

10c. DATE

10d. SIGNATURE AND TITLE OF OFFICIAL SIGNING

FOR USE BY DISTRICT COMMANDER		RECD	DATE APPROVED	SIGNATURE *(By direction)*
SERIAL NO.	CLASSIFICATION OF AIDS(S)	CHART		
		LNM		

Reset

REMARKS

DATE	REFERENCE	ACTION AND REMARKS

	J	F	M	A	M	J	J	A	S	O	N	D	

NAME OF AID	LIGHT LIST NO.

PRIVACY NOTICE

Authority: 14 U.S.C. 83, 14 U.S.C. 85.

Purpose: To obtain approval to establish a private aid to navigation, applicants must submit CG 2554 (Private Aids to Navigation Application). Information about the private aid to navigation (type, color, geographic position), as well as the applicant's contact information is stored in the U.S. Coast Guard's United States Aids to Navigation Information Management System (USAIMS). USAIMS is the U.S. Coast Guard's comprehensive database for managing information about aids to navigation. USAIMS has user access controls in place to govern who may view or access information.

Routine Uses: Authorized USCG personnel will utilize this information to contact owners in the event of a discrepancy or a mishap to a private aid to navigation. Any external disclosures of data within this record will be made in accordance with DHS/ALL-002, Department of Homeland Security (DHS) Mailing and Other Lists System, November 25, 2008, 73 FR 71659.

Consequences of Failure to Provide Information: Mandatory. Failure to provide the required contact information will prevent approval to establish a private aid to navigation.

U.S. COAST GUARD
PRIVATE AIDS TO NAVIGATION APPLICATION
INSTRUCTIONS

1. The rules, regulations, and procedures pertaining to private aids to navigation are set forth in the excerpt of the Code of Federal Regulations; Title 33, Chapter 1, Part 66 on the following pages.

2. One copy of the application for private aids to navigation shall be forwarded via postal mail, electronic mail, or facsimile to the Commander of the Coast Guard District in which the aids will be located. Sections of charts or sketches showing the work proposed should accompany each application.

3. When making application for private aids to navigation to mark structures and mooring buoys in navigable waters or to mark the excavating or depositing of material therein, evidence is required of the authorization obtained from the U.S. Army Corps of Engineers (USACE), Department of the Army, for such work, (Code of Federal Regulations; Title 33, Part 322.) and/or State Regulatory Agency.

4. The applicant shall complete all of Blocks 1, 2, 3, 4, 5, 9 and 10 for all new applications. When a private aid to navigation is being discontinued, Block 3 need not be completed. Block 6 shall be completed whenever authorization is required to be obtained from Corps of Engineers (See Instruction No. 3). Columns in Block 7 will be completed as follows:
  a. Unlighted buoy(s) - 7a, 7e, 7f, and 7j.
  b. Lighted buoy(s) - 7a, 7b, 7c, 7d, 7e, 7f, 7g, 7h, and 7j.
  c. Daybeacon(s) - 7a, 7e, 7f (if applicable), 7h, 7i, and 7j.
  d. Light(s) on a structure - 7a, 7b, 7c, 7d, 7e, 7f (if applicable), 7g, 7h, 7i, and 7j.

5. When a private aid to navigation is being changed, Block 8 shall be used to describe the nature of the change.

6. The required information for each column includes the following:
  (7a) Proposed number or letter to be assigned to the private aid to navigation.
  (7b) Period of light (time in seconds for one complete cycle).
  (7c) Flash length in seconds. For complex or multiple flashes, explain in column (7j).
  (7d) Color of light.
  (7e) Position as determined by Global Positioning System (GPS), differential GPS, professional surveyor, by two or more horizontal angles, or bearing and distance from a prominent charted landmark. If a prominent charted landmark is not available, show latitude and longitude as precisely as the chart permits.
  (7f) Depth of water at buoy or structure (if marine site). All depths are measured from mean lower low water except on Great Lakes where depths are measured from low water datum.
  (7g) Candela, if known; otherwise, include the following information in column (7j); lens size, lamp voltage and amperage if electric, or details of other illuminant to be used.
  (7h) If lighted, the height of the light's optic above the water.
  (7i) Include details of structure (type, color).
  (7j) Used for the following specific information, plus any other useful details: a. buoys - size, shape, color, and reflective material used; b. structures - dayboard shape and color; c. sound signal on a buoy or structure - type and model, audible range, and characteristic (number of strokes or blasts, period and blast length).

7. This form may be used to cover more than one private aid to navigation in the same geographic area. Draw a line between each aid as indicated in example below. Attach separate sheet if additional space is required.

8. Attach a section of chart showing the proposed location of the private aid(s) to navigation.

9. a. After receipt of the approved form, the applicant will advise the District Commander by telephone, postal mail, electronic mail, or facsimile when the authorized work is actually accomplished.
  b. If the private aid(s) to navigation have not been installed within one year of the approval date, the approved application is automatically cancelled.
  c. Any discrepancy in the operation of the private aid(s) to navigation at any time shall be reported to the District Commander by telephone, postal mail, electronic mail, or facsimile in order that Notices to Mariners may be issued. A discrepancy exists whenever the private aid to navigation is not operating as described in the approved application, i.e., lack of signal, incorrect light characteristic, or improper color, shape, or position of shore structure or buoy. The correction of the discrepancy will also be reported by the same method.

10. All classes of private aids to navigation shall be maintained in proper condition. They are subject to inspection by the Coast Guard at any time and without prior notice to the maintainer.

EXAMPLE OF USE OF APPLICATION

FOR DISTRICT COMMANDERS ONLY		7. APPLICANT WILL FILL IN APPLICABLE REMAINING COLUMNS									
			LIGHT							BUOY/STRUCTURE	
LIGHT LIST NUMBER	NAME OF AID	NO. OR LTR (7a)	FLASH PERIOD (7b)	FLASH LENGTH (7c)	COLOR (7d)	POSITION (7e)	DEPTH OF WATER (7f)	CANDELA (7g)	FOCAL PLANE HEIGHT (7h)	TYPE, COLOR, AND HEIGHT ABOVE GROUND (7i)	REMARKS *(See instructions)* *(7j)*
		1	4s	0.4s	Green	dd°mm'ss.sss"N ddd°mm'ss.sss"W	9 Ft			5' lighted buoy, Green	
		2				dd°mm'ss.sss"N ddd°mm'ss.sss"W	8 Ft			Nun buoy, Red	
		3				dd°mm'ss.sss"N ddd°mm'ss.sss"W	7 Ft			Single Pile	2' square dayboard, Green
		4	2.5s	0.5s	Red	dd°mm'ss.sss"N ddd°mm'ss.sss"W	9 Ft		14 Ft	Multi-Pile	3' triangular dayboard, Red

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number.

The U.S. Coast Guard estimates the average burden for this report is 1 hour. You may submit any comments concerning the accuracy of this burden estimate or any suggestions for reducing the burden to: COMMANDANT (CG-NAV-1), U.S. COAST GUARD STOP 7418, 2703 MARTIN LUTHER KING JR AVE SE, WASHINGTON DC 20593-7418 or OFFICE OF MANAGEMENT AND BUDGET, PAPERWORK REDUCTION PROJECT (1625-0011), WASHINGTON, DC 20590-0001.

FEDERAL REGULATIONS CONCERNING PRIVATE AIDS TO NAVIGATION, 33 CFR 66

§ 66.01-1 Basic provisions.

(a) No person, public body, or instrumentality not under the control of the Commandant, exclusive of the Armed Forces, will establish and maintain, discontinue, change or transfer ownership of any aid to maritime navigation, without first obtaining permission to do so from the Commandant.

(b) For the purposes of this subpart, the term private aids to navigation includes all marine aids to navigation operated in the navigable waters of the United States other than those operated by the Federal Government (part 62 of this subchapter) or those operated in State waters for private aids to navigation (subpart 66.05).

(c) Coast Guard authorization of a private aid to navigation does not authorize any invasion of private rights, nor grant any exclusive privileges, nor does it obviate the necessity of complying with any other Federal, State or local laws or regulations.

(d) With the exception of radar beacons (racons) and shore based radar stations, operation of electronic aids to navigation as private aids will not be authorized.

§ 66.01-3 Delegation of authority to District Commanders.

(a) Under Section 888 of Pub. L. 107-296, 116 Stat. 2135, the Commandant delegates to the District Commanders within the confines of their respective districts (see Part 3 of this chapter for descriptions) the authority to grant permission to establish and maintain, discontinue, change or transfer ownership of private aids to maritime navigation, and otherwise administer the requirements of this subpart.

(b) The decisions of the District Commander may be appealed within 30 days from the date of decision. The decision of the Commandant in any case is final.

§ 66.01-5 Application procedure.

To establish and maintain, discontinue, change, or transfer ownership of a private aid to navigation, you must apply to the Commander of the Coast Guard District in which the aid is or will be located. You can find application form CG-2554 at http://www.uscg.mil/forms/cg/CG_2554.pdf. You must complete all parts of the form applicable to the aid concerned, and must forward the application to the District Commander. You must include the following information:

(a) The proposed position of the aid to navigation by two or more horizontal angles, bearings and distance from charted landmarks, or the latitude and longitude as determined by GPS or differential GPS. Attach a section of chart or sketch showing the proposed position.

(b) The name and address of the person at whose expense the aid will be maintained.

(c) The name and address of the person who will maintain the aid to navigation.

(d) The time and dates during which it is proposed to operate the aid.

(e) The necessity for the aid.

(f) For lights: The color, characteristic, range, effective intensity, height above water, and description of illuminating apparatus. Attach a copy of the manufacturer's data sheet to the application.

(g) For sound signals: Type (whistle, horn, bell, etc.) and characteristic.

(h) For buoys or daybeacons: Shape, color, number, or letter, depth of water in which located or height above water.

(i) For racons: Manufacturer and model number of racon, height above water of desired installation, and requested coding characteristic. Equipment must have FCC authorization.

§ 66.01-10 Characteristics.

The characteristics of a private aid to navigation must conform to those prescribed by the United States Aids to Navigation System set forth in subpart B of part 62 of this subchapter.

§ 66.01-11 Lights.

(a) Except for range and sector lights, each light approved as a private aid to navigation must:

(1) Have at least the effective intensity required by this subpart omnidirectionally in the horizontal plane, except at the seams of its lens-mold.

(2) Have at least 50% of the effective intensity required by this subpart within ±2° of the horizontal plane.

(3) Have a minimum effective intensity of at least 1 candela for a range of 1 nautical mile, 3 candelas for one of 2 nautical miles, 10 candelas for one of 3 nautical miles, and 54 candelas for one of 5 nautical miles. The District Commander may change the requirements for minimum intensity to account for local environmental conditions. For a flashing light this intensity is determined by the following formula:

$Ie=G/(0.2+t_2-t_1)$

Where:
Ie = Effective intensity
G = The integral of the instantaneous intensity of the flashed light with respect to time
t_1 = Time in seconds at the beginning of the flash
t_2 = Time in seconds at the end of the flash
t_2-t_1 is greater than or equal to 0.2 seconds.

(4) Unless the light is a prefocused lantern, have a means of verifying that the source of the light is at the focal point of the lens.

(5) Emit a color within the angle of 50% effective intensity with color coordinates lying within the boundaries defined by the corner coordinates in Table 66.01-11(5) of this part when plotted on the Standard Observer Diagram of the International Commission on Illumination (CIE).

Table 66.01-11(5)--Coordinates of Chromaticity

Color	Coordinates of chromaticity x axis	y axis
White	0.500	0.382
	0.440	0.382
	0.285	0.264
	0.285	0.332
	0.453	0.440
	0.500	0.440
Green	0.305	0.689
	0.321	0.494
	0.228	0.351
	0.028	0.385
Red	0.735	0.265
	0.721	0.259
	0.645	0.335
	0.665	0.335
Yellow	0.618	0.382
	0.612	0.382
	0.555	0.435
	0.560	0.440

(6) Have a recommended interval for replacement of the source of light that ensures that the lantern meets the minimal required intensity stated in paragraph (a)(3) of this section in case of degradation of either the source of light or the lens.

(7) Have autonomy of at least 10 days if the light has a self-contained power system. Power production for the prospective position should exceed the load during the worst average month of insolation. The literature concerning the light must clearly state the operating limits and service intervals. Low-voltage disconnects used to protect the battery must operate so as to prevent sporadic operation at night.

(b) The manufacturer of each light approved as a private aid to navigation must certify compliance by means of an indelible plate or label affixed to the aid that meets the requirements of § 66.01-14.

§ 66.01-12 May I continue to use the private aid to navigation I am currently using?

If, after March 8, 2004, you modify, replace, or install any light that requires a new application as described in § 66.01-5, you must comply with the rules in this part.

§ 66.01-13 When must my newly manufactured equipment comply with these rules?

After March 8, 2004, equipment manufactured for use as a private aid to navigation must comply with the rules in this part.

§ 66.01-14 Label affixed by manufacturer.

(a) Each light, intended or used as a private aid to navigation authorized by this part, must bear a legible, indelible label (or labels) affixed by the manufacturer and containing the following information:

(1) Name of the manufacturer.
(2) Model number.
(3) Serial number.
(4) Words to this effect: "This equipment complies with requirements of the U.S. Coast Guard in 33 CFR part 66."

(b) This label must last the service life of the equipment.

(c) The manufacturer must provide the purchaser a data sheet containing the following information:
(1) Recommended service life based on the degradation of either the source of light or the lamp.
(2) Range in nautical miles.
(3) Effective intensity in candela.
(4) Size of lamp (incandescent only).
(5) Interval, in days or years, for replacement of dry-cell or rechargeable battery.

§ 66.01-15 Action by Coast Guard.

(a) The District Commander receiving the application will review it for completeness and will assign the aid one of the following classifications:

Class I: Aids to navigation on marine structures or other works which the owners are legally obligated to establish, maintain and operate as prescribed by the Coast Guard.

Class II: Aids to navigation exclusive of Class I located in waters used by general navigation.

Class III: Aids to navigation exclusive of Class I located in waters not ordinarily used by general navigation.

(b) Upon approval by the District Commander, a signed copy of the application will be returned to the applicant. Approval for the operation of radar beacons (racons) will be effective for an initial two year period, then subject to annual review without further submission required of the owner.

§ 66.01-20 Inspection.

All classes of private aids to navigation shall be maintained in proper operating condition. They are subject to inspection by the Coast Guard at any time and without prior notice.

§ 66.01-25 Discontinuance and removal.

(a) No person, public body or instrumentality shall change, move or discontinue any authorized private aid to navigation required by statute or regulation (Class I, § 66.01-15) without first obtaining permission to do so from the District Commander.

(b) Any authorized private aid to navigation not required by statute or regulation (Classes II and III, § 66.01-15) may be discontinued and removed by the owner after 30 days' notice to the District Commander to whom the original request for authorization for establishment of the aid was submitted.

(c) Private aids to navigation which have been authorized pursuant to this part shall be discontinued and removed without expense to the United States by the person, public body or instrumentality establishing or maintaining such aids when so directed by the District Commander.

§ 66.01-30 Corps of Engineers' approval.

(a) Before any private aid to navigation consisting of a fixed structure is placed in the navigable waters of the United States, authorization to erect such structure shall first be obtained from the District Engineer, U.S. Army Corps of Engineers in whose district the aid will be located.

(b) The application to establish any private aid to navigation consisting of a fixed structure shall show evidence of the required permit having been issued by the Corps of Engineers.

§ 66.01-40 Exemptions.

(a) Nothing in the preceding sections of this subpart shall be construed to interfere with or nullify the requirements of existing laws and regulations pertaining to the marking of structures, vessels and other obstructions sunken in waters subject to the jurisdiction of the United States (Part 64 of this subchapter), the marking of artificial islands and structures which are erected on or over the seabed and subsoil of the Outer Continental Shelf (Part 67 of this subchapter), or the lighting of bridges over navigable waters of the United States (Subchapter J of this subchapter).

(b) Persons marking bridges pursuant to Subchapter J of this title are exempted from the provisions of § 66.01-5.

§ 66.01-45 Penalties.

Any person, public body or instrumentality, excluding the armed forces, who shall establish, erect or maintain any aid to maritime navigation without first obtaining authority to do so from the Coast Guard, with the exception of those established in accordance with § 64.11 of this chapter, or who shall violate the regulations relative thereto issued in this part, is subject to the provisions of 14 U.S.C. 83.

§ 66.01-50 Protection of private aids to navigation.

Private aids to navigation lawfully maintained under these regulations are entitled to the same protection against interference or obstruction as is afforded by law to Coast Guard aids to navigation (Part 70 of this subchapter). If interference or obstruction occurs, a prompt report containing all the evidence available should be made to the Commander of the Coast Guard District in which the aids are located.

§ 66.01-55 Transfer of ownership.

(a) When any private aid to navigation authorized by the District Commander, or the essential real estate or facility with which the aid is associated, is sold or transferred, both parties to the transaction shall submit application (§66.01-5) to the Commander of the Coast Guard District in which the aid is located requesting authority to transfer responsibility for maintenance of the aid.

(b) The party relinquishing responsibility for maintenance of the private aid to navigation shall indicate on the application form (CG-2554) both the discontinuance and the change of ownership of the aid sold or transferred.

(c) The party accepting responsibility for maintenance of the private aid to navigation shall indicate on the application form (CG-2554) both the establishment and the change of ownership of the aid sold or transferred.

(d) In the event the new owner of the essential real estate or facility with which the aid is associated refuses to accept responsibility for maintenance of the aid, the former owner shall be required to remove the aid without expense to the United States. This requirement shall not apply in the case of any authorized private aid to navigation required by statute or regulation (Class I, § 66.01-15) which shall be maintained by the new owner until the conditions which made the aid necessary have been eliminated.

Reset

Visual Observer Daily Log

Date		Vessel name	

Time (EDT)	Vessel Activity (Transit, Sampling etc.)	Max Vessel Speed (kts)	Designated Crew Lookout
0:00			
1:00			
2:00			
3:00			
4:00			
5:00			
6:00			
7:00			
8:00			
9:00			
10:00			
11:00			
12:00			
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			

Vessel Strike Avoidance Action Details

Observer Name	
Time (EDT)	
Species Observed	
Description of Vessel Strike Avoidance Measure Implemented	

MARINE TRASH AND DEBRIS

Net Recovery

Photo Courtesy of USCG

BACKGROUND

Photo Courtesy of Ayhan Dede, Turkey European Cetacean Bycatch Campaign, Turkish Marine Research Foundation

Entangled Sperm Whale

Photo Courtesy of NOAA

Photo Courtesy of Ray Boland, NOAA

FACT:

Marine trash and debris:

- ❖ Pose a threat to fish, marine mammals, sea turtles, sea birds, and other wildlife;
- ❖ Cause costly delays and repairs for commercial and recreational boating interests;
- ❖ Detract from the aesthetic quality of recreational shore fronts; and
- ❖ Increase the cost of beach and park maintenance.

WHAT IS MARINE DEBRIS?

Marine debris is any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other man-made item or material that is lost or discarded in the marine environment.

Photo Courtesy of NOAA

Doll found in stomach of stranded Beaked Whale

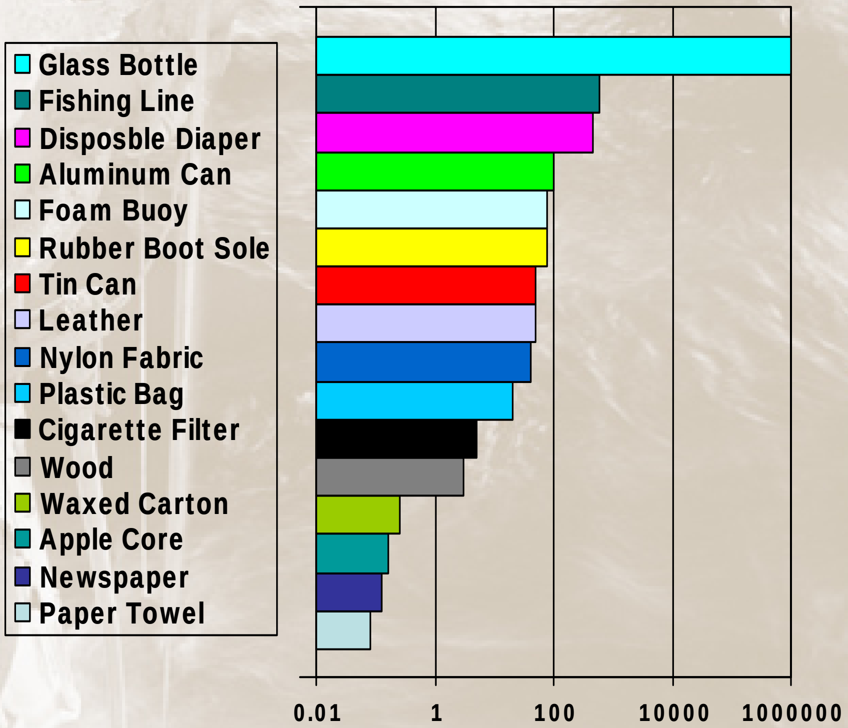
Photo Courtesy of Mote Marine Lab

Kemp's Ridley that swallowed balloon with ribbon

DEBRIS PERSISTS

- Depending upon its composition, marine debris:
  - May sink to the seafloor,
  - Drift in the water column, or
  - Float on the surface of the sea.
- Certain debris, such as plastics, can persist in the marine environment for hundreds of years.
- The effect on the visual or ecological environment is significant.

Debris Persistence (Years)



Information Source: NPS, Mote Marine Lab

FOLLOW OCS RULES AND REGULATIONS

- The disposal and/or discharge of any solid waste in the marine environment is strictly prohibited by U.S. Coast Guard (USCG) and Environmental Protection Agency (EPA) regulations.
- The disposal of equipment, cables, chains, containers, or other materials into offshore waters is prohibited by the Minerals Management Service (MMS).
- Regulations on marine trash and debris are also in MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act.

Photo Courtesy of NPS

ADDITIONAL LEGAL REQUIREMENTS

- ❖ Report materials accidentally lost overboard in accordance with regulations.
- ❖ As safe operations allow, recover materials lost overboard.

Photo Courtesy of NOAA

Photo Courtesy of USGS

Entangled Kemp's Ridley

YOUR ACTIONS MAY SUBJECT YOU TO SEVERE LEGAL CONSEQUENCES!

Photo Courtesy of NPS

Despite improvements to date, oil and gas operations in the Gulf of Mexico can contribute to this problem. Offshore operating regulations **prohibit deliberately discharging** containers and other similar materials (i.e. trash and debris) into the marine environment, and require durable identification markings on equipment, tools, containers (especially drums), and other material.

MARINE DEBRIS MAY CAUSE SEVERE ECOLOGICAL DAMAGE

- Marine debris discarded or lost may injure or kill fish, marine mammals, sea turtles, seabirds, and other wildlife.
- Unknown numbers of marine animals die each year from:
  - Entanglement in discarded fishing line, strapping bands, ropes, nets, and plastic six-pack rings, and
  - Internal injury, intestinal blockage, and starvation from ingesting marine debris.

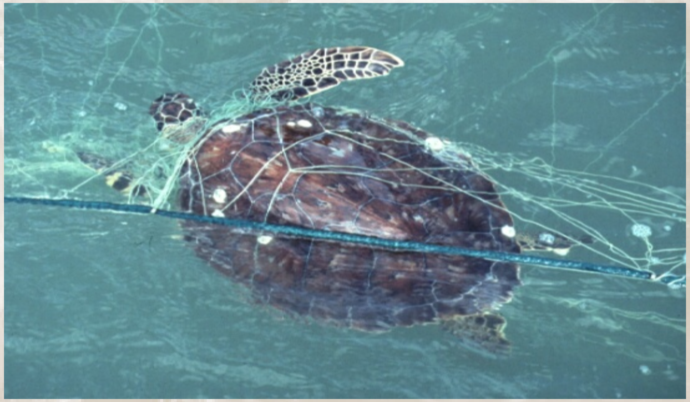


Photo Courtesy of NOAA

Green Turtle trapped in netting

Photo Courtesy of Sea Turtle Survival League

Loggerhead with partially ingested plastic bag

MARINE DEBRIS MAY PUT LIVES AT RISK!

Photo Courtesy of NOAA

Marine debris fouls boat propellers and clogs water intake ports on engines - **endangering the safety** of fishermen and boaters.

MARINE DEBRIS MAY RESULT IN ENVIRONMENTAL DAMAGE

Marine debris takes away from the natural beauty of recreational beaches and shorelines and increases the cost of park and beach maintenance. The beaches are here for us to enjoy and sustain.

Photo Courtesy of USGS

OIL & GAS FACILITIES/VESSELS

Photo Courtesy of Thomas Delinger, NOAA

Entangled Loggerhead

Photo Courtesy of NOAA

Entangled Right Whale

- Industry efforts to date have reduced, if not eliminated, trash intentionally jettisoned into the Gulf of Mexico. However, there is still a concern about accidental losses from structures and vessels.
- As oil and gas industry activities expand into deeper waters, the number of species of protected marine mammals exposed to our activities has increased. Sightings of sperm whales, endangered species, and some threatened species of sea turtles are not uncommon. We need to ensure a chance meeting of these animals with lost materials or debris from our operations does not occur.

TOP ITEMS LOST FROM OIL & GAS FACILTIES*

1. Hard Hats
2. Five Gallon Containers
3. Other Items
   - Pallets
   - Scaffold Boards
   - Plastic Sheeting
   - Life Jackets
   - Hand Tools
   - Handrails
   - Fire Extinguishers

** Results from an OOC survey conducted in 2004 for 2003 operations*

PREVENTING MARINE DEBRIS

Marine debris can be prevented. Below are some <u>best practices</u> for preventing marine debris from oil & gas facilities:

- Tie it down / Secure it / Stow it to avoid items from being lost overboard.
- Use hardhat chinstraps/tethers.
- Dispose of items properly.
- Cover bins/trash cans/baskets.

Photo Courtesy of NOAA

Photo Courtesy of USGS

PREVENTING MARINE DEBRIS

Additional Best Practices:

Photo Courtesy of USGS

- Practice good housekeeping.
- Observe placards. / Follow marine debris training guidelines.
- Use pre-slung packaging. / Store loose items in baskets/lockers.
- Provide butt buckets in smoke areas.
- Reduce the use of pallets. / Use pallet boxes or alternative bulk containers.
- Conduct survey/hazard hunts to identify potential sources of marine debris.

PREVENTING MARINE DEBRIS

Additional Best Practices:

- Include prevention discussions in pre-job hazard assessment meetings and behavior-based safety programs.
- Increase focus on preventing marine debris, especially in adverse environmental conditions like high winds, high seas, transfer operations, etc.
- If an item is lost overboard, review/discuss in facility safety meetings and share learnings.
- Use OOC marine debris slidepacks as environmental moments in facility meetings.

BE PART OF THE SOLUTION AT WORK OR AT PLAY

Whatever the source, marine debris is a direct result of human activities on land and at sea. At work or play, we need to do our part to not contribute to the problem.

Photo Courtesy of NOAA

- Be an advocate on the marine debris issue.
- Do your part.
- Educate others.
- **What else can we do?**

Marine Debris Timeline of Biodegradation

2-4 weeks

6 weeks

2 months

3 months

5 months

6 months

1 year

14 months

3 years

13 years

50 years

80 years

200 years

450 years

600 years

undetermined

•Cardboard box and paper towels ***2-4 weeks***

•Newspaper ***6 weeks***

•Apple core ***2 months***

•Waxed milk carton ***3 months***

•Cotton gloves ***5 months***

•Photodegradable 6-pack ring ***6 months***

•Biodegradable diaper and wool gloves ***1 year***

•Cotton rope ***14 months***

•Plywood ***3 years***

•Painted wooden stick ***13 years***

•Styrofoam cup and tin can ***50 years***

•Styrofoam buoy ***80 years***

•Aluminum can ***200 years***

•Disposable diapers and plastic bottle ***450 years***

•Monofilament fishing line ***600 years***

•Glass bottle and jar ***undetermined***

www.dep.state.fl.us/northwest/Ecosys/section/restoration

information sourced from US Environmental Protection Agency Gulf of Mexico Program

VINEYARD NORTHEAST

GEOPHYSICAL

OFFSHORE ENVIRONMENTAL TRAINING

VINEYARD NORTHEAST

VIRTUAL TRAINING

Welcome!

Please PRINT and SIGN your name on the sign-in sheet

Laura Giaimo
Environmental Scientist
lgiaimo@geosubseaconsulting.com
Mobile: (507) 250-3995

Cynthia Pyć
Senior Manager of Environmental Affairs
cpyc@vineyardwind.com
Mobile: (832) 312-0431

Environmental Awareness is Everyone's Responsibility!

Vineyard Northeast is dedicated to ***protecting the environment and ensuring compliance with all State and Federal regulatory requirements as well as all permitting documents****.*

- Maintain Compliance
- Maintain positive relationship with community
- Notify **party chief** immediately of any potential **environmental issues**
- Vineyard Northeast will be the only party to communicate with Federal or State agencies

Must not knowingly **impact a potential archaeological resource**

All discoveries of potential **archaeological finds** must be **reported to Vineyard Northeast** immediately

Including: iron, steel, or wooden hull; wooden timbers, anchors; concentrations of historic objects; piles of ballast rock, or pre-contact archaeological site (e.g., stone tools, pottery) within the project area

ALL dead or injured birds or bats found on vessels during operations must be **documented and reported to Vineyard Northeast immediately**, and include:

- Species
- Date found
- Location (coordinates)
- Photo to confirm species identity (include ruler or object to show scale)
- Note and photograph any federal or state research bands

Photo Credit: David Bell

VINEYARD NORTHEAST

MARINE DEBRIS PREVENTION

There is a **zero-tolerance** policy for any trash or debris going overboard



Federal agencies that regulate marine debris:

United States Environmental Protection Agency

BOEM Bureau of Ocean Energy Management

BSEE Bureau of Safety and Environmental Enforcement

United States Coast Guard 1790

VINEYARD NORTHEAST

MARINE DEBRIS PREVENTION

Marine Debris is any solid material that goes over the vessel side or is left on the seafloor

- Directly, indirectly, intentionally or unintentionally – all are marine debris!
- Examples: broken gear, lost beacons, cigarette butts, chains, cables, food wrappers, zip tie pieces, used duct tape, etc…

Please recover any marine debris lost/discarded overboard if safety allows. Any Marine Debris must be reported to Vineyard Northeast **within 24 hours** and a **report must be filed**

Reports should include: Coordinates, time, description of marine debris, actions taken to recover debris

Preventing Marine Debris

1. Dispose of trash in secure containers right away
2. Secure all equipment on deck
3. Limit the use of disposable products wherever possible
4. Know and adhere to your vessels waste management policies
5. If you see something, say something!

Preventing Marine Debris is Everyone's Responsibility!

MARINE SPILL/DISCHARGE PREVENTION

Nothing is to be intentionally discharged from the vessel

What is a Spill?
A spill is any amount of industrial product that hits the water or leaves its designated container

What do I do if I observe a Spill?
Immediately report any spills/discharges to Vineyard Northeast. Respond to leaks and spills on the ship following internal reporting mechanisms.

A USCG-approved spill prevention and containment strategy should be available on the vessel.

All personnel should be familiar with the procedures and policies outlined in this plan.

Compliance with Marine Species Regulations

Interactions with marine species are regulated by federal and state government agencies

Two main types of interactions:

1. Vessel strikes

2. Exposure to noise from geophysical equipment

Our ability to continue commercial activities in the Atlantic depends upon us <u>maintaining compliance</u>

VINEYARD NORTHEAST

MARINE PROTECTED SPECIES

Compliance Tools

1. Environmental Documents: Environmental Management Plan (inclusive of Incidental Harassment Authorization, Lease, Survey Plan, BOEM Lease Waiver(s), & Alternative Monitoring Plan)
2. Protected Species Observers
3. Shutdown, Buffer Zones, & Pre-Clearance Zones
4. Delays
5. Shut-downs
6. Speed restrictions and vessel maneuvering requirements
7. Marine species reporting procedures

Our ability to continue commercial activities in the Atlantic depends upon us maintaining compliance

VINEYARD NORTHEAST

MARINE PROTECTED SPECIES

Protected Species Observers (PSOs)

Conduct visual and acoustic monitoring from dock to dock

-visual monitoring day and night

-acoustic monitoring at night/low visibility

PSOs will communicate any detections of marine mammals to captain/crew/equipment operators and other active survey vessels working for Vineyard Northeast in real-time via Mysticetus software

More detail to be provided in PSO side bar meeting

VINEYARD NORTHEAST

MARINE PROTECTED SPECIES

Pre-Clearance, Shutdown, & Buffer Zones

- All zones refer to a radius around the center of a sound source
- Pre-Clearance Zone (PCZ) is applicable before a sound source is activated
- Shutdown Zone (SZ) is applicable while a sound source is active
- Buffer Zone (BZ) is a zone larger than the SZ, where PSOs will communicate the potential that a shutdown may be necessary
- Different size zones apply to different species/species groups (refer to IHA, BOEM lease, survey plan, alternative monitoring plan, and BOEM lease waivers)
  - PSO's HAVE THE FINAL SAY – mitigations should be implemented with discussions taking place after the mitigation has occurred
  - Zone distances will be discussed in the PSO sidebar discussions

CDP0

Ramp Up, Delays, & Shut-downs

- Designed to prevent exposing marine mammals to potentially harmful levels of noise
- In order to begin surveys or resume operations, PSOs must confirm that the PCZs are clear for various pre-clearance times (refer to IHA, BOEM lease, survey plan, alternative monitoring plan, and BOEM lease waivers)
- Ramp up (soft start) **before starting equipment and after a shutdown exceeding 30 minutes occurs**
- DELAY: If protected species are detected either visually or acoustically within or approaching their respective **PCZ**, then we will *delay* initiating geophysical sound sources
- SHUT-DOWN: If protected species are detected within or approaching their SZs while the sound sources are already active, the equipment will be *shut down* immediately

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES

Vessel Strike Avoidance (VSA)

- Vessel speed and maneuvering requirements exist to prevent vessels from striking marine species during transits and surveying
- Whales and sea turtles are especially vulnerable, but all marine mammals, sturgeon, and giant manta rays require VSA
- **NARW are of extra concern**
  - **If you can't distinguish the whale species, treat it as a NARW**
- VSA is required at all times except under extraordinary circumstances that would put the safety of the vessel or crew at risk
  - **November 1 through April 30 speed restriction** operate at or below **10-knots** (<18.5 km/hr)
  - **Route around the animals**, maintaining **minimum distances for protected species**.
  - **Do not divert** or **alter course** in order **to approach** any animals.
  - Avoid **excessive speed** or **abrupt changes in direction**

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES

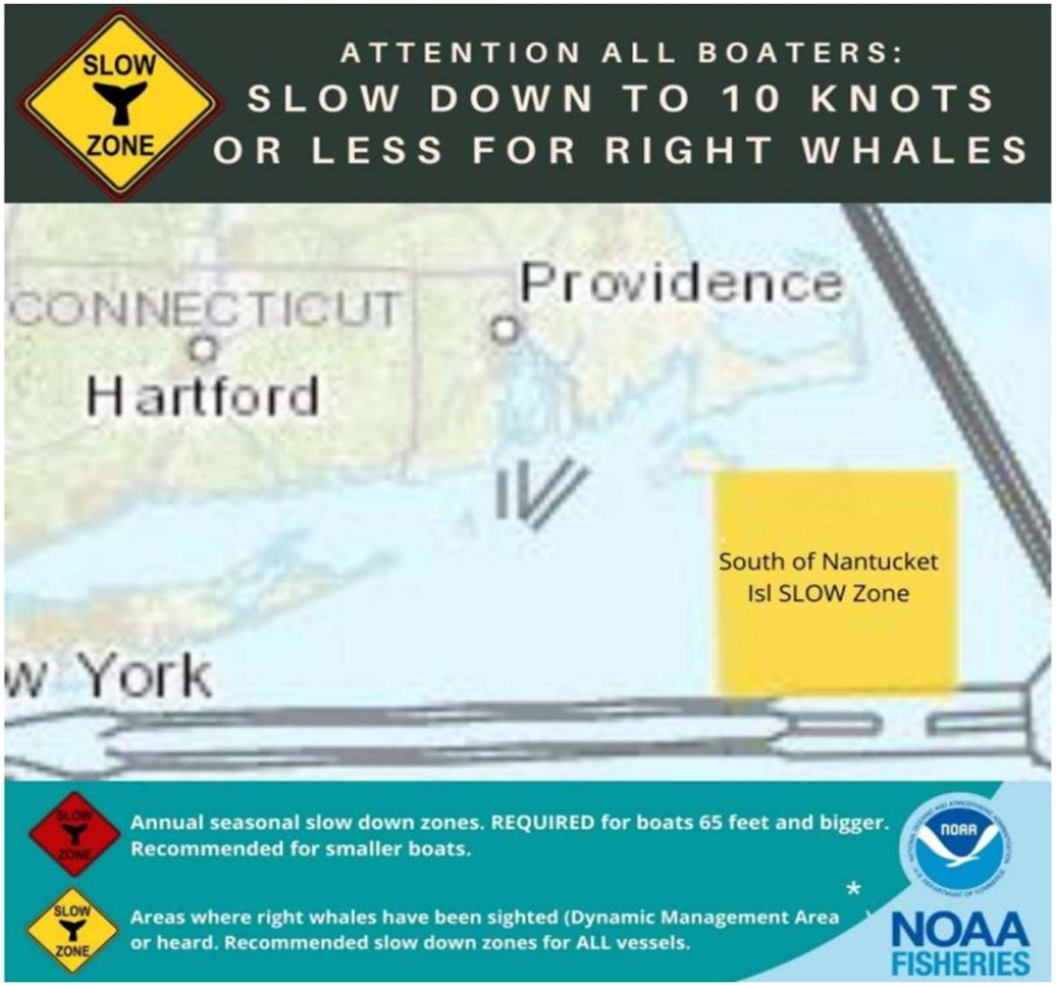
Monitor National Marine Fisheries Service (NMFS) North Atlantic Right Whale reporting systems for the presence of NARWs, including:

- Early Warning System
- Sighting Advisory System
- Mandatory Ship Reporting System
- Additional information: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales

All reporting of NARWs will be communicated by Vineyard Northeast

VINEYARD NORTHEAST

DMA/SMA



Dynamic Management Area (DMA)

- Speed restriction of **10-knot (18.5 km/hr)** or less
- Seasonal speed restriction **November 1 through April 30**

Seasonal Management Area (SMA)

All vessels regardless of size must comply with the 10-knot speed restriction in any SMA, except within Nantucket Sound

- Block Island: November 1 – April 30
- Great South Channel: April 1 – July 31
- Off Race Point: March 1 – April 30
- Cape Cod Bay: January 1 – May 15

Link to find all information: (Scroll to "Dynamic Management Areas")

https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales#dynamic-management-areas

Seasonal Restrictions

Great South Channel Seasonal Management Area (SMA) – All vessels, regardless of size, must comply with a 10-knot speed restriction from April 1 – July 31

Survey activities in the Cape Cod Bay SMA and Off Race Point SMA are limited to the months of August and September.

Vineyard Northeast must not operate more than three HRG survey vessels concurrently within a seasonal restriction area with HRG survey equipment operating at or below 180 kHz.

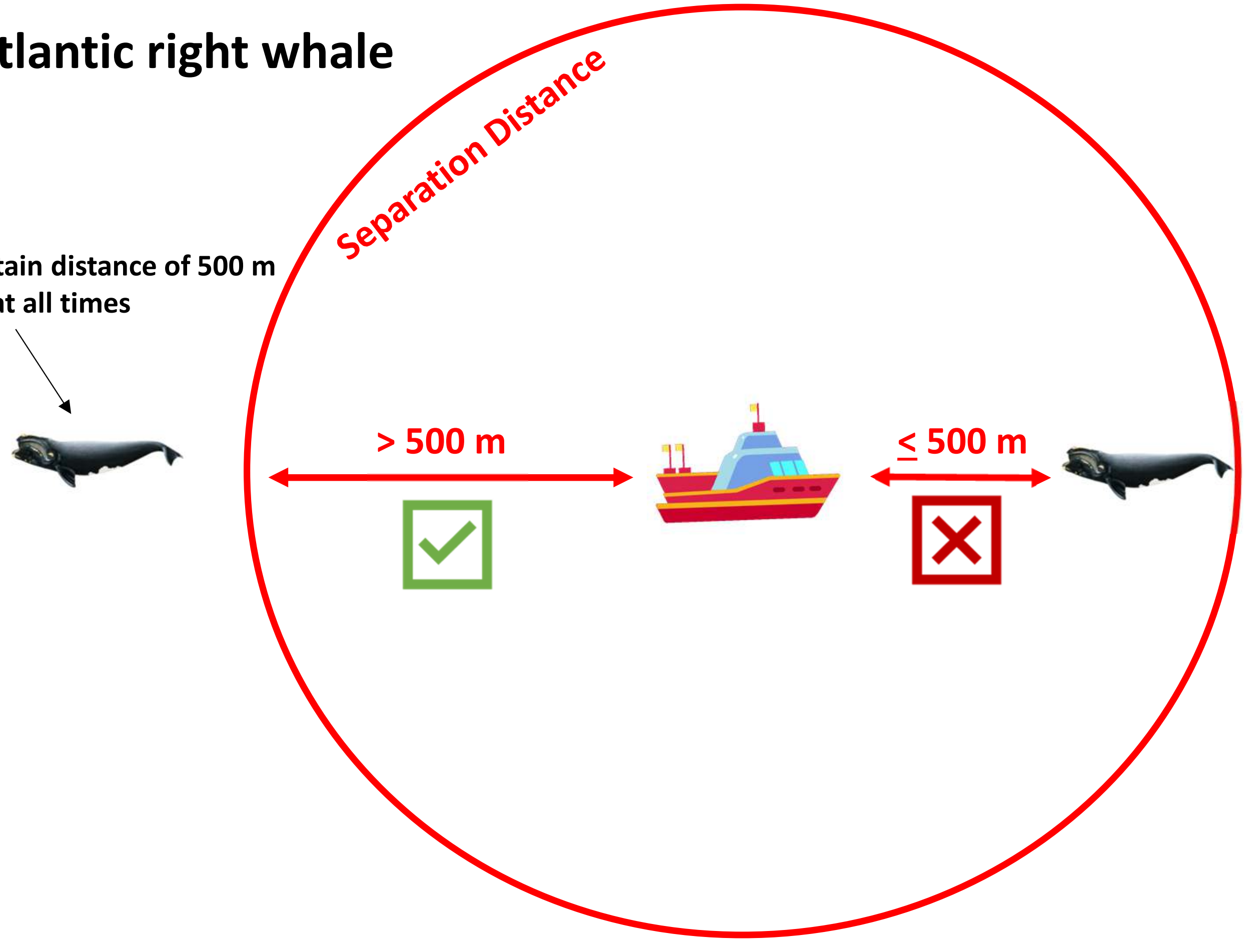
- December through February restriction area is delineated by latitudes and longitudes of 41.183 N; 40.366 N; 69.533 W; and 70.616 W. This area is marked by a solid line in Figure 1.
- March through June restriction area is delineated by a polygon with the following vertices: 40.746 N 70.748 W; 40.953 N 71.284 W; 41.188 N 71.284 W; 41.348 N 70.835 W; 41.35 N 70.455 W; 41.097 N 70.372 W; and 41.021 N 70.37 W. A map of this area is available in the IHA – Figure 1

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES GEOPHYSICAL

North Atlantic right whale

Must maintain distance of 500 m or greater at all times



If underway:
- **Steer course away at/below 10 knots maintaining the 500 m separation distance**

If sighted in path or within 500 m
- **Reduce speed to stop and shift to neutral**
- **Don't engage engines until NARW beyond 500 m**

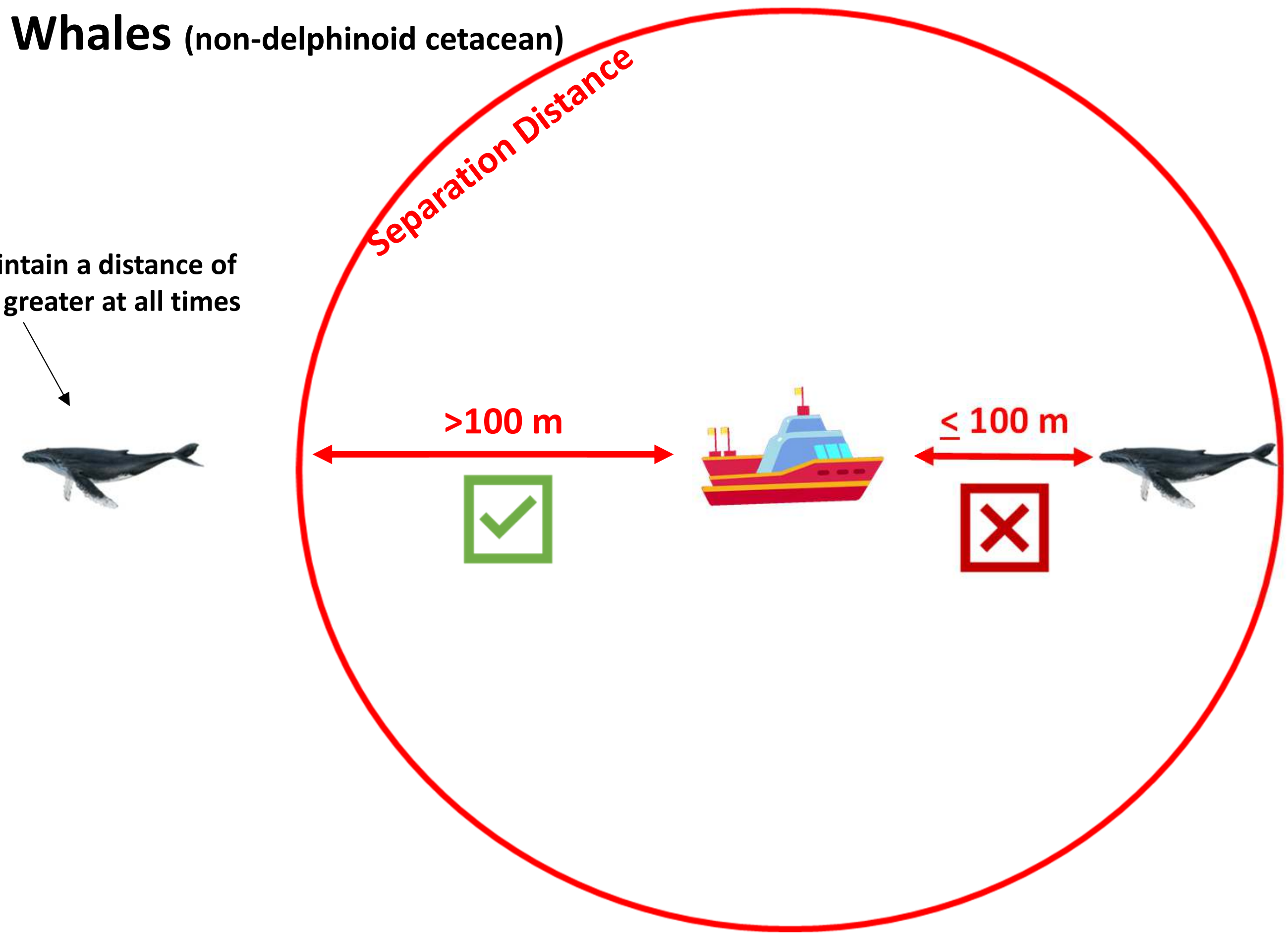
If vessel is stationary
- **Don't start the engine until NARW moves beyond 500 m**

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES
GEOPHYSICAL

Large Whales (non-delphinoid cetacean)

Must maintain a distance of
100 m or greater at all times



If sighted in the path or within 100 m:
- Reduce speed and shift the engine to neutral until 100 m is established

If the vessel is stationary
- Don’t start until the large whale moves beyond 100 m

If there are mother/calf pairs, pods, large assemblages of whales:
- Reduce speed to 10 knots or less when within 100 m of an underway vessel

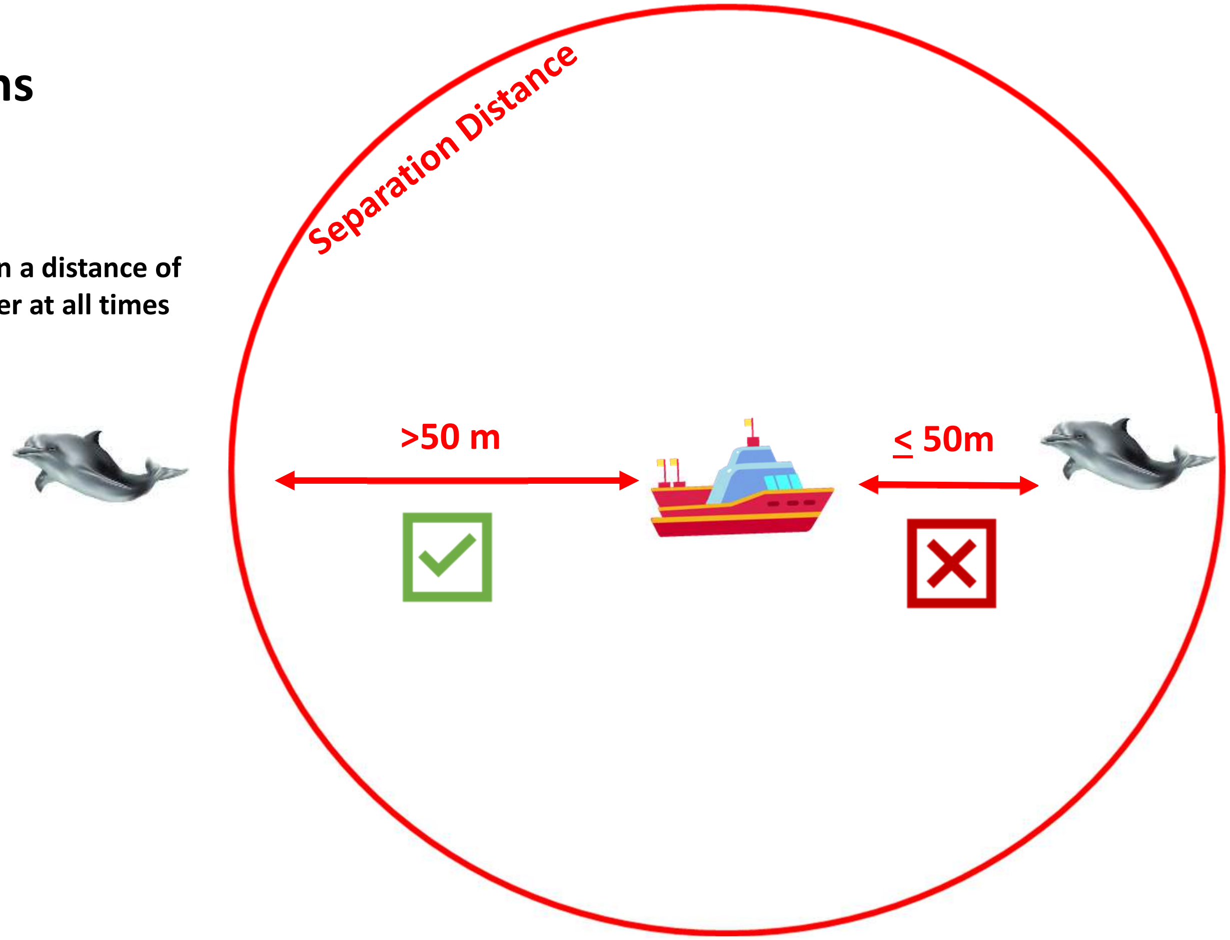
If a whale can NOT be confirmed to species, it must be treated as a NARW with a 500 m separation distance.

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES
GEOPHYSICAL

Dolphins

Must maintain a distance of 50 m or greater at all times



If **sighted within the path or within 50 m:**

- Remain parallel to their course and do not adjust speed until they have moved beyond 50 m or abeam of the vessel

If **mother/calf pairs, pods, or large assemblages are observed within 100 m:**

- Reduce speed to 10 knots or less

VINEYARD NORTHEAST

VESSEL STRIKE AVOIDANCE MEASURES
GEOPHYSICAL

Sea Turtles and Seals

Sea Turtles and Seals:

- **Vessels must maintain a distance of 50 m or greater at all times**
- **Vessels should not divert to approach seals**

Dead / Injured Marine Protected Species Reporting

- **Report** all sightings of injured or dead protected species **to Vineyard Northeast** **immediately**, **regardless of whether the injury or death was caused by a vessel.**

- If the activity is responsible for the injury or death, the vessel must assist in any salvage effort at the direction of Vineyard Northeast

- Report as if it were a standard PSO sighting. Provide a narrative of the sighting including date, time, vessel location, weather description, species description, and all other relevant information.

Reporting dead/injured protected species is time critical!

Vessel to Vessel Communication of Sightings

- Whenever multiple Project vessels are operating, any visual observations of listed species (marine mammals and sea turtles) must be communicated to a PSO and/or vessel captains associated with other Project vessels, in near real time
- Sightings should be communicated via Mysticetus, but can be communicated via WhatsApp, SAT phone, cell phone, or radio if the software is inoperable.
- Please record the date and time of the communication, as well as the species sighted.

Sighting sharing should happen as soon as practicable (e.g., after any vessel strike avoidance measures have been implemented and once necessary sighting information has been recorded)

North Atlantic Right Whale

- Appearance: stocky black body, no dorsal fin, strongly bowed lower lip, and callosities (raised patches of rough skin) on the head region that appear white
  - tail is broad, deeply notched, and all black with a smooth trailing edge
  - No dorsal fin
  - V-shaped blow
- Behavior: right whales feed by opening their mouths and swimming through large patches of zooplankton

VINEYARD NORTHEAST

IDENTIFICATION

Humpback Whale

- Appearance: primarily black or dark grey, but individuals have a variable amount of white on pectoral fins and belly
  - Well known for long "pectoral" fins, which can be up to 15 feet in length
  - Flukes can be up to 18 feet wide—are serrated along the trailing edge, and pointed at the tips
- Behavior: well known for aerial displays, such as breaching (jumping out of the water) or slapping the surface with their pectoral fins, tails, or heads

Fin Whale

- Appearance: sleek, with v-shaped head; distinctive coloration pattern: the back and sides of the body are black or dark brownish-gray and the ventral surface is white
  - Tall hooked dorsal fin, located about two-thirds of the way back on the body that rises at a shallow angle from the animal's back
  - Unique, asymmetrical head color: dark on left side of the lower jaw, white on the right side
  - Underside of the tail flukes is white with a gray border
- Behavior: found in social groups (~2-7 whales); fast swimmers
  - Often seen feeding in groups that include Humpback whales, Minke whales, and Atlantic white-sided dolphins

Sei Whale

- Appearance: long, sleek body that is dark bluish-gray to black in color and pale underneath
  - Body is often covered in oval-shaped scars; typically have throat grooves
  - Has an erect dorsal fin located far down (about two thirds) the animals back
  - Can be distinguished by the presence of a single ridge located on the animal's "rostrum"
- Behavior: usually observed alone or in small groups of 2-5 animals
  - Can be sighted by a columnar or bushy blow that is about 10-13 ft (3-4 m) in height
  - Usually does not arch its back or raise its flukes when diving

VINEYARD NORTHEAST

IDENTIFICATION

Minke Whale

- Appearance: small, dark (black or gray), sleek body with white underside
  - Have tall dorsal fins located about two-thirds down their back
  - Body is black to dark grayish/brownish in color with a pale chevron on the back behind the head and above the flippers
- Behavior: Curious and often approach vessels, active at the surface "breaching" and "spy hopping"
  - Bushy blow that is about 6.5-10 ft (2-3 m) high
  - Do not display flukes when diving
  - Before deep dives, they may arch and expose much of their back and body during high rolls above the surface
  - Usually in groups of 2-3

Dolphins & Porpoises

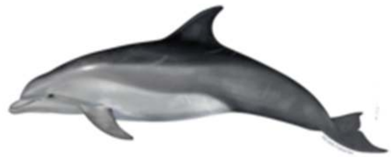
Atlantic White-Sided Dolphin

Appearance: black with white belly and lower beak

- Sides are gray with a white patch that begins below the dorsal fin and is flanked by a yellowish-tan streak that extends to the tail

Behavior: social and playful; seen lobtailing and breaching

Common Bottlenose Dolphin



Appearance: robust body and short, thick beak; light gray to black with lighter coloration on the belly

Behavior: commonly found in groups of 2 to 15 individuals

Short-Beaked Common Dolphin

Appearance: distinct bright coloration and patterns—dark gray cape along the back that creates a "V" just below the dorsal fin on either side of the body; yellow/tan along the flank between the dark cape and white ventral patch

Behavior: usually found in large social groups averaging hundreds of individuals; often breaching, porpoising, "pitch-poling", somersaulting and "bowriding"

Harbor Porpoise

Appearance: small, robust body with a short, blunt beak; dark gray chin patch

- Medium-sized triangular dorsal fin; back is dark gray while their belly and throat are white

Behavior: non-social animals usually in groups of 2-5 animals; when surfacing for air, they do not splash but roll from beak to fluke and arch their backs

Harbor Seal

Appearance: usually blue-gray back with light &dark speckling

- Have short, dog-like snouts
- Fur varies, but **two** basic patterns: light tan, silver, or blue-gray with dark speckling or spots OR dark background with light rings

Gray Seal

Appearance: males have dark gray coat with silver gray spots; females have silver-grey coat with scattered dark spots

- Have elongated, horse-like snouts

Loggerhead Sea Turtle

Appearance: reddish-brown, slightly heart-shaped top shell with pale yellowish bottom shell

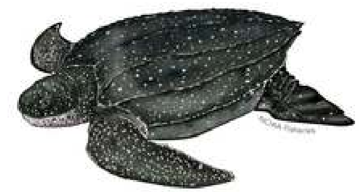
- Large robust head, especially relative to body size
- Neck and flippers are usually dull brown to reddish brown on top and medium to pale yellow on sides and bottom

Kemp's Ridley Sea Turtle

Appearance: grayish-green, nearly circular, top shell with a pale yellowish bottom shell

- Considered the smallest marine turtle in the world
- Top shell contains 5 pairs of costal "scutes"
- Each one of the front flippers has one claw while the back flippers may have one or two

Leatherback Sea Turtle



Appearance: primarily black shell with pinkish-white coloring on their belly

- Largest turtle in the world
- Only sea turtle that doesn't have a hard bony shell
- Their carapace has seven longitudinal ridges and taper to a blunt point, which helps with hydrodynamic structure

COMMUNICATION IS KEY!

Our ability to remain compliant with these requirements depends upon good communication:

- ✓ All time-sensitive information (NARW sightings, marine debris, dead birds/bats, archeological find) must be reported to Vineyard Northeast **immediately**
- ✓ Test your communication method frequently
- ✓ Have a back-up communication method
- ✓ Confirm what was said by repeating it back
- ✓ If you aren't clear, ASK FOR CLARIFICATION

VINEYARD NORTHEAST

CONTACT INFORMATION

Thank you and be safe!

Don’t forget to sign the sign in Sheet!

Cynthia Pyć
Senior Manager of Environmental Affairs
cpyc@vineyardwind.com
Mobile: (832) 312-0431

Laura Giaimo
Environmental Scientist
lgiaimo@geosubseaconsulting.com
Mobile: (507) 250-3995

APPENDIX C

Fisheries Communication Plan

Fisheries Communication Plan

Rev. 9

Vineyard Wind LLC

Document Title:	**Fisheries Communication Plan**
Company	Vineyard Wind LLC
Date:	03/30/2020
Document Type:	Plan
Revision:	9
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Authors:	Crista Bank and Erik Peckar

Vineyard Wind Fisheries Communication Plan

Revised March 2020

I. Introduction

Vineyard Wind's Fisheries Communication Plan (FCP) is a living document first drafted in 2011 in order to develop strategies to improve communication with fishermen potentially affected by the development of offshore wind projects. The document continues to evolve with continuous feedback and guidance from fishermen, fishing organizations, and regulatory agencies. The increased participation from the fishing industry will help the offshore wind sector to reduce user conflict, improve project design, and build a better understanding between the two industries.

If you would like to receive updated versions of this FCP as they become available or have any suggestions on how to improve this plan, please send an email to fisheries@vineyardwind.com. Visit vineyardwind.com/fisheries to sign-up for updates, mariner notices, and information requests as well as to access charts, FAQ sheets, and more project information.

II. Vineyard Wind's Lease Areas

a. Overview

Vineyard Wind holds two lease areas for wind energy development on the Outer Continental Shelf (OCS): Lease Area OCS-A 0501 and Lease Area OCS-A 0522. As shown in Figure 2.1, both lease areas are located in the Massachusetts Wind Energy Area (MA WEA). The MA WEA was designated by the Bureau of Ocean Energy Management (BOEM), with significant stakeholder input, including the BOEM MA Renewable Energy Taskforce (made up of local and state elected officials in Massachusetts and Rhode Island), the MA Fishery Working Group (FWG)[1], and the MA Habitat Working Group (HWG)[2] with the intention towards minimizing and avoiding impacts to the marine environment. For example, after considering stakeholder comments, BOEM modified the MA WEA to exclude an area of high fisheries value so as to reduce potential conflict with commercial and recreational fishing activities. Siting choices were considered to minimize and avoid potential impacts to environmental and fisheries resources from offshore wind development on the OCS.

b. Lease Area OCS-A 0501

Lease Area OCS-A 0501 is located approximately 12.4 nautical miles (NM) from the southeast corner of Martha's Vineyard and a similar distance from the southwest side of Nantucket. The Lease Area comprises more than 260 square miles (sq. mi) and is approximately 8.7 nautical miles (NM) wide and 26 NM long. Water depths range from about 121 – 197 feet (ft), gradually increasing as distance from land increases. Lease Area OCS-A 0501 has high wind speeds, excellent seafloor conditions, moderate water depths, and

[1] The FWG is made up of fishermen, fisheries scientists, and other interested parties. Early meetings addressed usage of the potential wind areas by various gear types as well as fisheries science. The FWG, convened by the State of Massachusetts, continues to meet and engage in offshore wind issues.

[2] The HWG is made up of NGOs, scientists, agencies and other interested parties. Early meetings addressed issues such as marine mammal and avian use of the potential wind areas. The HWG, convened by the State of Massachusetts, continues to meet and engage in offshore wind issues.

reasonable proximity to multiple grid connection locations in an area of high electrical load and a need for new generation capacity.

c. Lease Area OCS-A 0522

Lease Area OCS-A 0522 is located approximately 24 – 44 NM south of Nantucket. It comprises more than 330 sq. mi and is approximately 18 NM wide and 12 NM long. Water depths range from about 100 – 198 ft. As with Lease Area OCS-A 0501, Lease Area OCS-A 0522 has high wind speeds, excellent seafloor conditions, moderate water depths, and reasonable proximity to multiple grid connection locations in an area of high electrical load and a need for new generation capacity.

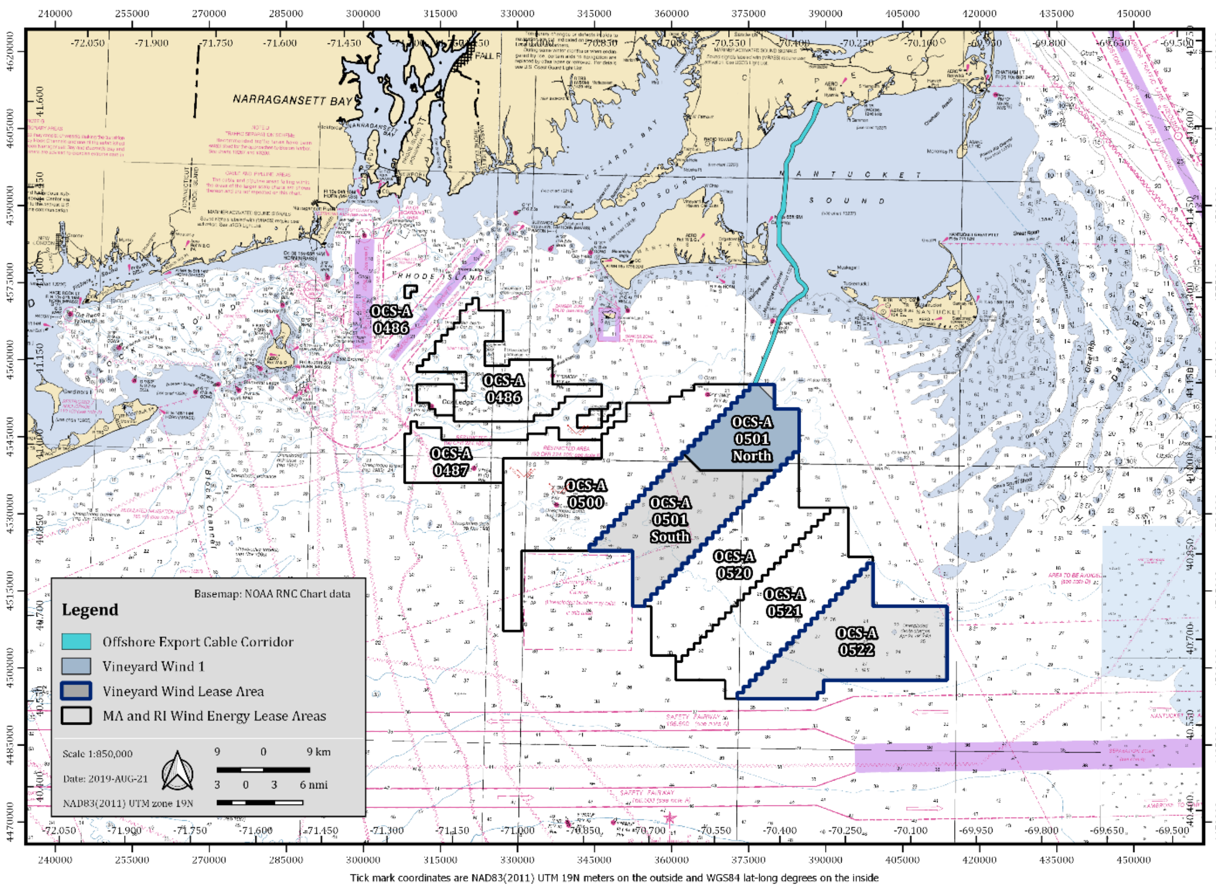


Figure 2.1. Chart of Lease Areas and planned cable corridor route for Vineyard Wind 1.

III. Vineyard Wind's Offshore Wind Projects

a. Overview

Vineyard Wind is developing the nation's first utility-scale offshore wind energy project—Vineyard Wind 1—off the coast of Massachusetts within the northern portion of Lease Area OCS-A 0501. As further described below, Vineyard Wind is also planning projects in the southern portion of Lease Area OCS-A 0501 and in Lease Area OCS-A 0522.

b. Vineyard Wind 1

Vineyard Wind's first offshore wind project is Vineyard Wind 1, which is an 800 MW facility that will be located in the northern portion of Lease Area OCS-A 0501. The project site is approximately 118 sq. mi in size with water depths ranging from 121 – 162 feet. In May 2018, Vineyard Wind 1 was awarded long-term contracts with Massachusetts electric distribution companies and is on track to be the first utility-scale offshore wind project in the US. Once operational, the project will generate clean, renewable, cost-competitive energy for over 400,000 homes and businesses across the Commonwealth, while reducing carbon emissions by over 1.6 million tons per year.

c. Park City Wind

Vineyard Wind's second offshore wind project, named Park City Wind, is an 804 MW facility that will be located in the central portion of Lease Area OCS-A 0501. In December 2019, the Connecticut Department of Energy and Environmental Protection awarded long-term contracts with Connecticut electric distribution companies. Once operational, Park City Wind will deliver approximately 3.7 million megawatt hours of electricity per year, enough to power approximately 400,000 Connecticut households, through a grid interconnection in West Barnstable, Massachusetts.

d. Future Vineyard Wind projects

Vineyard Wind is developing additional projects in the remaining portion of the Lease Area OCS-A 0501 and in Lease Area OCS-A 0522 and is seeking to secure long-term contracts for these projects through state-led energy procurements. For these projects, the proposed wind turbine layout will be set in an east to west, north to south 1x1 NM grid layout, based on fishermen input. As these and all other Vineyard Wind projects moves forward, the company will continue to work to strengthen its communication between potentially affected fishermen and fishery organizations during design, development, construction, operation, and final decommissioning project phases.

IV. Fisheries Communication Plan Objectives and Strategy

a. Objectives

The purpose of the FCP is to define outreach and engagement to potentially affected fishing interests during design, development, construction, operation, and final decommissioning of offshore wind projects, with seven main objectives:

1. Enhance the safety of all who work on the ocean in the wind farms, cable corridors, and landfall sites.
2. Seek stakeholder concerns and strive for open, transparent communication so as to avoid conflicts before they develop, and quickly and fairly resolve conflicts that do develop.
3. Quantify and avoid, minimize and when warranted mitigate adverse impacts on fisheries, and inform appropriate measures for mitigation.
4. Understand, as fully as possible, historic, current, and potential fisheries in the affected areas.
5. Identify gaps in information relating to fish and fisheries to inform research and monitoring strategies.
6. Demonstrate decisions, that may impact the fishing industry, are based on the best available and most credible information, recognizing that information gathering is an on-going iterative process.
7. Facilitate a professional co-existence of these two offshore industries, in which both industries can prosper on a long-term basis.

b. Strategy

The foundation for achieving these objectives will be built on Vineyard Wind's existing relationships with the fishing communities, cultivated since 2010, and to continuously work towards trusted and mutually respectful lines of communications with the diverse fishing communities of the region. Regular, frequent, and open consultation is primary to ensuring all parties are well informed and can work towards the shared objective of maintaining thriving fisheries alongside offshore wind development in the region.

This FCP is based on best practice guidance and has improved with input from the fishing industry through feedback and consultation. Best practice guidance from other resources includes but is not limited to:

- Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan, Attachment A – Version 3.0, BOEM April 2016
- Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison, January 2014
- Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Atlantic Outer Continental Shelf, BOEM 2014 – 654
- Fishing and Submarine Cables Working Together – International Cable Protection Committee, February 2009, Second Edition
- Options for Cooperation between Commercial Fishing and Offshore Wind Energy Industries: A review of relevant tools and best practices, SeaPlan November 2015
- Commercial Fisheries Mitigation Strategy – Developing Wind Energy in the Outer Moray Firth, Moray offshore renewables ltd 2003
- Oregon's Fishermen's Cable Committee

V. Fisheries Outreach Team

a. Overview

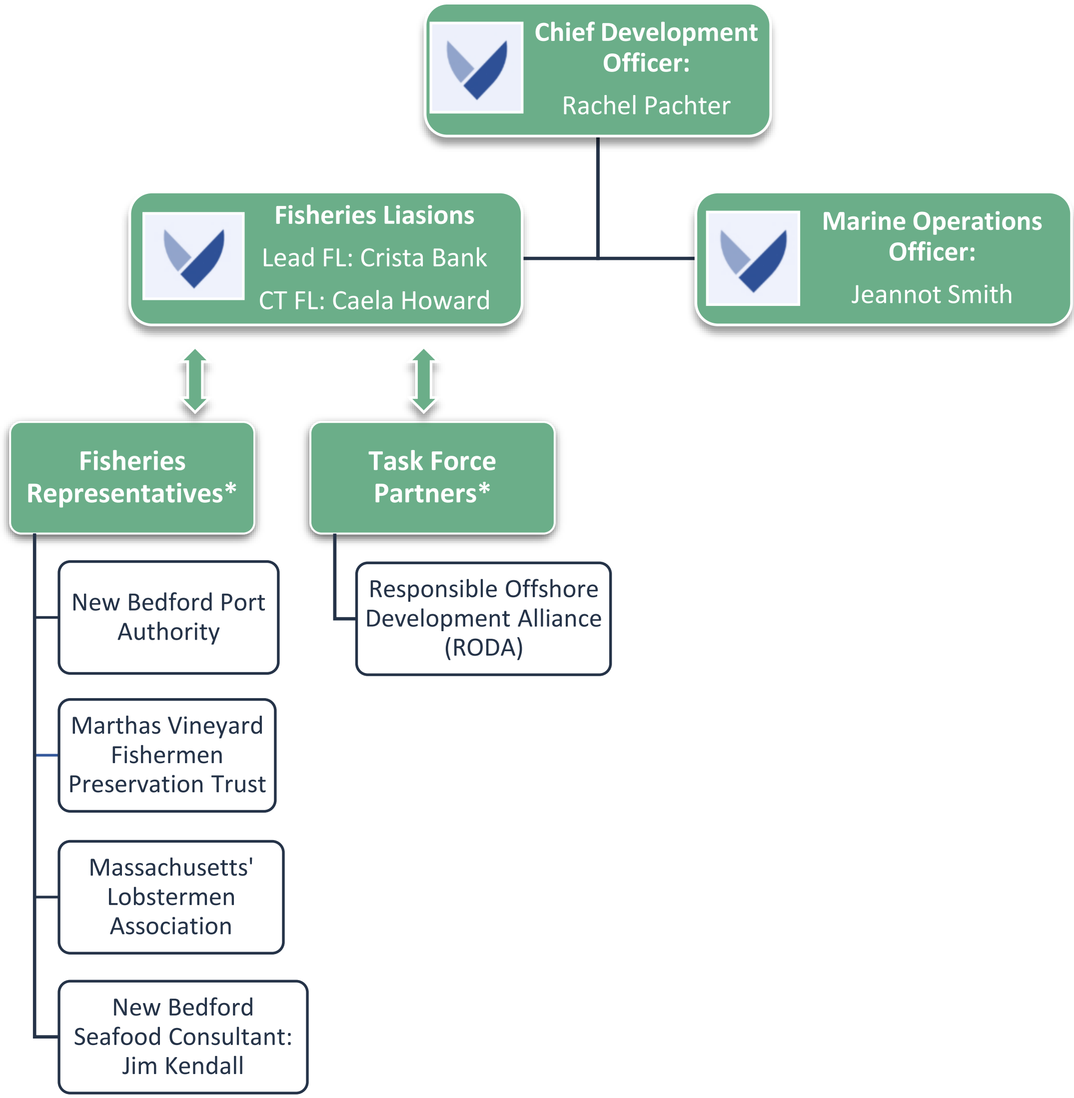
Fisheries communication is conducted through several roles including Fisheries Representatives (FR) and Fisheries Liaisons (FL). Vineyard Wind has hired two FLs and a number of FRs who have been actively engaged with the fishing industry regarding the Vineyard Wind project since 2010. Details describing the different roles and responsibilities of the FL and FR are included in Appendix 1 and 2, respectively. Below is a graphic explaining the communication channel relationship between the FLs and the FRs. Contact details for the FLs and FRs can be found in the Section V.b. and Section V.c.

Vineyard Wind Fisheries Outreach Organization Matrix

- **The Vineyard Wind Fisheries Liaisons (FL) are employed by Vineyard Wind and reports directly to the Vineyard Wind Chief Development Officer. The FLs are responsible for overall implementation of the communications plan, in particular communicating project plans and activities that might impact the fishing industry pre, during, and post construction activities of the offshore wind farm and reporting interactions or concerns from the industry to the Chief Development Officer.**

- **The Fishery Representatives (FR) do not work on behalf of Vineyard Wind, but rather represent their respective fishing communities to Vineyard Wind. The FRs collect and report information about fishing industry activities and concerns to the FL as well as collect and relay accurate/relevant project information to the fishing community from the FLs.**

- **The Marine Operations Officer (MOO) is responsible for safe marine operations by Vineyard Wind, and ensuring that Vineyard Wind is a good neighbor generally while on the water. As such, there is frequent interaction, information exchange, and coordination between the MOO and the FLs.**



The FR represents a particular fishery industry, organization, gear type, port, region, state, or sector(s), and is responsible for communicating concerns, issues, and other input to the project from development and pre-construction into Operation and Maintenance through to the decommissioning of the project. Typically, the FR is an active fisherman, or group representing active fishermen, within the region, fishery, state, or sector they represent. While FRs are compensated for their time and expenses by the project, their duty is to the fishing region, industry, organization, gear-type, or sector they represent. FRs are solicited through a fair and equitable process by the FLs who ensures these individuals or organizations adequately and fairly represent their respective industry, gear type, port, or region and have the support of the fisheries stakeholders they represent.

The FLs facilitates the work of the FRs by serving as a knowledgeable point of contact to which the FRs can efficiently and effectively communicate. The FLs also communicate across fishery communities and regions, inside and outside of the FR network, in order to educate and disseminate vital information regarding the project to fishermen and to receive input back to the project. The FLs work to validate fisheries information through cross-referencing among data sources.

The FLs seeks to:

- develop relationships and direct lines of communication with individuals that are representative of all potentially impacted fishing regions, industries, and interests;
- understand and convey current fishing industry concerns and feedback to the Vineyard Wind development team in order to identify and work towards solutions, as needed;
- identify and engage new FRs;
- confirm appropriate identification of potentially affected fisheries; and
- develop communication methods and tools.

The FLs also work with the FRs and scientists to develop measures to reduce potential impacts to fisheries before any impacts may occur and develop resources and potential methods to monitor fisheries species and potential changes in species abundance and distribution pre/during/post construction. The FL is responsible for implementing this plan and updating it at least annually or as needed.

The FLs and FRs will work together to review, evaluate and improve the effectiveness of the outreach and two-way communication. Vineyard Wind will review these methods quarterly. The FLs and the FRs will also report progress to the Bureau of Ocean Energy Management and National Marine Fisheries Service.

b. Fisheries Liaison

Currently, Crista Bank and Caela Howard serve as Vineyard Wind FLs. Crista Bank serves as the lead fishery liaison. Caela Howard is a FL focused on the Connecticut and New York fishing community. The FL is employed by Vineyard Wind and works on behalf of the project. Crista and Caela's contact information, which is provided below, is posted on Vineyard Wind's website at www.vineyardwind.com/fisheries.

FL Name: Crista Bank
Phone: 508-525-0421
Email: cbank@vineyardwind.com

FL Name: Caela Howard
Phone: 508-386-9832
Email: choward@vineyardwind.com

The FLs are available by phone, email, text, and through our website for ongoing communication. There is a specific form on our website (https://www.vineyardwind.com/fisheries) for fishermen to fill out their contact information and concerns. The form is sent directly to the FLs' email, and a follow-up phone call and/or email is made shortly after receipt of the contact information.

A full job description for the FL is included as Appendix 1.

c. Fisheries Representatives

The current list of FRs, along with contact information, is provided below and posted on Vineyard Wind's website:

FR Name: New Bedford Seafood Consulting
Contact: Jim Kendall
Phone: 508-287-2010 - cell
Email: nbsc@comcast.net

FR Name: New Bedford Port Authority
Contact: Ed Washburn
Phone: 508-961-3000

FR Name: Massachusetts Lobster Association
Contact: Beth Casoni
Phone: 781-545-6984
Email: beth.casoni@lobstermen.com

FR Name: Martha's Vineyard Fishermen's Preservation Trust
Contact: Shelley Edmundson
Phone: 508-687-0344
Email: mvfishermen@gmail.com

Full roles and responsibilities for the FR are included as Appendix 2. FR biographies can be found in Appendix 3.

Vineyard Wind continuously seeks additional FRs to provide regular input to the project development work. Specifically, at this time, Vineyard Wind is seeking FRs in Rhode Island, Connecticut, and New York. If you are interested or have suggestions, please contact Vineyard Wind's FLS Crista and Caela (see above).

d. RODA Joint Industry Task Force Member

Vineyard Wind is a member of RODA's Joint Industry Task force. This group was created to improve communications between the commercial fishing industry and offshore wind energy developers. The goal is to provide a more structured process to explore improved approaches to project siting, design, and operations between the two industries. RODA is a broad membership-based coalition of fishing industry associations and fishing companies.

Name: Responsible Offshore Development Alliance
Contact: Annie Hawkins
Phone: 617 359-2576
Email: annie@rodafisheries.org

In addition to the formal FR roles and participation in RODA's joint industry task force, several organizations and working groups provide direct access to fishermen and have been helpful in disseminating information and providing feedback. Vineyard Wind strives to provide project updates to these organization and working groups regularly. For example, Vineyard Wind has committed to meeting with the Connecticut Commission on Environmental standards on a quarterly basis to provide updates and discuss issues related to the Park City Wind project.

These groups include, but are not limited to:

- NYSERDA Fisheries Technical Working Group (F-TWG)
- Massachusetts Fisheries Working Group
- Rhode Island Fisheries Advisory Board (FAB)
- Massachusetts Department of Marine Fisheries
- Rhode Island Department of Environmental Management
- New England Fishery Management Council
- Mid-Atlantic Fishery Management Council
- Commercial Fisheries Center of Rhode Island
- Long Island Commercial Fishing Association
- Atlantic States Marine Fisheries Commission
- Connecticut Commission on Environmental Standards

Vineyard Wind is committed to working with fishermen and fishing organizations. If you would like to receive emails or text message updates and mariner notices please email the project at fisheries@vineyardwind.com.

VI. Stakeholder Identification and Outreach

a. Overview

Vineyard Wind has proactively engaged with potentially affected fisheries throughout the development of its lease areas. Vineyard Wind regularly communicates with stakeholders and has incorporated input from stakeholders into the project's design, communication plans, and mitigation measures. Vineyard Wind will maintain frequent dialogue with stakeholders as the Project moves forward.

b. Potentially Affected Fisheries

Based on Vineyard Wind's outreach and experience to-date, the fisheries most likely to potentially be affected in Lease Area OCS-A 0501 during the construction, operation and decommissioning of the projects are:

- Nantucket Sound: conch, squid, surf clam, fluke, sea bass, demersal recreational
- Muskeget Channel: Surf Clam, commercial sea bass, demersal recreational
- Lease Areas: Surf clam, squid, fluke, mackerel, whiting, butterfish, scup, monkfish, lobster, scallop, large pelagic recreational

Based on Vineyard Wind's outreach and experience to-date, the fisheries most likely to potentially be affected in Lease Area OCS-A 0522 during the construction, operation, and decommissioning of the projects are:

- Mackerel, whiting, butterfish, Jonah crab, lobster, scallop, surf clam, large pelagic recreational

These groups are prioritized during the implementation of this plan. Regular reviews are used to modify or confirm this prioritization, as needed.

c. Outreach Approach and Tactics

Vineyard Wind employs a variety of outreach and engagement approaches to communicate and maintain relationships with fisheries stakeholders. These include informal conversations with existing contacts, expanding the company's network of FRs, attending fishing industry trade events and recreational fishing shows, presenting at commercial and recreational fishing group meetings, and working with the various associations and organizations that represent fishing interests. Vineyard Wind understands that some fishermen do not feel adequately represented by fishing organizations, or FRs, and therefore prefer to share information and concerns individually and through different channels of communication. Vineyard Wind is committed to recognizing that individual concerns are just as important as group concerns and will continue efforts to respect anonymity.

Target Audience	Principle Channels	Supporting Tactics
Fishing sectors, fishing region, seasonal fisheries, specific fishery gear types, fishermen at sea, charter fishermen, fishing ports	• Fisheries Representatives (FRs) and Fisheries Liaisons (FLs) • Other fishermen • Port Agents • Fish houses • Sector Managers • Media – newspapers, internet, e-mail subscriptions, flyers, and thumb-drives • Fishing organizations, alliances, partnerships, commissions, coalitions, councils, state agencies, federal agencies, and advocacy groups • Local elected officials • Friends and family • Employers	• Access to information via internet, e-mail lists (state and Vineyard Wind), and social media • Industry specific publications or e-mails • Trade magazines • 24-hour phone service for up-to-date project info and emergencies. • Project specific radio alerts to fishermen at sea • FLs contact info on website • Attending and speaking at fishermen working group meetings • Fishermen open house information meetings • FL/FR communication channels • Clear daily two-way communication channels between fishery/fishermen and project during construction

Target Audience	Principle Channels	Supporting Tactics
Recreational fisherman, recreational boaters	• Same as above • Bait shops	• Access to information via Vineyard Wind's website, social media, and newsletters • Advertisements through recreational fishing magazines and websites • FL contact info on website • Attending and speaking at recreational fishing group meetings • Fishermen open house information meetings.

VII. Communication Protocols

a. Overview

Communication is a high priority for Vineyard Wind. It is important to ensure fishermen are aware of the activities in Vineyard Wind's lease areas and along the cable route and feel comfortable to reach out with questions and concerns. It is also important to communicate to the Vineyard Wind survey vessels the expected fishing activities in and around the lease areas, what to be aware of, and how to handle any interactions with the fishing fleet. The protocols outlined below are procedures Vineyard Wind has implemented to date and will continue to adjust and adapt protocols as needed. Similar protocols will be standardized and implemented during project construction.

b. Communication and Notification to Fishing Industry Prior to and During Offshore Work

Our communication strategy, which includes recommendations from fishermen and adopts protocols the MA DMF uses for their biannual inshore trawl survey, are as follows:

1. Send Notices to Mariners to Coast Guard
2. Send notifications with all survey vessel identifying features to Vineyard Wind fisheries email list
3. Publicize through organization websites and newsletters (MA DMF, RI DEM, MLA, sector managers, NOAA port agents, Fishing Support Services navigators, etc.)
4. Publicize through skymate and other current Vessel Monitoring System (VMS) email alerts
5. Maintain a list of fishermen who wish to receive updates via email or text
6. One week before offshore work begins send out an email/text to fixed gear permit holders reminding them that offshore work is about to begin
7. Three days before offshore work begins send out an email/text to fixed gear permit holders that offshore work is on schedule
8. During offshore work send out a regular email updates detailing progress, both for completed areas and areas next on the list. (DMF, MLA, NBPA, MVFPT).
9. Implement a text notification system where fishermen can sign up to receive daily texts of offshore work progress (i.e. more frequently than general updates, and specific to an area or time of work)
10. Attend fisheries trade shows and outreach events to encourage fishermen to sign up for alerts regarding the project's offshore work

11. Vineyard Wind will hire an OFL, preferably a fisherman, to be on project vessels to be on the lookout for fixed gear and fishing activity in the area and to help facilitate communication via VHF radio during project activities.
12. Vineyard Wind will hire, with help from FRs, local fisherman respected among the fleet to help spread the word exactly when the project vessels will be in their immediate area, relay any work zone areas to stay clear of, and communicate when vessels have left the area.
13. Maintain an email (fisheries@vineyardwind.com) that is monitored by a team, so as to ensure timely response even if the FLs are not immediately available. A fisheries team dedicated cell phone number will also be established.

In addition to the protocols listed above, in the time leading up to offshore construction we will hold regular meetings with fishing groups that will be affected during the construction phase to go over the timing of anticipated work, what to expect during construction, and how to best communicate. We will work with our FRs to help coordinate and reach the right fishermen to attend the meetings. Some of the small groups we've identified to date include squid vessels in Nantucket Sound, the conch fleet from the Cape and islands, state permitted clam vessels, and the squid fleet from Pt. Judith.

Additional groups or individuals who want to stay updated on vessel activity and construction plans please visit our website and sign up for email and /or text alerts at fisheries@vineyardwind.com.

c. Communication and Fisheries Protocols on Geological Survey Vessels Working for Vineyard Wind

To help communicate with the fishing industry, Vineyard Wind will have an Onboard Fisheries Liaison (OFL) to assist the Captain with communication and to document fishing gear in the area to help avoid interactions, as described above. The OFL's role is, simply put, to continue the role of the FL offshore, so that there is effective communication on-site, in real time. The OFL reports to the FLs, and serves as the FL's "eyes, ears, and voice" during offshore operations. The OFL records observed fisheries activities, ensures vessel operations are compliant with this FCP and other fisheries related policies, and in particular seeks to avoid negative fisheries interactions by looking out for fixed gear and establishing communications (usually by VHF radio) with fishing vessels when appropriate. If there is a negative fisheries interaction, the OFL works with the FLs and relevant FRs to quickly resolve the matter safely, fairly, and efficiently. Typically, the OFL is contracted for the duration of a vessel's operations for Vineyard Wind, and is an individual familiar with marine operations and fishing practices in the region. Vineyard Wind is currently in the process of establishing a mechanism to hire fishermen, preferably fixed gear fishermen, as OFLs.

Before the survey trip begins, the FL and OFL attends the pre-trip meetings with captain, and crew to go over specific fisheries active in the area. If the FL has known coordinates of fixed gear in the area, the information is shared with the captain and OFL. Captain and crew are instructed to communicate respectfully with fishing industries and to work around fishing gear to the greatest extent practicable.

Captain, crew chief, VW client rep, and OFL sign off on communication protocols and gear interaction protocols outlined below:

Vineyard Wind Protocols for Survey Vessel Captains:

1) Captains establish an agreed upon safety zone to relay to fishing vessels in the area
2) Any communication with fishing vessels is reported to the OFL and will be conducted in a professional manner
3) Preferably the OFL will have their own VHF unit to monitor radio communications and communicate directly with fishermen, as may be necessary or agreed upon with the Captain, especially if language or accent may be a hinderance to communications with fishermen
4) Alert OFL to all gear interactions at the time it occurs, waking the OFL if necessary
5) Have one GPS unit in the wheelhouse set up for LORAN coordinates
6) Work around fishing gear to the greatest extent practicable
7) Plot fixed gear locations while onboard fisheries liaison is off watch and relay information when back on watch

Vineyard Wind Fixed Gear Interaction Protocols for Survey Vessels:

If an incident between a survey vessel and static fishing gear does occur, the following outlines the roles and procedures for such an event:

ON BOARD

1) Immediately alert OFL (wake if off watch)
2) Fishing gear interaction is logged in daily vessel report, recording time, location, photos, etc.
3) If feasible and safe, Vineyard Wind will attach a float or buoy to any gear that is brought on board, moved, or if a line was cut, should the gear be returned or remain in the water. The buoy is intended to help the fishermen locate the gear, and is also marked with Vineyard Wind contact information so that communications can be readily established with the affected fishermen
4) GPS location and time of relocation is recorded
5) Buoy permit number and color is logged
6) Pictures are taken of the gear
7) FL on land is notified of incident as soon as possible

ON LAND

1) FL will cross reference buoy color and permit number with current fishing databases to identify owner of gear
2) If FL is unsuccessful in finding owner of gear, FL will give notice to FRs and other fishing organizations. If still unsuccessful in locating the owner, FL will send notice to the relevant state Environmental Police of gear entanglement
3) Once fisherman/owner of gear is identified, information regarding buoy location and timeline of interaction will be relayed
4) Follow up with fisherman to confirm gear was found
5) If gear is not found Gear Loss form will be filled out and processed

The above procedures will be updated prior to construction and will reflect any feedback and lessons learned on Vineyard Wind projects or learned from other project experiences.

d. Communication during Operations / Safety Management System

An important objective of this plan is to use fisheries communications to enhance safety of all those who work on the ocean in the project area through construction, operations, and decommissioning. Vineyard Wind's Safety Management System (SMS) will outline clear communication protocols and procedures for emergency events such as: collision of a vessel with a turbine structure, gear entanglement, damage to cabling by fishing activity, catastrophic failure of a turbine, or other event. Safety planning will be further elaborated in this plan and the SMS will be a publicly available document that is completed prior to the start of project construction. Tower lighting and marking will adhere to US Coast Guard, Federal Aviation Administration, and Bureau of Ocean Energy Management requirements.

VIII. Financial Compensation

a. Overview

Vineyard Wind is developing and implementing procedures for handling compensation to fishermen for potential gear loss and the loss or reduction of income to fishermen. The level of financial support requires detailed discussions between the impacted fishing community and Vineyard Wind. To start the discussions and gauge the possible economic loss to the fishing fleet Vineyard Wind hired an economist to look at different data sets of fisheries landing values and to produce an economic exposure report. These reports can be found on Vineyard Wind's **website:** www.vineyardwind.com.

b. Gear Loss / Damage

Any potential gear loss or damage from a VW survey vessel should be reported immediately to the FLs. We've heard from many fishermen and FRs that gear loss/damage claims should be simple and direct and be the same across lease holders. Vineyard Wind has not created an official gear loss/damage form yet, but is currently working with the other developers to design one in the hopes that a standardized form and protocol will be established soon. In the interim, the Massachusetts Department of Marine Fisheries has a standardized form that Vineyard Wind can also utilize to a large extent.

c. Lost Revenue

Vineyard Wind will also create a process for filing fishery compensation claims. A third-party fiduciary agent will handle claims, and a review board consisting of members from the fishing industry will assist with the claims process. Until this process is developed fishermen should make any such request through the FLs whose contact information can be found at www.vineyardwind.com/fisheries. If fishermen are displaced at any phase during the construction term, fishermen will be required to submit evidence of income and fishing location(s) to Vineyard Wind to be compensated.

IX. Fisheries Initiatives

a. Overview

Vineyard Wind takes the concerns of the fishing community seriously and understands that while the conversations between stakeholders are not always easy, it is necessary. We understand the time it takes to meet with us or attend working groups is potentially time away from fishing and we have offered compensation for participation in project specific meetings and will continue to do so, if appropriate and helpful to the process. We recognize that continued engagement with the fishing industry improves the overall project and although it seems slow at times, it improves the understanding between industries.

Some of the key initiatives Vineyard Wind has engaged in as a result of consultations with the fishing industry include, but are not limited to:

- Providing thumb drive electronic charts, showing Lease Area OCS-A 0501 and areas of offshore survey work to area fishermen.
- Including Loran navigation lines and closed areas on project charts to facilitate discussion of fishing activities in the area.
- Orienting the wind turbines in a regular grid pattern to allow for navigable uninterrupted travel in multiple directions (to avoid 'zig-zagging').
- Committing to east/west north/south 1 NM alignment
- Considering use of the largest commercially available wind turbines on the market in order to reduce overall project footprints and installation-related impacts
- Removing turbine locations along the 20-fathom contour
- Installing AIS on turbines and Electrical Service Platforms (ESPs) to improve navigation and safety.
- Creating protocols for project vessels to adhere to when encountering fishing activity
- Dedicating a page on Vineyard Wind's website for fishermen (www.vineyardwind.com/fisheries) to find the latest information on surveys and construction, and sign up to receive email or text message alert updates
- Hosting port hours in MA, RI, CT and NY to provide fishermen on the docks access to FLs and project information

b. Fisheries Research

FISHERIES RESEARCH

Vineyard Wind understands how important science and research is to the fishing community. This is one of the primary reasons why Vineyard Wind created an extensive fisheries science program. Vineyard Wind currently provides more than $2 million in annual funding to fisheries research making it the largest offshore wind developer supported program in the US.

The Vineyard Wind fisheries science program prioritizes:

- Establishing relationships with academic institutions and research organizations that engage in collaborative fisheries research;
- Defining research objectives with input from fisheries stakeholders;
- Supporting a regional approach to fisheries research for offshore wind; and
- Making data easily accessible and publicly available.

For Massachusetts, Vineyard Wind has taken steps to address industry concerns by partnering with UMass Dartmouth's School for Marine Sciences and Technology (SMAST), an academic institution trusted throughout the fishing community, and the New England Aquarium. For Connecticut, Vineyard Wind is currently developing partnerships with the University of Connecticut Department of Marine Sciences and Mystic Aquarium.

A video trawl survey of Vineyard Wind's Lease Area OCS-A 0501 and an adjacent control area was completed in October 2018 by researchers from SMAST on the New Bedford-based Fishing Vessel Justice. The goal was to gather preliminary data and to determine the best methods for pre/during/post construction studies in the first project area. This video trawl was an innovative survey method that SMAST scientists wanted to test for use in surveys in the wind energy areas. The result of the test was that further improvements would be needed for the method to be effective, given the soft sea-bottom in the area causing sediment dispersal and hindering video observations.

Vineyard Wind also contracted with SMAST to actively engage with the fishing industry to provide feedback for the pre/during/post construction studies of the project. Four workshops were held in different ports during November and December of 2018 (New Bedford, MA; Kingston, RI; Chatham, MA; and West Tisbury, MA) to share results from the video trawl survey, discuss other potential survey methods, and to work with the fishing industry to help identify research questions for species of concern, both site-specific and regionally. Just over 100 people attended the workshops including over 75 active fishermen. Based on the feedback from the fishing industry, and state and federal regulators, SMAST produced a report with their research recommendations in early 2019. The complete report is available at https://www.vineyardwind.com/document-room (listed under Fisheries/Fisheries Studies). Vineyard Wind has adopted the recommendations and surveys began in Spring of 2019, which include a trawl survey, plankton survey, drop camera survey of macroinvertebrates and benthic communities, and a ventless lobster trap survey. The survey areas for trawl and drop camera include all lease areas in order to support baseline data collection for future projects. Data collected and reports from these studies will be used in future permit applications and will be made public through our website and shared with agencies and other institutions.

Recreational fishermen raised concerns that highly migratory species were not addressed in the SMAST research recommendations. Vineyard Wind reached out to recreational fishing groups and individual fishermen to understand their concerns and brainstorm what could be done to better understand recreational fishing in the area and potential impacts. This led to partnering with the New England Aquarium to initiate a study to document highly migratory species presence across all MA/RI lease areas with help from the pelagic recreational fleet. The results of this effort will be included in future permit applications and made publicly available through our website and shared with agencies and academic institutions.

Data Sharing

The survey and monitoring work Vineyard Wind will conduct will generate a substantial body of environmental, fisheries, and other data, all of which will be available in the public domain in a manner consistent with other academic research. Much of the data is publicly available through the federal and state permitting process, as well as reports or academic publications that may come out of the survey or monitoring work. Vineyard Wind also plans to make all fisheries monitoring data generated by the Project publicly available on its website. For all other environmental and fisheries data, Vineyard Wind will explore cost-effective and appropriate ways to store and make data publicly available and easy to access. Through ROSA and a Regional Science Entity (RSE), Vineyard Wind will work with stakeholders and neighboring developers to find ways to streamline and standardize available data across all offshore efforts.

Responsible Offshore Science Alliance

The need for a regional science approach to offshore wind development is an important component to understand how this new industry may be affecting fisheries and the environment. The absence of a regional science framework has made it challenging for developers and concerned stakeholders to design appropriate studies that can provide consistency across all lease areas. The organization Responsible

Offshore Science Alliance (ROSA) is an attempt to fill that void and bring developers, fishing industry, state, and federal agencies together to develop a regional science framework. Vineyard Wind was part of the working group to get the organization launched, and is currently on the ROSA board of this recently established group that is committed to regional fisheries science.

In engaging SMAST to design pre/during/post-construction studies, as described above, Vineyard Wind asked SMAST (at the suggestion of a comment from NMFS) to consider how these studies might contribute to both a regional and long-term approach to fisheries studies. The study protocol that was developed is considered to be “modular and nested,” allowing specific project studies to contribute to larger regional and longer-term study efforts.

c. Opportunities

At this stage, many in the fishing industry see offshore wind as a threat to their business. However, it is in the developer’s best interest for the fishing industry to thrive and grow. Vineyard Wind is in support of research development to help the fishing industry adjust to the changes offshore wind may bring, either by testing different gear to target species in the wind farm, or testing different technologies to fish more efficiently among turbines.

Vineyard Wind is not proposing to replace fishing jobs with wind development jobs, but there can be opportunities for fishing vessel owners, individual fishermen, and shore side businesses. Some examples include:

1) Fishing vessels as safety zone vessels and scout vessels during construction
2) Fishermen owned shore support businesses
    a. sign up by emailing b2b@vineyardwind.com to be listed on the supply chain network and to learn about supply chain events
    b. attend Meet the Buyer events that are intended to introduce local businesses to wind project contractors
3) Fishermen as OFLs on project vessels to help communicate with fishermen working in the vicinity.
4) Scholarship availability for fishermen and family members to get free training through the local community colleges and MMA for offshore wind technician certifications

Appendix 1 – Fisheries Liaison Roles and Responsibilities

The role & responsibilities of the Fisheries Liaison (FL) include but are not limited to:

- The FL represents the project to fishermen, on behalf of Vineyard Wind, and is the principal contact to the fishing community
- The FL is not someone currently actively engaged in commercial fishing
- The FL is responsible for the overall effective implementation of the fisheries communications plan
- During project pre-construction development, the FL will communicate directly with FRs via email, in person meetings, and conference calls and will provide monthly written reports to management on this outreach. Project management will provide feedback, when necessary, to ensure timely dissemination of information regarding all project activities.
- During project construction, the FL will have direct access to the project management team in order to ensure updated project information is available to the fishing community. It should be noted that changes may take place in real time during construction. Vineyard Wind will endeavor to disseminate that information as quickly and widely as possible either through our website or a 24-hour phone line.
- Refine and enhance this communications plan, given learning experiences and new information received.
- Ensure the project's fisheries communication and communication strategy is effective across all relevant fishing communities, organizations, sectors, regions/ports, seasons, and gear types.
- Establish a clear line of communication with entities from affected fishing regions to ensure all states where the fishing industry could be impacted are well informed during all phases of development and through decommissioning.
- Maintain awareness of ongoing fishery management action development by the New England and Mid-Atlantic Fishery Management Councils and the Atlantic States Fisheries Commission.
- Help develop and refine communication materials in addition to communication plans to ensure effective messaging.
- Develop or recommend mitigation measures.
- Provide a record of relevant project information and communications, including presentations and individual conversations, but maintaining confidentiality as appropriate.
- Participate in BOEM, F-TWG, FAB and MA Fisheries Working Group Meetings
- Maintain a fishery stakeholder database and contacts list for all identified fisheries operating within the vicinity of the offshore development area and export cable corridor throughout all stages of the project.
- Investigate and follow-up on complaints and concerns received or heard about.
- The FL shall have a direct line of communication to the project company's senior management, through which to make recommendations for improvement and address complaints, concerns, and other input received.
- Pro-actively make fisheries aware of upcoming efforts and activities related to the project so as to facilitate shared use of the lease area(s).
- Be available to meet with fishermen representatives in person, via email or social media, phone, or radio outside of regular business hours and on weekends.
- Participate in weekly calls with the project team on conversations, activities, suggestions, questions, and concerns from the fishing community about the project.
- Coordinate and work with FRs, who are active fishermen and serve to facilitate communications between the project and specific fisheries sectors.

- Identify potential FRs and establish working relations; contract OFLs as needed.
- Attend meetings with fisheries groups, regulators, non-government organizations, policy makers, contractors working on the project, and other offshore wind project developers to best ensure shared use of the lease area(s) and good, working relations among the offshore wind industry, fisheries, government, and other stakeholders.
- Supervise and manage contracts as necessary for the effective fisheries surveys and science work undertaken by or on behalf of Vineyard Wind, and participate and provide input into relevant fisheries science initiatives.

Appendix 2 – Fisheries Representatives Roles and Responsibilities

An individual or group's time serving as the Fisheries Representative (FR) will be compensated by Vineyard Wind, but the FR is considered to be an independent, third party agent, serving the fisheries interests, not the project's interests. Role & responsibilities of FRs include but are not limited to:

- Be available to meet with fellow fishermen in person or via email, social media, phone, or radio.
- Pro-actively make the project team aware of fisheries practices, upcoming efforts, and seasons to facilitate shared use of lease area(s).
- Meet directly with the project team at least every quarter to help evaluate communication and outreach efforts, and learn more about project plans.
- Provide a monthly email report to the project team on conversations, activities, suggestions, questions, and concerns from the fishing community about the project; communicate with project management in real time, if needed.
- On occasion, FRs may be asked to serve as guides and points of contact during a particular activity offshore. This may involve, for example, using their own vessel as a guide or scout vessel to the survey vessels, helping to monitor for fishing activities in the area of operation, and communicating with fishing vessels working in the same area.
- Communicate directly with FLs for the purpose of effectively disseminating project information to the FR's constituency.
- Disseminate project information to the fishermen who are based in or visit ports in Massachusetts, Rhode Island, Connecticut, New Jersey and New York and may fish in the Vineyard Wind lease areas and cable route area(s).
- Be available and accessible to their represented fishery.
- Communicate to FLs any potential conflicts regarding surveys and project development.
- Assist FL to understand fishing activity in Vineyard Wind's lease areas and submarine cable routes (e.g. gear types, specific fisheries).
- Work with FLs to develop and refine fisheries communication plan(s).
- Communication planning, identification of communication methods and frequency, outreach meeting facilitation and support, and other tasks, as needed, for engaging local fishermen during all project phases to ensure effective messaging.
- FR will meet directly with the FLs and project management every quarter and evaluate communication and outreach efforts and review quarterly outreach and mitigation measures employed by Vineyard Wind
- Maintain awareness of ongoing fishery management action development by the New England and Mid-Atlantic Fishery Management Councils and the Atlantic States Fisheries Commission.
- Provide input to, or recommend, mitigation measures.
- Participate in working group meetings, such as the Massachusetts Fisheries Working Group, when appropriate for the fishery they represent.

Appendix 3 – Fisheries Representatives

New Bedford Seafood Consulting

Mr. Kendall is the Executive Director of New Bedford Seafood Consulting. He is a former scallop fisherman with over 50 years of experience in the fishing industry and with fisheries issues. Mr. Kendall was a member of a research team for the Commercial Fisheries Research Foundation that focused on discard mortality rates of Southern New England flatfish. Mr. Kendall served as a New England Fishery Management Council member for numerous terms. He has also served on the Massachusetts Fisheries Recovery Commission, the New England Commercial Fishing Law Enforcement Working Group, and is a founding member of the Massachusetts Fishermen's Partnership. Mr. Kendall was featured in the book A Doryman's Reflection: A Fisherman's Life. Additionally, Mr. Kendall has been interviewed on WBSM radio and by the New Bedford Standard Times, the Gloucester Times, and the Boston Globe on fisheries issues.

New Bedford Port Authority

The New Bedford Port Authority (NBPA) is the governing body for New Bedford's harbor and city-owned waterfront properties. It is chaired by the Mayor of New Bedford with six other members. The role of the NBPA is to support the Port of New Bedford by continually upgrading port resources; preserving its spot as the #1 U.S. fishing port; and expanding the New Bedford economy.

The NBPA oversees all the commercial and recreational vessel activity within New Bedford city limits, incorporating the city's entire coastline and harbor.

Massachusetts Lobstermen's Association

The Massachusetts Lobstermen's Association is a member-driven organization that accepts and supports the interdependence of species conservation and the members' collective economic interests. The Massachusetts Lobstermen's Association was established in 1963 by the fishermen, for the fishermen, and is presently one of the leading commercial fishing industry associations in New England. On behalf of the 1,800 members, the MLA works to maintain both the industry and the resource. The MLA strives to be proactive on issues affecting the lobster industry and is active in the management process at both the state and federal levels. The MLA communicates with its members through a monthly newspaper, weekly email, Facebook, Twitter and attendance at meetings. For the past 54 years, the MLA has become a trustworthy voice for the industry on important issues, and is looked to by both the fishing industry and the management community

The Martha's Vineyard Fishermen's Preservation Trust

The Martha's Vineyard Fishermen's Preservation Trust is a Massachusetts 501(c)(3) non-profit corporation established in 2011 to: (i) Preserve the historic fishing fleets, communities, and economies of Martha's Vineyard; (ii) Protect the marine populations and fishing grounds off the coast of Martha's Vineyard and New England; (iii) Educate the community about its local fisheries.

APPENDIX D

Protected Species Monitoring & Mitigation Plan

PROTECTED SPECIES MONITORING & MITIGATION PLAN

OCS-A 0522 LLC VINEYARD NORTHEAST
High Resolution Geophysical Campaign 2022

Version 2
March 10 2022

OCS-A 0522 LLC VINEYARD NORTHEAST
HIGH RESOLUTION GEOPHYSICAL CAMPAIGN 2022

Protected Species Monitoring & Mitigation Plan

Revision		
Date	**Version**	**Revision made**
28 February 2022	V1	Draft issued to Vineyard Northeast for review
10 March 2022	V2	Final draft issued to Vineyard Northeast

Approval for issue		
Stephanie Milne		10 March 2022

Contents

Tables

Appendices

1 INTRODUCTION

OCS-A 0522 LLC (Vineyard Northeast) has contracted RPS to provide the protected species monitoring assets required to meet the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), and the Bureau of Ocean Energy Management (BOEM) monitoring and mitigation requirements during a high resolution geophysical (HRG) campaign. The details of the HRG campaign were provided to BOEM in a 2022 Geophysical, Geotechnical and Environmental Site Characterization Campaign (G&G) Survey Plan.

As the proposed Vineyard Northeast survey activities will include the use of geophysical equipment operating below 180 kHz (non-impulsive, non-parametric sub-bottom profilers (SBPs), boomers, and sparkers), a Protected Species Monitoring and Mitigation Plan (PSMMP) is required. The PSMMP outlines the sound source monitoring and mitigation, and vessel strike avoidance measures that will be implemented for marine mammals, sea turtles, and other protected species for the duration of the survey campaign.

1.1 Applicable Regulatory Documents and Permits

BOEM Lease OCS-A 0522 (Lease) contains monitoring and mitigation requirements that apply to marine mammals, sea turtles, and other protected species. Additionally, Vineyard Northeast submitted a request to NOAA for an Incidental Harassment Authorization (IHA) pursuant to Section 101(a)(5) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) which is valid from July 15, 2021, through June 20, 2022. A new IHA will be issued for HRG survey activities conducted after June 20, 2022, and this PSMMP will be updated accordingly.

The HRG campaign shall be conducted in accordance with the measures stipulated in the IHA, Lease (with BOEM-approved Lease waivers), and the BOEM approved Survey Plan (inclusive of an Alternative Monitoring Plan). This document outlines the monitoring, mitigation, and reporting procedures applicable to the survey campaign.

2 MARINE PROTECTED SPECIES

Marine protected species or protected species refers to any marine species for which dedicated monitoring and mitigation procedures will be implemented, including:

- All marine mammals (whales, dolphins, seals, porpoises)
- Sea turtles
- Atlantic sturgeon
- Giant manta ray

3 PROTECTED SPECIES OBSERVERS AND PASSIVE ACOUSTIC MONITORING OPERATORS

3.1 Staffing Plan

For the offshore HRG surveys, an RPS team of three Protected Species Observers (PSOs) and four dual-role Passive Acoustic Monitoring (PAM) Operators / PSOs will be on board each vessel conducting 24-hour survey operations. These personnel will undertake visual and acoustic monitoring, implement mitigation, and conduct data collection and reporting in accordance with the IHA, Lease (with BOEM-approved Lease waivers), and the BOEM approved Survey Plan (inclusive of an Alternative Monitoring Plan).

A minimum of two (2) PSOs must be on duty at all times when high-resolution geophysical (HRG) equipment is in use (i.e., daylight and nighttime operations), with one (1) PAM operator on duty during periods of reduced visibility. Sample schedules are described in Table 1 and Table 2.

For nearshore HRG surveys conducted in daytime hours only, a team of two (2) PSOs will be on the vessel during operations. No PAM operators are required for these vessels as per the Alternative Monitoring Plan.

Both nearshore and offshore vessels will be staffed with a minimum of one (1) designated Lead PSO or Lead PSO/PAM Operator.

3.2 PSO & PAM Operator Requirements

All PSOs will have completed a BOEM/NMFS approved training program. PSOs will have relevant observation experience in the Atlantic. The resumes, NMFS approval letters, and certifications for proposed PSOs will be provided for submittal to BOEM and NMFS for review no later than seven days prior to the scheduled start of the survey (BOEM OCS-A 0522 4.3.4.2).

All PAM Operators will have completed a BOEM/NMFS approved protected species observer training program in addition to a PAM training course. PAM Operators will have relevant observation experience in the Atlantic. The resumes, NMFS approval letters, and certifications for proposed PAM Operators will be submitted to BOEM and NMFS for review no later than seven days prior to the scheduled start of the survey.

3.3 Roles and Responsibilities

PSOs must have no tasks other than to conduct monitoring, alert relevant vessel crew to the presence of protected species, request mitigation, and record observational data for reporting.

Lead PAM Operator / PSO Team Lead

- Coordinate and oversee PAM and PSO operations and ensure compliance with permit monitoring and mitigation conditions
- Acoustically monitor, detect, and identify protected species and determine distance from the location of the animal when detected to the geophysical source
- Record and report protected species sightings, survey activities, and environmental conditions according to the survey plan, Lease (with BOEM-approved Lease waivers), and IHA
- Communicate with the crew to initiate mitigation actions as required by permit conditions
- Maintain and troubleshoot the PAM system hardware and software
- Work with the survey team to deploy and retrieve the hydrophone cable
- Monitor Mysticetus software functionality
- Daily Mysticetus data entry
- Carry out onboard quality control (QC) reviews of PSO data
- Participate in daily meetings and drills with the crew when appropriate

PAM Operator

- Acoustically monitor, detect, and identify marine mammals and determine distance from the location of the animal when detected to the geophysical source
- Record and report marine mammal sightings, survey activities and environmental conditions according to the survey plan, Lease (with BOEM-approved Lease waivers), and IHA
- Communicate with the crew to initiate mitigation actions as required by permit conditions
- Assist Lead PAM Operator in maintaining and troubleshooting the PAM system hardware and software
- Work with the survey team to deploy and retrieve the hydrophone cable
- Daily Mysticetus data entry
- Participate in daily meetings and drills with the crew when appropriate

PSO

- Visually monitor, detect, and identify protected species
- Record and report according to the survey plan, Lease (with BOEM-approved Lease waivers), and IHA
- Monitor and advise on sound source and vessel operations for compliance with the environmental requirements for the survey plan, Lease (with BOEM-approved Lease waivers), and IHA
- Communicate with the crew to initiate mitigation actions as required by permit conditions
- Daily data entry into Mysticetus software
- Participate in daily operation meetings with crew when appropriate

4 VISUAL MONITORING METHODS

4.1 PSO General Monitoring Protocol

Two NMFS approved PSOs will visually monitor permit-defined zones at all times when the vessel is away from dock, and during day and nighttime operations (IHA 5(a)). For small vessels operating nearshore, a minimum of one PSO will monitor permit-defined zones at all times while the vessel is away from dock. The following general protocols apply to all operations:

- Other than brief alerts to bridge personnel of maritime hazards and the collection of ancillary wildlife data, no additional duties may be assigned to the PSO during his/her visual monitoring shift
- No PSO will be allowed more than four consecutive visual monitoring hours before being allocated a two-hour break
- No PSO will be assigned a combined monitoring schedule of more than 12 hours in a 24-hour period
- PSOs will monitor from the most appropriate location on the vessel; the location shall have a 360° view of the sea surface (BOEM-approved Lease waiver 4.3.5), without interfering with the navigation or operation of the vessel.
- Visual monitoring will begin no less than 30 minutes prior to the initiation of the SBPs, boomers, and sparkers and must continue until 30 minutes after the use of acoustic sources ceases or until 30 minutes past sunset (BOEM-approved Lease waiver 4.3.6.5 & IHA 5(d)).
- If a protected species is observed, the PSO should first initiate any necessary mitigation actions. If no mitigation actions are required, they will note and monitor the latitude/longitude of the vessel and relative bearing and estimated range to the animal, until the animal dives or moves out of visual range of the observer.

4.2 Daytime Monitoring During Reduced Visibility

During daytime periods of reduced visibility (any time any of the zones are not fully visible), visual monitoring will continue, augmented by a PSO/PAM Operator until visibility has returned (Alternative Monitoring Plan 1 & 2).

During these periods, all requirements surrounding monitoring durations and break periods will be adhered to. Additionally, no PSO will conduct additional monitoring shifts. This is to ensure that they have a sufficiently long break with at least 8 hours of uninterrupted sleep.

The PSO team and vessel / survey crew will work together to co-ordinate monitoring to the best of their abilities to minimize any operational downtime during daytime periods of reduced visibility. If acoustic monitoring cannot be conducted during periods of reduced visibility during the day due to PSO and PAM operator shift constraints, then the HRG operations must be delayed until visibility returns or until the necessary monitoring can be conducted.

4.2.1 Daytime monitoring equipment

The PSO on duty will monitor for marine protected species using the naked eye and hand-held reticle binoculars. Digital single-lens reflex camera equipment will be provided to record sightings and verify species identification (BOEM OCS-A 0522 4.3.5 & IHA 5(f)).

Reticle binoculars have the capability to localize the distance to detected animals.

4.3 Nighttime Monitoring

If survey operations are conducted at night, the PSOs will use night vision goggles and/or infrared technology (Alternative Monitoring Plan 3 & IHA 5(m)).

4.3.1 Nighttime monitoring equipment

The PSOs on duty will monitor for marine protected species using Morovision PVS-7 Gen 3 PINNACLE night vision goggles with a thermal acquisition clip-on system and handheld infrared light emitting diode spotlights so PSOs can focus observations in any direction (Alternative Monitoring Plan 3).

At night, if reticles cannot be used to localize a detection, distance to detected animals will be determined using range finder sticks or by comparing the location of the animal to known distances, such as the length of the vessel.

4.4 Visual Monitoring Equipment Calibration

Monitoring equipment will be calibrated, when possible, throughout the duration of survey at least once a week using the vessel radar, by comparing estimated distances to known distances and will be conducted during varying sea states and both at night and during the day.

5 PASSIVE ACOUSTIC MONITORING (PAM) METHODS

5.1 PAM Operator General Monitoring Protocol

On vessels conducting 24-hour HRG operations, one NMFS approved PAM Operator will acoustically monitor permit-defined zones during nighttime and periods of reduced visibility, such as fog. If there is an acoustic detection of a marine mammal approaching or within the permit-defined zones, mitigation procedures will be initiated as described in Section 8. Shift schedules and duty restrictions for PAM operators are the same as those described for PSOs in Section 4.1.

PAM Operators will monitor for marine mammals using the PAM system (headphones for aural monitoring and spectrogram and click detectors for visualization) and will work in coordination with the PSO on shift to verify and localize any marine mammal detections. PAM operators will work in a suitable location that does not interfere with navigation or the operation of the vessel. The workstation will have a comfortable, ergonomic position for the PAM operator to monitor the PAM system. The PAM Operator workstation will also be in a location that enables a quick exchange of communication to the source operator for initiation of mitigation measures.

Acoustic monitoring must be consistent, diligent, and free of distractions for the duration of the watch.

5.2 PAM Equipment

During the HRG surveys, a PAM system will be deployed for acoustic monitoring of Shutdown Zones (sometimes referred to as Exclusion Zones) during low-visibility periods (e.g., nighttime and during fog) when boomers, and sparkers are active (Alternative Monitoring Plan 1 & 2). The PAM system uses a towed hydrophone array and PAMGuard software modules configured for the application, vessel, and deployment method.

Each source vessel will have two complete PAM systems installed, a primary system and a secondary system available as back-up should any issues be encountered with the main system.

A passive acoustic monitoring system, developed by Seiche Measurements Limited, designed to detect most species of marine mammals and will be installed on each vessel. The system consists of a six-element hydrophone array cable that will be deployed from the vessel, positioning the hydrophones as far back from the vessel as possible to limit potential masking by vessel noise. The signal from the hydrophone array is processed in a low and mid frequency Asio Fireface soundcard and digitized and displayed in the industry standard acoustic monitoring software, PAMGuard. The array contains a pair of low-frequency hydrophones (10 – 24,000 Hz) for the detection of baleen whales: a low-frequency spectrogram of one of these two hydrophones is visually monitored by the PAM Operator and the PAMGuard Moan Detector is configured to process data from both low frequency hydrophone channels.

The PAM Operator will be proficient in the use of all PAM hardware and software. Each PAM Operator has completed formal RPS, or comparable, PAM Training for which RPS has confirmed the covered content captured all the key elements associated with the system. PAM Operators are trained in the installation, maintenance, and operation of all hardware and software associated with the system, and possess the skills required to monitor for, detect, and localize protected species.

5.3 PAM JSA and PAM Deployment and Retrieval Procedure

A job safety analysis (JSA) will be completed prior to the hydrophone deployment. The PAM Operator will develop, in cooperation with the vessel crew, a vessel-specific deployment and retrieval procedure that considers both the minimization of entanglement risks with other towed equipment and maximization of the system acoustic range.

Hydrophone cable deployment is dependent upon operational constraints. The hydrophone towing cable will not be deployed if it hinders safe operations on the vessel; however, no actions allowable with PAM are afforded to the vessel with respect to sound source use during periods of reduced visibility if the PAM system is not in operation.

5.4 Distance Estimation of Acoustic Detections

There are a variety of methods that can be used to estimate the distance to vocalizing marine mammals using the acoustic detection software, PAMGuard.

When the distance to a vocalizing animal cannot be determined by PAMGuard, the experienced PAM Operator can make a distance estimation assisted by the noise or detection score system developed by Gannier et al. (2002). Gannier et al. monitored sperm whales in the Mediterranean both visually and acoustically. A scale was developed based upon the strength or intensity of the sperm whale clicks at various distances that were then measured when the sperm whales surfaced and were visually observed. Although the scale is subjective, and sounds produced in marine environments will vary according to local conditions, the scale provides a measure for approximating distances when using a single, linear hydrophone array.

6 PROPOSED MONITORING SCHEDULES FOR 24-HOUR OPERATIONS

Table 1: Seven PSO/PAM monitoring schedule

	Lead PSO	PSO 2	PSO3	PSO4	PSO5	PSO6	PSO 7
0:00				IR	PAM	IR	
1:00			IR		PAM		IR
2:00			IR		PAM	IR	
3:00				IR	PAM	IR	
4:00		IR	IR	PAM			
5:00		IR	IR	PAM			
6:00		Visual			Visual		
7:00		Visual	Visual				
8:00			Visual		Visual		
9:00	Meeting		Visual		Visual		
10:00	Visual	Visual					
11:00		Visual			Visual		
12:00	Visual				Visual		
13:00	Visual	Visual					
14:00		Visual					Visual
15:00	Visual					Visual	
16:00	Visual					Visual	
17:00						Visual	Visual
18:00	Visual			Visual			
19:00	Visual						Visual
20:00				PAM		IR	IR
21:00	PAM					IR	IR
22:00			Visual	PAM			IR
23:00			Visual	PAM		IR	
Work	9	8	9	8	9	9	7
Sleep	11	13	12	12	11	11	12

*The monitoring schedule is inclusive of monitoring for vessel strike avoidance and source mitigation purposes

Table 2: Seven PSO/PAM monitoring schedule during fog

	Lead PSO	PSO 2	PSO3	PSO4	PSO5	PSO6	PSO 7
0:00				IR	PAM	IR	
1:00			IR		PAM		IR
2:00			IR		PAM	IR	
3:00				IR	PAM	IR	
4:00		IR	IR	PAM			
5:00		IR	IR	PAM			
6:00	Visual	Visual			PAM		
7:00	PAM	Visual	Visual				
8:00			Visual	Visual	PAM		
9:00	Meeting		Visual	Visual	PAM		
10:00	PAM	Visual	Visual				
11:00		Visual			PAM		Visual
12:00	Visual				PAM		Visual
13:00	PAM	Visual				Visual	
14:00		Visual			PAM		Visual
15:00	Visual				PAM	Visual	
16:00	Visual	PAM				Visual	
17:00		PAM				Visual	Visual
18:00	PAM	Visual		Visual			
19:00	PAM		Visual				Visual
20:00				PAM		IR	IR
21:00	PAM					IR	IR
22:00			Visual	PAM			IR
23:00			Visual	PAM		IR	
Work	11	11	11	10	11	10	9
Sleep	8	9	8	8	8	9	9

*The monitoring schedule is inclusive of monitoring for vessel strike avoidance and source mitigation purposes

7 VESSEL STRIKE AVOIDANCE ON HRG VESSELS

7.1 North Atlantic Right Whale (NARW) Monitoring Notification Systems

The PSO team will monitor NMFS North Atlantic Right Whale (NARW) reporting systems (e.g., the Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) for the presence of NARWs during HRG survey operations within or adjacent to the Seasonal Management Area (SMA), Slow Zones, and any established Dynamic Management Areas (DMAs)(BOEM Lease OCS-A-0522 4.1.1.3 & IHA 5(k)).

https://www.nefsc.noaa.gov/psb/surveys/MapperiframeWithText.html

https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales

7.2 Vessel Speed Restriction

Vessel strike avoidance mitigation measures will include all vessels associated with the survey activities, including those transiting to and from local ports and the lease area (BOEM OCS-A 0522 4.1.1).

All survey vessels regardless of size, observe a 10-knot speed restriction in any Dynamic Management Area (DMA), Seasonal Management Area (SMA), or Slow Zone. Additionally, all survey vessels, regardless of size, observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of NARWs from vessel strikes: any DMAs or Slow Zones when in effect, and the Block Island Seasonal Management Area (SMA) (from November 1 through April 30), Cape Cod Bay SMA (from January 1 through May 15), Off Race Point SMA (from March 1 through April 30) and Great South Channel SMA (from April 1 through July 31). Speed restriction does not apply to vessels transiting through Nantucket Sound during non-DMA periods (BOEM-approved Lease waiver 4.1.1.2 & IHA 4(j)viii).

Vessels 19.8 meters (65 feet in length) or greater that operate between November 1 through May 1 must operate at speeds of 10 knots (11.5 mph) or less (BOEM-approved Lease waiver 4.1.1.2).

If protected species are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until the animals are clear of the area, except under extraordinary circumstances when complying with the requirement puts the safety of the vessel or crew at risk (BOEM OCS-A 0522 4.1.1 & IHA 4(j)).

7.3 Separation Distances

All vessels underway must not divert or alter course in order to approach any whale, delphinid cetacean, or pinniped.

Any vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to a sighted cetacean, pinniped, sea turtle, or giant manta ray (BOEM OCS-A 0522 4.1.1.8.1 & IHA 4(j)vii).

The vessel operator must reduce vessel speed to 10 knots or less when any large whale, any mother/calf pairs, whale or dolphin pods, or larger assemblages of non-delphinoid cetaceans are observed within 100 m of an underway vessel (IHA 4(j)ii).

7.3.1 North Atlantic Right Whale

All survey vessels will maintain a separation distance of 500 meters or greater from any sighted NARW or any unidentified large marine mammal (BOEM OCS-A 0522 4.1.1.6.1 & IHA 4(j)iii-4(j)iv).

- If underway, the vessel must steer a course away from any sighted NARW at 10 knots or less until the 500-meter minimum separation distance has been established (IHA 4(j)iv).

- If sighted in a vessel's path or within 500 meters to an underway vessel, reduce speed and shift the engines to neutral until the NARW has moved beyond 500 meters and out of the vessel's path, then re-engage engines and steer away at 10 knots or less (IHA 4(j)iv).
- If stationary, the vessel must not engage engines until the NARW has moved beyond 500 meters, at which point the vessel must steer a course away from the NARW at 10 knots or less, maintaining the 500-meter separation distance (IHA 4(j)iv).
- If a whale is observed but the species cannot be confirmed as being other than a North Atlantic right whale, it must be assumed to be a right whale and all applicable strike avoidance procedures for NARWs implemented (IHA 4(j)iii).

7.3.2 Non-delphinoid cetaceans (baleen whales, beaked whales, sperm whales) other than the NARW

All vessels will maintain a separation distance of 100 meters or greater from any sighted non-delphinoid (i.e., mysticetes and sperm whales) cetacean (BOEM OCS-A 0522 4.1.1.7 & IHA 4(j)v).

- If sighted within 100 meters to an underway vessel, reduce speed and shift the engine to neutral until the animal has moved outside of the vessel's path and beyond 100 meters.
- If the vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved out of the vessel's path and beyond 100 meters.

7.3.3 Delphinoid cetaceans and pinnipeds

All vessels will maintain a separation distance of 50 meters or greater from any sighted delphinoid cetacean or pinniped (BOEM OCS-A 0522 4.1.1.8 & IHA 4(j)vi).

- Vessels should not divert to approach delphinoid cetaceans.
- Underway vessels will remain parallel to a sighted delphinoid cetacean's course whenever possible and avoid excessive speed or abrupt changes in direction. Vessels may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 meters and/or abeam of the underway vessel (IHA 4(j)vi).

7.3.4 Sea turtles and giant manta ray

All vessels will maintain a separation distance of 50 meters or greater from any sighted sea turtle or giant manta ray (BOEM OCS-A 0522 4.1.1.8.2).

- Vessels underway should not divert to approach any sea turtles or giant manta ray (BOEM OCS-A 0522 4.1.1.8.1).

8 SOUND EXPOSURE PROCEDURES

8.1 Survey Equipment Subject to Monitoring and Mitigation Procedures

SBPs, boomers and sparkers that produce sound below 180 kHz are subject to the following monitoring and mitigation protocols.

Both testing and operations of HRG equipment should be limited to the Lease Area, Cable Corridor, and while the vessel is alongside in port.

8.2 Sound Source Monitoring and Mitigation Zones

PSOs must establish and monitor five types of zones around Vineyard Northeast SBPs, boomers, and sparkers. Shutdown Zones (SZ), sometimes referred to as Exclusion Zones (EZ), apply around the sound source (BOEM Lease OCS-A 0522 4.3.6.1). For the purposes of sound exposure mitigation, these zones are established around the survey equipment and not around the vessel itself.

Buffer Zone (BZ): During use of geophysical sources with the potential to result in marine mammal harassment (i.e., anytime boomers and sparkers are active, including ramp-up), occurrences of marine mammals within the Buffer Zone must be communicated to the vessel operator to prepare for a potential shutdown of the acoustic source. This is not applicable when the SZ is greater than 100 meters (IHA 4(e)ii).

- **200 meters**: all other marine mammals other than NARW (IHA 4(e))

Pre-Clearance Zones (PCZ): Applicable during the 30-minute pre-clearance search periods conducted prior to initiating the relevant acoustic sources from silence. Detections of a protected species inside the applicable PCZ during the search will result in a delay to operations. SBPs, boomers, and sparkers must not be initiated until an additional time period (described in Section 8.4) has elapsed with no further sighting of the animal (BOEM Lease OCS-A 0522 4.3.6.5).

- **500 meters:** North-Atlantic right whales (IHA 4(g)i)
- **200 meters:** all marine mammals other than NARW (IHA 4(g)ii)
- **50 meters:** sea turtles

Shutdown Zone (SZ): Once the low frequency (LF) sound sources have been activated, detections of a protected species inside applicable SZs will result in a shutdown of boomer and sparker equipment (IHA 4(c)). SBPs may remain active and are not subject to shutdown procedures.

- **500 meters:** North-Atlantic right whales
- **100 meters**: All other marine mammals with the exception of delphinids from the genera *Delphinus, Lagenorhynchus*, or *Tursiops* are visually detected approaching the vessel or towed acoustic sources, shutdown is not required. If there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgment in making the decision to call for a shutdown (IHA 4(f)vii).
- **50 meters:** Sea turtles

Level B Harassment Zone (HZ):

- **195 meters:** Shutdown of boomer and sparker equipment is required upon observation of a species for which authorization has not been granted or observation of a species for which authorization has been granted but the authorized number of takes has been met (IHA 4(f)viii).

Marine Mammal Monitoring Zone:

- PSOs must establish and monitor a marine mammal Monitoring Zone that represents a distance of **500 meters** from the survey equipment (IHA 4(d)).

Although mitigation will be applied for animals detected in the aforementioned zones, observations will extend to the furthest observable distances.

If Shutdown Zones, Buffer Zone and/or Monitoring Zone are not fully visible to PSOs due to darkness or inclement weather, survey activities may continue, unless a marine mammal is detected within or entering the Shutdown Zones (IHA 5(o)).

8.3 Visual and Acoustic Search Periods

To activate the SBPs, boomers, and sparkers from silence, a minimum of a 30-minute search period must be conducted. SBPs, boomers and sparkers will not be activated until the protected species observer has reported the pre-clearance zones (PCZ) clear of all cetaceans, sea turtles, and pinnipeds for 30 minutes (BOEM Lease OCS-A 0522 4.3.6.5 & IHA 4(g)).

- The visual search period may begin when PSOs can see to the outermost SZ (500 meters) from the geophysical source.

- During nighttime or other periods of reduced visibility, the search must be conducted visually by the PSOs on watch AND acoustically by the PAM Operator. Acoustic monitoring will begin 30 minutes prior to sunset and 30 minutes after sunrise.
- Visual monitoring must continue until 30 minutes after the use of SBPs, boomers, and sparker equipment ceases (IHA 4(b)).

8.4 Delays to Initiation of SBPs, Boomers, and Sparkers

The Lessee must ensure that the sound source is not activated until the PSO has reported the pre-clearance zones (PCZ) clear of all cetaceans, pinnipeds, and sea turtles for 30 minutes, inclusive of dolphins that voluntarily approach the vessel. If any marine mammal or sea turtle was detected visually inside its respective PCZ during the 30-minute search period, initiation of the survey equipment (SBPs, boomers and sparkers) must be delayed (BOEM Lease OCS-A 0522 4.3.6.5 & IHA 4(g)) until:

- An additional time period has elapsed with no further sightings of the animal within the relevant PCZ (IHA 4(g)):
  - **<u>15 minutes</u>** for small odontocetes and seals
  - **<u>30 minutes</u>** for all cetaceans and sea turtles

Both the 30-minute pre-clearance search period and the mandatory delay for animals observed within the PCZ must be completed before source initiation.

8.5 Ramp-Up Procedure

Ramp-up procedures cannot be conducted for individual pieces of survey equipment (i.e., Innomar, boomer etc.) without increasing the HSE risk to personnel operating the equipment.

When technically feasible survey equipment must be ramped up at the start or re-start of survey activities. Ramp-up will be conducted by activating the sound producing equipment in a sequence beginning with the lowest sound output level and adding in additional sound producing equipment incrementally until all of the sound producing equipment is activated (IHA 4(h)).

8.6 Short Breaks in HRG Sourcing Operations

In recognition of occasional short periods of silence for a variety of reasons other than encroachment into the shutdown zone by a non-delphinoid cetacean or sea turtle, including, but not limited to, mechanical or electronic failure, the SBPs, boomers, and sparkers may be silenced for periods of time not exceeding 30 minutes in duration and may be restarted for operations at its operational level if (BOEM Lease OCS-A 0522 4.3.6.8 & IHA 4(f)vi):

1. Visual monitoring by PSOs is continued diligently through the silent period (during visual surveys, the SZ must remain visible throughout the silent period)

   AND

2. No marine protected species are observed in the applicable Shutdown Zone and Buffer Zone.

For a shutdown of 30 minutes or longer, or if visual surveys were not continued diligently during the pause of 30-minutes or less, the PSOs must restart the pre-clearance search period procedures outlined in section 8.3. Acoustic sources can be activated using the full ramp-up procedure after PSOs report that the pre-clearance zones are free of all cetaceans, pinnipeds and sea turtles for 30 minutes (BOEM Lease OCS-A 0522 4.3.6.7 & IHA 4(f)vi).

8.7 Shutdown Procedures

If a protected species is sighted approaching or within the Shutdown Zone, an immediate shutdown of the boomer and sparker is required, EXCEPT if it is a delphinid(s) from the genera ***Delphinus, Lagenorhynchus or Tursiops*** that is voluntarily approaching (i.e., bow riding) the vessel or towed survey equipment and the PSO determines that it is a voluntary approach (IHA 4(f)vii). The vessel operator must comply immediately with the initiation of mitigation by the observer. Any disagreement should be discussed only after shutdown (IHA 4(f)iii).

Subsequent restart of the survey equipment must use the ramp-up provisions described in section 8.5 and may only occur following clearance of the SZ of all protected species under the following conditions (BOEM Lease OCS-A 0522 4.3.6.7 & IHA 4(f)v):

- When an additional time period has elapsed with no further sightings of the animal within the relevant SZ:
  - **15 minutes** for small odontocetes and seals
  - **30 minutes** for all other marine mammals and sea turtles

8.8 Seasonal Restrictions

Survey operations are subject to the following seasonal restrictions (IHA 4(i)):

Survey activities in the Cape Cod Bay SMA and Off Race Point SMA are limited to the months of August and September.

Vineyard Northeast must not operate more than three HRG survey vessels concurrently within a seasonal restriction area with SBPs, boomers, or sparkers operating at or below 180 kHz.

- December through February restriction area is delineated by latitudes and longitudes of 41.183 N; 40.366 N; 69.533 W; and 70.616 W. This area is marked by a solid line in Figure 1 of the IHA.
- March through June restriction area is delineated by a polygon with the following vertices: 40.746 N 70.748 W; 40.953 N 71.284 W; 41.188 N 71.284 W; 41.348 N 70.835 W; 41.35 N 70.455 W; 41.097 N 70.372 W; and 41.021 N 70.37 W. A map of this area is available in the IHA – Figure 1.

9 REPORTING

In cases where multiple vessels are surveying concurrently, any observations of marine mammals must be communicated to PSOs on all active survey vessels via Mysticetus. If Mysticetus software is not operational, sightings will be communicated via a shared WhatsApp marine protected species text channel.

9.1 Data Forms

PSOs will utilize standardized data forms that have been provided to, and approved by, BOEM and NMFS. These forms will contain, at minimum, all of the data elements listed below, and data will be recorded in the field daily.

Project Information

- Project Name
- Lease Number
- State Coastal Zones
- Survey Contractor
- Vessel Name(s)
- Survey Type (typically HRG)
- Reporting start and end dates
- Visual monitoring equipment used (e.g., bionics, magnification, IR cameras, etc.)
- Distance finding method used
- PSO names (last, first) and training
- Observation height above sea surface

Operations Information

- Vessel name(s)
- HRG equipment type, power levels, and frequencies used
- Greatest RMS source Level

Monitoring Effort Information

- Date (YYYY-MM-DD)
- HRG equipment (ON/OFF)
- If visual, how many PSOs on watch at one time?
- PSOs (Last, First) & affiliations
- Start time and latitude/longitude (decimal degrees) of observations
- End time and latitude/longitude (decimal degrees) of observations
- Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change
- Duration of visual observation
- Environmental conditions at beginning and end of PSO shift and whenever conditions change significantly
  - Wind speed (knots), from direction
  - Swell (meters)
  - Sea state (glassy, slight, choppy, rough, or Beaufort scale)
  - Water depth (meters)
  - Visibility (km)
  - Glare severity
  - Cloud coverage (%)
- Block name and number
- Location: Latitude and Longitude
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Duration of pre-clearance visual monitoring
- Was pre-clearance conducted during day or night?
- Time power up/ramp up began
- Time equipment full power was reached
- Duration of power up/ramp up
- Time survey activity began (equipment on)
- Time survey activity ended (equipment off)
- Survey Duration
- Did a shutdown/power down occur?
- Time shutdown was called for (UTC)
- Time equipment was shutdown (UTC)
- Dates of departures and returns to port with port name
- Inhibiting factors of observations (e.g., vessel traffic)
- Habitat or prey observations
- Marine debris sighted

Detection Information

- Date (YYYY-MM-DD)
- Sighting ID (V01, V02, or sequential sighting number for that day) (multiple sightings of same animal or group should use the same ID)
- Date and time at first detection in UTC (YY-MM-DDT HH:MM)
- Time at last detection in UTC (YY-MM-DDT HH:MM)
- PSO name(s) (Last, First)
- Effort (ON/OFF)
- Latitude (decimal degrees dd.ddddd), longitude (decimal degrees dd.ddddd) dd.ddddd), longitude (decimal degrees dd.ddddd)
- Compass heading of vessel (degrees)
- Water depth (meters)
- Swell height (meters)
- Beaufort scale
- Precipitation
- Visibility (km)
- Cloud coverage (%)
- Glare
- Species including common name, scientific name, or family
- Certainty of identification
- Number of adults
- Number of juveniles
- Total number of animals
- Bearing to animal(s) when first detected (ship heading + clock face)
- Range from vessel (reticle distance in meters)
- Description (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to survey activity and distance from vessel)
- Direction of travel/first approach (relative to vessel)
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- Pace of animal
- If any bow-riding behavior observed, record total duration during detection (HH:MM)
- Initial heading of animal(s) (degrees)
- Final heading of animal(s) (degrees)
- HRG equipment activity at initial detection
- HRG equipment activity at final detection (on or off)
- Shutdown zone size during detection (meters)
- Was the animal inside the Shutdown zone?
- Closest distance to vessel (reticle distance in meters)
- Closest distance to source
- Time at closest approach (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)

- If observed/detected during ramp up/power up: first distance (reticle distance in meters), closest distance (reticle distance in meters), last distance (reticle distance in meters), behavior at final detection
- Shut-down or power-down occurrences
- Time shutdown was called for (UTC)
- Time equipment was shutdown (UTC)
- Detections with IR? (Y/N)
- Watch Status (sighting made by PSO on watch, opportunistic, crew)
- Documentation of whether the marine mammal was estimated to have been within 195 meters of active survey equipment

9.2 Reporting NARW Sightings

The Lead PSO will report any sightings of NARW using the designated form. The report will be sent to the Vineyard Northeast Environmental Project Manager and the RPS Project Manager immediately. The PSO team will make every effort to photograph and document all relevant information associated with the sighting.

The Vineyard Northeast Environmental Project Manager will report the NARW to the NMFS NARW Sighting Advisory System: (866) 755-6622. Vessel Captains shall inform the United States Coast Guard of the sighting via channel 16 (IHA 6(a)(i)).

9.3 Injured/Dead Protected Species, Bird and Bat Reporting

The Lead PSO will report any injured or dead protected species, bird and bat detections using the designated forms. The report will be sent to the Vineyard Northeast Environmental Project Manager and the RPS Project Manager immediately. The PSO team will make every effort to photograph and document all relevant information associated with the sighting.

Sighting of Injured or Dead Protected Species:

The Vineyard Northeast Environmental Project Manager will report the injured or dead animal to BOEM, Office of Protected Resources (OPR) (301-427-8401) and NMFS Northeast Region's Stranding Hotline by phone (978-282-8478) as soon as feasible, but not later than 24 hours after the sighting, regardless of whether the injury or death is caused by a vessel (BOEM OCS-A 0522 4.4.4 & IHA 6(b)i).

Injured or Dead Protected Species- Vessel Strike:

In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, the IHA-holder shall report the incident to OPR, NMFS and to the New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible (IHA 6(b)ii).

In the event that the injury or death was caused by a collision with a project-related vessel, the vessel must assist in any salvage efforts as requested by NMFS. If the injury or death was caused by a collision with a project-related vessel, Vineyard Northeast must ensure that BOEM is notified of the strike within 24 hours. Vineyard Northeast Environmental Project Manager will report the strike to OPR, NMFS, the New England/Mid-Atlantic Regional Stranding Coordinator, and BOEM as soon as feasible (BOEM OCS-A 522 4.4.5).

Unless otherwise directed by BOEM, NOAA Fisheries, or NOAA, the dead or injured marine mammal or sea turtle SHOULD NOT be touched! Dead and injured marine mammals and sea turtles are still protected by the ESA and the MMPA and touching the animals in any manner is considered harassment and is punishable by law.

Any deceased birds should not be disposed of until a positive ID has been confirmed.

9.4 Reporting Potential Takes of Protected Species

RPS will track the exposures from each individual vessel as well as the cumulative exposure total for the survey on a daily basis. Exposure numbers will be calculated and documented in the RPS Data Form and updated/included in the daily report that is distributed to the client, identifying the remaining number of exposures.

The exposures specific to the HRG surveys associated with Lease OCS-A 0522 are outlined in Table 3 per the IHA and the remaining exposures based on the 2021 season tallies.

Table 3: Tracking Numbers of Incidental Take of Marine Mammals Authorized

Species	Authorized Takes by Level B Harassment	Remaining Potential Level B Exposures after 2021 campaign
Fin whale	51	50
Humpback whale	34	32
Minke whale	31	29
North Atlantic right whale	10	10
Sei whale	3	3
Atlantic white sided dolphin	758	758
Bottlenose dolphin	611	611
Pilot whale	107	107
Risso's dolphin	6	6
Common dolphin	2,036	1,731
Sperm whale	3	3
Harbor porpoise	784	784
Gray seal	3,033	3,032
Harbor seal	3,033	3,033

9.5 Reporting Observed Impacts to Protected Species

The Lead PSO/Environmental Team Lead on duty will report any impacts to an ESA species to the RPS Project Manager immediately. In addition, the Lead PSO/Environmental Team Lead on duty will report any observed impacts resulting in injury or mortality of listed marine mammals, sea turtles, Atlantic sturgeon, and giant manta ray to the RPS Project Manager immediately. The RPS Project Manager will inform the Vineyard Northeast Environmental Project Manager.

Vineyard Northeast will report any observed impacts resulting in injury or mortality within 24 hours to BOEM and NMFS (BOEM OCS-A 522 4.4.5).

9.6 Daily Progress Report

A daily detection spreadsheet will be completed and submitted to the Party Chief, onboard client representative, Vineyard Northeast Environmental Project Manager and RPS Project Manager. If there were no detections that day, the Lead PSO will email the distribution list noting that there were no detections on that day. The Daily Progress Report will not serve as a notification to Vineyard Northeast of any urgent matters such as those listed in Section 9.2, 9.3, 9.4, and 9.5 above.

9.7 Monthly Reporting

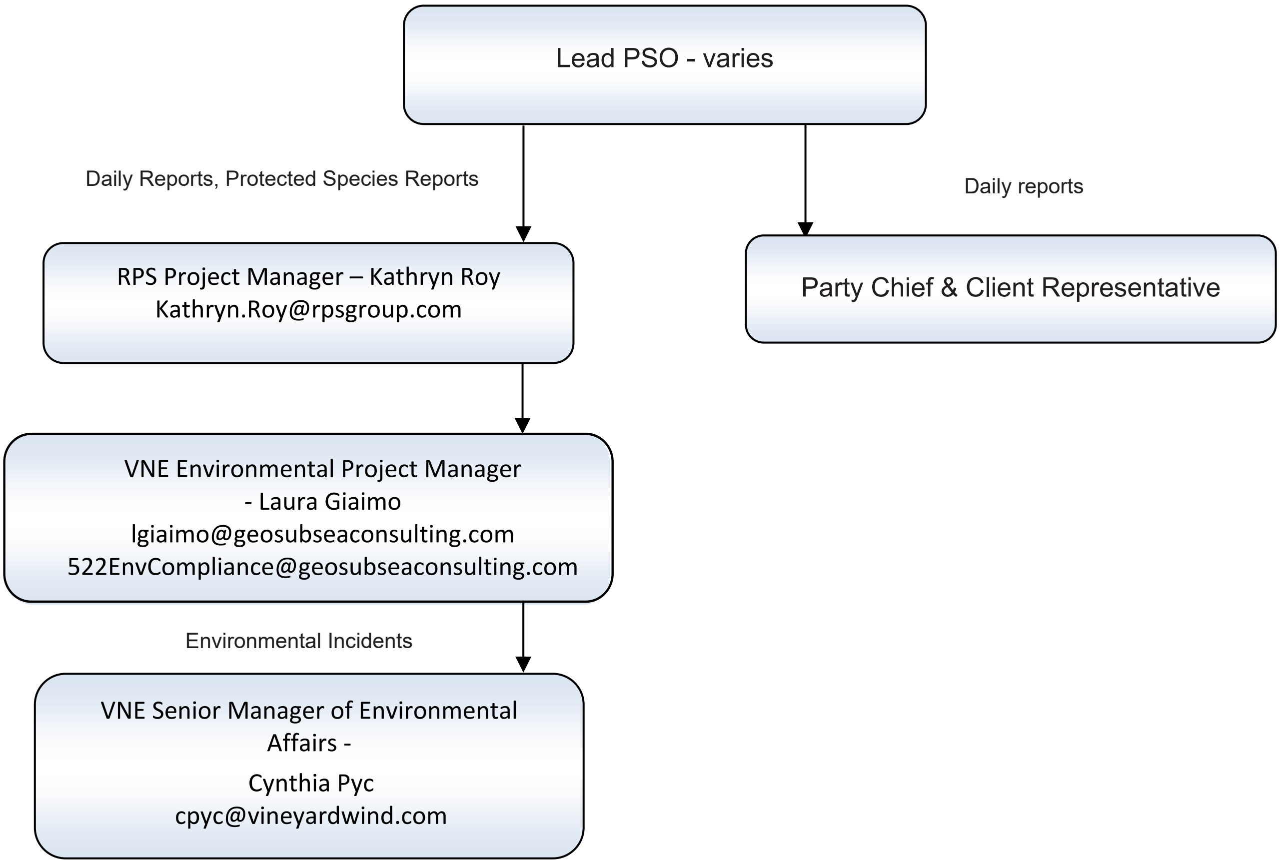
PSO data collection will be collated monthly starting on the 1st and ending on the last day of the month. These datasheets will be submitted to Vineyard Northeast monthly, by the 7th of the following month.

9.8 Final Report

The PSO team will develop a final report summarizing the survey activities and all PSO observations. One combined final report will be prepared for all of the geophysical vessels conducting operations in 2022. The RPS Project Manager will provide the finalized report to the Vineyard Northeast Environmental Project Manager within 30 days of project completion for review.

The RPS Project Manager will submit the final report to Vineyard Northeast for review. Vineyard Northeast will be responsible for submitting the final report to BOEM and NMFS or may instruct RPS to make the submittal on their behalf 90 days after completing of survey activities.

10 COMMUNICATION FLOW CHART



11 RESOURCES

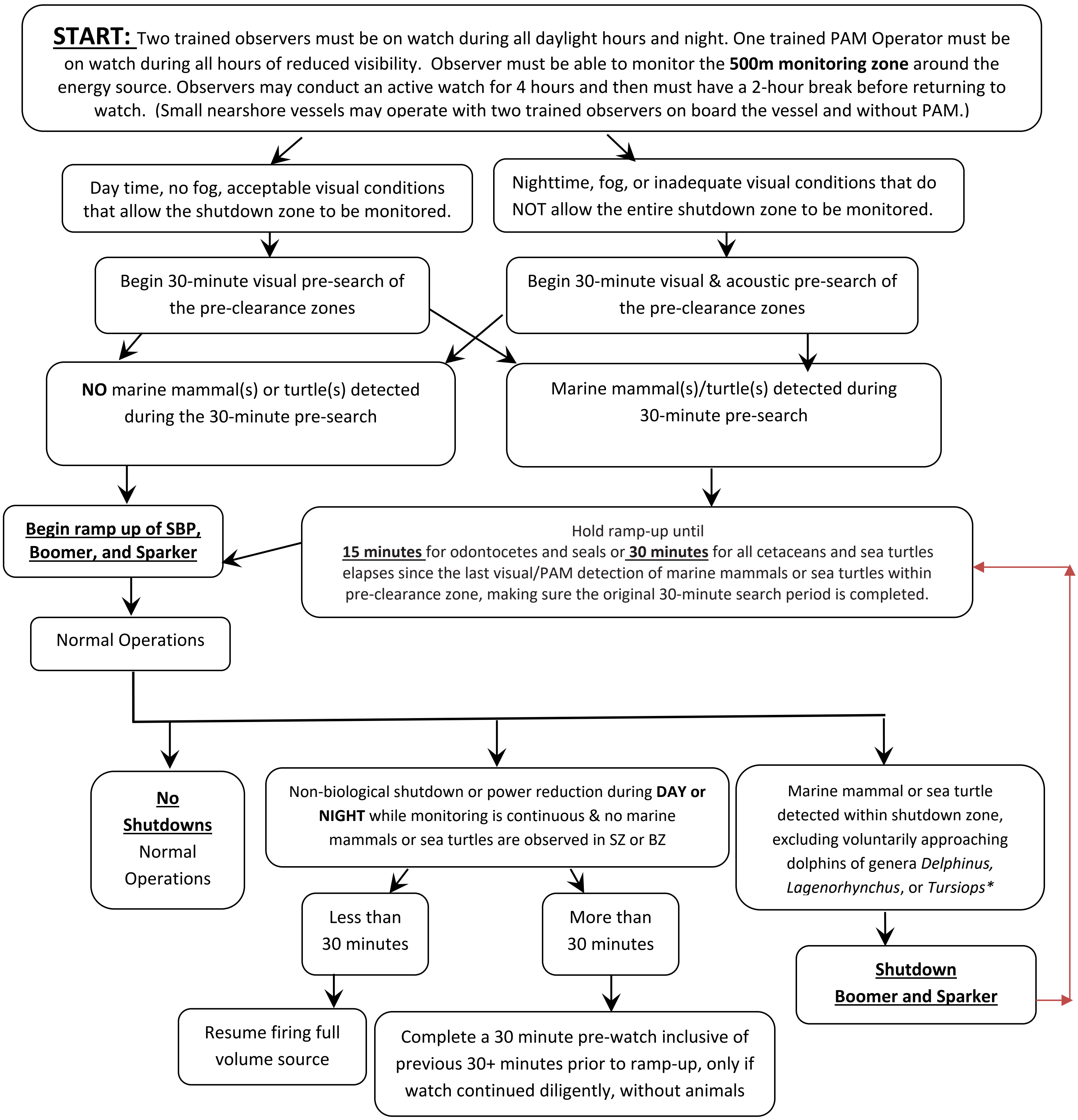
BOEM Lease OCS-A 0522

BOEM-approved Lease waivers OCS-A 0522

NMFS Incidental Harassment Authorization – July 15, 2021

Appendix A
Mitigation Flow Chart

Mitigation Decision Flowchart



*Voluntary approach species are limited to those where takes are granted: Atlantic white sided dolphins, bottlenose dolphins, Risso's dolphins, common dolphins, and harbor porpoise. Other species, such as the White-beaked dolphins, while of the exempt genera, still require a shutdown as no takes have been granted for that species. A shutdown is required if those genera enter the SZ but do not approach the vessel.

Appendix B
Communication Flow Charts & Phrasing

Communication Flow Charts

Ramp-up Communication Procedure for PSOs and PAM Operator

The sound source operator on duty notifies the day PSOs or night PSOs and PAM Operator on watch in person, via VHF radio, or by phone that the vessel would like to activate the source for ramp-up or source testing at least 30 minutes prior to the intended time of the initiation of the source. *Note: The sound source operator may notify the PSO/PAM Operator more than 30 minutes in advance of the intended source operations, if the initiation time is uncertain (i.e. source testing following array deployment) but* ***a 30-minute pre-search must be completed*** *prior to activation of the source*. After 30 minutes have passed, the operator calls or radios the PSO/PAM Operator on watch to ask if the vessel is clear to initiate ramp-up. If the ramp-up is not initiated immediately, the operator must radio to the PSOs to inform them of the delay. When the issue causing the delay has been resolved, the operator must then call the PSO to ask for clearance. Ramp-up begins. Operator informs PSO/PAM Operator that ramp-up has begun and active protected species monitoring continues.

Sound Source Operator requests that day PSOs or night PSOs and PAM Operator begin 30-minute pre-search to clear vessel for ramp-up or source testing

No marine mammals or sea turtles detected inside pre-clearance zones during 30-minute pre-search

Sound Source Operator asks PSO/PAM Operator if vessel is clear to ramp-up
OR
PSO/PAM Operator informs Sound Source Operator that vessel is clear to ramp-up

Marine mammals or sea turtle detected inside pre-clearance zones during 30-minute pre-search

PSO/PAM Operator notifies Sound Source Operator that a marine mammal/sea turtle has been detected inside the pre-clearance zone, vessel is not clear to ramp-up, and ramp up will be delayed.

PSOs and/or PAM Operator continue to monitor the pre-clearance zone. The Sound Source Operator is notified that the vessel is clear to ramp-up when the protected species has not been detected inside the PCZ for 30 minutes (cetaceans & sea turtles) or 15 minutes (odontocetes and seals).

Ramp up of SBP, boomer, and sparker for 20 minutes starting with the smallest acoustic equipment at its lowest practical power output gradually turned up and other HRG equipment added in such a way that the source level would increase gradually

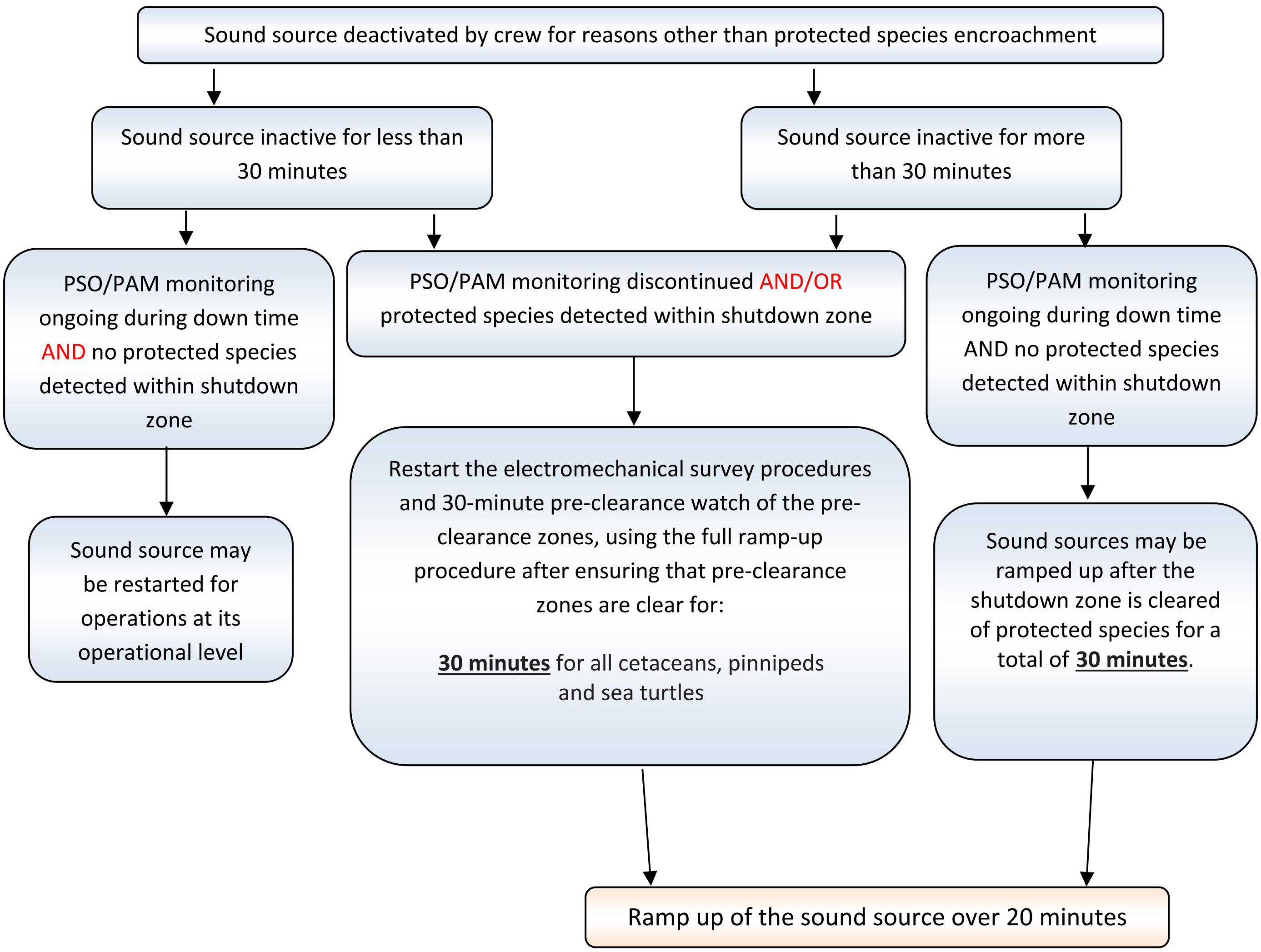
Sound Source Operator notifies PSO/PAM Operator that ramp-up has begun. This may be done in the same communication as when the PSO/PAM Operator gives clearance to begin ramp-up if ramp-up will be initiated immediately. If ramp-up will not begin right away, Sound Source Operator should call the PSO/PAM Operator to check that the pre-clearance zone has remained clear of protected species during the delay, and to ask for clearance to begin ramp-up.

Pre-Clearance Zones (PCZ):

- **500 meters**: North-Atlantic right whales
- **200 meters**: all marine mammals other than NARW
- **50 meters:** sea turtles

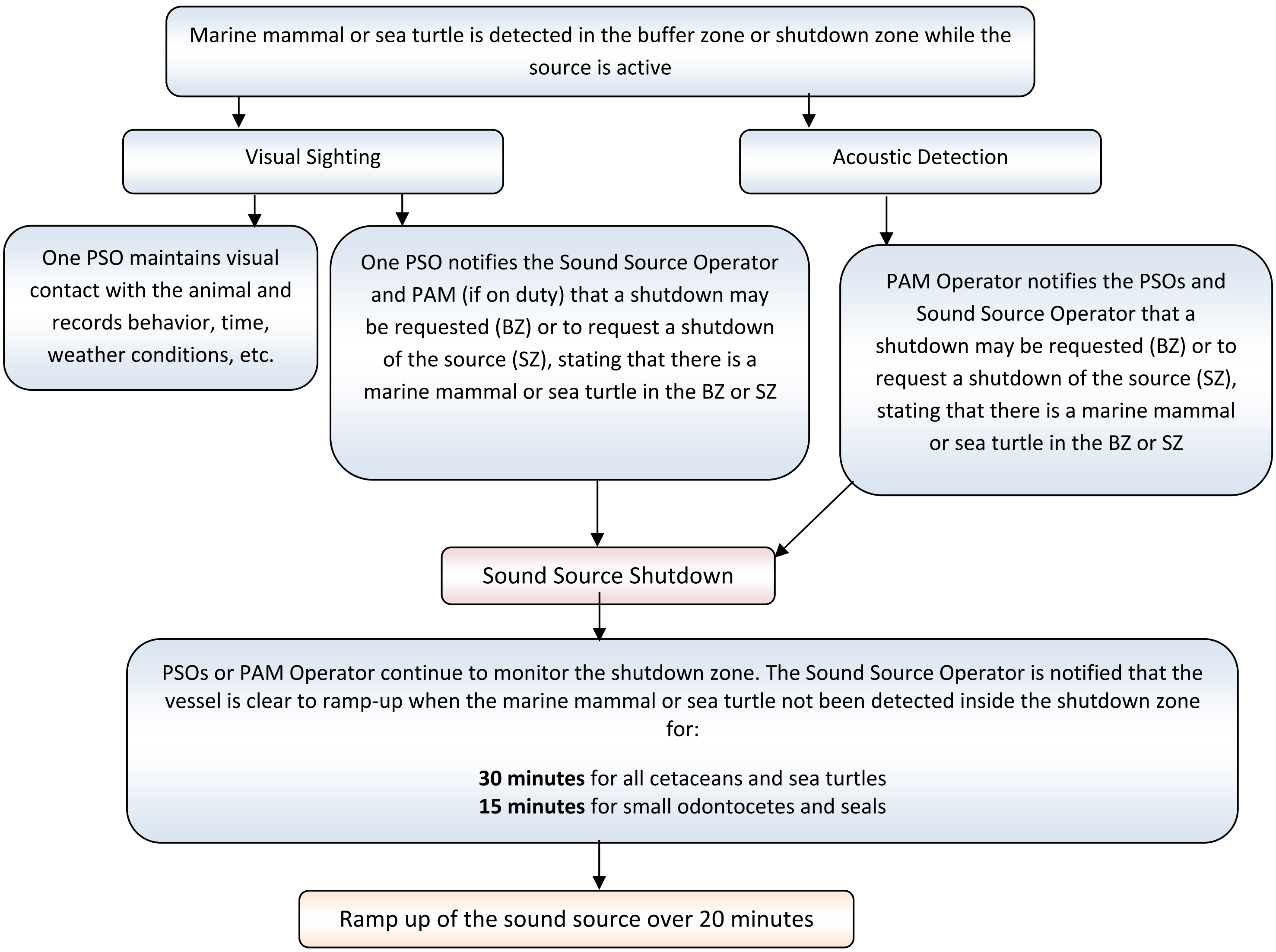
Communication Procedure for Short Sound Source Breaks

SBPs, sparkers, and boomers are turned off for occasional short periods of silence for a variety of reasons other than encroachment into the shutdown zone by a non-delphinoid cetacean or sea turtle, including, but not limited to, mechanical or electronic failure. During these events, sound sources may be silenced for periods of time not exceeding 30 minutes. Survey crew must notify the PSO/PAM team of the shut down and sound source restart will occur based on the following:



Shut-down Communication Procedure for PSOs and PAM Operator

At first detection of a marine mammal inside the *buffer zone*, the PSO or PAM Operator notifies the Sound Source Operator on duty in person, via VHF radio, or by phone that a shutdown of boomers and sparkers may be requested. At first detection of a marine mammal or sea turtle inside the respective *shutdown zone*, the PSO or the PAM Operator notifies the Sound Source Operator on duty in person, via VHF radio, or by phone and requests a shutdown of source operations. During a visual sighting resulting in a shut-down, the second PSO continues to monitor the animal. During an acoustic detection resulting in a shut-down, the PAM Operator begins recording the detection event. The time that the protected species is last detected inside the shutdown zone is noted, and up to 30 minutes following the last detection, the PSO/PAM Operator informs the Sound Source Operator that the vessel is clear for ramp-up. A 20-minute ramp-up occurs.



__**Buffer Zone (BZ):**__ requires alert to equipment operator in anticipation of possible shut down

- **200 meters:** all other marine mammals other than NARW

__**Shutdown Zones (EZ):**__

- **500 meters:** North-Atlantic right whales
- **100 meters**: All other marine mammals with the exception of delphinids from the genera *Delphinus, Lagenorhynchus* (*acutus* only), or *Tursiops*
- **50 meters:** Sea turtles

Communication Procedure for Vessel Strike Avoidance

At first detection of a marine mammal or sea turtle in the vessel's path, the PSO notifies the bridge of the animal's presence and distance from the vessel, in person, via VHF radio, or by phone and requests a Vessel Strike Avoidance. During the sighting, the PSO continues to monitor the marine mammal or sea turtle to continue advising the bridge as to the effectiveness of the Vessel Strike Avoidance.

The vessel operator must reduce vessel speed to 10 knots or less when any large whale, any mother/calf pairs, whale or dolphin pods, or larger assemblages of non-delphinoid cetaceans are observed within 100 m of an underway vessel

Marine mammal or sea turtle is detected in the path of the vessel – PSO notifies bridge of visual detection

Unidentified Whale & North Atlantic right whale – vessel will maintain minimum separation distance of 500 m *

- If underway, steer a course away from any sighted NARW at 10 knots or less maintaining the 500-meter separation distance
- If sighted within 500 meters to underway vessel, or within the vessels path, reduce speed and shift the engine to neutral until the NARW has moved beyond 500 meters and out of path, then re-engage engines (when beyond 500 m) and steer away at 10 knots or less
- If stationary, the vessel must not engage engines until the NARW has moved beyond 500 meters.

Non-delphinoid cetacean – vessel will maintain minimum separation distance of 100 m

- If sighted within 100 meters to underway vessel, reduce speed and shift the engine to neutral until the animal has moved outside of the vessel's path and beyond 100 meters
- If vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved out of the vessel's path and beyond 100 meters.
- Vessel operator must reduce speed to 10 knots or less when any large whale, any mother/calf pairs, whale or dolphin pods, or large assemblages of non-delphinoid cetaceans are observed near (100 m) of an underway vessel

Delphinoid cetaceans & pinnipeds – vessel will maintain minimum separation distance of 50 m

- Vessels should not divert to approach delphinoid cetaceans or pinnipeds
- Underway vessel will remain parallel to a sighted delphinoid cetacean's course whenever possible, avoiding excessive speed or direction changes until the animal has moved beyond 50 meters or abeam of the underway vessel

Sea turtle & giant manta ray – vessel will maintain minimum separation distance of 50 m

- Vessels should not divert to approach sea turtles or giant manta rays

*Additional NARW guidance:
- 10 knot speed restriction in any DMA, Slow Zone, and SMA
- Seasonal speed restriction Nov1 – April 30 (10 knots or less)
- SMAs

-Block Island Seasonal Management Area (SMA) (from November 1 through April 30),
-Cape Cod Bay SMA (from January 1 through May 15)
-Off Race Point SMA (from March 1 through April 30)
-Great South Channel SMA (from April 1 through July 31)
.

Vineyard Northeast must not operate more than three HRG survey vessels concurrently within a seasonal restriction area with HRG survey equipment operating at or below 180 kHz:

-December through February restriction area is delineated by latitudes and longitudes of 41.183 N; 40.366 N; 69.533 W; and 70.616 W.
-March through June restriction area is delineated by a polygon with the following vertices: 40.746 N 70.748 W; 40.953 N 71.284 W; 41.188 N 71.284 W; 41.348 N 70.835 W; 41.35 N 70.455 W; 41.097 N 70.372 W; and 41.021 N 70.37 W

Standardized Phrasing Communications Between Operations & PSO/PAM

RPS uses a 3-way method of communication when the PSO/PAM team communicates with the vessel and survey operators. This method consists of an initial mitigation request by the PSO/PAM team, to which the vessel and survey operators will respond with the implementation action taken, followed by the PSO/PAM team repeating the implemented action to the vessel and survey operators. Below are examples of this 3-way method of communication applied in various mitigation type scenarios:

STRIKE AVOIDANCE REQUEST

PSO to OPS: *"Dolphins approaching the vessel's bow, maintain speed and direction."*
OPS to PSO: "*Maintain speed and direction."*
PSO to OPS: *"Copy. Speed and direction maintained.*

DETECTION DURING PRE-WATCH

PSO/PAM to OPS: *"There is a sea turtle in the EZ. Delay ramp-up."*
OPS to PSO/PAM: *"Delaying ramp-up at HH:MM."*
PSO/PAM to OPS: *"Copy that. Delay initiated at HH:MM"*

PRE-WATCH CLEARANCE

PSO/PAM to OPS: *"Pre-watch completed HH:MM"*
OPS to PSO/PAM: *"Ramp-Up started at HH:MM"*
PSO/PAM: *"Copy. Ramp-Up started at HH:MM"*

DETECTION DURING RAMP-UP

PSO/PAM to OPS: *"Shutdown for sea turtle in EZ."*
OPS to PSO/PAM: *"Stopping ramp-up at HH:MM."*
PSO/PAM to OPS: *"Copy that. Stopped ramp-up HH:MM"*

DETECTION DURING OPERATIONS

PSO/PAM to OPS: *"Shutdown for whale in EZ."*
OPS to PSO/PAM: *"Shutting down at HH:MM."*
PSO/PAM to OPS: *"Copy that. Shut down HH:MM"*

*If protected species is observed exiting Shutdown Zone:

PSO to OPS: *"The Protected Species has exited the Shutdown Zone. You are clear to Ramp-up."*
OPS to PSO/PAM: *"Ramp-Up started at HH:MM"*
PSO/PAM: *"Copy. Ramp-Up started at HH:MM"*

*If protected species is NOT observed exiting Shutdown Zone:

PSO to OPS: "Visual of animal's last *detection was at HH:MM. You will be clear to Ramp-up at HH:MM*"
OPS to PSO/PAM: *"Ramp-Up started at HH:MM"*
PSO/PAM: *"Copy. Ramp-Up started at HH:MM"*

Appendix C
Mitigation FAQs

MITIGATION FAQS WITH SITUATIONAL EXAMPLES OF MITIGATION IMPLEMENTATION

When monitoring for protected species during site characterization surveys, there is the potential to encounter certain “Gray Areas”. These scenarios can be a source of debate, given their lower frequency of occurrence, and potentially contentious nature. The following are examples of these “Gray Areas” in mitigation that may require additional discussion with land-based managers:

- **Fog Scenarios:**

  In the event of fog encroachment onto the survey site, operations may continue, so long as a pre-watch clearance was completed and maintained prior to the fog encroaching. PAM equipment should be deployed and engaged to assist with monitoring during fog. Once the sound source ceases, another ramp-up cannot be initiated until the Shutdown Zone can be cleared either visually or acoustically.

- **Voluntary Approaching Dolphins* (genera specific):**

  Delphinid species behaviour can be hard to determine depending on various factors. The PSMMP and permit documents contain verbiage allowing for animals determined to be voluntarily approaching the vessel to do so freely without impact to operations. It is suggested that the PSO take up to 10 minutes to determine if any of the animals are breaking their current behaviour to move towards the vessel. If at any point it appears that the vessel is instead encroaching on the animals, this is not considered voluntary approach and vessel strike avoidance and source mitigation measures are put into place.

- **Multiple HRG Equipment Ramp-up (SBP, Boomer, Sparker):**

  The different pieces of HRG equipment used during survey operations operate at various frequencies and have varying operational engagements. Acoustic sources operating below 180 kHz should be “ramped up” as feasible; this means, starting the equipment at the lowest frequency and slowly increasing it over a set period (generally up to 20 minutes). Any equipment that does not have the ability to be turned on in an incremental manner should be turned on, one at a time, from the lowest to the highest operating frequency, after the incremental equipment has been brought to full power.

- **More than one species group detected at the same time:**

  Each of the detected species should be monitored on an individual timeline. If a whale and dolphin were detected in the shutdown zone during the same timeframe, the clearance time would be 30 minutes from the time the whale was last spotted and 15 minutes from the time the dolphin was last detected; clearance would be given for the latest time.

  Ex 1. whale last sighted at 15:30, dolphins last sighted at 15:49, clearance provided at 16:04.

  Ex 2. whale last sighted at 15:59, dolphins last sighted at 16:02, clearance provided at 16:29.

- **Vessel Board Lighting in Limited Visibility:**

  Monitoring the starboard side of the vessel is inhibited by bright deck lights that interfere with both night vision and unaided eye. Communication with the crew is required to allow clearance prior to light being turned on and restricting the time the light is used to prevent possible HSE issues. Passive Acoustic Monitoring will also provide a supplement to this issue.

- **Dolphin* detections during ramp up**

  It is possible to encounter dolphins approaching the vessel while the HRG equipment is in the process of attaining full power. Progressing through the ramp-up will be defined by the species of dolphin* identified to be approaching.

  Example: A pod of common bottlenose dolphins encroach on the vessel during the ramp-up process, which will not trigger a shutdown of operations. As this group was deemed to be voluntarily approaching the vessel, a shutdown is not required and the ramp up procedure should be permitted to continue without interruption.

- **Dolphin* detections during line changes**

  It is possible to encounter dolphins approaching the vessel while the vessel is completing a line change with the HRG equipment operating at reduced power. Whether the equipment can be returned to full volume upon the line start will be defined by the species of dolphin* identified to be approaching.

  Example: A pod of common bottlenose dolphins encroaching on the vessel during a line change will not trigger a delay of operations. As this particular group was deemed to be voluntarily approaching the vessel, a shutdown is not required, and the ramp up procedure should be permitted to continue without interruption.

It is important to note that the described scenarios do not always unfold as defined above and should be evaluated on a case-by-case basis, by addressing the applicable regulatory documents (ie. Lease, IHA, etc.)

* Applies to the genera ***Delphinus, Lagenorhynchus or Tursiops.*** All other species of dolphin, including unidentified dolphins (both visual and PAM detections) will not be considered under this example and will result in a shutdown.

PROTECTED SPECIES MONITORING & MITIGATION PLAN

VINEYARD MID-ATLANTIC LLC
High Resolution Geophysical Campaign 2023

Version 1
March 24 2023

VINEYARD MID-ATLANTIC LLC
HIGH RESOLUTION GEOPHYSICAL CAMPAIGN 2023

Protected Species Monitoring & Mitigation Plan

Revision		
Date	**Version**	**Revision made**
24 March 2023	V1	Draft issued to Vineyard Mid-Atlantic LLC for review

Approval for issue		
Stephanie Milne	Stephanie Milne	18 August 2022

Contents

Tables

Appendix

1 INTRODUCTION

Vineyard Mid-Atlantic LLC (Vineyard Mid-Atlantic) has contracted RPS to provide the protected species monitoring assets required to meet the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), and the Bureau of Ocean Energy Management (BOEM) monitoring and mitigation requirements during a high resolution geophysical (HRG) campaign.[1] The details of the HRG campaign were provided to BOEM in a Geophysical, Geotechnical and Environmental Site Characterization Campaign (G&G) Survey Plan, last revised July 25, 2022, and approved by BOEM on August 2, 2022.

As the proposed Vineyard Mid-Atlantic survey activities will include the use of geophysical equipment operating below 180 kHz (non-impulsive, non-parametric sub-bottom profilers (SBPs), and impulsive sparkers and boomers), a Protected Species Monitoring and Mitigation Plan (PSMMP) is required. The PSMMP outlines the sound source monitoring and mitigation, and vessel strike avoidance measures that will be implemented for marine mammals, sea turtles, and other protected species for the duration of the survey campaign.

1.1 Applicable Regulatory Documents and Permits

BOEM Lease OCS-A 0544 (Lease) requires that survey activities comply with the most current *Project Design Criteria (PDCs) and Best Management Practices (BMPs) for Protected Species Associated with Offshore Data Collection*[2] (last updated November 22, 2021), issued by BOEM in consultation with NMFS. Further, NMFS issued an Incidental Harassment Authorization (IHA) to Vineyard Northeast pursuant to Section 101(a)(5) of the Marine Mammal Protection Act (MMPA; 15 U.X.C 1371(a)(5)(D)) which is valid from July 27, 2022 through July 26, 2023[3]. This IHA specifies requirements for protection of marine mammals during HRG surveys, including adherence to PDCs 4, 5, and 7. Further, the BOEM-approved survey plan includes an Alternative Monitoring Plan (AMP) for conducting work at night or in low-visibility conditions.

This document outlines the monitoring, mitigation, and reporting procedures applicable to the HRG survey campaign, based on the requirements of the Lease, BOEM's PDCs and BMPs, NMFS IHA, and the BOEM-approved Survey Plan (inclusive of an AMP), which will hereinafter be called "Permitting Documents".

2 MARINE PROTECTED SPECIES

Marine protected species or protected species, refers to any marine species for which dedicated monitoring and mitigation procedures will be implemented, including:

- All marine mammals (whales, dolphins, seals, porpoises)
- Sea turtles
- Atlantic sturgeon
- Shortnose sturgeon
- Giant manta ray
- Smalltooth sawfish

[1] Protected species monitoring during non-HRG survey activities is addressed in a separate plan.

[2] Under this consultation, protected species are defined as threatened and endangered marine species listed under the Endangered Species Act and all marine mammals.

[3] An application for a one-year renewal of the IHA was submitted to NMFS on March 6, 2023.

3 PROTECTED SPECIES OBSERVERS

3.1 Staffing Plan

For the offshore HRG surveys, an RPS team of five Protected Species Observers (PSOs) will be on board each vessel conducting 24-hour survey operations. These personnel will undertake visual monitoring, implement mitigation, and conduct data collection and reporting in accordance with the Permitting Documents.

A minimum of one (1) PSO must be on duty, per source vessel, during daylight hours (civil sunrise to civil sunset) and two (2) PSOs will be on duty, per source vessel, during nighttime and reduced visibility, when high-resolution geophysical (HRG) equipment is in use. Sample schedules are described in Table 1 and Table 2 (PDC 7 BMP 7.4, IHA 4(a)).

For nearshore HRG surveys conducted during daytime hours only, non-independent observers may be approved. In order to be approved to act as PSOs, non-independent observers must have no duties other than marine mammal monitoring while on watch and must be trained on protected species detection and identification, vessel strike minimization procedures, and reporting requirements (IHA 5(b)).

3.2 PSO Requirements

All PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program (IHA 5(g)). PSOs will have relevant observation experience in the Atlantic. The resumes, NMFS approval letters, and certifications for proposed PSOs will be provided for submittal to NMFS for review no later than seven days prior to the scheduled start of the survey (IHA 5(a), IHA 5(c), PDC 7 BMP 1). PSO documents will be submitted to BOEM upon request (PDC 7 BMP 7.1).

During good conditions (e.g., daylight hours; Beaufort scale 3 or less) when survey equipment is not operating, to the maximum extent practicable, PSOs must conduct observations for protected species for comparison of sighting rates and behavior with and without use of active geophysical survey equipment. Any observed listed species must be recorded regardless of any mitigation actions required (IHA 5(m), PDC 4 BMP 4.13).

3.3 Roles and Responsibilities

PSOs must have no tasks other than to conduct monitoring, alert relevant vessel crew to the presence of protected species, request mitigation, and record observational data for reporting.

Lead PSO

- Coordinate and oversee PSO operations and ensure compliance with permit monitoring and mitigation conditions
- Visually monitor, detect, and identify protected species and determine distance from the location of the animal when detected to the geophysical source
- Record and report protected species sightings, survey activities, and environmental conditions according to the Permitting Documents
- Communicate with the crew to initiate mitigation actions as required by permit conditions
- Carry out onboard quality control (QC) reviews of PSO data
- Participate in daily meetings and drills with the crew when appropriate

PSO

- Visually monitor, detect, and identify protected species
- Record and report according to the Permitting Documents

- Monitor and advise on sound source and vessel operations for compliance with the environmental requirements for the Permitting Documents
- Communicate with the crew to implement mitigation actions as required by permit conditions
- Participate in daily operation meetings with crew when appropriate

4 VISUAL MONITORING METHODS

4.1 PSO General Monitoring Protocol

One NMFS approved PSO during daytime and two NMFS approved PSOs during nighttime will visually monitor permit-defined zones at all times when the vessel is away from dock, and during day and nighttime operations (PDC 7 BMP 7.4, IHA 4(a)). The following general protocols apply to all operations:

- Other than brief alerts to bridge personnel of maritime hazards and the collection of ancillary wildlife data, no additional duties may be assigned to the PSO during his/her visual monitoring shift
- PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period (IHA 5(i)).
- PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and must conduct visual observations using binoculars or night-vision equipment and the naked eye while free from distractions and in a consistent, systematic, and diligent manner (IHA 5(h)).
- Visual monitoring will begin no less than 30 minutes prior to the initiation of the SBPs, boomers and sparkers, and must continue until 30 minutes after use of SBPs, boomers and sparkers (IHA 4(b)).
- If a protected species is observed, the PSO should first initiate any necessary mitigation actions. If no mitigation actions are required, they will note and monitor the latitude/longitude of the vessel and relative bearing and estimated range to the animal, until the animal dives or moves out of visual range of the observer.

4.2 Daytime Monitoring During Reduced Visibility

In order for geophysical surveys to be conducted at night or during low-visibility conditions, PSOs must be able to effectively monitor 500 meters around the acoustic source (PDC 4 BMP 4.7).

During these periods, all requirements surrounding monitoring durations and break periods will be adhered to. Additionally, no PSO will conduct additional monitoring shifts. This is to ensure that they have a sufficiently long break with at least 8 hours of uninterrupted sleep.

The PSO team and vessel / survey crew will work together to co-ordinate monitoring to the best of their abilities to minimize any operational downtime during daytime periods of reduced visibility.

4.2.1 Daytime monitoring equipment

The PSO on duty will monitor for marine protected species using the naked eye and hand-held reticle binoculars (at least one per PSO, plus backups). Reticle binoculars have the capability to accurately determine the distance and bearing to observed marine mammals (IHA 5(k)).

Digital single-lens reflex (DSLR) camera equipment including digital cameras with a telephoto lens that is at least 300 mm or equivalent on a full-frame DSLR (at least one plus backups) will be provided to record sightings and verify species identification. The camera or lens must also have an image stabilization system (IHA 5(k)(iv)).

Additionally, PSOs will have access to Global Positioning System (GPS), compasses and means of communication with vessel crew (IHA 5(k)).

4.3 Nighttime Monitoring

If survey operations are conducted at night, the PSOs will use night vision goggles and at least one thermal (infrared) imaging device suited for the marine environment (IHA 5(k)(i), PDC 4 BMP 4.7.2, Alternative Monitoring Plan).

4.3.1 Nighttime monitoring equipment

The PSOs on duty will monitor for marine protected species using Morovision PVS-7 Gen 3 PINNACLE night vision goggles with a thermal acquisition clip-on system and handheld infrared light emitting diode spotlights so PSOs can focus observations in any direction.

At night, if reticles cannot be used to localize a detection, distance to detected animals will be determined using range finder sticks or by comparing the location of the animal to known distances, such as the length of the vessel.

4.4 Visual Monitoring Equipment Calibration

Monitoring equipment will be calibrated, when possible, throughout the duration of survey at least once a week using the vessel radar, by comparing estimated distances to known distances and will be conducted during varying sea states and both at night and during the day.

5 PROPOSED MONITORING SCHEDULES FOR 24-HOUR OPERATIONS

Table 1: Monitoring Schedule

LOCAL TIME	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
20:00				PSO	PSO
21:00	PSO			PSO	
22:00	PSO			PSO	
23:00	PSO	PSO			
00:00	PSO	PSO			
01:00		PSO	PSO		
02:00		PSO	PSO		
03:00	PSO		PSO		
04:00	PSO		PSO		
05:00	PSO	PSO			
06:00		PSO			
07:00		PSO			
08:00			PSO		
09:00			PSO		
10:00			PSO		
11:00					PSO
12:00					PSO
13:00				PSO	
14:00				PSO	
15:00				PSO	
16:00				PSO	
17:00					PSO
18:00					PSO
19:00					PSO
Monitoring Hours	7	7	7	7	6
Sleep Break	15	15	14	14	14

*The monitoring schedule is inclusive of monitoring for vessel strike avoidance and source mitigation purposes

Table 2: Monitoring Schedule during fog

LOCAL TIME	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
20:00				PSO	PSO
21:00	PSO			PSO	
22:00	PSO			PSO	
23:00	PSO	PSO			
00:00	PSO	PSO			
01:00		PSO	PSO		
02:00		PSO	PSO		
03:00	PSO		PSO		
04:00	PSO		PSO		
05:00	PSO	PSO			
06:00		PSO			FOG
07:00		PSO			FOG
08:00			PSO		FOG
09:00			PSO	FOG	
10:00			PSO	FOG	
11:00		FOG			PSO
12:00		FOG			PSO
13:00			FOG	PSO	
14:00			FOG	PSO	
15:00			FOG	PSO	
16:00	FOG			PSO	
17:00	FOG				PSO
18:00	FOG				PSO
19:00				FOG	PSO
Fog Monitoring Hours	10	9	10	10	9
Sleep Break	10	10	9	10	9

*The monitoring schedule is inclusive of monitoring for vessel strike avoidance and source mitigation purposes

6 VESSEL STRIKE AVOIDANCE ON HRG VESSELS

6.1 North Atlantic Right Whale (NARW) Monitoring Notification Systems

The PSO team will monitor NMFS's North Atlantic Right Whale (NARW) reporting system and Whale Alert, daily and as able, for the presence of NARWs before and throughout survey operations within or adjacent to the Seasonal Management Area (SMA), Slow Zones, and any established Dynamic Management Areas (DMAs) (IHA 5(n), PDC 5 BMP 5.6).

https://www.nefsc.noaa.gov/psb/surveys/MapperiframeWithText.html

http://www.whalealert.org/

6.2 Vessel Speed Restriction

Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel (IHA 4(f), PDC 5).

All survey vessels, regardless of size, must observe a 10-knot speed restriction in any Dynamic Management Area (DMA), Seasonal Management Area (SMA), or Slow Zone. The only exception to this requirement is for vessels operating in areas within a DMA/visually triggered Slow Zone where it is not reasonable to expect the presence of North Atlantic right whales (e.g., Long Island Sound, shallow harbors) (IHA 4(f)(ii), PDC 5 BMP 5.4).

https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales

6.3 Separation Distances

A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel. Visual observers may be third-party observers or crew members with sufficient training (IHA 4(f)(i), PDC 5 BMP 5.3.1).

When a marine mammal is sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance (e.g., attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area, reduce speed and shift the engine to neutral) (IHA 4(f)(vii)).

The presence of a single Individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised (PDC 5 BMP 5.1).

The vessel operator must reduce vessel speed to 10 knots or less when any mother/calf pairs, pods, or large assemblages of marine mammals are observed near a vessel (IHA 4(f)(iii)).

Vessels underway must not divert their course to approach any listed species (PDC 5 BMP 5.3.3).

6.3.1 ESA-Listed Whales and Unidentified Whales

All survey vessels will maintain a separation distance of 500 meters or greater from any sighted NARW, ESA-listed whale (Table 3), or any unidentified large marine mammal (IHA 4(f)(iv), PDC 5 BMP 5.2.3).

- If underway, the vessel must steer a course away from any sighted unidentified or ESA-listed whale at 10 knots or less until the 500-meter minimum separation distance has been established. The vessel may also shift to idle if feasible (PDC 5 BMP 5.2.4, IHA 4(f)(iv)).
- If sighted in a vessel's path or within 200 meters to an underway vessel, reduce speed and shift the engines to neutral until the unidentified or ESA-listed whale has moved beyond 500 meters and out of the vessel's path, then re-engage engines and steer away at 10 knots or less (PDC 5 BMP 5.2.4).
- If stationary, the vessel must not engage engines until the unidentified or ESA-listed whale has moved beyond 500 meters, at which point the vessel must steer a course away from the unidentified or ESA-listed whale at 10 knots or less, maintaining the 500-meter separation distance (PDC 5 BMP 5.2.5).
- If a whale is observed but the species cannot be confirmed as being other than an ESA-listed whale, it must be assumed to be an ESA-listed whale and all applicable strike avoidance procedures implemented (IHA 4(f)(iv)).

6.3.2 Non-ESA Listed Whales

All vessels will maintain a separation distance of 200 meters or greater from any sighted non-listed non-delphinoid cetacean (i.e., humpback whales, minke whales) (IHA 4(f)(v), PDC 5 BMP 5.2.5).

- If sighted within 200 meters to an underway vessel, reduce speed and shift the engine to neutral until the animal has moved outside of the vessel's path and beyond 200 meters.
- If the vessel is stationary, the vessel must not engage engines until the non-listed non-delphinoid cetacean has moved out of the vessel's path and beyond 200 meters.

6.3.3 Delphinoid Cetaceans and Pinnipeds

All vessels will maintain a separation distance of 50 meters (as feasible) or greater from any sighted delphinoid cetacean or pinniped (IHA 4(f)(vi)).

- Vessels should not divert to approach delphinoid cetaceans or pinnipeds.
- Underway vessels will remain parallel to a sighted pinniped or delphinoid cetacean's course whenever possible and avoid excessive speed or abrupt changes in direction to avoid injury to the animal.

6.3.4 Sea Turtles and Giant Manta Ray

- If a sea turtle or manta ray is sighted within the operating vessel's forward path **at any distance**, the vessel must slow down to 4 knots (unless unsafe to do so) and steer away as possible. The vessel may resume normal operations once the vessel has passed the individual (PDC 5 BMP 5.2.6).
- During times of year when sea turtles are known to occur in the survey area, vessels must avoid transiting through areas of visible jellyfish aggregations or floating vegetation (e.g., sargassum lines or mats). In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas (PDC 5 BMP 5.2.7).

6.3.5 Sturgeon sp. and Sawfish

Vessels operating in water depths with less than 4 ft. clearance between the vessel and the bottom should maintain speeds no greater than 4 knots to minimize vessel strike risk to sturgeon and sawfish (PDC 5 BMP 5.2.8)

Table 3 ESA-listed species that may be affected by survey activities

ESA-Listed Cetaceans	ESA-Listed Sea Turtles	ESA-Listed Fish
North Atlantic right whale	Loggerhead turtle	Atlantic sturgeon
Blue whale	Green turtle	Giant manta ray
Fin whale	Kemp's ridley turtle	Shortnose sturgeon
Sei whale	Leatherback turtle	Smalltooth sawfish
Sperm whale	Hawksbill turtle	

7 SOUND EXPOSURE PROCEDURES

7.1 Survey Equipment Subject to Monitoring and Mitigation Procedures

Impulsive equipment that produces sound below 180 kHz (non-impulsive, non-parametric sub-bottom profilers (SBPs), boomers and sparkers) are subject to the following monitoring and mitigation protocols (PDC 4).

The acoustic source must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the source shall be avoided (IHA 3(e)).

Both testing and operations of HRG equipment should be limited to the Lease Area, Cable Corridor, and while the vessel is alongside in port.

At times when multiple survey vessels are operating within a lease area, adjacent lease area, or exploratory cable routes, a minimum separation distance of 1 kilometer must be maintained between survey vessels to ensure that sound sources do not overlap (PDC 4 BMP 4.10).

7.2 Sound Source Monitoring and Mitigation Zones

PSOs must establish and monitor four types of zones around Vineyard Mid-Atlantic survey equipment operating below 180 kHz (SBPs, boomers and sparkers). Shutdown Zones (SZ), sometimes referred to as Exclusion Zones (EZ), are based upon the radial distance from the acoustic sources (rather than being based around the vessel itself) (IHA 4(c)). For the purposes of sound exposure mitigation, these zones are established around the survey equipment and not around the vessel itself.

Monitoring Zone (MZ) / Minimum Visibility Zone: For situational awareness, PSOs must establish and monitor a distance of **500 meters** (in all directions) around all vessels operating sources <180 kHz (PDC 4 BMP 4.1). If the 500-meter area cannot be adequately **visually** monitored for ESA-listed species presence (i.e., a PSO determines conditions, including at night or other low-visibility conditions, are such that listed species cannot be reliably sighted within this area), no equipment operating at <180 kHz can be deployed and no surveying may occur until such a time that the area cannot be reliably monitored (PDC 4 BMP 4.2.3, PDC 4 BMP 4.7).

Clearance Zones (CZ): Applicable during the 30-minute pre-clearance search periods conducted prior to initiating the relevant acoustic sources from silence and continuing until 30 minutes after the use of specified acoustic sources cease (IHA 4(b)). Detections of a protected species inside the applicable CZ during the search will result in a delay to operations. Impulsive equipment operating below 180 kHz must not be initiated until an additional time period (described in Section 7.4) has elapsed with no further sighting of the animal.

- **500 meters:** All ESA-listed species, inclusive of sea turtles (IHA Table 3, PDC 4 BMP 4.1)
- **100 meters:** All other cetaceans and pinnipeds (IHA Table 3)

Shutdown Zone (SZ): Once the low frequency (LF) sound sources have been activated, detections of a protected species inside it's applicable SZs will result in a shutdown of **boomer and sparker equipment** (PDC 4 BMP 4.2). SBPs may remain active and are not subject to shutdown procedures.

- **500 meters:** North-Atlantic right whales
- **100 meters**: All other ESA-listed species, inclusive of sea turtles (PDC 4 BMP 4.2)
- **100 meters**: All other marine mammals with the exception of pinnipeds or small delphinid(s) from the genera ***Delphinus, Lagenorhynchus, Stenella or Tursiops*** that voluntarily approach the vessel. For voluntarily approaching delphinids listed above, shutdown is not required. PSOs must use best professional judgment in making the decision to call for a shutdown (IHA 4(e)(iv), PDC 5 BMP 5.1)

Although mitigation will be applied for animals detected in the aforementioned zones, observations will extend to the furthest observable distances.

Table 4 Distances for Clearance, Vessel Separation and Shutdown Zones in meters per species (IHA Table 3)

<table>
<tr><th>Species</th><th>ESA-listed?</th><th>Clearance Zone (m)</th><th>Vessel Separation Zone (m)</th><th>Shutdown Zone (m)</th></tr>
<tr><td>North Atlantic right whale</td><td rowspan="5">Yes</td><td rowspan="5">500</td><td rowspan="5">500</td><td>500</td></tr>
<tr><td>Blue whale</td><td rowspan="11">100</td></tr>
<tr><td>Fin whale</td></tr>
<tr><td>Sei whale</td></tr>
<tr><td>Sperm whale</td></tr>
<tr><td>Humpback whale</td><td rowspan="14">No</td><td rowspan="14">100</td><td rowspan="2">200</td></tr>
<tr><td>Minke whale</td></tr>
<tr><td>Killer whale</td><td rowspan="12">50
(as feasible)</td></tr>
<tr><td>False killer whale</td></tr>
<tr><td>Long-finned pilot whale</td></tr>
<tr><td>Risso's dolphin</td></tr>
<tr><td>Harbor porpoise</td></tr>
<tr><td>Gray seal</td><td rowspan="7">Not required for Voluntary Approach (IHA 4(e)(iv))</td></tr>
<tr><td>Harbor seal</td></tr>
<tr><td>Atlantic white-sided dolphin</td></tr>
<tr><td>Atlantic spotted dolphin</td></tr>
<tr><td>Common bottlenose dolphin (coastal and offshore stocks)</td></tr>
<tr><td>Common dolphin</td></tr>
<tr><td>White-beaked dolphin</td></tr>
<tr><td>All sea turtle species</td><td>Yes</td><td>500</td><td>Any Distance</td><td>100</td></tr>
</table>

Level B Harassment Zones (HZ): Shutdown of acoustic sources is required upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met entering or within the Level B harassment zone (IHA 4(e)(vi)).

Table 5 Level B Harassment Zones per Sounds Source

Equipment	Distance to Level B harassment threshold (m)
ET 216 CHIRP	4
GeoMarine Geo Sparker	141
Applied Acoustics AA 251 Boomer	178

7.3 Visual Search Periods

To activate the SBPs, boomers and sparkers from silence, a minimum of a 30-minute search period must be conducted, with equipment operators notifying the designated PSO no less than 60 minutes prior to the planned ramp-up time (IHA 4(d)(i)). SBPs, boomers and sparkers will not be activated until the protected species observer has reported the pre-clearance zones (CZ) clear of all cetaceans, sea turtles, and pinnipeds for 30 minutes (IHA 4(d), PDC 4 BMP 4.3). The visual search period may begin when PSOs can see to the outermost CZ (500 meters) from the geophysical source.

During nighttime the search must be conducted visually by the PSOs using night vision and thermal equipment.

7.4 Delays to Initiation of SBPs, Boomers, and Sparkers

Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zone (IHA 4(d)(iv)).

The Lessee must ensure that the sound source is not activated until the PSO has reported the pre-clearance zones (CZ) clear of all cetaceans, pinnipeds, and sea turtles for 30 minutes, inclusive of dolphins that voluntarily approach the vessel. If any marine mammal or sea turtle was detected visually inside its respective CZ during the 30-minute search period, initiation of the survey equipment (SBPs, boomers and sparkers) must be delayed until (IHA 4(d)(vi), PDC 4 BMP 4.3):

- The animals have been observed exiting the zones

  OR

- An additional time period has elapsed with no further sightings
  - 15 minutes for small odontocetes and seals
  - 30 minutes for all other cetaceans and sea turtles

Both the 30-minute pre-clearance search period and the mandatory delay for animals observed within the CZ must be complete before source initiation.

7.5 Ramp-Up Procedure

The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time must not be less than 60 minutes prior to the planned ramp-up to allow the PSOs time to monitor the Shutdown Zones for 30 minutes prior to the initiation of ramp-up (pre-start clearance). (IHA 4(d)(i)).

A PSO conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO that the Shutdown Zone is clear prior to proceeding (IHA 4(d)(iii)).

Ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source, when technically feasible. Ramp-up will begin with the power for the geophysical survey ramped up half power for 7 minutes, and then to full power.(PDC 4 BMP 4.5). A 30-minute pre-start clearance observation period must occur prior to the start of ramp-up (or initiation of source use if ramp-up is not technically feasible) and continue during the ramp-up (IHA 4(d)).

Ramp-ups shall be scheduled to minimize the time spent with the source activated (IHA 4(d)(ii)).

Ramp-up must not be initiated if any marine mammal is within the applicable Shutdown Zone. If a marine mammal is observed within the applicable Shutdown Zone during the 30-minute pre-start clearance period, PSOs should implement a delay to the initiation of source initiation as outlined in section 7.4.

Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid nighttime activation (IHA 4(d)(viii)).

7.6 Short Breaks in HRG Sourcing Operations

In recognition of occasional short periods of silence for a variety of reasons other than encroachment into the shutdown zone by a non-delphinoid cetacean or sea turtle, including, but not limited to, mechanical or electronic failure, the SBPs, boomers and sparkers may be silenced for periods of time not exceeding 30 minutes in duration and may be restarted for operations at its operational level if (IHA 4(d)(ix), PDC 4 BMP 4.6):

1. Visual monitoring by PSOs is continued diligently through the silent period (during visual surveys, the SZ must remain visible throughout the silent period) (IHA 4(d)(ix))

   AND

2. No marine protected species are observed in the applicable SZ during the silent period (IHA4(d)(ix))

If protected species are observed in the applicable SZ during the silent period:

   a. Restart may happen immediately without a ramp-up if the animal is seen entering the exiting the SZ (IHA 4(e)(v))
   b. A clearance period and ramp-up must occur if marine protected species are seen entering the applicable SZ, but are not observed exiting the SZ (IHA 4(e)(v))
      i. Harbor porpoises – 15-minute clearance period
      ii. All other species – 30- minute clearance period

For a shutdown of 30 minutes or longer, or if visual surveys were not continued diligently during the pause of 30-minutes or less, the PSOs must restart the pre-clearance search period procedures outlined in Section 7.2. Acoustic sources can be activated using the full ramp-up procedure after PSOs report that the CZ are free of all cetaceans, pinnipeds and sea turtles for 30 minutes (PDC 4 BMP 5).

7.7 Shutdown Procedures

Any PSO on duty has the authority to call for a shutdown of the acoustic source if a marine mammal is detected within the applicable Shutdown Zone (IHA 4(e)(i)).

The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed and implemented swiftly while allowing PSOs to maintain watch (IHA 4(e)(ii)).

If a protected species is detected within or entering the applicable Shutdown Zone, an immediate shutdown of the acoustic sources operating below 180 kHz is required, EXCEPT if it is a pinniped or delphinid(s) from the genera ***Delphinus, Lagenorhynchus, Stenella or Tursiops*** (IHA 4(e)(iv)(A), PDC 5 BMP 1)***.*** The vessel operator must comply immediately with the initiation of mitigation by the observer. Any disagreement should be discussed only after shutdown (PCD 4 BMP 2(b)(i), IHA 4(e)(iii)).

<u>Subsequent restart of the survey equipment must use the ramp-up provisions described in Section 7.5 and may only occur following clearance of the SZ of all protected species, except harbor porpoise following a 30-minute pre-clearance watch and ramp-up as described in Sections 7.3 and 7.5. For harbor porpoise, ramp-up can occur after a 15-minute pre-clearance watch (IHA 4(e)(v)).</u>

8 REPORTING

Reporting will be conducted as described below.

8.1 Data Forms

PSOs will utilize standardized data forms that have been provided to, and approved by, BOEM and NMFS. These forms will contain, at minimum, all of the data elements listed below, and data will be recorded in the field daily.

Project Information

- Project Name
- Lease Number
- State Coastal Zones
- Survey Contractor
- Vessel Name(s)
- Maximum Vessel Speed
- Other vessels associated with the survey
- Survey Type (typically HRG)
- Reporting start and end dates
- Visual monitoring equipment used (e.g., bionics, magnification, IR cameras, etc.)
- Distance finding method used
- PSO names (last, first) and training
- Date of PSO Briefing
- Observation height above sea surface

Operations Information

- Vessel name(s)
- HRG equipment type, power levels, and frequencies used
- Greatest RMS source Level
- Vessel location at 30-second intervals

Monitoring Effort Information

- Date (YYYY-MM-DD)
- HRG equipment (ON/OFF)
- If visual, how many PSOs on watch at one time?
- PSOs (Last, First) & affiliations
- PSO watch location
- Start time and latitude/longitude (decimal degrees) of observations
- End time and latitude/longitude (decimal degrees) of observations
- Watch occurred during Day or Night
- Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change
- Duration of visual observation
- Environmental conditions at beginning and end of PSO shift and whenever conditions change significantly
  - Wind speed (knots), from direction
  - Swell (meters)
  - Sea state (glassy, slight, choppy, rough, or Beaufort scale)
  - Water depth (meters)
  - Visibility (km)
  - Glare severity

- Cloud coverage (%)

- Block name and number
- Location: Latitude and Longitude
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Duration of pre-clearance visual monitoring
- Was pre-clearance conducted during day or night?
- Time power up/ramp up began
- Time equipment full power was reached
- Duration of power up/ramp up
- Time survey activity began (equipment on)
- Time survey activity ended (equipment off)
- Survey Duration
- Did a shutdown/power down occur?
- Time shutdown was called for (UTC)
- Time equipment was shutdown (UTC)
- Dates of departures and returns to port with port name
- Inhibiting factors of observations (e.g., vessel traffic)
- Habitat or prey observations
- Marine debris sighted

Detection Information

- Date (YYYY-MM-DD)
- Sighting ID (V01, V02, or sequential sighting number for that day) (multiple sightings of same animal or group should use the same ID)
- Date and time at first detection in UTC (YY-MM-DDT HH:MM)
- Time at last detection in UTC (YY-MM-DDT HH:MM)
- PSO name(s) (Last, First)
- Sighting Cue
- Latitude (decimal degrees dd.ddddd), longitude (decimal degrees dd.ddddd) dd.ddddd), longitude (decimal degrees dd.ddddd)
- Compass heading of vessel (degrees)
- Water depth (meters)
- Swell height (meters)
- Beaufort scale
- Precipitation
- Visibility (km)
- Cloud coverage (%)
- Glare
- Species including common name, scientific name, or family
- Certainty of identification
- Number of adults
- Number of juveniles
- Total number of animals
- Bearing to animal(s) when first detected (ship heading + clock face)
- Range from vessel (reticle distance in meters)

- Description (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to survey activity and distance from vessel)
- Direction of travel/first approach (relative to vessel)
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- Pace of animal
- If any bow-riding behavior observed, record total duration during detection (HH:MM)
- Initial heading of animal(s) (degrees)
- Final heading of animal(s) (degrees)
- HRG equipment activity at initial detection
- Equipment type operating during detection
- HRG equipment activity at final detection (on or off)
- Shutdown zone size during detection (meters)
- Was the animal inside the Shutdown zone?
- Closest distance to vessel (reticle distance in meters)
- Closest distance to source
- Time at closest approach (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)
- If observed/detected during ramp up/power up: first distance (reticle distance in meters), closest distance (reticle distance in meters), last distance (reticle distance in meters), behavior at final detection
- Shut-down or power-down occurrences
- Time shutdown was called for (UTC)
- Time equipment was shutdown (UTC)
- Detections with IR? (Y/N)
- Watch Status (sighting made by PSO on watch, opportunistic, crew)
- Documentation of whether the marine mammal was estimated to have been within 141 meters of active survey equipment
- Documentation of the number of marine mammals per sighting that were estimated to have been within 141 meters of active survey equipment
- Equipment operating during detection

8.2 Reporting NARW Sightings

The Lead PSO will report any sightings of NARW using the designated form. The report will be sent to the Vineyard Mid-Atlantic Environmental Project Manager and the RPS Project Manager immediately. The PSO team will make every effort to photograph and document all relevant information associated with the sighting.

The Vineyard Mid-Atlantic Environmental Project Manager will report the NARW to the NMFS NARW Sighting Advisory System: (866) 755-6622 within two hours of occurrence, when practicable, or no later than 24 hours after occurrence (IHA 6(d)(i)). Additionally, vessel Captains shall inform the United States Coast Guard of the sighting via Channel 16 (IHA 6(d), PCD 8 BMP 8.4.1).

Survey activities using HRG equipment operating at or below 180 kHz are prohibited from January 1 through May 15 within the North Atlantic right whale SMA in Cape Cod Bay (IHA 4(g)).

8.3 Injured/Dead Protected Species, Bird and Bat Reporting

The Lead PSO will report any injured or dead protected species, bird and bat detections using the designated form. The report will be sent to the Vineyard Mid-Atlantic Environmental Project Manager and the RPS Project Manager immediately. The PSO team will make every effort to photograph and document all relevant information associated with the sighting.

Sighting of Injured or Dead Protected Species:

The Vineyard Mid-Atlantic Environmental Project Manager will report the injured or dead animal to BOEM, NMFS, and NMFS Northeast Region's Stranding Hotline by phone (866) 755-6622 and email as soon as feasible, but not later than 24 hours after the sighting, regardless of whether the injury or death is caused by a vessel (IHA 6(e)(i), PDC 8 BMP 8.5).

Injured or Dead Protected Species- Vessel Strike:

In the event that the injury or death was caused by a collision with a project-related vessel, the vessel must assist in any salvage efforts as requested by NMFS. If the injury or death was caused by a collision with a project-related vessel, Vineyard Mid-Atlantic must ensure that BOEM and NMFS are notified of the strike within 24 hours.

The Vineyard Mid-Atlantic Environmental Project Manager will report the injured or dead animal to NMFS, the New England/Mid-Atlantic Regional Stranding Coordinator and BOEM as soon as feasible, but not later than 24 hours after the sighting, regardless of whether the injury or death is caused by a vessel (IHA 6(e)(ii), PDC 8 BMP 4).

Unless otherwise directed by BOEM, NOAA Fisheries, or NOAA, the dead or injured marine mammal or sea turtle SHOULD NOT be touched! Dead and injured marine mammals and sea turtles are still protected by the ESA and the MMPA and touching the animals in any manner is considered harassment and is punishable by law.

Any deceased birds should not be disposed of until a positive ID has been confirmed unless informed otherwise by your project manager.

8.4 Reporting Potential Takes of Protected Species

RPS will track the exposures from each individual vessel as well as the cumulative exposure totals for the survey on a daily basis. Exposure numbers will be calculated and documented in the RPS Data Form and updated/included in the daily report that is distributed to the client, identifying the remaining number of exposures.

The combined exposures specific to the HRG surveys associated with Lease OCS-A 0522 and OCS-A 0544 are outlined in Table 6 per the IHA.

Table 6 Level B Harassment Take Numbers per Species (IHA Table 1)

Common Name	Level B harassment takes
North Atlantic right whale	40
Blue whale	1
Fin whale	77
Sei whale	5
Minke whale	42
Humpback whale	47
Sperm whale	12
Killer whale	2
False killer whale	5
Atlantic white-sided dolphin	1,124

Atlantic spotted dolphin	29
Common bottlenose dolphin (Offshore)	569
Common bottlenose dolphin (Migratory)	151
Common dolphin (short-beaked)	13,904
Risso's dolphin	101
White-beaked dolphin	30
Long-finned pilot whale	405
Harbor porpoise	2,033
Gray seal	418
Harbor seal	939

8.5 Daily Progress Report

A daily detection spreadsheet will be completed and submitted to the Party Chief, onboard client representative, Vineyard Mid-Atlantic Environmental Project Manager and RPS Project Manager. If there were no detections that day, the Lead PSO will email the distribution list noting that there were no detections on that day. The Daily Progress Report will not serve as a notification to Vineyard Mid-Atlantic of any urgent matters such as those listed in Section 8.2, 8.3 and 8.4 above.

8.6 Monthly Reporting

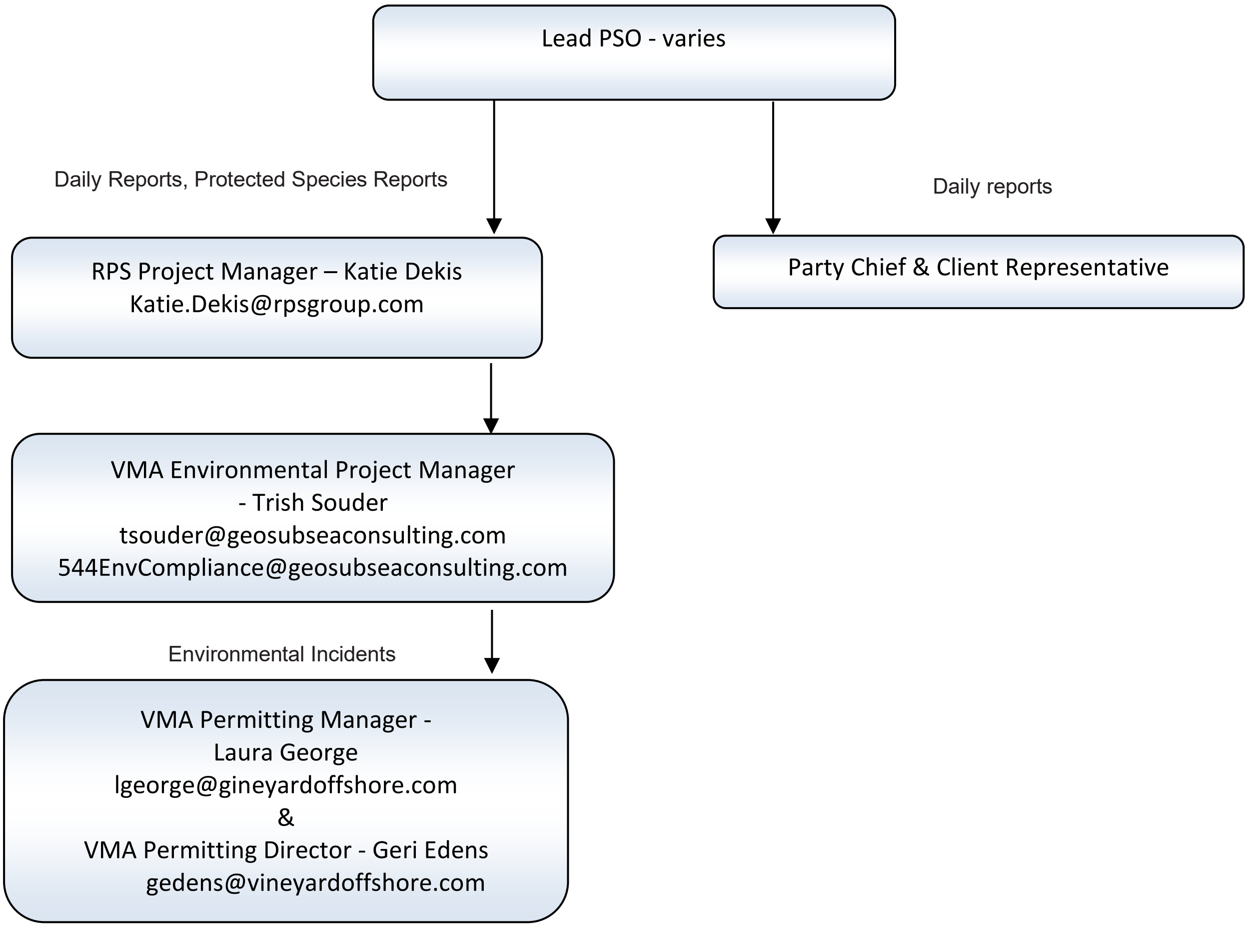
PSO data collection will be collated monthly starting on the 1st and ending on the last day of the month. These datasheets will be submitted to Geo SubSea monthly, by the 6th of the following month. Geo SubSea will return datasheets to RPS by the 12th, for review and submission to BOEM on the 15th of the month.

Final Report

The PSO team will develop a final report summarizing the survey activities and all PSO observations. One combined final report will be prepared for all of the geophysical vessels conducting operations in 2023. The RPS Project Manager will provide the finalized report to the Vineyard Mid-Atlantic Environmental Project Manager within 30 days of project completion for review.

The RPS Project Manager will submit the final report to Vineyard Mid-Atlantic for review. If BOEM or NMFS reporting is required, Vineyard Mid-Atlantic will be responsible for submitting the final report to BOEM and NMFS or may instruct RPS to make the submittal on their behalf 90 days after completing survey activities.

9 COMMUNICATION FLOW CHART



10 RESOURCES

BOEM Lease OCS-A 0544

NMFS Programmatic Consultation – Dated June 29, 2021, updated September 30, 2021.

NMFS Incidental Harassment Authorization – Dated July 27, 2022

Vineyard Mid-Atlantic Survey Plan, including Alternative Monitoring Plan, dated August 4, 2022.

APPENDIX E

Atlantic Reference Guide (Species Identification)

Thomas A. Jefferson Marc A. Webber Robert L. Pitman

Marine Mammals of the World

A Comprehensive Guide to their Identification

Illustrations by Brett Jarrett

Preface and Acknowledgments

This book represents the latest stage in an ongoing attempt to produce materials that will allow people to more easily identify marine mammals that they may come across during trips to sea, while walking on the beach, or when visiting a museum or other research collection. It is fair to say that this effort grew out of a passion and talent for preparing useful marine mammal identification guides by the late Stephen Leatherwood, a colleague and dear friend to all three of us. Steve (along with co-authors Randy Reeves, Bill Perrin, Bill Evans, Brent Stewart, and several others) had already prepared a number of well-received regional and global field guides on cetacean and marine mammal identification by the time that we first became involved in the effort.

Around 1990, Steve pulled Tom and Marc into a project to produce the world's first guide to identification of all marine mammals of the world, the FAO guide *Marine Mammals of the World* (published as Jefferson et al. 1993). Although we were not entirely happy with how that guide turned-out, many of our colleagues told us the book was very helpful to them, and we continued to get requests for copies for some years after it went out-of-print. It was even used as a text book for some university classes on marine mammal biology.

As the FAO guide neared its ten-year anniversary, we began to realize that it was badly out-of-date, and there was a clear need to prepare a replacement that both updated the archaic species classification system of the FAO guide, and expanded upon those features that others found useful in the guide. Sadly, the 'father' of this entire effort, Steve Leatherwood, had passed away of lymphoma in early 1997. Although we felt reluctant to do another field guide without Steve, some of our colleagues were urging us to update the FAO guide. Eventually, we decided not just to update the FAO guide, but to produce a much more useful and complete guide to identify marine mammals of the world. To help us in the effort to produce a better marine mammal identification guide, we asked Bob to come onboard. Once Academic Press agreed to publish the book, we set-about the task of writing and brought in Brett Jarrett to paint the illustrations.

It is important to realize that we do not see this book as an end-product. We hope to periodically produce new editions of the book, each one updated and improved over the last version. This is necessary, as marine mammal taxonomy is constantly evolving (and doing so very fast in the last few years, as we move from a history of "lumping" back towards "splitting"), and we are always learning more about the species represented. Further to this effort, we would ask readers and users of the book to contact us with any suggestions for changes in the next edition, including any suggestions for better photos. We especially welcome anyone pointing-out any errors, inaccuracies, or inconsistencies that we may have made. Rest assured that your criticisms will not fall on deaf ears, but will help us to improve any future versions.

A book like this cannot be completed without the assistance of a large number of people. First, we would like to thank our editors and colleagues at Academic Press/Elsevier: Phil Carpenter, Dave Cella, Chuck Crumly, Claire Hutchins, Kelly Sonnack, Andy Richford, and Rogue Shindler, for their patience and guidance over the years during this long process. We are also extremely grateful to Emma Powell, who helped us in editing and proofing the pages.

We are very grateful to the many people who sent us photographs for possible inclusion in the book. Their efforts and generosity were integral in assembling what we think is the best and most complete set of marine mammal identification photographs ever compiled. Thanks to the following for sending us photographs for consideration: G. Abel, K. Abernathy, N. Aguilar de Soto, D. Allen, M. Amano, R. C. Anderson, T. Aquino, A. Augé, R. W. Baird, R. Baldwin, L. T. Ballance, A. Bannister/IFAW, N. B. Barros, R. Bastida, G. Bearzi, I. Beasley, B. Becker/

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Thomas A. Jefferson
San Diego, California
sclymene@aol.com

Marc W. Webber
Columbus, Indiana
marcwebber@sbcglobal.net

Robert L. Pitman
La Jolla, California
robert.pitman@noaa.gov

1. Introduction

The Need for This Guide

Interest in wildlife in general, and marine mammals in particular, has increased significantly in recent years, both in the general public and in the scientific and management communities. More people than ever are including wildlife watching in their activities, and this includes educational and adventure expeditions to see wild marine mammals up close. At the same time, there is increasing awareness of the integral importance of marine mammals to healthy aquatic ecosystems, and of the growing threats that a variety of human activities pose to these animals and their environments. Research and education programs are seeking to better understand and more clearly communicate the nature of these threats and appropriate steps to reduce or eliminate their impacts.

Good identification guides are integral to all these activities. Although there are many guides to limited geographical areas and some subsets of the world's marine mammal fauna, there are few comprehensive guides that cover all the world's whales, dolphins, porpoises, seals, sea lions, walruses, manatees, dugongs, marine and sea otters, and polar bears. Additionally, few of the existing guides provide special aids to identifying live animals, in-hand specimens, and skulls. This identification guide, compiled after several years of work by the authors and illustrators, is intended as a significant step toward filling that need.

We have attempted to make this volume as complete, comprehensive, and up-to-date as possible. However, we are aware that it is limited by the differences in the amount and quality of information available on the various groups, as well as by the inadequacies of our approach towards representing what is available. Therefore, we prefer to think of this as somewhat of a starting point, to be improved by input from those who use it in the field and lab. Future editions (assuming that there will be future editions, which is mainly determined by how well this one sells) will be modified to correct errors and deficiencies revealed by extensive use. In the mean time, we hope this book helps both amateurs and professionals with the sometimes-difficult task of positively identifying species of marine mammals they see alive or encounter dead.

Most biologists use the term 'marine mammal' to include members of five different mammalian groups: cetaceans (whales, dolphins, and porpoises), pinnipeds (seals, sea lions, and walruses), sirenians (manatees, dugongs, and sea cows), marine and sea otters, and the polar bear. These diverse groups are currently thought to represent five or six different recolonizations of the water by land-dwelling ancestors. The term marine mammal, therefore, implies no systematic or taxonomic relationship. In fact, the cetaceans are more closely related to camels and hippos than they are to other marine mammals, the pinnipeds have more in common with bears and weasels, and the sirenians are more closely allied to elephants and hyraxes. These differences not withstanding, however, all marine mammals have one thing in common—they derive all (or most) of their food from marine (or sometimes fresh) water.

All marine mammals have undergone major adaptations, which permit them to live in the water. The cetaceans and sirenians spend their entire lives in the water, while other marine mammals come ashore for various reasons, at particular times in their life cycle (most commonly to reproduce, molt, or rest). Major structural modifications to the bodies of cetaceans, sirenians, and pinnipeds involve the loss of hind limbs (e.g., cetaceans and sirenians), the adaptation of limbs for propulsion through water (e.g., pinnipeds), and the general streamlining of the body for hydrodynamic efficiency (all three groups). Structural modifications to the marine and sea otters and the polar bear by a marine existence are less apparent in body form; these animals in most ways still closely resemble their terrestrial counterparts.

Like its predecessor (Jefferson et al. 1993), since this is an identification guide, we include mainly information useful for identifying marine mammal species. For good introductions to the biology of mammals in general, see Gould and McKay (1990) and Macdonald (1984). More detail specifically on the biology of marine mammals can be found for cetaceans in Leatherwood and Reeves (1983), Evans (1987), Harrison and Bryden (1988), and Martin (1990); for pinnipeds in King (1983), Bonner (1990), Riedman (1990a), and Reeves et al. (1992); for sirenians in Reynolds and Odell (1991) and Reeves et al. (1992); for marine and sea otters in Riedman (1990b) and Reeves et al. (1992); and for polar bears in Stirling (1988) and Reeves et al. (1992). The best sources for basic information on the biology and phylogeny of marine mammals are Reynolds and Rommel (1999), Twiss and Reeves (1999), Berta et al. (2006), Hoelzel (2002), and Perrin et al. (2002).

Marine Mammal Identification and How to Use This Guide

Most available marine mammal identification guides do not provide the most appropriate information for accurate identification, have limited geographic or taxonomic scope, or are badly out-of-date. Two very good recent ones are Reeves et al. (2002) and Shirihai (2006). Marine mammals can be difficult to identify at sea. Even under ideal conditions, an observer often gets little more than a brief view of a splash, blow, dorsal fin, or back, and this is often at a great distance. Rough weather, glare, fog, or other poor sighting conditions only compound the problem. The effects of lighting, in particular, must be kept in mind. Many diagnostic characters may only be visible under good lighting or at close range. One must always acknowledge the limitations of the particular set of conditions that they are exposed to when making a marine mammal identification.

Sexual dimorphism is common in many pinnipeds and cetaceans. Northern elephant seals show an extreme form, which involves both size and body shape differences. The large individual in the background is an adult male, and the smaller one in the foreground is a fully-grown adult female. PHOTO: T. A. JEFFERSON

Many species appear similar to another, especially in the brief glimpses typical at sea. Animals of some poorly-known groups (most notably, beaked whales and Southern Hemisphere fur seals) are especially difficult to identify to species, even with a good look at a live animal or an "in hand" specimen (and even to most marine mammal specialists). For all these reasons, even experts often must log a sighting as "unidentified." In all cases, this designation, accompanied by a detailed description is preferable to recording an incorrect identification. This point cannot be overemphasized!

In addition to the diagnostic variation among species, marine mammals often exhibit other types of variation in morphology and coloration. These are important to keep in mind when making identifications, as such variation can mask diagnostic species characters and cause confusion and even misidentifications. The most common types of such variation in external appearance are discussed briefly below.

Intraspecific geographic variation Marine mammal species generally occur in populations that are (more-or-less) reproductively isolated from each other. If these populations have been separated for a long enough period of time, they may have evolved noticeable differences in their external morphology. Virtually every marine mammal species (with the possible exception of those that only occur as a single population, like the vaquita and possibly the baiji), shows some geographic variation. Much of this variation is subtle and not very noticeable, and therefore will not significantly affect field identification, but sometimes distinct geographic forms may have evolved. These may differ quite strongly in overall size, body shape, coloration, etc. Some such variants have been formally described as subspecies (which, in many cases, are incipient species), and have been given trinomials (subspecific names), but most have not been formally recognized. This book attempts to provide descriptions and illustrations/photos of geographic forms that are well-described and may be recognizable in the field, regardless of whether they have been described as subspecies.

Sexual dimorphism Most marine mammal species show some sexual dimorphism, with one sex being somewhat larger than the other. In addition, many toothed whales and pinnipeds have males and females showing distinct differences in body shape and coloration. These differences usually remain insignificant until near the age of sexual maturity, but can become quite pronounced in adults. One must keep this dimorphism in mind when making identifications, especially in cases where only a single individual is involved. In the species accounts, we make every attempt to describe significant sexual dimorphism as it relates to marine mammal species identification.

Developmental variation Obviously, young marine mammals do not look exactly like adults. Clearly, they are smaller than adults, but they may also have very different body proportions and color patterns. The head and appendages of most newborn marine mammals are typically proportionately larger than they are in adults. It is not uncommon for cetacean calves and pinniped pups to show very different pigmentation than adults. For instance, most dolphins have a muted version of the adult color pattern when first born. Size and other external differences of young animals are described in this book, when adequately documented.

Seasonal variation Seasonal variation in external appearance is not nearly as important in marine mammals as it is in, for instance, birds, and for the most part is not an issue in species identification. However, there are some species in which seasonal differences are important. An example of this is the northern elephant seal, which has a seasonal molt (occurring at different times for different age classes). During the molting period, seals generally look ragged and have a quite different appearance than the more typical pelage of the rest of the year. We attempt to identify seasonal variants in this guide.

Uncommon color morphs Some marine mammal species are characterized by the existence of uncommonly-occurring color morphs. This is the case for some species of dolphins (e.g., short-beaked common dolphins, Pacific white-sided dolphins, northern and southern right whale dolphins), porpoises (e.g., Dall's porpoise), and seals (e.g., subantarctic fur seals), for instance. In addition, melanistic (all-black) individuals, albinos, and other anomalously-white color morphs occasionally occur, and are a possibility for any marine mammal species. Where one or more uncommon color morphs are well-known, we attempt to describe and illustrate them in this book.

Hybrids and intergrades Sometimes animals of different species mate with each other and produce offspring. Hybrids are the result of such interspecific matings. One must always be concerned about the possibility of a hybrid when making marine mammal identifications. Hybrids between baleen whale species, between narwhals and belugas, between dolphin species, between porpoise species, and between pinniped species have been documented. In fact, in the Southern Hemisphere fur seals (genus *Arctocephalus*), species are very similar in appearance and behavior and there is much overlap in ranges. As a result, hybridization is very common, and can be a major confounding factor in making species identifications. Although not documented, hybrids among the many similar species of the beaked whale genus *Mesoplodon* should also be considered a possibility. Finally, intergrades may appear (these are the equivalent of hybrids, but result from a cross between subspecies, not full species). Intergrades are known to be very common in spinner dolphins, for instance, where a "geographic form" of the species in the eastern tropical Pacific (the whitebelly spinner) is now known to be an intergrade swarm. We generally do not describe hybrids and intergrades in this guide, except in those few cases where they appear very commonly. However, one must always be on the lookout for them.

A group of short-beaked common dolphins leap at the bow of a research vessel in the eastern North Pacific, showing some of the individual variation in coloration and body shape that is common in marine mammals. PHOTO: SWFSC/NOAA FISHERIES

Individual variation Beyond all of the types of variation described above, there is individual variation in every species. No two individuals are exactly alike—this variation is actually the raw material of natural selection. There will naturally be some range in all of the species' diagnostic characters. Some species are more variable than others, and certain features (such as total length and tooth counts) tend to show great amounts of individual variation in most species. This should always be kept in mind when making identifications. We attempt to document and illustrate some of the individual variation present within any species in this book, but it should be recognized that we can only present a small fraction of what naturally occurs.

Scarring, injuries and deformities One must always remember that, in the course of evading predators, finding and securing food, interacting with conspecifics, and avoiding impacts of human activities, marine mammals

These Antarctic fur seals at South Georgia show the basic body shape that is typical of all eared seals (otariids). Their ability to bring their hindflippers up under their body and walk on land reminds one of their terrestrial ancestry. PHOTO: M. WEBBER

become scarred and injured. Further, they may develop deformities, either as a result or congenital defects or disease. These may cause an animal to appear quite different than the classic individual illustrating all the diagnostic characters. Most such defects will have little or no impact on the ability to identify marine mammals to species, but some may cause problems. For the most part, we are unable to describe and illustrate the effects of injuries and deformities in this book, but we caution the reader to keep these factors in mind.

Finally, although it is not really a type of variation, the effects of lighting must also be considered. This is especially true when making identifications of living animals in the field, and when examining photographs. Some subtle color pattern components may only be visible in the best lighting, and glare on an animal's body can sometimes look like light-colored patches. This is especially a problem when making an identification from still photographs.

Notes on the Format of the Species Accounts

The species accounts in this guide are the "meat and potatoes" of the book and are designed to be the primary tool used in identifying marine mammals observed at sea. We toyed with the idea of producing a dichotomous key to marine mammals observed at sea, but the paucity of useful cues for most sightings and the variability of marine mammal behavior would make such a key difficult to use. Marine mammal at-sea identification is something that must be learned through doing. Experienced marine mammal observers, like birders, often will be able to make an identification based on a composite of characteristic features and personal knowledge of the local marine mammal fauna. This ability will come with experience, guided by working with seasoned observers and the use of a proper field guide (this guide, or any of the better regional ones).

The species accounts are presented in taxonomic order, with closely-related species grouped together, even though, in some cases the main species that may cause confusion are not especially closely related. The following describes how the species accounts are set-up:

Original description This is given immediately after the scientific name, and is the person (or persons) who originally described the species, and the year in which the description was published. Note that international taxonomic rules require that there always be a comma after the authority, and that the parentheses that occur around some of the dates are intentional (they indicate that the species was originally described in a different genus).

Recently-used synonyms This is a list of synonyms of the scientific name that have been widely used in the past 50 years or so. The list is not intended to be comprehensive. Older, and more obscure, names are not listed here.

Common names For each species, the standard common names in English, Spanish, and French are given here. Note that other common names are used in these languages in some areas, and that there are a wide variety of common names used in other languages as well. However, we have made no attempt to compile a list of all the common names that the species goes by.

Taxonomic information After a brief list of the higher-level taxonomic groupings that the species belongs to, this section contains a very brief summary of any recent taxonomic controversies and taxonomic revisions, and mentions subspecies where widely recognized.

Species characteristics This section includes the main characteristics of the species used in identification of whole specimens, including body shape, color pattern, size, and such things as tooth or baleen counts. For some of the better-known species, there is also a listing of age/sex classes that animals may be divided into, along with descriptions of how to recognize them. However, the latter is only attempted for those situations where such age/sex classes have been well-described.

Recognizable geographic forms There is significant geographic variation in virtually every species of marine mammal. However, beyond this for some species, distinct geographic forms have been described and possess external characteristics that allow them to be identified in the field. When this is the case, we present a short description of such geographic forms in this section. If 'none' is listed, this does not mean that geographic forms do not exist, but rather that we do not feel that they have been adequately-described or that they are not possible to reliably recognize in the field.

Can be confused with Those species that are most commonly confused with the species of interest are listed here, along with tips on how they can be separated. We tend not to repeat all the diagnostic characters of the other species here, but simply list the types of features that should be paid attention to. The reader must generally consult the species account for those species to get details.

Distribution This section includes a short description of the species' range, to be used along with the distribution map provided for each species. We must emphasize that, although we have put considerable effort into providing the most useful range maps possible, the distribution maps should be considered approximate. The range limits shown, especially in offshore areas, are sometimes little more than educated guesses, based on incomplete data from that region, considered in light of available information on the species' distribution and habitat preferences elsewhere. In some cases, the limits of range indicated are probably more a reflection of search effort than of real distribution limits. Therefore, an absence of shading in a certain area does not necessarily mean that the species is not found there (this is especially true for many of the beaked whales, which are still known mostly from strandings—these tell us little about the species' true distribution and habitat preferences).

Ecology and behavior The basic ecology of the species is very briefly summarized here. Although it is often of less use in identification than morphological characteristics, behavior can nonetheless sometimes be used to help in identification. Group sizes, in particular, are often useful. However, it should be emphasized that the behavior of highly complex social mammals is highly variable, and thus coloration and morphology should always be used as the primary features for identification.

Feeding and prey This section contains a brief list of the types of prey items that the species feeds upon.

Threats and status The history of human exploitation of the species is briefly reviewed, and current conservation issues identified. Available population estimates are of variable accuracy, and should thus be taken cautiously. Techniques for estimating sizes of mammal populations at sea are still evolving and are far from standardized, and available tools have been used unevenly, often with violations of underlying assumptions. For these reasons, the density of shading on the distribution maps is intended to show only known or postulated range, and not population density.

Fishing nets, in particular various forms of gillnets and driftnets, kill hundreds of thousands of marine mammals every year—in this case a Dall's porpoise. Fishing net entanglement is now widely recognized as the single largest threat to the continued existence of many marine mammal populations and even some species. PHOTO: T. A. JEFFERSON

Discarded and lost fishing line, rope and net fragments are a hazardous type of marine pollution that injures and kills pinnipeds of many species such as this adult female Juan Fernandez fur seal. PHOTO: M. GOEBEL/NMFS

IUCN status The legal status of each species is also given in the accounts. "Endangered Species Lists" are maintained by both the United States Fish and Wildlife Service (USFWS) (U.S. List of Threatened and Endangered Species) and the International Union for the Conservation of Nature and Natural Resources, now the World Conservation Union (IUCN Red List), among other agencies. In this guide, we present only IUCN designations.

"Endangered" status is assigned to those species considered to be in immediate danger of extinction. Species at risk of soon becoming endangered are generally listed as "Vulnerable" (or some similar designation). Because of incomplete information, political considerations, and the time lag in completing requirements for listing, these status designations do not always accurately reflect the true status of a species (for instance, some species listed as Endangered are at no immediate risk; others not listed may be on the verge of extinction). Nevertheless, they are helpful as warning flags that plans to exploit a given species must proceed only with great caution, and will give some idea of the degree of concern for the species' future.

References For each species, we provide about 4–8 references to which the reader can turn for more information. We have tried to use mostly recent review papers and more easily obtained publications that might be available at large university libraries. The full references are listed at the end of the book.

Notes on the Dichotomous Keys

Marine mammals specimens "in hand" can best be identified by using the dichotomous keys to external features, provided as appendices at the end of the book. With such specimens, it may be possible to view the entire body and to measure relative proportions of features. Various features of coloration and morphology are often useful in such considerations. We have used geographical information as little as possible to separate the species. This will help to avoid biasing observers toward making an identification based on what they think is "supposed" to be there.

Marine mammal skulls can be keyed-out using the keys provided in the appendices. We have assumed that no geographical information is available, so the key can be used to identify an untagged skull of unknown origin in a museum, for instance. It is clear from our own work and discussions with colleagues that is not yet possible to prepare a completely reliable and effective skull key for the non-specialist. Published keys and related literature are marred with errors and inconsistencies. Skulls of many species are sufficiently similar that it will be necessary to examine a full series of each to define reliable diagnostic features. Until that exercise is completed for each species, the skull keys must be considered to be works in progress.

It can sometimes be very difficult, or impossible, to identify marine mammals to species, whether based on at-sea sightings, "in hand" whole specimens, or an unlabeled skull. Great variability in behavior, coloration, body morphology, and bone structure can occur. Sometimes it may only be possible to label an animal or group as "unidentified long-beaked dolphin," "unidentified beaked whale," or "unidentified fur seal," for instance. If this guide helps lead to a specific identification in some cases and to narrow down the choices in others, then it will have served an important function. We are happy to share our experience with others to help them in this endeavor.

Request For Feedback from Users

We are hopeful that there will be future editions of this book (although that decision is up to the publisher, based mainly on how well the book sells). Assuming that there will be future editions, we want to sincerely invite all of the users of this book to provide us with feedback on the accuracy of the information contained herein and leads on better photos. Mistakes and inaccuracies are inevitable when reviewing so much information, and if users of the book contact the authors with suggestions for changes in future editions, we promise to give those serious consideration.

2. Basic Marine Mammal Biology

In this chapter, we will introduce those readers who are unfamiliar with marine mammals to the subjects of this guide. We will not attempt to give a detailed summary of the biology of marine mammals, as that is not the purpose of this book. Besides, it has already been done much better than we could do, elsewhere (e.g., see Berta et al. 2006; Hoelzel 2002; Perrin et al. 2002; Reeves and Stewart 2003). Instead, we will simply provide a brief summary of the basic biology of the group of animals that we call marine mammals, primarily intended for use by those readers who are new to these animals.

What is a Marine Mammal?

It is important to recognize that marine mammals are not a natural biological grouping. Many people do not realize this, but the term "marine mammal" is somewhat of a "catch-all" phrase used for those groups of mammals that have returned to life in the "sea." The most important criterion is that they must get all or most of their food from the aquatic environment. It is not essential that they actually live in the sea. In fact, many species of marine mammals never encounter marine waters, living instead in various land-locked lakes and rivers. However, all of them are thought to have come from marine ancestors.

Marine mammals are not necessarily completely dependent on an aquatic existence. For instance, pinnipeds do not generally mate or give birth in the water, and polar bears may spend great amounts of time moving on land long distances away from the nearest marine waters. But, these mammals, along with the cetaceans and sirenians, do obtain most or all of their sustenance from the water, and this makes them marine mammals. One or two species of otters (the sea otter and marine otter) and the polar bear are also usually included as marine mammals.

In reality, there is no hard-and-fast rule of what is a marine mammal. Some people consider other mammals also to be in this group, but the scheme introduced below is, by far, the most common in use. It originated with the list of "marine mammals" produced when the U.S. Congress passed the Marine Mammal Protection Act of 1972, and has been widely followed ever since.

Types of Marine Mammals

There are several different types of marine mammals. The two most commonly seen and best-known groups of marine mammals are the cetaceans (whales, dolphins, and porpoises) and the pinnipeds (seals, sea lions, and walruses). Most people are very familiar with these animals from seeing them in zoos and aquariums, or on television and in movies. They are both well-adapted to living in the oceans, although the pinnipeds must return to land for some life history stages (e.g., mating, breeding, and molting). Cetaceans are fully-adapted to live their entire lives in the water and never return to land for any significant period of time. The body plans of cetaceans and pinnipeds are radically modified from those of more familiar terrestrial mammals.

The sirenians are much less-often encountered by people, because there are only a few species (four today) and they occur only in certain parts of the world, mainly in the tropical zones. They are also well-adapted to a wholly-aquatic life, although they are largely creatures of the continental margins (and many even inhabit lakes and rivers). Sirenians are unique in being the only vegetarians among the marine mammals. They also have radically modified morphology.

Finally, there are several species of fissipeds (the group of carnivores that have separate digits) that qualify as marine mammals, even though the other members of their taxonomic families are not considered among the marine mammals. These include one bear, the polar bear, and two otters, the sea and marine otters. In general, it can be said that these animals are much less completely adapted to living in the water than are the cetaceans,

Table 1 Recent Marine Mammals of the World—130 species

Order Cetacea (whales, dolphins, and porpoises)	
Suborder Mysticeti (baleen whales)	**Family Balaenidae** (right and bowhead whales) North Atlantic right whale—*Eubalaena glacialis* North Pacific right whale—*Eubalaena japonica* Southern right whale—*Eubalaena australis* Bowhead whale—*Balaena mysticetus*
	Family Neobalaenidae (pygmy right whale) Pygmy right whale—*Caperea marginata*
	Family Balaenopteridae (rorquals) Blue whale—*Balaenoptera musculus* Fin whale—*Balaenoptera physalus* Sei whale—*Balaenoptera borealis* Bryde's whale —*Balaenoptera brydei* and/or *edeni* Omura's whale—*Balaenoptera omurai* Common minke whale—*Balaenoptera acutorostrata* Antarctic minke whale—*Balaenoptera bonaerensis* Humpback whale—*Megaptera novaeangliae*
	Family Eschrichtiidae (gray whale) Gray whale—*Eschrichtius robustus*
Suborder Odontoceti (toothed whales)	**Family Physeteridae** (sperm whale) Sperm whale—*Physeter macrocephalus*
	Family Kogiidae (pygmy and dwarf sperm whales) Pygmy sperm whale—*Kogia breviceps* Dwarf sperm whale—*Kogia sima*
	Family Monodontidae (narwhal and beluga) Narwhal—*Monodon monoceros* White whale or beluga—*Delphinapterus leucas*
	Family Ziphiidae (beaked whales) Baird's beaked whale—*Berardius bairdii* Arnoux's beaked whale—*Berardius arnuxii* Cuvier's beaked whale—*Ziphius cavirostris* Northern bottlenose whale—*Hyperoodon ampullatus* Southern bottlenose whale—*Hyperoodon planifrons* Shepherd's beaked whale—*Tasmacetus shepherdi* Blainville's beaked whale—*Mesoplodon densirostris* Gray's beaked whale—*Mesoplodon grayi* Ginkgo-toothed beaked whale—*Mesoplodon ginkgodens* Hector's beaked whale—*Mesoplodon hectori* Perrin's beaked whale—*Mesoplodon perrini* Hubbs' beaked whale—*Mesoplodon carlhubbsi* Pygmy beaked whale—*Mesoplodon peruvianus* Sowerby's beaked whale—*Mesoplodon bidens* Gervais' beaked whale—*Mesoplodon europaeus* True's beaked whale—*Mesoplodon mirus* Strap-toothed beaked whale—*Mesoplodon layardii* Andrews' beaked whale—*Mesoplodon bowdoini* Stejneger's beaked whale—*Mesoplodon stejnegeri* Spade-toothed beaked whale—*Mesoplodon traversii* Longman's beaked whale—*Indopacetus pacificus*

Table 1 **(continued)**

Family Delphinidae (ocean dolphins)
Irrawaddy dolphin—*Orcaella brevirostris*
Australian snubfin dolphin—*Orcaella heinsohni*
Killer whale—*Orcinus orca*
Short-finned pilot whale—*Globicephala macrorhynchus*
Long-finned pilot whale—*Globicephala melas*
False killer whale—*Pseudorca crassidens*
Pygmy killer whale—*Feresa attenuata*
Melon-headed whale—*Peponocephala electra*
Tucuxi—*Sotalia fluviatilis*
Costero—*Sotalia guianensis*
Indo-Pacific humpback dolphin—*Sousa chinensis*
Atlantic humpback dolphin—*Sousa teuszii*
Rough-toothed dolphin—*Steno bredanensis*
Pacific white-sided dolphin—*Lagenorhynchus obliquidens*
Dusky dolphin—*Lagenorhynchus obscurus*
White-beaked dolphin—*Lagenorhynchus albirostris*
Atlantic white-sided dolphin—*Lagenorhynchus acutus*
Hourglass dolphin—*Lagenorhynchus cruciger*
Peale's dolphin—*Lagenorhynchus australis*
Risso's dolphin—*Grampus griseus*
Common bottlenose dolphin—*Tursiops truncatus*
Indo-Pacific bottlenose dolphin—*Tursiops aduncus*
Pantropical spotted dolphin—*Stenella attenuata*
Atlantic spotted dolphin—*Stenella frontalis*
Spinner dolphin—*Stenella longirostris*
Clymene dolphin—*Stenella clymene*
Striped dolphin—*Stenella coeruleoalba*
Short-beaked common dolphin—*Delphinus delphis*
Long-beaked common dolphin—*Delphinus capensis*
Fraser's dolphin—*Lagenodelphis hosei*
Northern right whale dolphin—*Lissodelphis borealis*
Southern right whale dolphin—*Lissodelphis peronii*
Commerson's dolphin—*Cephalorhynchus commersonii*
Heaviside's dolphin—*Cephalorhynchus heavisidii*
Hector's dolphin—*Cephalorhynchus hectori*
Chilean dolphin—*Cephalorhynchus eutropia*

Family Phocoenidae (porpoises)
Dall's porpoise—*Phocoenoides dalli*
Harbor porpoise—*Phocoena phocoena*
Spectacled porpoise—*Phocoena dioptrica*
Burmeister's porpoise—*Phocoena spinipinnis*
Vaquita or Gulf of California harbor porpoise—*Phocoena sinus*
Finless porpoise—*Neophocaena phocaenoides*

Family Platanistidae (South Asian river dolphin)
South Asian river dolphin—*Platanista gangetica*

Family Iniidae (boto)
Boto or Amazon River dolphin—*Inia geoffrensis*

Family Lipotidae (baiji)
Baiji or Yangtze River dolphin—*Lipotes vexillifer* (probably extinct)

Family Pontoporiidae (franciscana)
Franciscana—*Pontoporia blainvillei*

Table 1 (continued)

Order Sirenia (sea cows)	**Family Trichechidae** (manatees)
	West Indian manatee—*Trichechus manatus*
	West African manatee—*Trichechus senegalensis*
	Amazonian manatee—*Trichechus inunguis*
	Family Dugongidae (dugongs)
	Dugong—*Dugong dugon*
	Steller's sea cow—*Hydrodamalis gigas* (extinct)
Order Carnivora (carnivores)	**Family Mustelidae** (otters)
	Sea otter—*Enhydra lutris*
	Marine otter—*Lontra felina*
	Family Ursidae (bears)
	Polar bear—*Ursus maritimus*
Suborder Pinnipedia (sea lions, walrus, seals)	**Family Otariidae** (fur seals and sea lions)
	Steller sea lion—*Eumetopias jubatus*
	California sea lion—*Zalophus californianus*
	Japanese sea lion—*Zalophus japonicus* (probably extinct)
	Galapagos sea lion—*Zalophus wollebaeki*
	South American sea lion—*Otaria flavescens*
	Australian sea lion—*Neophoca cinerea*
	Hooker's sea lion—*Phocarctos hookeri*
	Northern fur seal—*Callorhinus ursinus*
	Guadalupe fur seal—*Arctocephalus townsendi*
	Juan Fernandez fur seal—*Arctocephalus philippii*
	Galapagos fur seal—*Arctocephalus galapagoensis*
	South American fur seal—*Arctocephalus australis*
	New Zealand fur seal—*Arctocephalus forsteri*
	Subantarctic fur seal—*Arctocephalus tropicalis*
	Antarctic fur seal—*Arctocephalus gazella*
	Cape and Australian fur seals—*Arctocephalus pusillus*
	Family Odobenidae (walrus)
	Walrus—*Odobenus rosmarus*
	Family Phocidae (true seals)
	Harbor seal—*Phoca vitulina*
	Spotted seal—*Phoca largha*
	Ringed seal—*Pusa hispida*
	Baikal seal—*Pusa sibirica*
	Caspian seal—*Pusa caspica*
	Harp seal—*Pagophilus groenlandicus*
	Ribbon seal—*Histriophoca fasciata*
	Gray seal—*Halichoerus grypus*
	Bearded seal—*Erignathus barbatus*
	Hooded seal—*Cystophora cristata*
	Mediterranean monk seal—*Monachus monachus*
	West Indian monk seal—*Monachus tropicalis* (extinct)
	Hawaiian monk seal—*Monachus schauinslandi*
	Northern elephant seal—*Mirounga angustirostris*
	Southern elephant seal—*Mirounga leonina*
	Crabeater seal—*Lobodon carcinophaga*
	Ross seal—*Ommatophoca rossii*
	Leopard seal—*Hydrurga leptonyx*
	Weddell seal—*Leptonychotes weddellii*

pinnipeds, and sirenians. They are only slightly diverged from their closest terrestrial relatives. However, that does not mean that they are not at home at sea. Quite to the contrary, especially the sea otter and polar bear, are well-adapted to living in the harsh conditions of the sea.

Evolutionary History

The major groups of marine mammals have separate evolutionary origins, from different groups of terrestrial mammals. The cetaceans arose >50 mya, and they are now universally thought to be monophyletic (all arising from the same ancestor), but there has been other controversy about their origins. The terrestrial mammal ancestors of cetaceans were previously thought to be a group of primitive, wolf-like, hoofed animals called mesonychid condrylarths. However, recent fossil and molecular evidence suggests that cetaceans are most closely related to the artiodactyls (a group of even-toed, hoofed mammals that includes ruminants such as cattle, camels, and hippos). In particular, hippos have been shown with molecular data (but not fossils) to be the closest modern mammal relative of the whales, and this has thrown doubt on the mesonychid hypothesis. However, some people believe that the mesonychids may actually have been primitive artiodactyls, which would bring all of the facts back into alignment.

There were three major phases of cetacean radiation. The first occurred about 45–53 mya (Eocene) in the shallow, warm, tropical waters of the ancient Tethys Sea. It involved the initial radiation of the most primitive cetaceans, the archaeocetes (now extinct). It included the appearance of *Ambulocetus*, a 4-meter walking protocetacean, which has been seen as a "missing link" in cetacean evolution. The second major phase resulted in the initial radiation of the odontocetes (toothed whales) and mysticetes (baleen whales), about 25–35 mya (Oligocene). These two modern suborders included, at the time, a large array of unusual species, that would later become extinct. The development of important modern adaptations, such as echolocation in the toothed whales, and filter-feeding in the baleen whales, occurred during this period. The final radiation, in the Miocene about 12–15 mya, involved the appearance of modern cetaceans, especially the delphinoids and balaenopterids.

Pinniped evolution has also been plagued with controversy. Traditionally, a diphyletic origin of the pinnipeds was proposed, with walruses and eared seals evolving from ursid (bear-like) ancestors, and true seals originating from mustelid (otter-like) ancestors. However, current thinking favors a monophyletic origin of the pinnipeds from an aquatic carnivore (most probably an ursid) ancestor in the North Pacific about 30–35 mya. The fossil record goes back to at least 25–27 mya. There is still some controversy, most of it involving whether the walrus is most closely related to the phocids or the otariids.

The head of a surfacing fin whale clearly shows the posterior movement of the nasal openings (blowholes) to the top of the head, an element of the evolutionary 'telescoping' of the skull that is characteristic of all living cetaceans. PHOTO: C. JOHNSON

There are five major lineages of pinnipeds, the three extant ones (walruses, eared seals, and true seals), as well as two extinct ones (the Desmatophocidae and *Enaliarctos*). These latter two groups did not survive to modern times, and joined the multitude of other "evolutionary experiments" that did not work out (resulting in the evolutionary dead-end of extinction).

The sirenians have a long evolutionary history, with a fossil record extending back >50 mya. They evolved from proboscideans (represented by modern elephants and hyraxes), and have no connection with either cetaceans or pinnipeds. The earliest sirenians were pig-like, quadrupedal, amphibious mammals. The manatees originated in South America, and the dugongids began in the North Pacific, attaining a wide diversity in the fossil record there. Sirenians attained their maximum diversity in the Oligocene and Miocene but, due largely to the cooling of ocean waters, have since been reduced to the five recent species.

Compared to these ancient groups of marine mammals, the otters and bears are relative newcomers to the oceans. Sea otter evolutionary history is still somewhat unclear, but it is thought that they evolved only a few million years ago, and are closely-related to other otters. The polar bear originated from brown and grizzly bears in Siberia less than one million years ago, and is still so closely-related to them that hybridization in zoos is common. The oldest known fossils are less than 100,000 years old.

Zoogeography, Distribution, and Migration

Marine mammals are not randomly distributed in the world's oceans. It has long been known, for example, that certain species are found exclusively or primarily in waters of a particular depth, temperature range, or oceanographic regime, and not in areas lacking one or all of these characteristics. For most species, however, little is known of the particular factors that cause them to be found in one area and not in another that appears, qualitatively at least, the same.

One major factor affecting productivity, and thus indirectly influencing the distribution of marine mammals, is the pattern of major ocean currents. These currents are driven largely by prevailing winds and are modified in their effects by the "Coriolis Force." Simply stated, the rotation of the earth causes major surface currents to move clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere. This has different implications for animals on east and west sides of ocean basins. In the Northern Hemisphere, warm tropical waters move further north along the east coasts of continental land masses, and warm-water species are often found unexpectedly far north. In the Southern Hemisphere, by contrast, cold polar waters move northward along the west coasts of continents, allowing coldwater marine mammals to range closer to the equator.

The interplay of these surface currents and subsurface movements of major water masses moves nutrients around by upwelling (the vertical turning over of bottom and surface waters) and indrift (the bringing in of nutrients by horizontal currents). As these nutrients and sunlight are the basic ingredients of productivity, areas of light mixing often are more productive than still areas of little or no mixing. Thus, the presence of marine mammals, and other high order predators and consumers in an area is related primarily to prey and only secondarily to the water conditions supporting that productivity. Wherever oceanic conditions are such, it is likely that some species of marine mammal will be present to exploit that richness.

Each species of marine mammal has its particular habitat preference, which may comprise deep or shallow waters, tropical or polar regions, marine or estuarine regions, or any variation in between. Most species occur only in a distinct part of the world, although some are more cosmopolitan (found throughout the globe). The only species that can truly be said to be cosmopolitan, however, is probably the killer whale. It has been recorded in all oceans and seas, in many bays and channels, and even some rivers, from the equator to the pack ice in both hemispheres. It has habitat preferences, to be sure, but there is almost nowhere in the world's oceans and seas where a killer whale sighting would be considered out of the question.

Although seasonal movements are known for most species of marine mammals, not all undergo what could be called true migrations. The baleen whales; sperm whales, and some other large toothed whales; many pinnipeds, and a few other species of marine mammals do have distinct, predictable seasonal movements of large population segments (migrations). The ultimate and proximate reasons for these vary widely, but they are usually related to allowing maximum exploitation of food resources and meeting the needs of mating and breeding. Recently, the importance of predation pressure (especially from killer whales) has also become more appreciated.

Anatomy and Physiology

Although they are all clearly mammals, and thus share the basic mammalian characteristics with others in this class, marine mammals have undergone various evolutionary changes to their body shape and function in order to adapt to their lives in the oceans and freshwaters of the world. All species of marine mammals are streamlined to varying degrees. The cetaceans and some of the pinnipeds show very strong streamlining and are correspondingly fast swimmers. Manatees (along with sea otters and possibly some of the pinnipeds) have taken their hydrodynamic changes to a much lesser extent, but even these species have reduced appendages, and smooth bodies for decreasing drag and turbulence. Most species can move fairly fast underwater, at least for short bursts.

All cetaceans and sirenians have lost their hind limbs (although bony vestiges buried in the abdominal muscles may still be present), and the hind limbs have been radically modified into flippers in pinnipeds. Polar bears and sea otters have only slightly modified hind limbs and can still walk reasonably well on land. The forelimbs have been modified into flippers in the three major groups of marine mammals, and additionally a dorsal fin has evolved for stability (and thermoregulation) in the cetaceans. Further, the cetaceans and sirenians have lost their mammalian fur, and only retain a small scattering of hairs on the body surface. Cetaceans, sirenians, and some pinnipeds also have internal testes.

The head shape of some marine mammals, primarily cetaceans and sirenians, has also been drastically modified from their terrestrial ancestors. The nostrils have moved to the top of the head to allow ease of breathing in water (not requiring the head to be lifted fully out of the water), and the jaws and teeth have been modified to assist in feeding, and in cetaceans, echolocation and batch feeding. The substitution of baleen plates made of keratin for teeth in modern mysticetes is arguably the most radical adaptation of all.

There are many internal adaptations to a marine existence that are difficult to see, unless a specimen is dissected. These include the development of a subcutaneous layer of fat called blubber (which serves functions in energy storage, insulation, and streamlining); varied modifications of the respiratory system to assist in extended breathholding and large pressure changes; modifications to the skull for breathing at sea, housing the baleen plates in mysticetes, and the production of echolocation sounds in odontocetes.

Only bats can rival the cetaceans and sirenians for their evolutionary modifications from the traditional mammalian body plan. It seems that life in a medium different from living on land has required a large number of changes, and this explains why for many centuries, cetaceans were thought to be fish, rather than mammals. It wasn't until naturalists began to look past "skin deep" that they discovered the unmistakable similarities with other mammals.

Life History and Reproduction

Some types of marine mammals are very long-lived, and are among the mammal species reaching the greatest ages. This includes the baleen whales, the larger toothed whales, some dolphins, a few pinnipeds, and the sirenians. It is thought that some large toothed whales, like the killer whale, may routinely live to be as old as humans (perhaps nearing 80–90 years in some cases)! On the other hand, some species, such the porpoises, appear to have short life spans, rarely reaching the age of 20 years.

The reproductive patterns of marine mammals are not radically different from those of their terrestrial relatives in many ways. However, there are obviously some major adaptations that have been necessary to allow marine mammals to reproduce in the water. Cetaceans and sirenians are the only groups of marine mammals that undertake all of their reproductive activities in the water. Pinnipeds and the marine otters and polar bear all mate and give birth on land (with a few minor exceptions).

All marine mammal young are precocial, meaning that they are well-developed when they are born. They must be, to live in or close to the water very early in life. In fact, cetacean and sirenian newborns are capable of swimming as soon as they exit the womb. Seals and other marine mammals generally require a bit of learning before they are ready to tackle the marine environment.

The gestation period of most marine mammal species is around one year, and in pinnipeds, there is a period of delayed implantation of the embryo, which allows for annual reproduction when the natural gestation period may only be 8–9 months. The length of lactation is highly variable, lasting from only a few days in some seals, to many years in some toothed whales.

While seasonal breeding is the rule in all temperate and high-latitude species, some marine mammals that live in the tropics year-round have a protracted breeding period, with at least some births scattered throughout the year. Only a single newborn is born to most marine mammal species under normal circumstances, and twinning is considered rare.

Some of the marine species are unusual among mammals in having a post-reproductive period (or period of reproductive senescence) in females. Generally, this occurs in some of the longer-lived toothed cetaceans. Other species may reproduce until they die.

Unlike most other marine mammals, manatees have teats that are located in the axillary region—in most others they are more posterior. Thus, the manatee calf needs to nurse from a site near the breast, and this is considered to have led to the mermaid myth. Crystal Springs, Florida. PHOTO: T. PUSSER

Feeding Ecology

Different groups of marine mammals have different feeding ecologies. Mysticetes (baleen whales), which are the largest species, feed on shoaling fishes and small invertebrates, some of the smallest. Baleen whales are batch feeders, taking in large amounts of prey and filtering them from the waters with the fringes on the inside of their baleen plates. Most balaenopterids are "gulpers," which means they lunge through a prey patch, taking in huge amounts of sea water with the aid of their expandable throats. Then they close the mouth and use muscular actions to force the water out between the baleen plates, leaving the tiny prey trapped on the inside, which they then swallow.

Right and bowhead whales are much less active in their feeding. They are "skimmers," which swim slowly through patches of prey and filter out the prey (mostly copepods) as the water flows through the baleen plates. The gray whale employs yet a different feeding strategy. It is a "sucker." Gray whales use suction inside their mouth to pull in a batch of amphipods or other invertebrates, as they roll on their sides (usually near the bottom).

The toothed whales, dolphins and porpoises take in individual prey items, generally one at a time. They feed mostly on fishes and squids, which are located and captured with the aid of echolocation, or sonar. Unlike most (but not all) species of baleen whales, toothed whales may use cooperative feeding techniques, sometimes involving dozens to thousands of individuals to corral and herd prey. The killer whale is the only cetacean species that regularly feeds on other marine mammals, and almost all marine mammal groups may become killer whale prey, at one time or another. They will even hunt whales much larger than themselves, while working in cooperative groups, reminiscent of those of wolves and other pack-hunting carnivores.

The pinnipeds generally feed on fishes and squids, although some take primarily invertebrates such as krill. Seals and sea lions take in prey items individually, and almost always feed solitarily. Individuals generally do not cooperate in feeding aggregations. There are few special adaptations for effective feeding in pinnipeds, with the possible exception of incredible deep, repeated diving abilities of some species. For instance, elephant seals can dive for 20 minutes and surface for 3 minutes, 24 hours a day, day after day, for weeks on end!

The sirenians are all herbivores, and therefore do not need to be particularly fast or maneuverable to catch prey. Manatees feed mostly on water hyacinths and other aquatic plants that may be submergent or emergent. Dugongs feed mostly on seagrasses, and leave feeding trails in seagrass beds where they have been active. The extinct Steller's sea cow ate mostly kelp.

The sea otter feeds mostly on invertebrates, such as crabs, clams, mussels, and sea urchins. It can only dive to relatively shallow depths to obtain such items, which are then brought to the surface and eaten as the animal lies on its back at the surface. Sea otters often use rocks as tools to break apart the hard shells of their prey. Polar bears feed mostly on seals, although they do also take beluga whales and even large fish. A common technique is for a polar bear to wait by a breathing hole and then snatch a seal from the hole as it comes up to breath.

A large group of humpback whales corrals a herring school in southeast Alaska. While such cooperation during feeding is common in toothed whales and dolphins, it is relatively rarely seen in baleen whales. PHOTO: T. A. JEFFERSON

Predation/Parasites/Disease

Nearly all marine mammal species suffer from predation, with the killer whale being the only possible exception. Sharks are the major predators for many types of marine mammals, although killer whales (and even false killer whales) may be important predators for others. Predation by killer whales has been postulated to have been a major factor affecting the evolution of the migratory patterns of some of the baleen whales. Recently, killer whale predation has been suggested to be a primary pressure controlling the populations (and even causing depletion of) sea otters and Steller sea lions in the North Pacific. More work needs to be done to confirm or deny these hypotheses.

Disease affects all marine mammal species, although certainly some more than others. A large number of afflictions can affect marine mammals, both in captivity and in the wild. In recent years, morbilliviruses and related distemper viruses have been identified as the causes of some mass die-offs of marine mammals (primarily of cetaceans and pinnipeds). As a result, these diseases have received a great deal of attention from marine mammal biologists and veterinarians.

Although parasites may be present in marine mammals that are considered healthy and functioning normally in their societies, parasites may also cause disease that can result in death (either directly, or indirectly, by causing the animals to strand or be otherwise vulnerable to accidents). A large number of parasite species (mostly internal, but some external) have been identified from marine mammals. Parasites may be present in many organ systems in the body, but are generally found in the respiratory, digestive, circulatory, and reproductive systems.

Behavior and Social Organization

The majority of cetacean species live in social groups, called schools, herds, or pods. A few species are relatively solitary, but even these species gather together for breeding or in feeding aggregations, at times. Pods of large whales generally number less than a dozen or so, but oceanic dolphin schools may number several thousand! The stability of social groups ranges from the very stable, long-term pods of killer whales to very ephemeral and short-lasting associations of many smaller dolphins and porpoises.

Cetaceans have keen senses, with the exception of smell (olfaction), which is probably nearly non-existent in this group. The toothed whales and dolphins, in particular, are acoustic creatures *par excellance*. In addition to a keen sense of hearing, and the ability to tell much about their environment through passive listening, odontocetes also have a highly sophisticated sense of echolocation, or sonar. It is thought that acoustics is the dominant sense in odontocetes, but these animals also appear to have very good vision (both in air and under water).

The supposed high intelligence of dolphins is legendary, but in fact they are on a par with many other species of social predatory mammals. It is true that dolphins are very clever and can learn easily, but there is no reason to believe that their intellectual capabilities are above those of other higher mammals.

Pinnipeds tend to be much more solitary, at least at sea. On haul-outs and rookeries on shore, however, seals and sea lions often gather into huge groups, which have a very specific structure. Most pinnipeds are highly polygynous, with a single male controlling mating access to groups of females (harems). It is due to the highly polygynous nature of pinniped societies that most species have very strong sexual dimorphism (with males growing much larger than females).

Seals and sea lions have keen senses, including good hearing, vision, and smell. No species of pinniped is known to have a well-developed echolocation system, as the toothed whales do, but they can nonetheless tell much about their surroundings with sound. The sense of smell is so well-developed that many pinniped colonies have to be approached from downwind, to avoid stampeding the entire group of animals into the water.

The manatees and dugong generally live in relatively small groups, and are in fact often seen alone. They do gather into feeding and breeding groups, but these are generally short-lasting. The only stable social bond is likely between mother and calf.

Sirenians are generally relatively slow-moving, passive creatures (at least compared to the very active dolphins and seals). As large-bodied vegetarians, they have little need to be able to move very quickly, and have evolved bodies that are more geared towards negative buoyancy than speed (at least in the manatees). Their senses are less well-studied than those of dolphins and sea lions, but vision and hearing at least, are probably not as keen as in those other groups.

Strandings

When marine mammals wash-up on shore unintentionally, whether alive or dead, this is called stranding (or sometimes, beaching). Most marine mammal strandings are of dead animals, but live specimens can also strand, and will usually die unless humans intervene and either push them back to sea or move them to a rehabilitation facility.

Single strandings are most common, but mass strandings of two or more individuals (not including a mother and calf/pup) also occur. In fact, sometimes entire pods of whales strand (usually alive), and witnessing such an event is truly one of the most spectacular (if somewhat sad) sights in nature!

The causes of marine mammal strandings are not always known, but sometimes they are obvious. Single strandings usually involve an animal that is sick or injured and often too weak to swim against the currents and other forces that inevitably bring it to toward shore. In some cases, they die before they reach the beach, but in others they may still be alive. Such live stranded individuals are unlikely to survive, even with good veterinary care.

Strandings of marine mammals are common events, and have provided scientists an opportunity to learn much about these animals. This sperm whale stranded alive on a Hong Kong beach, but later died. PHOTO: S. K. HUNG

Mass strandings usually involve multiple members of a social grouping (sometimes the entire school or pod), and almost invariably consist mostly of living individuals. Very often, one or only a few individuals in the school are sick or hurt, and most of the group is perfectly healthy. Therefore, the chances of "saving" or rehabilitating mass-stranded animals are much better. The cause of the mass beaching is generally related to the strong social bonds of the species that frequently mass strand (most often medium to large odontocetes, like the sperm, pilot, and false killer whales). More and more often, mass strandings and mortalities are being linked to the use of military sonars, which seem to disrupt the physiological mechanisms for safely dealing with deep diving.

Strandings are extremely important phenomena for several groups of marine mammals, especially cetaceans. For many species of whales and dolphins, much of what we know of their biology may come from information gleaned from stranded specimens. For some of the poorly-known beaked whales, stranding records may be all that we have!

Exploitation and Conservation

Marine mammals have long been highly-prized targets of humans looking for a good source of food, furs, oil, and later a whole host of other products. Because they are large, they were attractive subjects of human exploitation, but their relatively inaccessible habitats made them hard to hunt until the last few hundred years. Although there is evidence that prehistoric humans may have at least taken advantage of the fortuitous stranding of a fresh whale or seal on their shores, most marine mammal species were relatively safe from large-scale human exploitation until recently.

The first known large-scale hunting of large whales was by the Basques, starting in the first millennium AD. They mainly targeted the North Atlantic right whale, and were so effective that they decimated that species. Norse and Icelandic whalers also hunted in the North Atlantic, and the Japanese began their culture of whale hunting in the 1600s. In the 1700s, the "Yankee whaling" era, focused largely on sperm whales, began and the United States became a major player in the commercial whaling game. Finally, in the late 1800s, the development of steam-powered vessels and the exploding harpoon heralded in the modern era of commercial whaling. Fast-swimming species, such as the rorquals (blue, fin, sei, Bryde's and minke whales) were now within the reach of commercial whalers. It didn't take long for them to decimate species after species, starting with the largest and working their way down, to commercial extinction.

In recent decades, the direct killing of whales and dolphins has become much less important, and the indirect deaths of especially dolphins and porpoises have increased dramatically. There is now no doubt that more cetaceans die incidentally in fishing nets each year than from any other threat, including whale and dolphin hunting. In the last few decades, we have also seen the development of other major threats to these animals in the form of such things as habitat degradation and loss, environmental contamination, noise pollution and damage, and even live captures for captive display and research. No cetacean species is known to have been wiped-out by humans (yet), but several species are now on the very verge of that fate (e.g., the vaquita in Mexico; the baiji in China may already be extinct).

A relatively new threat facing cetaceans comes in the form of human-made noise that can be potentially disturbing or even damaging to the animals. Shipping and boat noise is certainly an issue in some cases, but the major concerns nowadays have to do with seismic survey noise (generally created with airguns in the search for petrochemicals), and intense sounds created by military sonars (generally used to detect submarines). These sounds have been shown to cause serious problems for some species, and many mass strandings of whales and dolphins have been linked to low- and mid-frequency sonar.

Seals and sea lions also have a long history of human exploitation. Because they were so easy to kill when hauled out on land, some local pinniped populations may have been extirpated by sealers in early times. Species that occur in more remote areas, for instance, the Antarctic seals on the other hand, were not really exploited until the late 1700s or early 1800s. While most species survived the exploitation and even recovered to pre-exploitation numbers and beyond (witness the northern elephant seal, for instance), some were wiped out. The West Indian monk seal was so heavily hunted that the last remaining seals probably died-out in the middle part of the 20th century. The Japanese sea lion is also thought to be extinct, although there is still some hope that a remnant of this species may survive in Japanese or Korean waters.

Like cetaceans, pinnipeds have seen the development of other, more insidious, threats in recent years. Fishing gear entanglements are certainly a major one, and very recently the depletion of prey and other ecosystem effects of large-scale fishing operations have been blamed for the crashes of some pinniped populations (e.g., the Steller sea lion in Alaska waters).

Sirenians seem to be hunted wherever they occur, an unfortunate result of the apparently excellent taste of their flesh and their relative ease of capture. All three species of manatees and the dugong have been brought to levels that threaten extinction in the next few decades. This is largely due to hunting for food, but other threats also apply. Especially in Florida, collisions with high-speed vessels and entrapment in human-made structures also take their toll.

The fifth species of recent sirenian, the giant Steller's sea cow of the cold waters of the North Pacific and Bering Sea was wiped out by sealers and fur traders in the late 1700s, only a few decades after its discovery. This is a truly sad tale of human greed and stupidity, and it should serve as a reminder of the frailty of nature.

Sea otters were also hunted to near extinction throughout much of their range in the North Pacific by fur traders in the 1700–1800s. In fact, they were thought to be extinct along the west coast of the continental US until a small remnant was discovered in the late 1930s. Luckily, this remnant has increased and expanded its range, and still survives today. The polar bear was never driven to near extinction, but it has been heavily exploited by native peoples and westerners. It has a relatively healthy population, and appears to be in no immediate danger, but the effects of global warming are casting some doubts on its ability to survive for more than a few decades into the future.

The perception that all large whales are endangered is wrong. The truth is that most large whales are recovering from past exploitation (the North Atlantic and North Pacific right whales are the major exceptions), and the most serious conservation problems now lie with several of the smaller species. All of the sirenians, a few seals (e.g., the Mediterranean and Hawaiian monk seals), and several of the dolphins and porpoises (e.g., the vaquita, baiji, Indus susu, North Island Hector's dolphin, and Atlantic humpback dolphin) are probably in the worst shape. It is our sincere hope that this book will help people to appreciate the diversity of the world's marine mammals, and inspire them to work towards their protection.

3. Taxonomic Groupings Above the Species Level

In this chapter, we provide a brief overview of the higher-level (above species) classification and taxonomic groupings of marine mammals. It should be noted that marine mammal taxonomy is highly controversial and is currently in a state of flux. So, rather than trying to present the "flavor of the month" and having that perhaps be out-of-date when the user actually reads it, we have instead presented a more classic and conservative system of classification.

As an example, a new phylogenetic classification published in 2005, and based on multiple lines of evidence, suggests some changes in ranking of various taxa. It considers the cetaceans (whales, dolphins, and porpoises) to be a suborder of a more inclusive Order Cetartiodactyla (which would include hippopotamuses, among others). In such a classification, the suborders Mysticeti and Odontoceti would be demoted to infraorders (taxa below the level of suborder).

Whether this arrangement will be accepted and supported by future work remains to be seen, although it currently appears to be well-supported by genetic and morphological data and is gaining support. However, for now, we will stick to presenting the major higher-level groupings in a system that is well-recognized and firmly established (i.e., a bit more conservative).

Order Cetacea—*Whales, dolphins, and porpoises*

The 86 living species currently recognized in the Order Cetacea are divided into two suborders—Odontoceti (toothed whales) and Mysticeti (baleen whales). All representatives of a third suborder, Archaeoceti (ancient whales), are extinct. It is generally agreed that cetaceans are the most derived of all mammals (with the possible exception of bats). Evolved from terrestrial ancestors, they have totally adapted to living in the water, and have no need to come ashore, even for resting or reproduction.

All cetaceans share a similar general body plan: a streamlined (albeit some more-so than others) spindle-shaped torso; flattened paddle-like foreflippers; telescoped skull; nasal openings on top (rather than on the front) of the head; a well-developed blubber layer; internal reproductive organs; newly-derived boneless structures in the form of tail flukes and a dorsal fin or ridge (secondarily-lost in some species); and the loss of such aquatic hindrances as hind limbs (present, if at all, only as vestiges), external ear flaps, and fur (although all have hair at some time during their early development and some retain a few rostral hairs for life). Although they may somewhat resemble fish externally, the cetaceans' internal anatomy effectively betrays their terrestrial mammalian ancestry. For instance, their flippers contain reduced counterparts of all or most of the hand and arm bones characteristic of other mammals; and pelvic rudiments (and occasionally hind limb remnants) are present. The internal anatomy of cetaceans is surprisingly like that of more familiar land mammals, with such interesting exceptions as the presence of a four-chambered stomach and cartilaginous reinforcements of the airways all the way down to the alveoli.

Suborder Mysticeti—*Baleen whales*

There are four families of baleen whales. Mysticetes are universally large (with females growing larger than males); the smallest is the pygmy right whale (<7 m long), and the largest is the blue whale (the largest animal ever to live, up to 33 m or more in length and 160 tons in weight). The baleen whales have a double blowhole, a symmetrical skull, lack of a bony mandibular symphysis, and a sternum consisting of a single bone. In the mouth, the upper jaw is hung with baleen (stiff plates of keratin with fringes on the inside), instead of teeth. Baleen whales are batch feeders, taking in great quantities of water in a single gulp, and then using the fringes on their baleen plates to filter small schooling fish or invertebrates from the water.

Nearly all mysticetes make long-range seasonal migrations. They generally occur in smaller groups than most odontocetes, and tend to have a simpler social organization. There are 14 species in 6 genera.

Family Balaenidae—*Right and bowhead whales*

The right and bowhead whales (four species in two genera) are large and chunky, with heads that comprise up to one-third of their body length. They lack a dorsal fin or any trace of a dorsal ridge. Overall, they tend to be far less streamlined than other baleen whales. Right and bowhead whales have developed a relatively passive skim-feeding technique, and tend to be slower than other whales. The baleen plates are the longest and have some of the finest fringes of the four mysticete families. Viewed in profile, the mouthline is extremely arched and the skull profile is highly convex; all seven cervical (neck) vertebrae are fused together.

Family Neobalaenidae—*Pygmy right whale*

The single species in this family, the pygmy right whale of the temperate Southern Hemisphere, is poorly known. Although it is in some ways intermediate between the Balaenopteridae and Balaenidae, the pygmy right whale is more closely related to the Balaenidae. Much smaller than the right and bowhead whales (<7 m), it is slender, with a moderately arched mouthline. The head represents only about one-quarter of the total length, and there is a short falcate dorsal fin set behind mid-back. There is also a pair of shallow throat depressions, which have been hypothesized to be incipient throat grooves. The skull is also somewhat intermediate in form; the rostrum is moderately arched (reminiscent of balaenids), but is much wider at its base (reminiscent of balaenopterids).

Family Balaenopteridae—*Rorquals*

This family contains eight (or possibly nine) species in two genera of the largest animals ever to live; all balaenopterids have adult body lengths of over 7 m, and some are much larger. The rorquals are streamlined animals (the humpback whale somewhat less so than the others), with a series of long pleats extending from the snout tip to as far back as the navel on the ventral surface. Balaenopterids are generally fast and active lunge feeders; their morphology allows them to open their jaws very widely and distend their throats to take in huge mouthfuls of water during feeding. The baleen plates are of moderate length and fringe fineness. Density and fringe diameter vary among species and, along with plate number and width/length ratio, are diagnostic characters. Rorquals have dorsal fins (varying in size and shape) set behind the midpoint of the back. The upper jaw has a relatively flat profile, a feature reflecting the structure of the skull. Within a given feature, differences among balaenopterids are often subtle variations on a theme, rather than class distinctions. Therefore, information on many features may be needed to distinguish among them and reliance on a single character for identification is strongly discouraged.

Family Eschrichtiidae—*Gray whale*

The gray whale was once present in both the North Atlantic and North Pacific oceans, but has been exterminated in the Atlantic in the last few hundred years. This monospecific family is in some ways intermediate between the Balaenidae and the Balaenopteridae. The gray whale is stocky and has an arched jaw, but neither of these characters is as pronounced as in the right whales. Gray whales are slow-moving coastal animals that suck prey from the bottom sediments. Gray whales have the shortest and coarsest baleen of all species, a feature that probably reflects both the size of their prey and their tendency to take in gravel, sand, and other debris during feeding. There are 2–5 short throat creases, a dorsal hump followed by a series of knobs or knuckles along the dorsal surface of the tail stock, and only four digits in the flipper. The bodies of adults are usually covered with barnacles and whale lice.

Suborder Odontoceti—*Toothed whales*

With the exception of the sperm whale (males of which can reach lengths of at least 18 m), odontocetes are small to medium-sized cetaceans. Sexual dimorphism is the rule. Toothed whales are characterized by the presence of homodont teeth throughout life[1] (although teeth are buried in the gum or jawbone in some species, worn or lost in others, and take peculiar shapes in still others), a single blowhole, an asymmetrical skull (generally with a concave profile), presence of antorbital notches, a thin-walled "pan bone" at the posterior end of the mandible, a sternum with three or more parts, a complex system of nasal sacs, and a fatty organ in the forehead area called the melon. All are hypothesized to be capable of echolocation (i.e., producing specialized sounds, and receiving and processing the echoes from these sounds to navigate, find food, avoid predators, etc.), although this ability has been experimentally verified for only a handful of species held successfully in captivity. Odontocetes capture individual prey, which consists largely of various species of fishes and squids. There are 72 species in 33 genera.

Family Physeteridae—*Sperm whale*

The single species of sperm whale is the largest toothed cetacean and has the highest degree of sexual dimor-

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[1] Tooth counts of toothed whales given in this guide are for each tooth row (the upper and lower jaws each have two tooth rows), unless otherwise indicated.

phism. There is a low dorsal hump, followed by a series of crenulations. It has a large head with a squarish profile, narrow underslung lower jaw, and functional teeth only in the lower jaw (these fit into sockets in the upper jaw). The blowhole is located at the left front of the head. The head is highly modified, and is divided into sections called the "junk" and the spermaceti organ, or "case." The spermaceti organ is a large oil-filled reservoir, the function of which is controversial. There is a dish shape to the facial area of the skull, extreme cranial asymmetry, and a long rostrum. Sperm whales are known to be capable of very deep, long dives of over 3,200 meters.

Family Kogiidae—*Pygmy and dwarf sperm whales*

This family contains two species in a single genus. The pygmy and dwarf sperm whales are much smaller and share only a slight resemblance to the great sperm whale. They have blunt squarish heads, with underslung lower jaws (like their larger counterparts), but the head is much smaller than in the sperm whale, and the blowhole is not located at the front of the head as it is in the sperm whale. The skull structure is curious: it shares a basin-like facial area and great asymmetry with the sperm whale, but is much shorter. The dorsal fin in both species is relatively larger than that of the sperm whale, but is similarly followed by a series of small crenulations. Both species are characterized by a pigmentation mark on the side of the neck, similar in appearance to a shark's gill slit, a feature totally unique among cetaceans. The biology of these animals is very poorly known.

Family Monodontidae—*Narwhal and beluga whale*

This is a family of small whales (less than 6 m in length), with stocky bodies, blunt bulbous heads, broad rounded flippers, and no dorsal fins. There are two species in two genera. Both species are inhabitants of high arctic areas of the Northern Hemisphere. The skull is unique in that, in profile, it is very flat, with little or no rise in the area of the nares. Unlike the situation in most cetaceans, the cervical vertebrae are generally not fused, allowing monodontids a great range of neck flexibility. The two species are both restricted to high-latitude arctic waters, often living among the ice.

Family Ziphiidae—*Beaked whales*

The beaked whales (a large family, with 21 species in six genera) are medium-sized cetaceans (4–13 m long), which as a rule, have reverse sexual dimorphism (females larger than males). In general, beaked whales have a pronounced beak, relatively small dorsal fin set far back on the body, small flippers that fit into depressions on the sides, two short throat grooves, flukes lacking a median notch, and no more than 1–2 pairs of functional teeth in the lower jaw of males only (major exceptions of the latter are *Berardius*, in which females also have two pairs of exposed teeth, and *Tasmacetus*, in which both sexes have long rows of slender functional teeth). Beaked whales are poorly-known as a rule; however, most are thought to be deep-diving squid eaters. They generally travel in small groups.

Family Delphinidae—*Marine dolphins*

The family Delphinidae has been called a "taxonomic trash basket," because many small to medium-sized odontocetes of various forms have been lumped together in this group for centuries. It is the largest marine mammal family, with 36 species in 17 genera. Needless to say, then, the so-called delphinids are extremely diverse in form. They range in size from the 1–1.8 m dolphins of the genera *Sotalia* and *Cephalorhynchus* to the killer whale, in which males can reach lengths of at least 9.8 m. Most delphinids, however, share the following characteristics: a marine habitat, a noticeable beak, conical teeth, and a large falcate dorsal fin set near the middle of the back. There are exceptions to every one of these rules, except the presence of basically conical teeth, however. Generally, delphinids have a complex social organization, and they form the largest groups of any marine mammal (sometimes in the thousands or even tens of thousands).

Family Phocoenidae—*Porpoises*

Porpoises (6 species in 3 genera) are small cetaceans (all less than 2.5 m) that some taxonomists in the past have classified with the delphinids. They tend to be coastal in distribution, rather stocky in form, with either a short, indistinct beak or no beak at all. Most have a short triangular dorsal fin; all have spade-shaped teeth, and bony protuberances on the skull in front of the bony nares. In some species, females are larger than males. Phocoenids appear to live in smaller groups and have a simpler social structure than do most delphinids.

Family Platanistidae—*South Asian river dolphin*

This family includes the susu and bhulan of the Ganges and Indus rivers, which were previously classified as separate species, but are now recognized as subspecies of *Platanista gangetica*. Animals in this family are nearly blind, and apparently rely largely on echolocation to navigate and find food. The body is fairly small (to about 2.6 m) and is soft and "mushy." There is a long forceps-like beak, with front teeth that can extend outside the closed mouth. The blowhole is a longitudinal slit. The susu and bhulan have no true dorsal fin, only a low dorsal ridge. The most characteristic feature of the skull is a pair of enlarged maxillary crests that overhang the rostrum. Distribution is restricted to several large river systems of South Asia. Some evidence suggests that this may be the most closely-related odontocete group to the mysticetes.

Family Iniidae—*Boto*

The single species in this family, the boto of the Amazon and Orinoco drainages in South America, is unique in several ways. It is a large river dolphin, with a moderately long, thick beak dotted with sparse hairs. The dorsal ridge is very low and usually indistinct. Many adults are nearly totally pink in color. The rear teeth are flattened and the zygomatic arches of the skull are incomplete.

Family Lipotidae—*Baiji*

This family contains a single extant species, the baiji of the Yangtze River in China. It is a mid-sized river dolphin. The dorsal fin is reduced to a low structure, with a short base. The rostrum is upturned, and there is a distinct constriction at its base. The baiji is the most endangered cetacean in the world today, and may already be extinct.

Family Pontoporiidae—*Franciscana*

This family also contains only one species, a coastal marine species of the east coast of South America, known as the franciscana. This is the smallest of the platanistoids (true river dolphins), rarely reaching 1.8 m in length. Females are larger than males in this species. Franciscanas have extremely long beaks (proportionately the longest of any cetacean) and rather low, triangular dorsal fins.

Order Sirenia—*Manatees and dugongs*

There are four living species of sirenians: three manatees and the dugong. A fifth species, Steller's sea cow of the North Pacific and Bering Sea, was exterminated by overhunting in the 1700s. Sirenians, like cetaceans, are totally aquatic. They are the only marine mammalian herbivores. As a consequence, even the most marine species, the dugong, tends to be less oceanic than members of other marine mammal groups. In fact, most manatees spend much or all of their lives in fresh or brackish water. All four living species are restricted to a tropical/subtropical habitat. Steller's sea cow was unique. It inhabited cold temperate to subarctic waters of the North Pacific.

Sirenians have the following morphological characteristics in common: robust body; tough, thick skin with little hair; two nostrils on top or at the front of a thick muzzle; no ear pinnae; no hind limbs; mammary nipples located near the axillae; forelimbs modified into flippers; horizontally flattened tail; and dense, swollen (pachyostotic) bones.

Family Trichechidae—*Manatees*

The three species of manatees (all in a single genus) are found in tropical/subtropical areas of the Atlantic Ocean (and appended freshwater systems) and are very sensitive to cold. They are characterized by a horizontally flattened, rounded tail (as opposed to the whale-like flukes of dugongs). With only six cervical vertebrae, manatees are among the few groups of mammals that diverge from the normal mammalian number of seven. They are also unusual in that their teeth are replaced throughout life with new ones from the rear of the mouth. The external auditory meatus (external ear) is very broad and shallow.

Family Dugongidae—*Dugong*

There is only one living species in the family Dugongidae. The other recent member, Steller's sea cow (*Hydrodamalis gigas*), was exterminated by overhunting in 1768. The dugong is a tropical/subtropical inhabitant of the Indo-Pacific, but Steller's sea cow was an inhabitant of cold temperate to subarctic waters. In members of this family, the flattened tail is expanded into flukes, similar to those of cetaceans. Other characteristics include a rostrum that is deflected downwards, the presence of erupted tusks in males (dugong only; Steller's sea cow had no functional teeth), a more streamlined body than those of manatees, and the absence of nails on the flippers.

Order Carnivora—*Carnivorous mammals*

(including pinnipeds, marine otters, and polar bears)

By far, most carnivores are terrestrial mammals. Besides pinnipeds, the Order Carnivora contains seven families of largely meat-eating mammals, including cats, dogs, bears, raccoons, weasels, otters, civets, and hyenas. Of these, only two families contain marine mammal representatives, the Mustelidae (otters and weasels) and the Ursidae (bears). As only 3 of these 200+ non-pinniped species of carnivores are marine mammals, we will not present the detailed characteristics of members of this order.

Family Mustelidae—*Otters*

The mustelids are the otters, weasels, and their kin. Other mustelids include the minks, polecats, martens, wolverines, skunks, and badgers. Although four other species of freshwater otters may obtain some of their food from the sea, only two of the approximately 67 species in this family are truly marine, the sea otter and the marine otter. Thus, we restrict our treatment to these two species usually considered among marine mammals. Otters are often classified in their own subfamily, the Lutrinae (containing about 13 species). Marine and sea otters are largely restricted to the Pacific Ocean (two marine species in two genera).

Family Ursidae—*Bears*

There are seven species of bears in the world; six are wholly terrestrial and only one qualifies as a marine mammal. Bears are very familiar animals to many people; in particular, the grizzly/brown and black bears of the Northern Hemisphere are often exhibited in zoos and are well known (grizzly/brown bears are most closely related to the polar bear). The single marine species, the polar bear, ranks as the least aquatic and least derived of all marine mammals. Polar bears may spend long periods of time on shore. They are restricted in distribution to arctic regions of the Northern Hemisphere.

Suborder Pinnipedia—*Seals, sea lions, and walruses*

There are 36 species of pinnipeds (Suborder Pinnipedia), all of which are assigned to three families of the mammalian order Carnivora: the Otariidae, Phocidae, and Odobenidae. Although technically the taxonomic suborder Pinnipedia is not recognized by many marine mammal biologists anymore, we will make use of this grouping in this book, for clarity of presentation. The otariids are the 16 species of sea lions and fur seals, sometimes referred to as the eared seals. The phocids are the 19 species of true seals, sometimes referred to as the earless seals. Odobenids are reduced to just a single living species, the walrus. There has been controversy as to whether the pinnipeds are monophyletic (i.e., evolved from a single ancestor) or biphyletic (from two separate ancestors). However, recent evidence seems to make it clear that they are monophyletic.

Pinnipeds are highly specialized aquatic carnivores that live in a diversity of marine habitats, and some freshwater ones as well. One unifying feature of the group is that all must return to a solid substrate, such as land or ice, to bear their pups. Almost without exception, females give birth to a single offspring per reproductive effort. All species are amphibious, though the otariids are the most agile and mobile on land. In general, phocids are more capable divers and breath-holders, although there is overlap in the capabilities of some otariids and phocids. In many ways, the walrus is intermediate between the phocids and otariids.

Pinnipeds all have fur (but also use blubber for thermoregulation), two sets of limbs (called foreflippers and hindflippers), long whiskers, nasal openings at the tip of the snout, and strongly reduced or lost ear flaps. Pinnipeds molt every year, some gradually over several weeks or months, others dramatically in a short time. In the species accounts, pinniped coloration is described in somewhat more detail than for cetaceans, because for identification, there is often more of an emphasis on the subtle shading often visible on hauled-out pinnipeds.

Family Otariidae—*Eared seals*

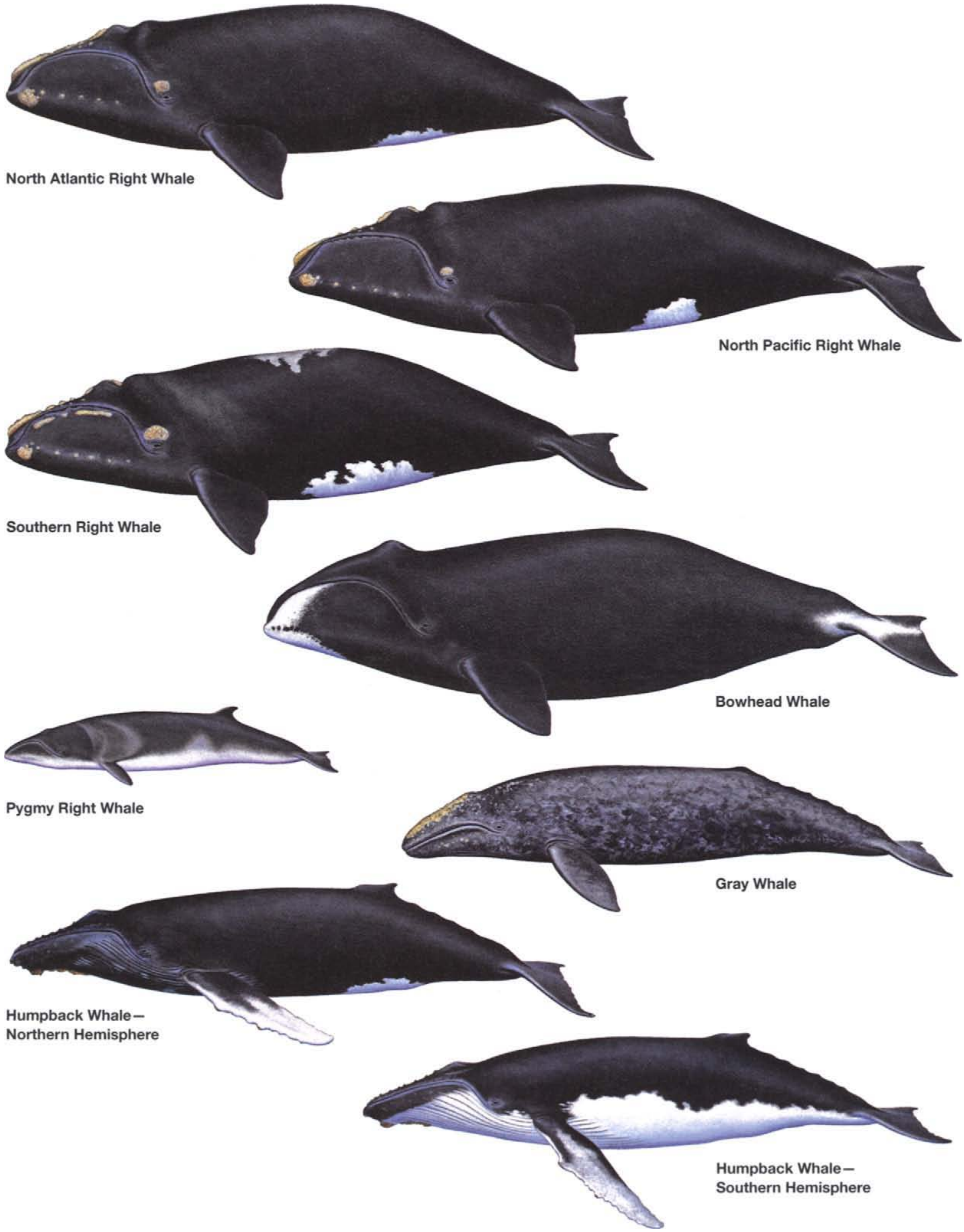
All 16 species (in seven genera) of sea lions and fur seals have a polygynous mating system and pronounced sexual dimorphism. Characteristics of this family are: small external ear flaps (pinnae), smooth vibrissae, light skin, a double layer of fur with short underfur and longer guard hairs, hairless hindflippers, four teats in females, scrotal testes, and skulls with shelf-like supraorbital processes and sagittal crests (the latter enlarged in adult males only). Eared seals swim with their large foreflippers and can rotate their hindflippers forward to walk on all fours on land. Southern Hemisphere fur seals rest in a characteristic posture, with head down and flippers swaying gently.

Family Odobenidae—*Walrus*

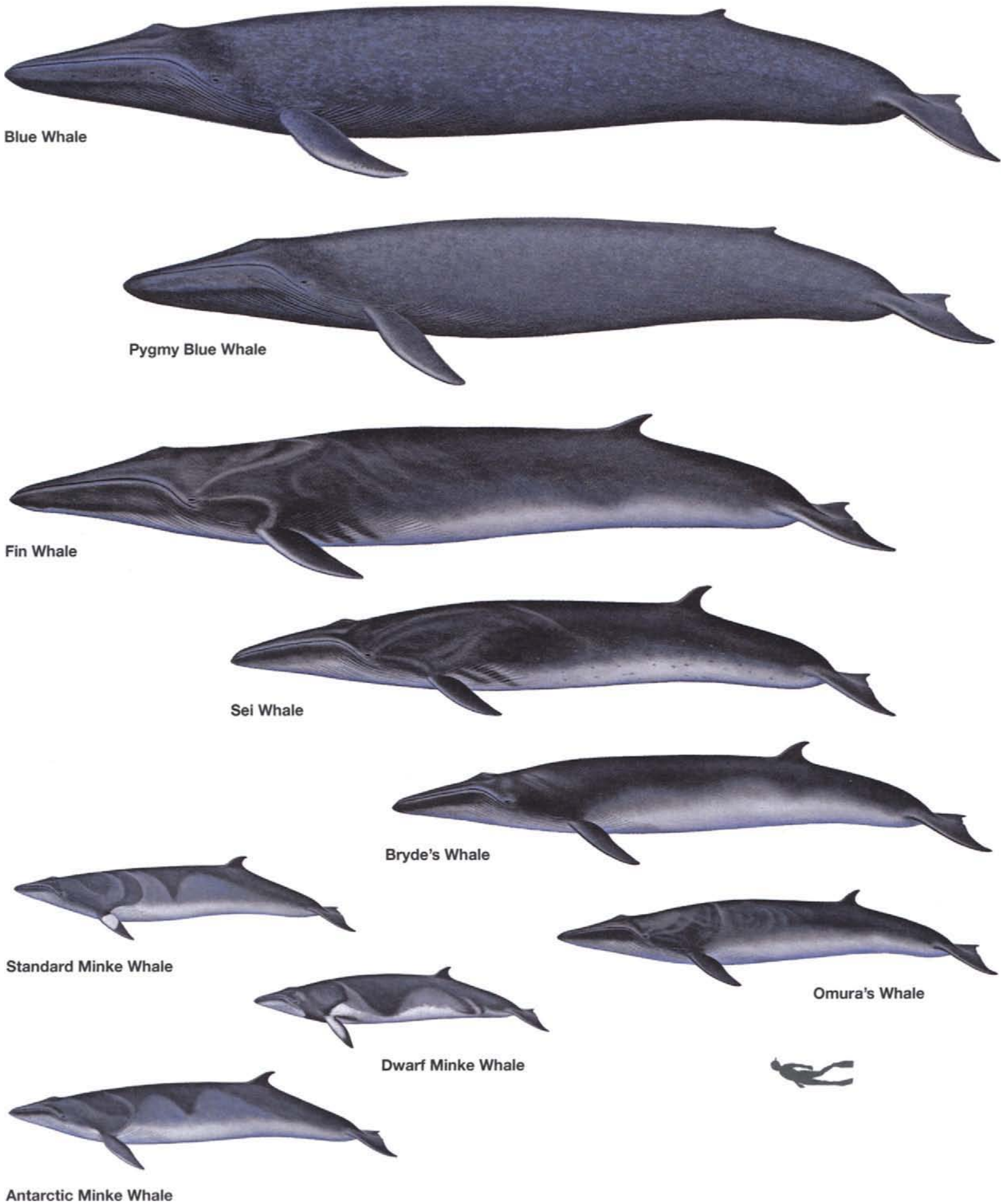
While there were multiple species in the past, today only a single walrus species persists. Walruses are enormous animals that combine features of both otariids (e.g., moderately long foreflippers that can lift the body off the ground) and phocids (e.g., lack of ear pinnae). The neck is long and the hindflippers can rotate under the body and permit walking, although walruses are so bulky they cannot walk as easily as most otariids can. The tail is sheathed in skin and not readily visible or free, as in other pinnipeds. The tusks are a unique feature, and are important in fighting and assisting with hauling out. The walrus skull is very dense (pachyostotic) and has antorbital processes that are composed of both frontal and maxilla bones. Walruses have numerous short, smooth vibrissae on their thick fleshy mystacial ("moustache") pads. The testes of walruses are internal, not scrotal, and females have four retractable mammary teats. The skin is dark in younger animals and lightens with age. Walruses swim with phocid-like side-to-side strokes of the hindflippers, with assistance from the foreflippers. They only occur in high latitudes of the Northern Hemisphere.

Family Phocidae—*True seals*

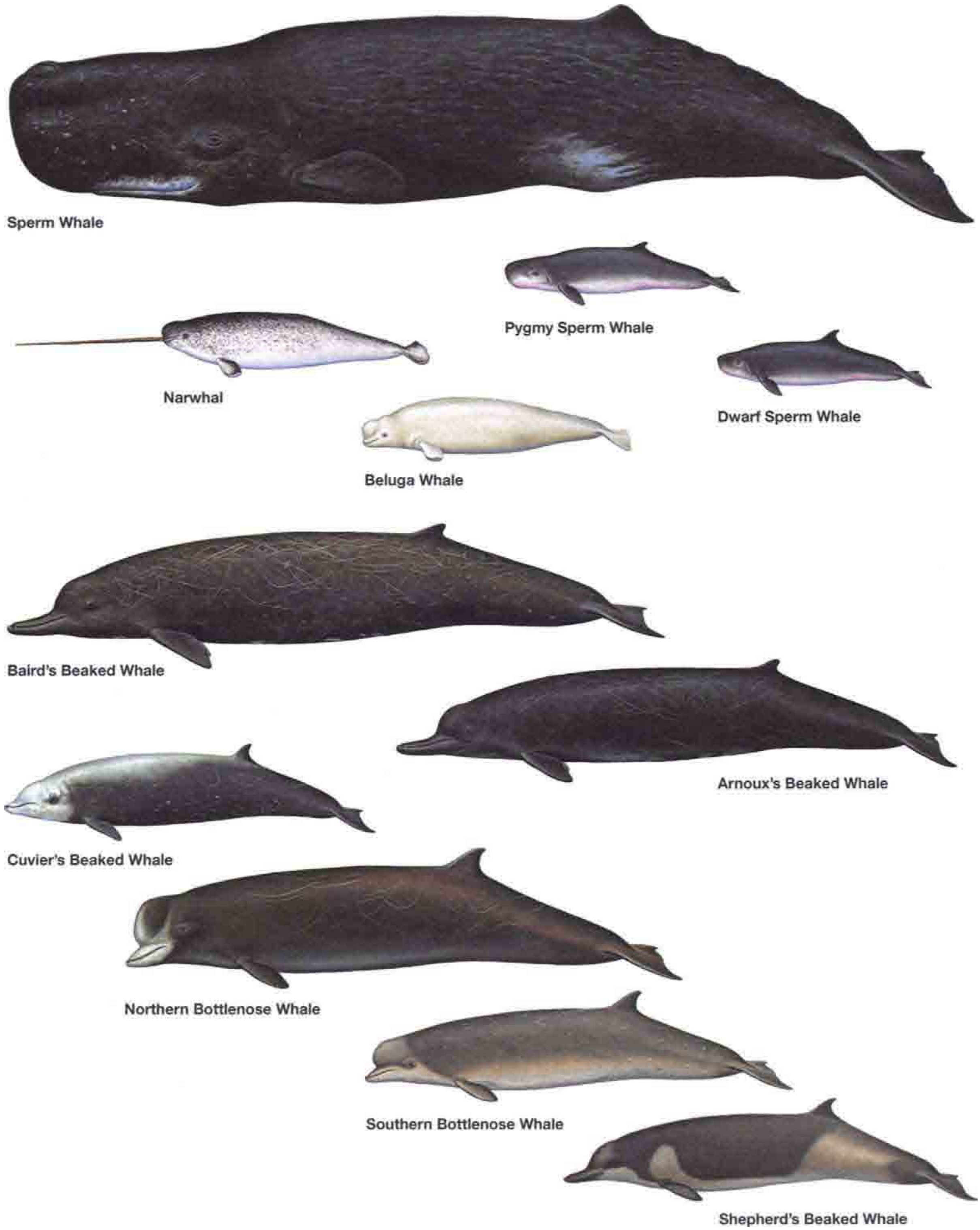
This is the largest family of the pinnipeds, with 19 species in 13 genera (one species is extinct). The true, or earless, seals include the largest of the pinnipeds, the elephant seals. Species within the group have variable degrees of sexual dimorphism (in some species, females are the larger sex). Phocids are characterized by the absence of external ear pinnae, a short muzzle, beaded vibrissae, dark skin, short fur, generally two teats in females, internal testes, furred hindflippers, inflated tympanoperiotic bones, and the absence of supraorbital processes or an enlarged sagittal crest on the skull. Propulsion in water is provided by figure-eight movements of the hindflippers, and movement on land is provided by inch-worming or "galumphing," without much help from the relatively small foreflippers. They lack the ability to draw the hindflippers under the body to lift themselves off the ground. As a rule, true seals are more aquatic than eared seals, spending proportionately less time on land or ice.

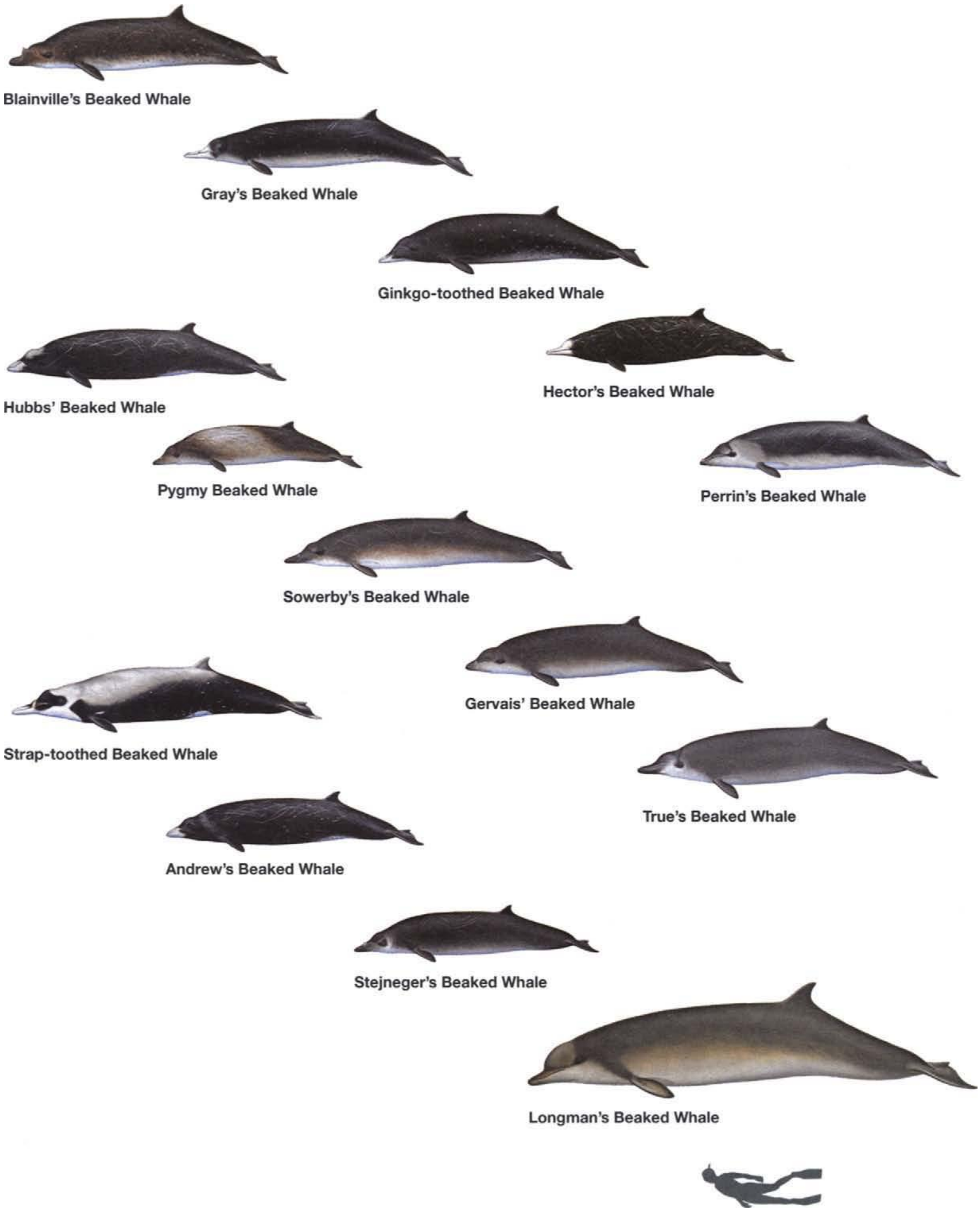

North Atlantic Right Whale
North Pacific Right Whale
Southern Right Whale
Bowhead Whale
Pygmy Right Whale
Gray Whale
Humpback Whale—
Northern Hemisphere
Humpback Whale—
Southern Hemisphere

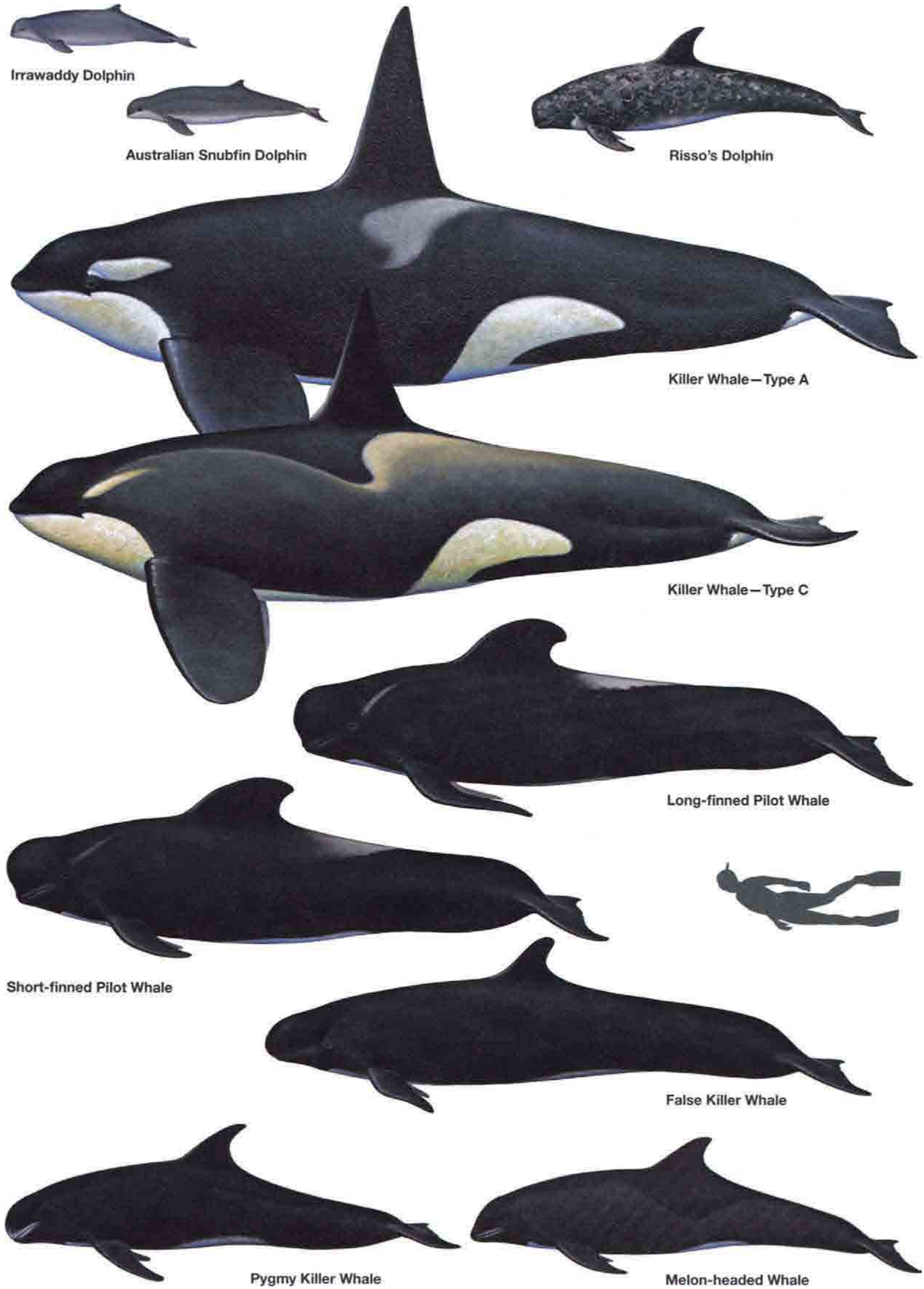
4. Cetaceans

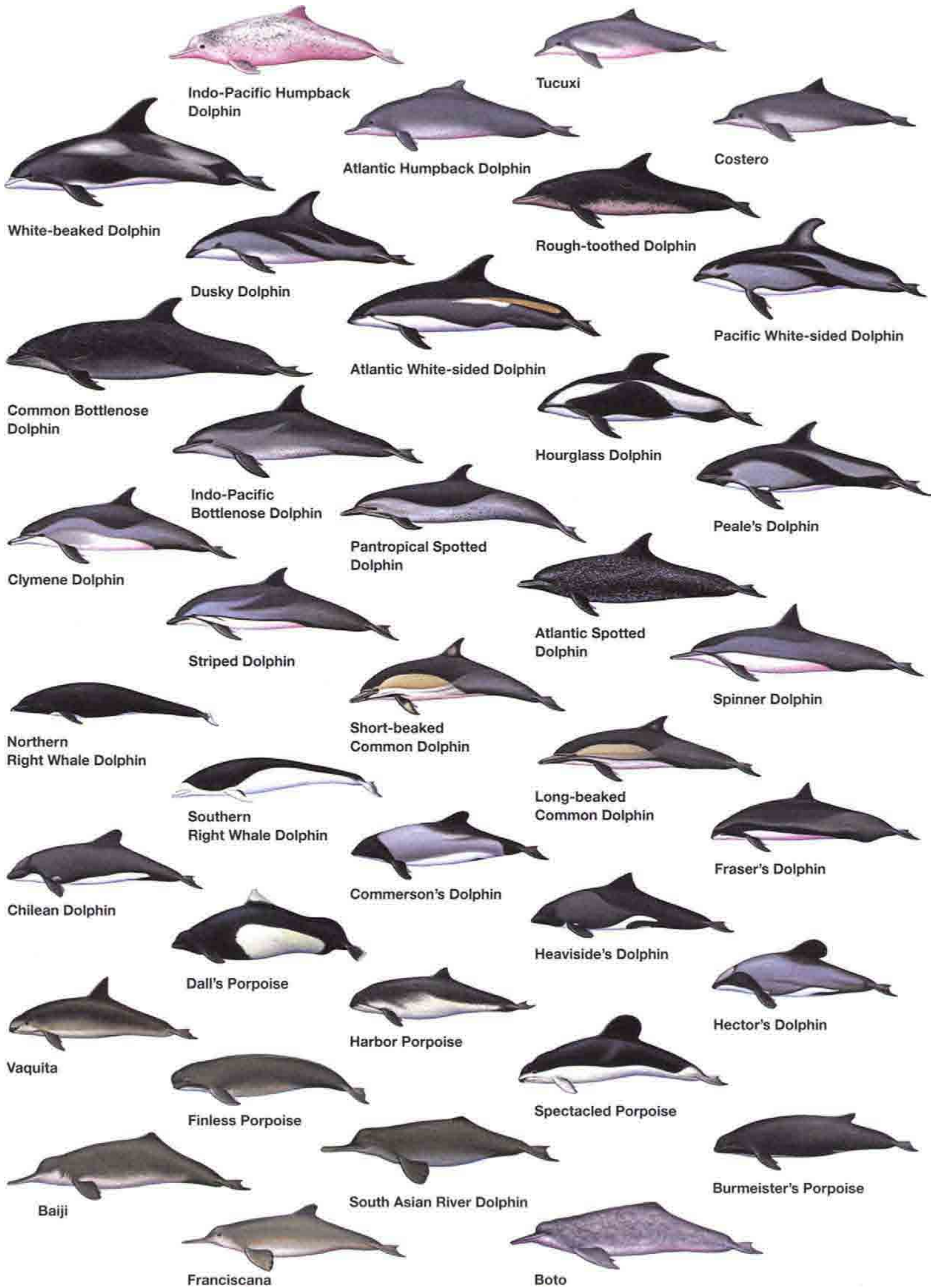

Blue Whale
Pygmy Blue Whale
Fin Whale
Sei Whale
Bryde's Whale
Standard Minke Whale
Omura's Whale
Dwarf Minke Whale
Antarctic Minke Whale

Toothed Whales *Odontoceti*



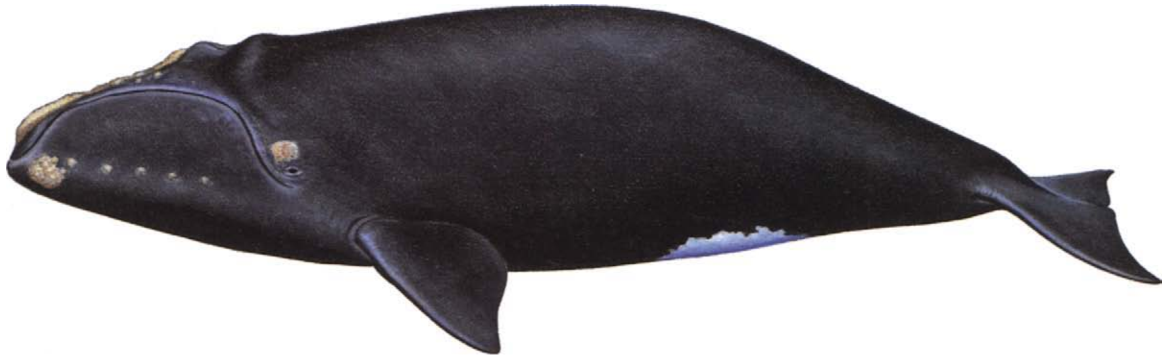

Blainville's Beaked Whale
Gray's Beaked Whale
Ginkgo-toothed Beaked Whale
Hubbs' Beaked Whale
Hector's Beaked Whale
Pygmy Beaked Whale
Perrin's Beaked Whale
Sowerby's Beaked Whale
Gervais' Beaked Whale
Strap-toothed Beaked Whale
True's Beaked Whale
Andrew's Beaked Whale
Stejneger's Beaked Whale
Longman's Beaked Whale


Irrawaddy Dolphin
Australian Snubfin Dolphin
Risso's Dolphin
Killer Whale—Type A
Killer Whale—Type C
Long-finned Pilot Whale
Short-finned Pilot Whale
False Killer Whale
Pygmy Killer Whale
Melon-headed Whale


Indo-Pacific Humpback Dolphin
Tucuxi
Atlantic Humpback Dolphin
Costero
White-beaked Dolphin
Rough-toothed Dolphin
Dusky Dolphin
Pacific White-sided Dolphin
Atlantic White-sided Dolphin
Common Bottlenose Dolphin
Hourglass Dolphin
Indo-Pacific Bottlenose Dolphin
Peale's Dolphin
Clymene Dolphin
Pantropical Spotted Dolphin
Atlantic Spotted Dolphin
Striped Dolphin
Spinner Dolphin
Short-beaked Common Dolphin
Northern Right Whale Dolphin
Long-beaked Common Dolphin
Southern Right Whale Dolphin
Fraser's Dolphin
Chilean Dolphin
Commerson's Dolphin
Heaviside's Dolphin
Dall's Porpoise
Hector's Dolphin
Harbor Porpoise
Vaquita
Spectacled Porpoise
Finless Porpoise
Burmeister's Porpoise
South Asian River Dolphin
Baiji
Franciscana
Boto

North Atlantic Right Whale—*Eubalaena glacialis*

(Müller, 1776)



Recently-used synonyms None.

Common names En.–North Atlantic right whale; Sp.–*ballena franca*; Fr.–*baleine de Biscaye*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenidae. A recent study has demonstrated that right whales in the three major ocean basins where they occur (North Pacific, North Atlantic, and Southern Ocean) represent separate lineages. As such, three species of right whales are now recognized: *E. japonica*, *E. glacialis*, and *E. australis*, respectively.

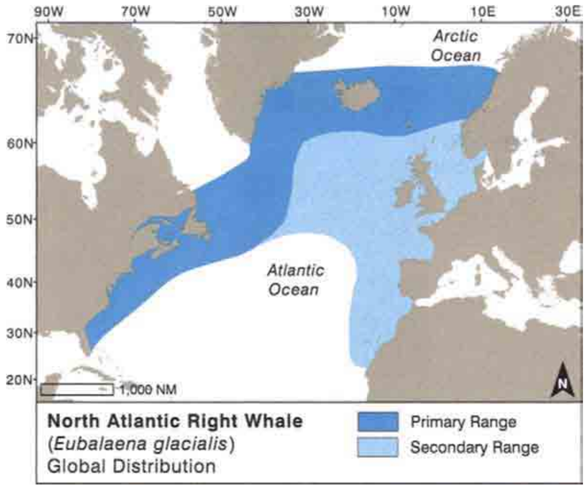
Species characteristics The right whales are among the stockiest of all whales. The axillary girth may be more than half the total length. The North Atlantic right whale has a massive head that can be one-fourth to one-third of its body length. The jawline is arched and the upper jaw is very narrow in dorsal view. It is narrowest near the middle and it widens slightly toward the tip. The upper edges of the lips are often scalloped. The eyes are located just above the corners of the mouth, and the blowholes are located at the highest point of the rear part of the head; they point slightly to the sides. The flippers are broad and are more paddle-shaped than the pointed flippers of most other cetaceans. They may be up to 1.7 m long. There is no dorsal fin or dorsal ridge on the broad back. The back is smooth and wide. The flukes are very wide (up to 35% or more of total length) and gracefully tapered, with a smooth trailing edge and a deep notch.

Most North Atlantic right whales are predominantly black, but there may be large white splotches of varying extent on the underside of the belly and the chin (about 20–30% of whales have them) and sometimes elsewhere on the body (not as extensive as in the southern right whale, however). Some individuals may appear mottled, which is caused by uneven sloughing of patches of skin. The head is covered with callosities, areas of roughened skin to which whale lice attach. The largest of these callosities, on the top of the rostrum, is called the bonnet. The upper jaw callosities tend to be more continuous than in the southern species. There are generally few or no callosities on the upper margin of the lower lips (however, these are fairly common in southern right whales). The skin of the callosity areas is more smooth on young animals, and it becomes more roughened with age. The patterns of the callosities are individually-distinctive, and these are used, together with prominent scarring, to identify individual whales.

The flukes of a North Atlantic right whale beginning a dive. They often fluke-up before a deep dive. Cape Cod Bay, Massachussetts. PHOTO: R. W. BAIRD.

The widely-separated blowholes produce a bushy V-shaped blow up to 5 m high. Inside the mouth are 200–270 (average 250) long, thin baleen plates, which may reach nearly 3 m in length. They are brownish-gray to black in color. The fringes of these plates are very fine, reflecting the small prey taken by this species.

Adult North Atlantic right whales range in length to 17 m, but may occasionally exceed 18 m. Females reach slightly larger sizes than males.



Adults may reach weights of 90,000 kg. Newborns are 4.0–4.5 m long.

Recognizable geographic forms None.

Can be confused with Although it is nearly impossible to distinguish the three right whale species from observations at sea, their distributions are widely separated, and they can be attributed to species based on their location. The North Atlantic right whale can be easily distinguished from other large whale species that occur in the Atlantic Ocean (primarily rorquals and sperm whales) by its robust body, large head, arched mouthline, long baleen plates, and V-shaped blow. North Atlantic right and bowhead whales once overlapped in distribution, and may again if populations recover. The presence/absence of callosities and coloration differences should make it easy to distinguish them.

Distribution North Atlantic right whales from two populations primarily inhabit temperate and subpolar waters of the North Atlantic Ocean. Historically, the two populations were presumably largely isolated from each other, and the eastern stock is now thought to be functionally extinct. The western North Atlantic stock breeds off the southeastern U.S. (Florida and Georgia) and feeds in the Gulf of Maine and off eastern Canada, as far north as Nova Scotia. The eastern Atlantic stock occurred in northern European waters, from Spain to Norway and Iceland, and probably moved south to waters off West Africa to breed. There are a few extralimital records from the Mediterranean. However, records in most parts of the eastern North Atlantic in recent years have been extremely rare. The population identity of right whales seen on rare occasions off Iceland and Greenland is unclear.

Ecology and behavior Right whales in the North Atlantic are mostly seen in groups of less than 12 (most

The North Atlantic right whale is generally easily recognized, due to its massive arched jaw and distinctive set of callosities—pale patches of whale lice and barnacles on the rostrum and lower jaw. Eastern Canada. PHOTO: S. GOWANS

A mother and her large calf North Atlantic right whale; even in aerial photographs, the callosity patterns allow identification of individual animals. PHOTO: COURTESY NOAA FISHERIES/SWFSC

Right whales all have a V-shaped blow, but so do humpbacks and gray whales on occasion. When viewed from the side, it appears columnar. PHOTO: S. LEATHERWOOD.

A North Atlantic right whale skims the surface, filtering prey out of the water; water passing out through the baleen forces the arched lip away from the upper jaw. PHOTO: R. W. BAIRD

As this North Atlantic right whale swims toward the photographer with its mouth open, it is skimming the surface and probably feeding on copepods; the pink tongue is visible between the baleen plates on either side of the rostrum. PHOTO: M. MOORE

North Atlantic right whales are skim-feeders—they swim along slowly with their mouth slightly agape, filtering out small invertebrates such as copepods from the water. They only occasionally do this at the surface, as in this photo. Western North Atlantic. PHOTO: C. FAIRFIELD

often singles or pairs). Larger groups may form in areas of aggregation for feeding and breeding. They are generally larger and more slow moving than their rorqual relatives. They can be aerially active, sometimes fluke-slapping and breaching repeatedly, and they generally raise their flukes before a deep dive. Right whale individuals can be identified by the patterns of scars and callosities (mainly on the head and back).

The mating system appears to involve sperm competition (males competing to inseminate females, not so much by physical aggression as by delivering large loads of sperm, thereby displacing that of other males). Male right whales have the largest testes in the animal kingdom. Groups of males are often seen surrounding a female, and mating with multiple males in these groups appears to be common. Interestingly, mating appears to occur throughout the year, but calving is seasonal. Young are born after a pregnancy of about a year in winter (mostly from December to March) on subtropical breeding grounds, nowadays primarily off the coasts of Florida and Georgia. The inter-calving interval averages about three years in this species, longer than for most other species of whales.

The functions of the callosities, which only right whales have, are unknown. It has been suggested that they are used by males in sexual selection for access to females. The evidence appears to support this hypothesis, although other functions cannot be ruled out. North Atlantic right whales may live to be at least 70 years of age.

Feeding and prey Right whales feed on calanoid copepods and other small invertebrates (smaller copepods, krill, pteropods, and larval barnacles), generally by slowly skimming through patches of concentrated prey at or below the surface. The most common prey species throughout most of the North Atlantic range is the copepod *Calanus finmarchicus*.

Threats and status This was the first species of whale to be commercially hunted, starting in the 11th century with a Basque fishery in the Bay of Biscay. It was slow, yielded large amounts of oil and baleen, and floated when dead, thus making it the "right" whale to kill. Heavy hunting left it severely depleted by the late 1600s, but some direct exploitation continued into the 20th century. Right whales are now fully protected, but current known threats include vessel collisions and entanglement in fishing gear. More than 60% of living North Atlantic right whales bear scars from fishing gear, and about 6% have injuries from vessel collisions. In addition, habitat destruction, pollution, and disturbance by vessel traffic may also be factors. This is one of the world's most endangered large whales, with only 300–350 whales thought to remain. Although the population was apparently growing in the 1980s and early 1990s, it began to drop in the late 1990s. It is now thought to be declining, due to anthropogenic mortality, and is clearly in very real danger of extinction.

IUCN status Endangered.

References Best et al. 2001; Clapham 2004; Kraus et al. 2005; Kenney 2002; Reeves and Kenney 2003; Rosenbaum et al. 2000.

North Pacific Right Whale—*Eubalaena japonica*

(Lacépède, 1818)

Recently-used synonyms *Balaena seiboldii.*

Common names En.–North Pacific right whale; Sp.–*ballena franca*?; Fr.–*baleine franche*?.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenidae. This species was only recently split off from *E. glacialis*, due to indications of its genetic distinctness. There are few known morphological differences between the two Northern Hemisphere species.

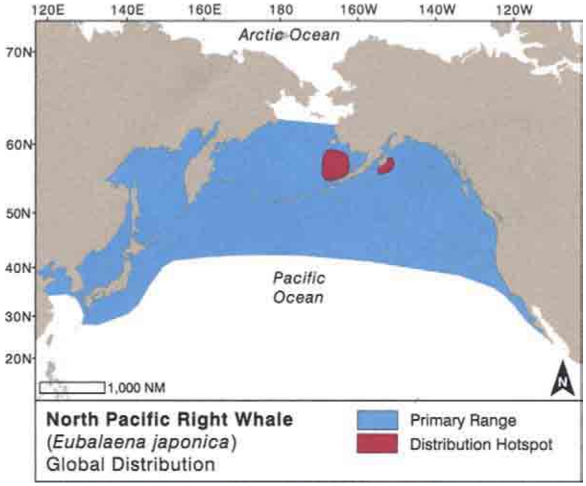
Species characteristics Right whales in the North Atlantic and North Pacific are not known to differ significantly in their external morphology or coloration. North Pacific right whales are extremely stocky animals; the maximum girth is about 75% of the total length. They have massive heads that can be up to nearly one-third of their body length. The eyes are set just above the corners of the mouth. The jawline is strongly arched and the upper jaw is very narrow in dorsal view, although it widens somewhat toward the tip. The upper margin of the lower jaw is generally somewhat serrated. The flippers are broad and tend to be more paddle-shaped than the pointed flippers of most other cetaceans, and they may be up to 1.7 m long. There is no hint of a dorsal fin or dorsal ridge on the broad back. The flukes are very wide (up to 35% or more of total length) and gently tapered, with a smooth trailing edge and a deep median notch.

Most North Pacific right whales are predominantly black, but there may be large white splotches of varying extent on the underside and sometimes elsewhere on the body (not as extensive as in the southern right whale, however). The head is covered with callosities, areas of roughened skin to which whale lice attach. The largest of these callosities, on the tip of the rostrum, is called the bonnet. The upper jaw callosities tend to be more continuous than in the southern species. There are generally few or no callosities on the upper margin of the lower lips (however these are fairly common in southern right whales). The widely separated blowholes produce a bushy, V-shaped blow up to 5 m high. Inside the mouth are 200–270 long, thin baleen plates, which may reach nearly 3 m in length. They are brownish-gray to black in color. The fringes of these plates are very fine, reflecting the small prey taken by this species.

This appears to be the largest of the three right whales species. Adults range in length to over 17 m, with females larger than males. Based on data from the North Atlantic species, newborns are thought to be 4.0–4.5 m long and adults may weigh up to 90,000 kg.

Recognizable geographic forms None.

A pair of North Pacific right whales, the most endangered of all the great whale species. The large, arched lower jaw is outlined by the callosities on the upper margin of the lower lip. Bering Sea. PHOTO: J. DURBAN/NOAA FISHERIES/NMML



The distinctive, widely-spread, V-shaped blow of the North Pacific right whale is visible only when viewed from ahead or behind the whale (as in this case). Bering Sea. PHOTO: J. DURBAN

The extremely wide, finless back and narrow head of a North Pacific right whale, seen from directly behind. PHOTO: K. PARSONS/ NOAA FISHERIES/NMML

Can be confused with In the northern extremes of their range, especially in the Bering and Okhotsk seas, North Pacific right whales may be readily confused with bowhead whales from a distance. A closer look will provide the means to distinguish them. Bowhead whales lack callosities and right whales generally have white patches only on the belly. North Pacific right whales may also be confused with humpback whales, but only from a great distance.

Distribution Right whales are now extremely rare in the North Pacific and little is understood of their current distribution there. Most of what is known of their historical range is based on whaling records. They previously had an extensive distribution in offshore waters (some > 2,000 m water depth). There was evidence of a general northward migration in spring and a southward shift in autumn. However, records anywhere in winter are sparse and the breeding grounds are not known. The only area where North Pacific right whales are seen reliably today is on the southeastern Bering Sea shelf in April to September. Sightings and whaling catches have occurred in the Okhotsk and Bering seas, Gulf of Alaska, and around the Kuril and Aleutian islands. There have also been recent reports further south off Japan, the western U.S., and Baja California, Mexico. A few sightings have been reported from Hawaiian waters. The absence of evidence for coastal winter breeding grounds suggests that (unlike their congeners) North Pacific right whales may breed in offshore areas.

Ecology and behavior Not much is known of the ecology and behavior of the North Pacific right whale, since these animals have been rarely observed alive in the last few decades. Much of what is known comes from whaling records. These whales generally occur most often as singles or pairs. Larger groups or aggregations may form on feeding or breeding grounds. They perform breaches and other aerial behaviors and generally raise their flukes before a long dive. Interestingly, sightings in Hawaiian waters have mostly involved single animals in close proximity to groups of wintering humpback whales.

As in the North Atlantic species, the mating system appears to involve sperm competition. Calving areas have not yet been identified in the North Pacific; the absence of many records from coastal areas in winter may suggest that they breed offshore. Feeding areas are most often in shallow coastal regions of the temperate to subpolar zones. In general, this species appears to have a more oceanic distribution than does the North Atlantic right whale, which may have to do with the different availability of prey resources between the two ocean basins. There is good evidence to suggest the existence of two separate stocks of North Pacific right whales in the eastern and western Pacific. Based on information from the North Atlantic, these whales may live to be over 70 years old. The sighting of three cow/calf pairs in the Bering Sea in 2004 provides some renewed hope for the recovery of this species.

A North Pacific right whale moving rapidly at the surface in the Bering Sea; water coming out of the mouth outlines the arched lower lip. PHOTO: J. DURBAN

Feeding and prey Right whales feed on calanoid copepods and other small invertebrates (smaller copepods, krill, pteropods, and larval barnacles), generally by slowly skimming through patches of prey concentrated at or near the surface.

A close-up of the head of a North Pacific right whale, showing the arched mouthline and callosities. PHOTO: J. DURBAN

Threats and status Hunting by the Japanese began as early as the late 1500s, and by Europeans and Americans in 1835. North Pacific right whales were heavily exploited in the 1800s, and any recovery was impeded by large illegal Soviet catches (see below). They have been protected for over 65 years, but illegal hunting continued into the 1970s. Russian whalers illegally killed at least 372 right whales in the eastern North Pacific in the 1960s, which may have been the bulk of the remaining population. With the exception of a small area in Alaskan waters, sightings are now rare, and major threats are largely the same as for *E. glacialis* (primarily fishing gear entanglements and vessel strikes). Climate change is another issue that may be affecting the ability of this population to recover. There were once probably over 11,000 North Pacific right whales. Although there are no reliable population estimates, it is thought that there are almost certainly no more than a few hundred North Pacific right whales alive today, and these are mostly found in the western Pacific. The eastern population was devastated by the Soviet catches and likely numbers fewer than 100 whales—it is critically endangered. Population trends are not known with any certainty, although there is little evidence for a significant recovery of numbers in the last few decades and until recently, sightings of young calves have been virtually non-existent.

IUCN status Endangered.

References Angliss and Lodge 2004; Clapham et al. 2004; Kenney 2002; Reeves and Kenney 2003; Shelden et al. 2005.

Southern Right Whale—*Eubalaena australis*

(Desmoulins, 1822)

Recently-used synonyms None.

Common names En.–southern right whale; Sp.–*ballena franca austral*; Fr.–*baleine australe*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenidae.

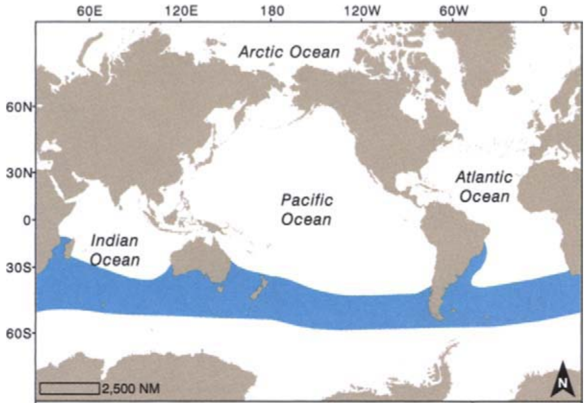
Species characteristics Southern right whales are enormous animals. These stocky whales have extremely large heads, which can be one-fourth to one-third of the body length. The mouthline is strongly bowed and the rostrum is arched and very narrow when viewed from above. As is true for all right and bowhead whales, there is no trace of a dorsal fin or ridge in the southern right whale. The back is smooth and broad. The flippers are fan- or paddle-shaped and large (up to 1.7 m long), and the flukes are broad with smooth contours. All right whales have callosities on their heads, the largest of which is called the bonnet. These upper jaw callosities tend to be more discontinuous in this species than in their Northern Hemisphere counterparts. In addition, callosities often appear on the upper margin of the lower lips in southern right whales. The callosity patterns are individually distinctive and are used by researchers to identify individuals.

Southern right whales are black over most of the body, but most have white patches of variable shape and size on the belly and sometimes on the chin. They sometimes appear to have light mottling (generally caused by uneven sloughing of skin) and about 3–6% of animals have white or light gray blazes on the back (the latter are uncommon in the northern species). Color variants have been noted; these include blue-black, light brown, and partially white/gray individuals (the latter are generally heavily mottled). In addition to those on the callosities, whale lice are common in creases and folds on the bodies of southern right whales.

The head of a southern right whale, showing the 'bonnet' and other callosities. The size and placement of these white patches can be used to identify individual animals in long term studies. Peninsula Valdes, Argentina. PHOTO: S. HEINRICH

Southern right whale adults reach up to 17 m in length; as in the other species in the genus, females grow larger than males. They tend to be slightly smaller than those in the Northern Hemisphere. These animals can reach weights of at least 80,000 kg. Newborn animals are 4–5 m long.

The 200–270 baleen plates per side are narrow and long, up to 3 m in length. The plates tend to be dark gray to black (although some can be nearly white) and have fine gray to black fringes. The blow of the southern right whale is relatively



Southern Right Whale
(*Eubalaena australis*)
Global Distribution

The open blowholes of the southern right whale, viewed from behind, as the animal lifts its head out of the water. The 'bonnet' is uppermost in this interesting perspective. Argentina. PHOTO: S. HEINRICH

short and V-shaped, making this species identifiable at a distance, especially if seen from ahead or behind.

Recognizable geographic forms None.

Can be confused with The southern right whale is the only whale in its range with a smooth, finless back and callosities; this should make misidentifications unlikely. From a distance the bushy, somewhat V-shaped, blows of humpback whales can be mistaken for those of right whales. At close range, however, the two species are unmistakable.

Distribution Southern right whales have a circumpolar distribution in the Southern Hemisphere, from approximately 20°S to 55°S, although they have been observed as far south as 65°S. They are migratory, moving south to feed in summer months. For winter, they migrate north and much of the distribution is concentrated near coastlines. Major mating and breeding areas are nearshore off southern Australia (including Tasmania), southern New Zealand/Campbell Island, southern South America, and South Africa/Mozambique/Madagascar, as well as around several subantarctic islands. Multiple stocks are considered to exist. A few southern right whales have been sighted in Antarctic waters in summer.

Ecology and behavior Southern right whales have been well-studied on their winter breeding grounds, especially at Peninsula Valdes, Argentina, and in Australia and South Africa. The Argentine study has been

These southern right whales look deceptively slim in this photo—in fact, they are massive, rotund creatures. PHOTO: L. LEBRATO

Callosity patterns, as shown on this southern right whale, are like fingerprints and allow recognition of every individual in a population. Off New Zealand. PHOTO: R. L. PITMAN

The powerful flukes of a southern right whale rise above the surface in Argentine waters. PHOTO: S. HEINRICH

Most southern right whales are shiny black, but some are mottled black and white, like this individual. Peninsula Valdes, Argentina. PHOTO: L. MORSE

All three right whale species have a V-shaped blow, with widely divergent jets of vapor. South Atlantic, south of Africa. PHOTO: P. OLSON

ongoing since the early 1970s and is one of the longest-running behavioral studies of any cetacean population. Researchers have used callosity patterns to identify individuals on these grounds, and have learned much about the right whale's behavior, communication, and reproduction. Southern right whales often seem slow and lumbering, but at times can be surprisingly quick and active. They often breach, and slap their flippers and flukes on the surface. Southern right whales often raise their flukes on a dive. They have even been seen apparently "sailing" by catching the wind with their raised flukes. Typical feeding dives last 10–20 minutes.

Most of the breeding in Argentina takes place in August and September, but mating has been observed in most months of the year. Male right whales have huge testes (up to 2 m and 500 kg each) and long penises, two characteristics predicted in species in which males compete for females primarily through sperm competition, rather than by direct aggression. In fact, observations of mating right whales often appear to support this hypothesis, with one female often engaging in sequential mating with multiple males, which do not appear to show much overt aggression.

Feeding and prey Surface and subsurface skim-feeding is the rule in this species. They move forward through patches of prey with the mouth open, allowing water to move through and catching the prey items on the finely fringed inner surfaces of the baleen plates. Southern right whales prey mostly on copepods and krill, apparently sometimes feeding near the bottom.

Threats and status After North Atlantic right whale stocks began to be reduced, European and American whaling activity shifted to the Southern Hemisphere. Heavy exploitation there left stocks badly depleted. Unauthorized catches by the Soviets of more than 3,000 right whales in the 20th century added to the depletion.

A female southern right whale and her young calf seeking protection in the shallows; their individually identifiable callosity patterns are clearly visible. Peninsula Valdes, Argentina. PHOTO: G. JOHNSON

Fisheries interactions, as well as potential vessel disturbance and collisions, continue to threaten southern right whale populations today. Although there are thought to be only about 8,000 animals remaining, the southern right whale is not as seriously endangered as the northern species. Some populations appear to be recovering, such as those that breed off Argentina, South Africa, and western Australia. All three of these appear to be increasing at 7–8% per year, and clearly this means the prospects of long-term survival are much better for this species than for either of the Northern Hemisphere species.

IUCN status Lower Risk/Conservation Dependent.

References Bannister 2001; Best et al. 2001a,b; Kenney 2002; Payne et al. 1990; Rosenbaum et al. 2000.

Bowhead Whale—*Balaena mysticetus*

Linnaeus, 1758

Calf

Adult

Recently-used synonyms None.

Common names En.–bowhead whale or Greenland right whale; Sp.–*ballena de cabeza arqueada*; Fr.–*baleine du Groenland*.

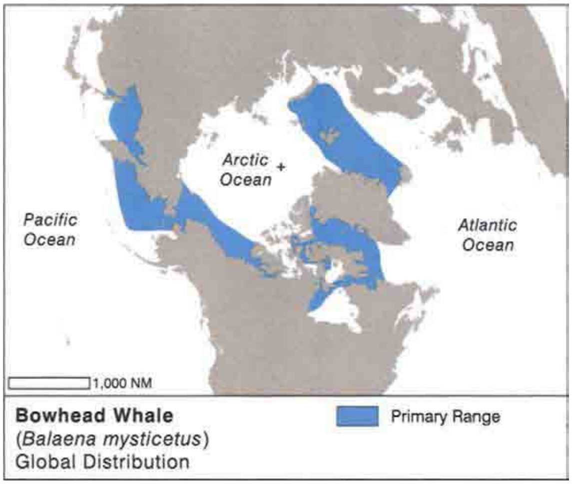
Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenidae.

Species characteristics Bowhead whales superficially resemble their close relatives, the right whales. They are extremely rotund overall, but usually have a distinct "neck" region. The head is large (up to two-fifths of the body length); the upper jaw is arched (thus the name, bowhead) and narrow when viewed from above. There is a prominent muscular bulge in the blowhole area (sometimes called the "crown" or "stack" by whalers), with a distinct depression behind. The mouthline is strongly bowed, and the eye is placed just above the corner of the mouth. There is no dorsal fin or ridge, and the back is very broad and smooth. The flippers are large and fan-shaped, and have blunt tips. The flukes are wide (2–6 m across) and tapered toward the tips, with smooth contours. Bowheads have extremely thick skin (up to 2.5 cm) and blubber (up to 28 cm) layers.

Predominantly black in color (although some lighter-colored animals are occasionally seen), bowheads have varying amounts of white beneath, usually showing dorsally as a white patch at the front of the lower jaw. This patch often has several dark gray to black spots, each indicating the position of a chin hair. There is also often a light gray to white band around the tail stock, just in front of the flukes, and sometimes other white or light gray areas on the body (such as on the belly and flukes). The white on the tail expands with age, and very large, old bowheads may have an almost completely white tail.

Bowheads have the longest baleen plates of any whale. The 230–360 plates in each side of the jaw can reach lengths of 5.2 m; they have long, fine fringes. The plates are dark gray to brownish-black, generally with slightly lighter fringes.

An aerial photograph of a female bowhead whale and her newborn calf. The lack of callosities on the head and the white chin separate it from the similar right whale. Notice also the light band around the tail stock. PHOTO: D. RUGH



As is true for the closely-related right whales, the blow is V-shaped and bushy.

Females grow somewhat larger than males. Male bowhead whales range to 18 m in length, females to 20 m. Weights of large individuals have been estimated at about 90,000 kg. Calves are about 4.0–4.5 m long at birth.

Recognizable geographic forms None.

Can be confused with Bowheads should be very easy to identify, as the only other large whales with a smooth back are the right whales, which are rare in the bowhead's northern haunts. The right whales' callosities and absence of white on the chin and peduncle will allow them to be distinguished from bowheads. Gray whales use some of the same summer range as bowheads, but the gray whale's dorsal hump and knuckles, weakly-arched lower jaw, and more slender body shape and lighter coloration should make them distinguishable in most circumstances.

Distribution Bowheads are the most boreal of all great whale species, and are found only in arctic and subarctic regions generally between about 55° and 85°N. Once there might have been a single panarctic population. Currently, there are five stocks recognized in the North Atlantic Ocean, and the Bering, Beaufort, Chukchi, and Okhotsk seas. These animals live much of their lives in and near sea ice, migrating to the high arctic in summer, but retreating southward in autumn with the advancing ice edge.

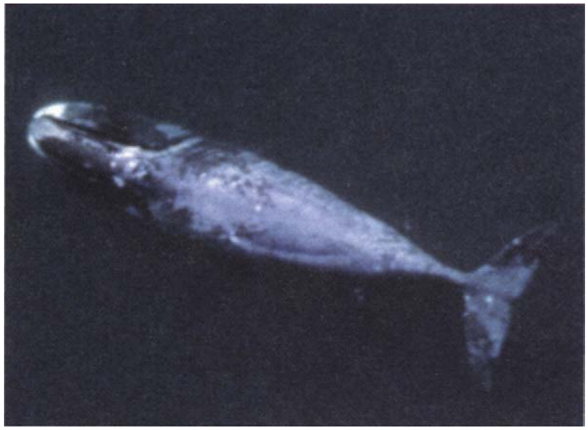
Ecology and behavior Bowhead whales are usually seen in groups of three or fewer, but larger aggregations form during migrations and on the feeding grounds. Although often slow-moving, bowheads do breach, fluke slap, and engage in other aerial behavior, sometimes for extended periods. They lift their flukes before a steep dive, but not as often as some other great whales. Complex low frequency calls (some arranged into songs) are common, at least during migration. Bowheads are closely associated with ice for most of the year. They are adapted to living among the arctic ice, and they can break through ice as thick at 60 cm. Their diving abilities, while not as well-studied as for many other species of large whales, are thought to be exceptional—they can possibly stay submerged for over an hour.

Bowhead whales probably mate in late winter or early spring. Calves are born mainly the following spring (about 13–14 months later), as whales migrate toward their summering grounds. The breeding system is thought to be similar to that of the right whale, with males using a form of sperm competition. Mating groups often

A bowhead whale (swimming left) exposes its massively arched lower lip; it has no callosities, which rules out identification as a right whale. PHOTO: K. LAIDRE

Bowhead whales lack callosities, but they do have mounded blowholes; this "stack" is used to break through ice when surfacing. PHOTO: K. LAIDRE

Bowhead whales have a distinctive double-humped appearance when seen in profile; the mounded blowhole is to the left. PHOTO: COURTESY S. LEATHERWOOD



This aerial view of a bowhead whale shows its robust body, narrow rostrum and white tip to the lower jaw. PHOTO: COURTESY S. LEATHERWOOD

The flukes of a bowhead whale going down for a dive. The trailing edge of the flukes is usually rather smooth in this species. PHOTO: R. L. PITMAN

are composed of the female and multiple male suitors, similar to the situation in right whales.

Bowheads may be among the longest-lived of all mammals. There is some evidence from aspartic acid physiology and harpoon head recovery records to suggest that some individuals may live for more than a century (possibly even over 200 years)! Their major natural predator is the killer whale. Between 4 and 8% of Alaskan bowheads killed by Eskimos bore scars from killer whale attacks.

Feeding and prey Small to medium-sized (mostly 3–30 mm long) crustaceans, especially krill and copepods, form the bulk of the bowhead's diet. They also feed on mysids and gammarid amphipods; their diet includes at least 60 species. Bowheads skim-feed at the surface and in the water column. It has recently been suggested that they also feed near the bottom, but probably do not directly ingest benthic sediments, as gray whales routinely do. During surface skim-feeding, coordinated group patterns have been observed, including whales feeding in echelon (V-shaped) formation.

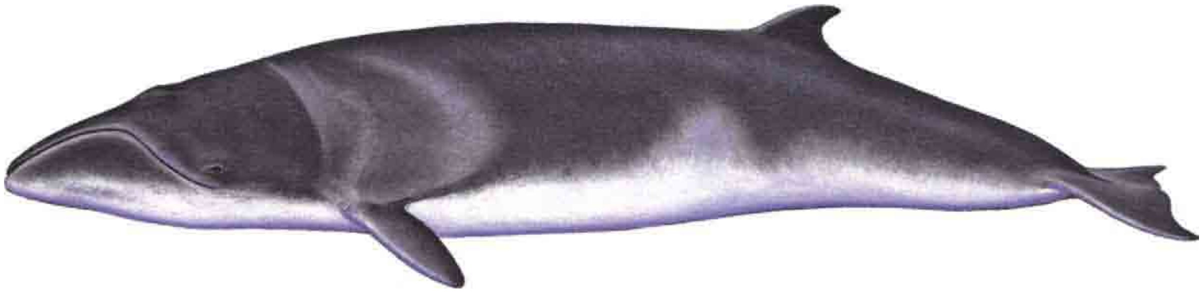
Threats and status All bowhead whale stocks were depleted by commercial hunting, which began in the 1500s, but was most intense in the 1800s and early 1900s. Heavy hunting has left four of the five recognized bowhead stocks highly endangered (less than a few hundred animals each). However, the Bering-Chukchi-Beaufort stock (also known as the Western Arctic stock) is thought to number over 10,000 animals, and is apparently increasing at about 3% per year. Limited whaling by Eskimos in Alaskan and Russian waters is allowed under a quota system set and overseen by the International Whaling Commission and the U.S. Government. This, along with small (but not insignificant) kills by the Russians and Canadians may be factors in the recovery abilities of the affected stocks. The major non-direct threats to these animals are disturbance from oil and gas exploration and extraction activities in the arctic and subarctic regions, along with entanglement in fishing gear and pollution. Climate change (i.e., warming of polar regions) may also be a factor in their recovery.

IUCN status Critically Endangered (Spitzbergen stock), Endangered (Okhotsk Sea and Baffin Bay/Davis Strait stocks), Vulnerable (Hudson Bay/Foxe Basin stock), Lower Risk/Conservation Dependent (all other stocks).

References Angliss and Lodge 2004; Burns et al. 1993; Reeves and Cosens 2003; Reeves and Leatherwood 1985; Rugh and Shelden 2002; Rugh et al. 2003.

Pygmy Right Whale—*Caperea marginata*

(Gray, 1846)



Recently-used synonyms *Neobalaena marginata*.

Common names En.–pygmy right whale; Sp.– *ballena franca pigmea*; Fr.–*baleine pygmée*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Neobalaenidae.

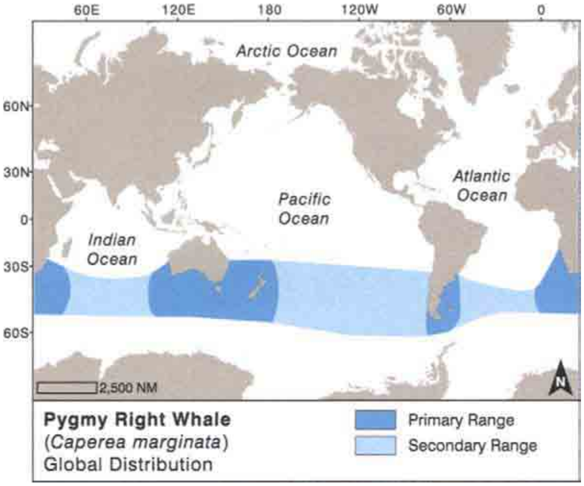
Species characteristics Although its name might imply that it is a "right whale", the pygmy right whale is actually now placed in a separate family and is not commonly regarded as one of the right whales. The falcate dorsal fin is set about 70–75% of the way back from the snout tip. This species is rather slender, resembling more the streamlined rorquals than the chunky right and bowhead whales, and the head is not large (less than one-quarter of the body length). The pygmy right whale is like the right whales in that it has an arched jaw line; also the upper jaw curves downward toward the tip, although not as much as in right and bowhead whales. There is a single mid-dorsal ridge extending down the top of the head from the blowholes to the rostrum tip. The flippers are small and slender with rounded tips. The flukes are broad, with a deep median notch. There are two shallow throat creases, reminiscent of those in gray whales.

The color of the body is dark gray above, shading to white below. Large adults may have a brownish tinge. There are typically white to light gray streaks and bands sweeping up from the belly onto the back. Most animals possess a chevron of light color at around the level of the flippers, and some may have a second chevron further back. The flippers and flukes are dark gray. Light-colored, concave healed scars (possibly caused by cookie-cutter sharks) are common on the body.

The baleen plates in this species number about 213–230 in each side of the upper jaw. They are up to 68 cm long and are very flexible and tough. The color of the plates is yellowish-white. The fringes are the finest and densest among all whales. The blow ranges from thin and columnar, to shorter and puffier, and may even be inconspicuous.

At sea, the rare pygmy right whale can appear quite similar to a minke whale, and care must be taken to distinguish the two in the Southern Hemisphere. Notice the prominent dorsal fin and pale chevron. PHOTO: R. L. PITMAN

A pygmy right whale showing the moderately arched jawline and a strong central ridge on the rostrum. This animal also has numerous oval cookie-cutter shark bite scars and a pale chevron on the upper back. PHOTO: R. L. PITMAN



This is the smallest baleen whale. The maximum length recorded for a male is 6.1 m and that for a female is 6.5 m. They reach weights of at least 3,400 kg. At birth, pygmy right whales are about 2 m long.

Recognizable geographic forms None.

Can be confused with This species can easily be confused with common and Antarctic minke whales, but the differences in head shape (particularly the blunter rostrum and arched lower jaw of the pygmy right whale) and the white flipper bands present in dwarf minke whales will allow differentiation when specimens are seen clearly. From a distance, the back and dorsal fin could be confused with those of a beaked whale; however, beaked whales have very different head shapes.

Distribution The pygmy right whale has a presumed circumpolar distribution in both coastal and oceanic waters, and is known only from a small number of records in the Southern Hemisphere, between about 30°S and 55°S (north of the Antarctic Convergence). There appear to be concentrations in plankton-rich waters around continents and islands, and also at the subtropical convergence in summer. There may be seasonal shifts in abundance, but this species does not appear to undergo a large-scale migration, as most of the larger baleen whales do.

Ecology and behavior This is the least known of all the baleen whales, as it is rarely sighted and has never been a primary target of commercial whalers. Groups of up to 14 individuals have been seen, but singles or pairs are most common. Recently, a large aggregation of about 80 whales was observed in the southeast Indian Ocean, but groups this large may be uncommon. They are sometimes seen with other species of whales and dolphins.

The inconspicuous small blow and quick shallow surfacings of the pygmy right whale make it difficult to spot and observe at sea. The head and blowholes usually appear before the dorsal fin is exposed. Often, these animals bring their snout tips out of the water upon surfacing, making it possible to see the arched mouthline. They are capable of swimming surprising fast (>6–8 knots without apparent effort). They typically dive for periods of about 4 minutes.

Very little is known about reproduction in this species, but the breeding season is thought to be protracted and may occur year-round. Sexual maturity is thought to occur at lengths greater than 5 m.

Feeding and prey Although there is little information on the diet, pygmy right whales are known to feed on calanoid and cyclopoid copepods, small euphausiids, and other small invertebrates (such as amphipods).

Threats and status This poorly-known species has never been commercially hunted (a few opportunistic takes have been recorded). Although there is essentially nothing known of its status, there is no evidence that it is seriously threatened. It may be naturally rare, or perhaps its areas of concentration have not yet been discovered. There are no available estimates of abundance.

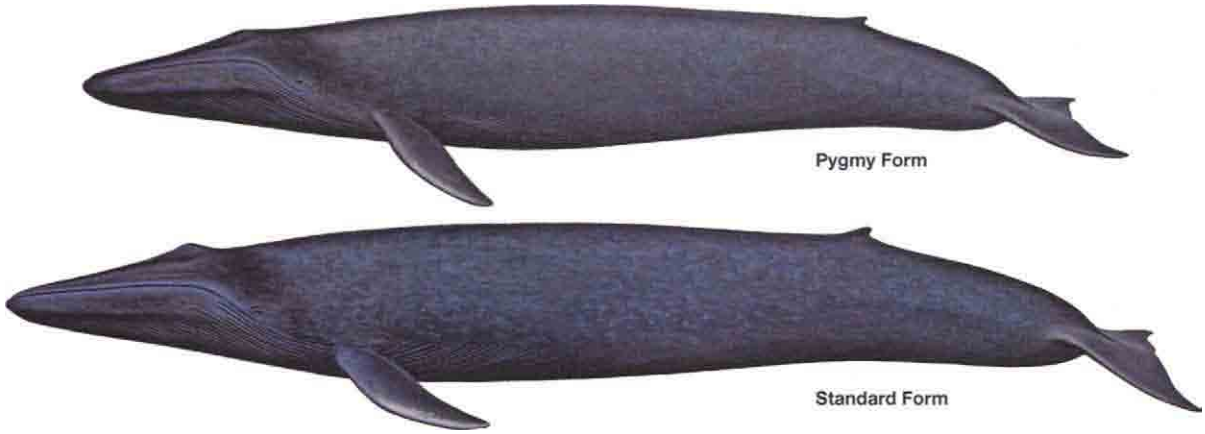
IUCN status Least Concern.

References Baker 1985; Kemper 2002; Matsuoka et al. 1996, 2005; Ross et al. 1975; Sekiguchi et al. 1992.

A young pygmy right whale lifts its head out of the water showing the moderately arched lower jaw; notice also the wispy blow. This species often occurs in large groups, which can aid in identification.
PHOTO: R. L. PITMAN

A stranded pygmy right whale showing the moderately arched jaws and exposed baleen plates. The baleen has extremely fine mesh for filtering very tiny invertebrates (mainly copepods).
PHOTO: COURTESY S. LEATHERWOOD

Blue Whale—*Balaenoptera musculus*
(Linnaeus, 1758)



Recently-used synonyms *Sibbaldus musculus*.

Common names En.–blue whale; Sp.–*ballena azul*; Fr.–*rorqual bleu*.

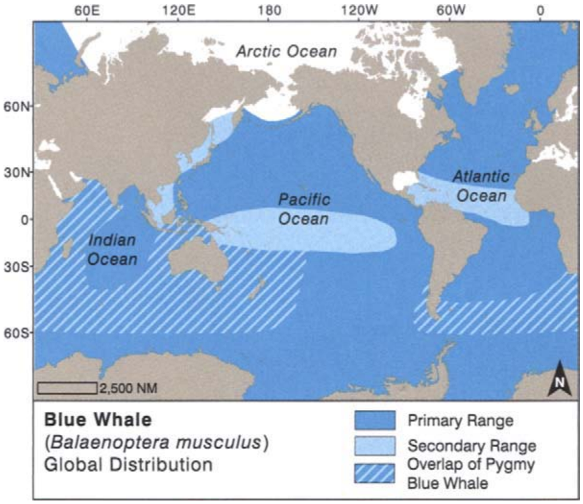
Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. Four subspecies are tentatively recognized: the blue whale of the North Atlantic and North Pacific (*B. m. musculus*), the blue whale of the northern Indian Ocean (*B. m. indica*), the blue whale (Antarctic blue whale) of the Southern Hemisphere (*B. m. intermedia*), and the pygmy blue whale (*B. m. brevicauda*) of the Southern Hemisphere and northern Indian Ocean. The first three subspecies are collectively known as "true blue whales." The validity of the subspecies *B. m. indica* is in doubt. Hybrids between blue and fin whales have been described from nature.

Species characteristics The blue whale is the largest animal ever known; however, size alone is not enough to distinguish it from other rorquals, as its size substantially overlaps with that of adult fin and sei whales. Like all rorquals, the blue whale is slender and streamlined. The head is broad and U-shaped (like a gothic arch), when viewed from above and relatively flat, when viewed from the side. Along the center of the rostrum, there is a single prominent ridge, which ends in an impressive "splash guard" around the blowholes. The flippers are long and pointed, and the dorsal fin is relatively small, variably shaped (sometimes reduced to just a nubbin), and placed about three-quarters of the way back from the rostrum tip. The broad, tapered flukes have a relatively smooth trailing edge and a prominent median notch. Of the four subspecies recognized, only the pygmy blue whale is known to have a significantly different body shape (see below).

Blue whales are bluish-gray dorsally and somewhat lighter underneath. The head is uniformly blue, but the back and sides are mottled blue and light gray. When viewed through the water surface they may appear dappled or uniformly light blue. There is light to extensive mottling on the sides, back, and belly, generally in the form of dark spots on a lighter surface, but sometimes the reverse. These patterns of mottling are used by researchers to identify individuals. Diatom films on the lower surface may be seen as an orangish-brown or yellow film, a characteristic which gave rise to the alternative name "sulphur-bottom" whale. There is generally a thin, white border around the flippers, on both the dorsal and ventral surfaces. The tail flukes often have light striations ventrally.

On the throat, there are 60–88 long pleats extending to or near the navel. The mouth contains 260–400

The galvanized blue and grey coloration seen here is diagnostic for blue whales. The white spots are recent cookie-cutter shark bites; blue whales encounter these sharks when they visit warmer waters. Eastern Pacific. PHOTO: NOAA FISHERIES/SWFSC



pairs of black, broad-based baleen plates, each less than 1 m long. The bristles are quite coarse. The blow is tall and slender, reaching 10–12 m in height.

Most adults of the Northern Hemisphere subspecies (*B. m. musculus*) are 23–27 m long (with females growing larger than males). The Antarctic blue whale (*B. m. intermedia*) is larger, and generally measures up to 29 m, although a specimen over 33 m was once taken by whalers. Newborn blue whales are about 7–8 m long. Adults can weigh up to 180,000 kg, but most adults weigh between 72,000 and 135,000 kg.

Recognizable geographic forms

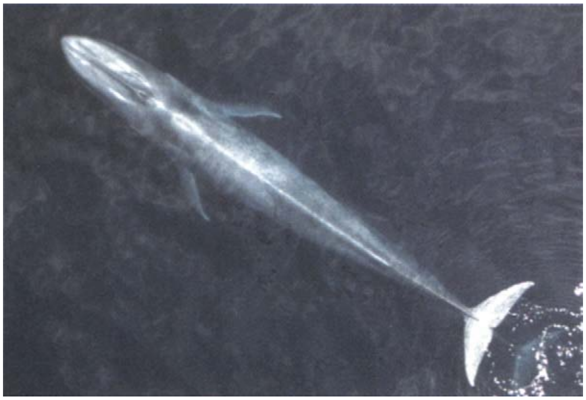
Standard-form blue whale (*B. m. musculus/indica/intermedia*)—Three of the four subspecies of blue whales share a similar external form (but differ from the pygmy blue, described below). They occur in the Pacific, Atlantic, Southern, and portions of the Indian Ocean. They are blue steel-gray in color. They are also somewhat longer than the pygmy blue, reaching lengths of up to 33 m. Compared to pygmy blues, these animals possess a relatively smaller head (i.e., a longer tail), slightly more ventral grooves, and longer baleen. The shape of the body has been described as 'torpedo-shaped' (with a relatively narrower head than the pygmy blue).

Pygmy blue whale (*B. m. brevicauda*)—The pygmy blue whale is found in the Indian and southeastern South Atlantic oceans (suggestions that they also occur off Baja California, Mexico, are erroneous). It is more silvery gray than the blue steel-gray of true blue whales. It has a relatively larger head (i.e., a shorter tail), slightly fewer ventral grooves, and shorter baleen. The shape of the body has been described as relatively 'tadpole-shaped' (reflecting the relatively wider head). These differences are subtle. If a good view is obtained, it might be possible to distinguish pygmy blue whales from other blue whales at sea, but only by highly-experienced observers. Pygmy blue whales are smaller than true blue whales, with a maximum length of only about 25 m. However, they tend to be heavier than true blue whales.

The blow of a blue whale is column of spray, sometimes up to 12 m tall—the highest of any whale. Monterey Bay, California. PHOTO: T. A. JEFFERSON

Can be confused with When seen well, blue whales are easy to distinguish from other large whale species. At a distance, however, blue whales can be confused with the other large rorquals: primarily fin and sei whales. Although the great size of blue whale adults may aid in identification, the best clues for differentiating blue whales from fin or sei whales are careful attention to color pattern, head shape, and dorsal fin shape and position. Blow shape and height can also be useful, but the variability within species must be kept in mind.

The blue whale has a dorsal fin that is relatively much smaller than in any other rorqual species, but the shape is quite variable. A nubbin such as this may be congenital, or a killer whale may have bitten off the fin. Eastern Pacific. PHOTO: C. OEDEKOVEN/NOAA FISHERIES/SWFSC



The sleek form of the blue whale is clearly evident only from the air. The pale, blue-gray color with individually-identifiable mottling is diagnostic. West coast of the United States. PHOTO: SOUTHWEST FISHERIES SCIENCE CENTER PHOTOGRAMMETRY LAB

The massive rostrum of the blue whale is nearly flat, with a single prominent median ridge. When viewed from above, it is rounded in front, a shape that has been likened to a "gothic arch." Eastern Pacific. PHOTO: H. FEARNBACH/NOAA FISHERIES/SWFSC

The relatively small head in relation to body size suggests that this is probably a 'true' blue whale. Antarctic, south of Africa. PHOTO: P. OLSON

A blue whale rolls on its side to veer away from a research vessel in Antarctica; the orangish cast is probably due to diatoms. PHOTO: I. BEASLEY

Distribution Blue whales tend to be open-ocean animals, but they do come close to shore to feed, and possibly to breed, in some areas. Blue whales can be seen from tropical waters to the pack ice edges in both hemispheres, but they tend to avoid most equatorial waters. Some blue whales are resident, others are migratory, moving poleward to feed in the summer and toward the tropics to breed in the winter. The breeding grounds do not appear to be as well defined as are those of humpback, right, and gray whales. The exact distribution of the pygmy blue whale is not completely known, although it occurs in the northern Indian Ocean and throughout much of the Southern Hemisphere. In the Antarctic, the pygmy blue tends to prefer more northern waters than the true blue whale does. The two forms do overlap in distribution in some areas.

Ecology and behavior Blue whales are usually seen alone or in pairs. However, scattered aggregations of a dozen or more may develop on prime feeding grounds. Although shorter dives are most common, dives of up to 30 min, generally interspersed with long series of shorter surfacings (at 15–20 sec intervals), have been recorded (the longest dive documented was 36 min). Fluking-up is not uncommon upon beginning a dive, although not all blue whales are "flukers." Remarkably, some blue whales have been observed breaching, bringing nearly all of their bulk out of the water. Some researchers believe that pygmy blue whales have a tendency to surface without showing the dorsal fin or keel (unlike the standard blue whale, which usually does). However, this is probably not a very reliable character to use for identification. Their major natural predator is the killer whale.

Calves are born in winter, apparently in tropical/subtropical breeding areas (the specific locations of which are not known for most populations). Nursing calves may gain 90 kg per day, and appear to be weaned by the age of about 8 months. Not much is known of the mating system of the blue whale, but they are known occasionally to hybridize with other large whale species (such as

A probable 'pygmy' blue whale from the Maldive Islands in the tropical Indian Ocean. PHOTO: L. BALLANCE

A blue whale from the Maldives, thought to be a pygmy blue whale, which has a proportionately larger head than the nominal subspecies. This animal may have been feeding—notice the water draining out of the mouth; there is also a large remora on the tip of the rostrum. PHOTO: L. T. BALLANCE

A blue whale flukes up as it dives near La Paz, Baja California, Mexico. The flukes of this species are tapered, with a straight trailing edge. PHOTO: R. W. BAIRD

fin and humpback whales). Blue whales are thought to live for over 80–90 years. The role that acoustics play in the mating system is not known, but blue whales make some of the loudest sounds known in nature.

Feeding and prey Various species of krill (euphausiids) form the major part of the blue whale's diet, and on their feeding grounds, blue whales can be observed lunging, often on their sides or upside-down, through great clouds of these invertebrates. The throat pleats become greatly distended when the whales lunge-feed, giving them a tadpole shape.

Threats and status Blue whales were heavily hunted after the invention of the exploding harpoon and steam catcher boats made them accessible to whalers in the early part of the twentieth century. This was the first species of rorqual to be depleted by whalers; it was highly desirable due to its large size. Blue whales were hunted in the North Pacific, North Atlantic and Southern oceans. There were illegal catches by the Soviets in the northern Indian Ocean, and possibly elsewhere. The Soviets took over 10,000 pygmy blues in the 1960s. Nearly all populations were severely depleted and the species was once thought to be on its way to extinction. This species is currently protected (since 1966), with a zero catch limit imposed by the International Whaling Commission. While some populations were wiped-out, at least some blue whale stocks (such as those in the eastern North Pacific) appear to be showing signs of recovery. The major concerns now are vessel collisions and noise disturbance by human activities (in particular offshore oil and gas exploration and extraction). The blue whale is currently thought to number about 8,000–9,000 individuals globally. There were thought to be about 4,000 pygmy blue whales in the early 1970s, but more recent estimates are not available.

IUCN status Vulnerable (North Atlantic stock); Lower Risk/Conservation Dependent (North Pacific stock); Endangered (Antarctic stock); Data Deficient (pygmy blue whale).

References Calambokidis and Barlow 2004; Carretta et al. 2005; Mizroch et al. 1984; Moore et al. 2002; Sears 2002; Yochem and Leatherwood 1985.

Fin Whale—*Balaenoptera physalus*
(Linnaeus, 1758)

Recently-used synonyms None.

Common names En.–fin whale; Sp.–*rorcual común* or *ballena de aleta*; Fr.–*rorqual commun*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. Some authors recognize two subspecies, one in the Northern Hemisphere and one in the Southern. However, this subspecies designation is not widely used. A recently-described new species of rorqual, *Balaenoptera omurai*, may be closely related to the fin whale. There are reported hybrids between blue and fin whales.

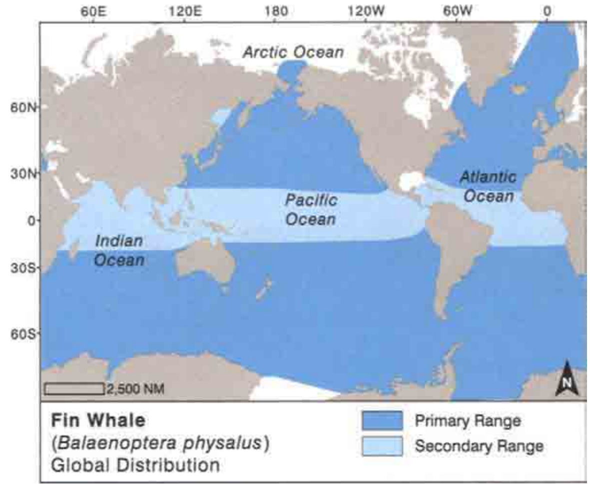
Species characteristics Fin whales are large (the second largest species of whale), but very sleek and streamlined. From above, the head is more V-shaped and pointed than that of the blue whale, and there is a single medial ridge on the upper surface of the rostrum. The dorsal fin tends to be taller, more falcate, and set farther forward on the tail stock than in the blue whale. The dorsal fin rises at a shallow angle from the animal's back (unlike in the other rorquals with prominent fins), and there is a prominent ridge along the tail stock between the dorsal fin and the flukes. The flippers are long and tapered.

The most distinctive feature of the fin whale, however, is its coloration. The body is black or dark brownish-gray above and on the sides, shading to white below, but the head color is asymmetrical. The left lower jaw is mostly dark, while the right jaw is largely white. There tend to be several light-gray V-shaped "chevrons" (pointing forward) on the back behind the head. There are also typically other streaks or swirls of light coloring extending up from the belly (in particular over the right flipper). The undersides of the flukes are white, but have a gray border. The posterior portion of the body often has white, circular scars caused by bites of lampreys or cookie-cutter sharks. The bellies of fin whales may have a yellowish diatom film.

Fin whales have 260–480 baleen plates per side; the plates are dark gray to black, often striated with bands of gray and fringed with horizontal lines of yellowish-white to olive-green. Usually, the front one-half to one-third of the right side plates have much more light color than those on the left. The 50–100 throat pleats are long, and reach to the umbilicus. The slender blow is 4–6 m tall.

Length at birth is 6–6.5 m. Adults can reach a maximum of 27 m in the Southern Hemisphere, but most Northern Hemisphere adults are less than 24 m

This view would be identifiable as a fin whale at least 4–5 km away, because of the very dark color and distinctive dorsal fin—prominent, very swept-back, and emerging from the back at a shallow angle. Eastern Pacific. PHOTO: NOAA FISHERIES/SWFSC



From the air, the darker overall color separates this fin whale from the much paler blue whale. The white right lip and chevron pattern on the back between the flippers separates it from all other rorquals, except possibly the much smaller Omura's whale. US west coast. PHOTO: SOUTHWEST FISHERIES SCIENCE CENTER PHOTOGRAMMETRY LAB.

A fin whale underwater showing asymmetrical coloration, with the right side of the head much lighter than the left. Notice also the black stripe that travels up and back from the right eye. Mediterranean Sea. PHOTO: A. GANNIER

long. Females are about 5–10% longer than males. Large animals may attain reported weights of up to 120,000 kg, but most probably weigh much less (< 90,000 kg). Body weight varies seasonally.

Recognizable geographic forms None.

Can be confused with The other species of medium to large balaenopterids (blue, sei, Bryde's, and Omura's whales) are likely to be confused with fin whales at a distance. Size alone may be quite useful for large fin whales, but care must be taken to distinguish small blue whales. Careful attention to color pattern, head shape, and dorsal fin shape and position will help to distinguish the various species. For instance, the color pattern of the fin whale (dark back, asymmetrical lower jaw, and light chevron and streaks in the thoracic area) is different from that of all other species, except apparently the newly-discovered Omura's whale. Head shape of fin whales is much more slender and streamlined (and more pointed from above) than in the blue whale, but is otherwise similar to the other species. Fin whales do not have accessory rostral ridges, as Bryde's and perhaps Omura's whales do. Dorsal fin shape is one of the best clues—fin whales have a prominent dorsal fin that is usually falcate and rises out of the back at a very shallow angle (blue whales tend to have much smaller nubbin-like dorsal fins, and the other species generally have fins with a steeper rise from the back). The size and shape of the blow can also be helpful (generally shorter than in blue whales, but taller and more prominent than in the other species), but it should not be used for identification without other information. Clearly, a multitude of characters will be required to confirm an identification as a fin whale.

Distribution Surprisingly, for such a large and once commercially-important animal, the overall range and distribution of the fin whale is not well-known. Fin whales inhabit primarily oceanic waters of both hemispheres. They are cosmopolitan, inhabiting all major oceans. When they are seen near shore, it is most commonly where deep water approaches the coast. Fin whales can be seen in tropical, temperate, and polar zones of all oceans. Most populations are apparently migratory (a general poleward shift for feeding in the summer and a shift towards the tropics for breeding in the winter), but their movements are complex and do not follow a simple pattern. In fact, there appear to be resident groups in some areas (such as the Gulf of California, the East China Sea, and perhaps the Mediterranean Sea, where they also show limited north/south movements).

Ecology and behavior Fin whales are capable of attaining high speeds, possibly as high as 37 km/h, making them one of the fastest great whales. They rarely raise

Fin whales normally appear all dark in the distance, although a pale chevron pattern is quite often visible. This photo shows some of the complex, swirled patterning that is evident at close range in good light. In this animal, the white right lip, the eye and the black eye stripe are plainly visible. South Atlantic, south of Africa. PHOTO: P. OLSON

The head of a surfacing fin whale showing the white right lower jaw contrasting with the blackish rostrum. Eastern Pacific. PHOTO: C. OEDEKOVEN/NOAA FISHERIES/SWFSC

Fin whales have asymmetrical head coloration. The right lower jaw is white, while the left lower jaw is dark gray to black. South Atlantic, south of Africa. PHOTO: P. OLSON

Biopsy darts splash around the long bodies of two fin whales: one animal shows the distinctive swept-back dorsal fin, the other the pale right lower lip and dark eye stripe. Subantarctic. PHOTO: P. OLSON

The elegantly swept back fin of the fin whale is unmistakable with experience; this animal is heavily pock-marked with cookie-cutter shark bites. Eastern Pacific. PHOTO: NOAA FISHERIES/SWFSC

The blowholes are still pinched closed in this surfacing fin whale. From this perspective one can see the relatively narrow head of this species, compared to the broad, rounded head of the blue whale. Black pigment winds down from the right blowhole and contributes to the black right eye stripe. Ligurian Sea, Italy. PHOTO: C. JOHNSON

their flukes on a dive, but they do occasionally breach. When fin whales surface, typically the blowholes appear briefly before the dorsal fin shows. Fin whales tend to be more social than other rorquals, sometimes gathering in pods of 2–7 whales, or more. In the North Atlantic, fin whales are often seen in large feeding aggregations, generally with humpback whales, minke whales, and Atlantic white-sided dolphins. Fin whales also sometimes associate with blue whales, and hybrids have been documented. Individual fin whales are identified by the pattern of the light streaks and chevrons on the back, along with the size and shape of the dorsal fin.

Not much is known of the social and mating system of fin whales. Calving does not appear to take place in distinct nearshore areas (as it does, for instance, in gray and humpback whales). However, they appear to be typical of other baleen whales, in that long-term bonds between individuals are rare. Young fin whales are born on dispersed breeding grounds in tropical and subtropical areas in midwinter. Gestation is 11–12 months. Sexual maturity occurs at ages of 6–10 years in males and 7–12 years in females, depending on the population and time period. Fin whales can live to be up to 80–90 years of age. The only known natural predator is the killer whale.

Fin whales make a variety of low-frequency vocalizations, including the famous 20-Hz calls, which can be detected hundreds of kilometers away. Although these calls are produced throughout the year, they are emitted in patterns during the breeding season, suggesting that they may be used in breeding displays.

Feeding and prey Fin whales feed on small invertebrates (euphausiids and copepods), schooling fishes (such as capelin, herring, mackerel, sandlance, and blue whiting), and squid. They are active lunge feeders (often lunging on their sides), gulping in huge volumes of food and water with the aid of their distended throat pleats, and then using the baleen to filter the food particles out.

Threats and status The introduction of the explosive harpoon and steam-powered catcher boat in 1864 meant doom for large rorqual whales, which had previously been largely unobtainable for whalers. After depleting the blue whale, the fin whale was next in the line of fire, and this species was hunted relentlessly in all major oceans between the 1930s and 1960s. Tens of thousands of animals were taken in the Northern Hemisphere, and 725,000 were killed in the Southern Hemisphere. Small numbers of fin whales have been killed in recent years by Iceland in the North Atlantic. Fin whales occasionally get caught in fishing nets in the North Atlantic, but vessel strikes and disturbance by human-caused noise sources are more of a concern. Despite their history of heavy exploitation, there may be as many as 140,000 fin whales alive today (at least 600 or so apparently occur in the Gulf of California, Mexico). They are considered to be relatively abundant in both the North Pacific and North Atlantic. Southern Hemisphere stocks are not as healthy.

IUCN status Endangered.

References Aguilar 2002; Angliss and Lodge 2004; Carretta et al. 2005; Mizroch et al. 1984, Notarbartolo et al. 2003.

Sei Whale—*Balaenoptera borealis*

Lesson, 1828

Recently-used synonyms None.

Common names En.–sei whale; Sp.–*rorcual sei* or *ballena sei*; Fr.–*rorqual de Rudolphi*.

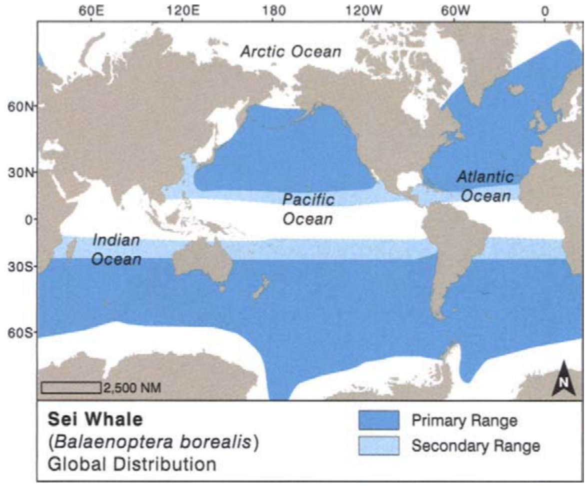
Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. Some authors recognize two subspecies of sei whales, one in the Northern Hemisphere (*B. b. borealis*) and one in the Southern (*B. b. schlegellii*). However, these subspecies designations are not widely used. The dwarf Bryde's whale (see below) may actually be genetically closer to the sei whale than to the common Bryde's whale.

Species characteristics Sei whales are very similar in external appearance to fin and Bryde's whales, both of which also have a prominent falcate dorsal fin. All three have typical rorqual body shapes, which means they are very sleek and streamlined. In sei whales, the dorsal fin rises at a steep angle from the back. Sei whales have a pointed rostrum (when viewed from above) and only a single prominent longitudinal ridge on the rostrum (Bryde's whales tend to have three), and a slightly arched head with a downturned tip (when viewed from the side). Unless the head can be seen at close quarters, however, Bryde's and sei whales can be especially difficult to distinguish at sea, and this has impeded our knowledge of the biology of this species. The dorsal fin is prominent.

Coloration is mostly dark gray or brown (it can be almost black), except for a whitish area on the belly. The back is often mottled with scars (probably from cookie-cutter shark and lamprey bites), and the skin surface often resembles galvanized metal.

The 32–65 (average about 50) ventral pleats are short for rorquals, ending far ahead of the navel. The 219–402 (average about 350) baleen plates on each side are black with very fine fringes of light smoky-gray to white. They are less than 80 cm long, and they tend to be more narrow than in the other large rorquals. A few nearly white plates may occur. Sei whales produce a blow up to

A sei whale photographed near the Azores. The dorsal fin is distinctive—it juts up and then back, as if it was jointed. The pockmarks on the belly and sides are from cookie-cutter shark bites. PHOTO: D. PERRINE



3 m tall, which is high and columnar.

Adult sei whales can be up to 18 m in length, although 12–17 m is a more typical length for adults. Females are slightly larger than males. Large adults may weigh 45,000 kg. At birth, sei whales are 4.5–4.8 m long.

Recognizable geographic forms None.

Can be confused with Sei whales are most likely to be confused with Bryde's whales, and less likely with fin and Omura's whales. Careful attention to body size, dorsal fin shape and position, head shape, and color pattern will help to distinguish among the four. The three head ridges of Bryde's whales (sei and fin whales always appear to have just one medial ridge), and larger size and asymmetrical head coloration of fin whales will help make them distinguishable from seis. Also, pay particular attention to the tip of the upper jaw, which has a strong tendency to be downturned in sei whales (but not in the other three). Despite the differences, sei and Bryde's whales are still frequently confused, and in fact the two species can be frustratingly difficult to tell apart in typical situations. The classic character is the number of head ridges—three in Bryde's whales and only one in sei whales; but this can be very difficult to see on distant sightings and care must be taken to avoid getting confused by rippling water and glare on top of the head. Much of the literature on the two species still to this day contains identification errors. Finally, until the external appearance of the recently-described Omura's whale is better known, one should be very aware of the possibility of this species in the Indo-Pacific. Clearly, a multitude of characters will be required to confirm an identification as a sei whale.

Distribution The distribution of the sei whale is poorly understood for a number of reasons, not the least of which is their long-standing confusion with Bryde's whales. Another reason is that the species appears to occur largely in unpredictable patterns, being seen regularly in an area for several years, after which it may largely disappear. Sei whales are largely open ocean whales, not often seen near the coast. They occur from the tropics to polar zones in both hemispheres and in all three major oceans, but are more restricted to mid-latitude temperate zones than are other rorquals. They do undergo seasonal migrations, although they apparently are not as extensive as those of some other large whales. They are very rare in the Mediterranean.

Ecology and behavior The sei whale is one of the least-known of the rorqual species. Groups of two to five individuals are most commonly seen, although not much is known of their social behavior. Sei whales are fast swimmers (reaching speeds of well over 25 km/hr), possibly the fastest of all cetaceans. They tend to arch their backs less than other rorquals when surfacing, and often sink below the surface. When slow moving, sei whales surface with their blowholes and dorsal fin often visible above the water at the same time. Feeding sei whales

This sei whale from near Hawaii would be difficult to distinguish from a Bryde's whale, although the dorsal fin has the up-and-back shape commonly seen only on sei whales. PHOTO: D. PERRINE

The tip of the sei whale rostrum is downturned, and the jawline is slightly arched, but this is often quite difficult to see under normal field conditions. PHOTO: L. STEINER/WHALE WATCH AZORES

When a view such as this is obtained, sei whales can generally be distinguished from Bryde's whales by their absence of accessory rostral ridges. Near the Mariana Islands, western Pacific. PHOTO: J. COTTON

tend to dive and surface in very predictable series, often remaining visible just below the surface between breaths. Sei whales virtually never lift their flukes upon diving. They apparently prefer to feed near dawn.

Calving occurs in midwinter, in low latitude portions of the species' range. Gestation lasts 10–12 months, and weaning is thought to occur at about 6–9 months. Sei whales may hybridize with fin whales on occasion. They produce sounds similar to other rorquals, but there is much less known about their vocal behavior than for other species in the family. Sei whales probably live to be more than 50 years of age. Their primary natural predator is the killer whale.

Feeding and prey Sei whales have more flexibility in their feeding behavior than other baleen whales. They generally skim copepods and other small prey types, rather than lunging and gulping, as other rorquals do. This may largely explain the relative fineness of the baleen fringes and the shortness of the throat pleats in this species. They do lunge feed on occasion, however. Other prey types taken when lunge-feeding include krill, cephalopods, sardines, and anchovies.

These are identified as sei whales because of their relatively small size and slightly arched rostrum without ancillary ridges. The latter eliminates the similar-looking Bryde's whale. Azores. PHOTO: D. PERRINE

Threats and status After blue and fin whales, the sei whale was next in the line of fire of the modern whaler's harpoon. It appears to be the preferred species among many whale-eating cultures. The heaviest period of exploitation of this fast species of whale was between the 1950s and 1970s. Whaling took place in the North Pacific (where at least 74,000 were taken) and North Atlantic (14,000 whales taken) oceans, but most hunting was in the Southern Hemisphere (about 200,000, with at least 110,000 taken in the 1960s alone). Although fully protected by the International Whaling Commission since 1985, a few were taken in the North Atlantic by Iceland in the last few decades of the 20th century (70 whales in 1986–1988). Sources of mortality other than direct exploitation include probable vessel strikes and some entanglement in fishing gear, but in general these do not appear to be severe problems for sei whales. Populations in all areas were depleted by commercial whaling, although they currently appear to be doing quite well in the Northern Hemisphere. Current global abundance of the sei whale is not well-known, but is considered to be at least 80,000 individuals.

IUCN status Endangered.

References Horwood 1987; 2002; Mizroch et al. 1984; Perry et al. 1999.

Bryde's Whale—*Balaenoptera brydei*

Olsen, 1913 and/or *B. edeni* Anderson, 1879
(two or more species may be involved and nomenclature unresolved)

Recently-used synonyms None.

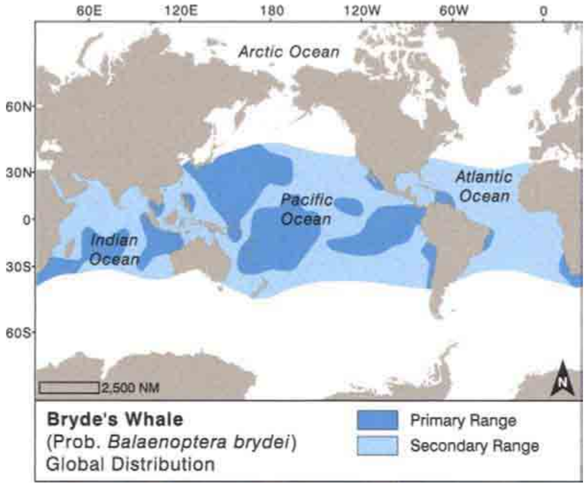
Common names En.–Bryde's whale; Sp.–*rorcual tropical* or *ballena de Bryde*; Fr.–*rorqual de Bryde*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. Until recently, all medium-sized rorquals were thought to be members of one of two species, *B. edeni* (Bryde's whale) or *B. borealis* (sei whale). However, we now know that there are at least three genetically-distinct types of these whales, including what have been called pygmy or dwarf Bryde's whales. Their formal redescription awaits further taxonomic work and determination of the affinities of type specimens of the two relevant scientific names, *B. edeni* and *B. brydei*. The International Whaling Commission continues to use the name *B. edeni* for all Bryde's-like whales, despite recognizing that there are at least two species. To make matters even more complicated, in the past, the term "pygmy Bryde's whale" had also erroneously been used for specimens of what are now known to be a new species (*Balaenoptera omurai*), which was only described in 2003.

Species characteristics For many years, whalers and field observers did not distinguish between Bryde's and sei whales in their records. In the past few decades, however, whales of the two species have been able to be distinguished, even at sea. Bryde's whales have a very streamlined and sleek body shape. Most Bryde's whales have three prominent ridges on the rostrum (other rorquals generally have only one). This is perhaps the best characteristic to use for identification, although since some whales have poorly-developed ridges, and the ridges may be difficult to see on others, one is best advised to consider information on other characters as well. The shape of the head is somewhat pointed, when viewed from above. The head makes up about 25% of the body length. The Bryde's whale's dorsal fin is tall and falcate and generally rises abruptly out of the back, a feature that will help distinguish this species (and sei whales) from fin whales, in which the dorsal fin rises at a relatively shallow angle from the back. The dorsal fin is often notched on the trailing edge. The flukes are broad with a relatively straight trailing edge. Bryde's whales often exhale underwater, then surface with little or no visible blow. When visible, the blow can be either columnar or bushy. The height of the blow is variable.

A Bryde's whale using its flippers to steer. The three rostral ridges eliminate confusion with other rorquals. Canary Islands. PHOTO: S. HANQUET

Bryde's whales have a relatively simple, countershaded color pattern, and are dark gray dorsally and lighter ventrally. There is often a pinkish tinge on the lower white areas, and the body may be covered in circular scars made by lampreys or cookie-cutter sharks. The upper jaw and lips



are typically uniformly dark. The 40–70 throat pleats reach to or past the navel. The 250–370 pairs of gray baleen plates have light gray fringes, which are relatively coarse. The longest plates reach about 40 cm.

Adults of this species can be up to 15.0 m long in males and 16.5 m long in females (females do reach greater lengths than males); newborns are about 4 m long. Maximum weight is about 40,000 kg.

Recognizable geographic forms There are one or more small forms of this species (for instance, off South Africa, southwestern Japan, Hong Kong/Macau, and Australia), which at this time cannot be reliably distinguished from common Bryde's whales in the field. These forms generally have a number of slight differences in their morphology and ecology, but have not been adequately described.

Can be confused with Bryde's whales are most likely to be confused with sei whales, and less likely with fin and Omura's whales. Careful attention to body size, dorsal fin shape and position, head shape, and color pattern will help to distinguish among the four. The three head ridges of Bryde's whales (sei and fin whales always appear to have just one medial ridge), and much larger size and asymmetrical head coloration of fin whales will help make them distinguishable from Bryde's. Also, pay particular attention to the tip of the upper jaw, which is generally quite flat in Bryde's whales (but has a strong tendency to be downturned in sei whales). Despite the differences, sei and Bryde's whales are still frequently confused, and in fact the two species can be frustratingly difficult to tell apart in typical situations. The classic character is the number of head ridges—three in Bryde's whales and only one in sei whales; but this can be very difficult to see on distant sightings and care must be taken to avoid getting confused by rippling water and glare on top of the head. Much of the literature on the two species still to this day contains identification errors. Finally, until the external appearance of the recently-described Omura's whale is better known, one should be very aware of the possibility of this species in the Indo-Pacific. Sizes of Bryde's and Omura's whales are similar, but Omura's whales appear to have an assymetrical head color pattern very similar to that of the fin whale. Clearly, a multitude of characters will be required to confirm an identification as a Bryde's whale.

Distribution This species has a circumglobal distribution and is found in the Atlantic, Pacific, and Indian oceans. Bryde's whales are largely creatures of the tropical and subtropical zones (inhabiting waters about 16°C or warmer) and generally do not move poleward of 40° in either hemisphere. They are found both offshore and near the coast in many areas, and tend to inhabit areas of unusually high productivity. They extend into some enclosed seas, such as the Persian Gulf and Red Sea. Whales of

A Bryde's whale in the Gulf of California, Mexico: the dorsal fin is variable, but usually prominent, very falcate and often pointy at the tip. PHOTO: D. FERTL

Dorsal fin shape of the Bryde's whale is highly variable, but tends to be fairly prominent and often quite pointy. The white spots on this animal are cookie-cutter shark bites. PHOTO: I. VISSER

A Bryde's whale off South Africa. The degree of development of the pair of ancillary rostral ridges—diagnostic for this species - is quite variable and often hard to detect unless viewed from above. PHOTO: R. L. PITMAN

The rostral ridges of Bryde's whales are diagnostic, but are often difficult to discern; generally it is best to take photographs to study later. PHOTO: E. FAHRNI-MANSUR

Bryde's whales typically have a conspicuous blow, but they can make it almost invisible if they are approached too close by vessels or killer whales; sometimes they may even blow underwater. PHOTO: G. CRESSWELL

this species are not known to make extensive north/south migrations, as do other species of baleen whale, although short migrations have been documented in some areas (especially among the offshore forms). Resident populations occur in certain areas, such as the Gulf of California.

Ecology and behavior Not much is known of the ecology of the Bryde's whale. Although generally seen alone or in pairs, Bryde's whales do aggregate into groups of up to 10–20 on feeding grounds. Unlike other rorquals, Bryde's whales often do not produce a visible blow. Breaching occurs occasionally. Bryde's whales generally arch their backs when diving, but virtually never fluke up on a dive. They are capable of swimming at speeds up to 25 km/hr, and can dive to about 300 m.

Sexual maturity occurs at lengths generally greater than 11.2 m in the common form, but the dwarf/pygmy forms mature at much shorter lengths. Unlike other rorquals, the warm-water Bryde's whale does not have a well-defined breeding season in many areas, and births can occur throughout the year. Bryde's whales produce low-frequency moans, the structure of which is just beginning to be investigated.

Feeding and prey Bryde's whales are primarily schooling-fish eaters (common prey species include pilchard, anchovy, sardine, mackerel, and herring), but they also take squid, krill, pelagic red crabs, and other invertebrates. They are very active lunge feeders, often changing direction abruptly when going after mobile fish prey. They have also been observed using bubble nets to corral prey.

Threats and status Bryde's whales were never hunted as heavily as their larger cousins, the blue, fin, and sei whales. Fewer than 8,000 were killed in the Southern Hemisphere in the 1900s. Due to this fact, most populations of the Bryde's whale have not been seriously depleted. In recent years, some Bryde's whales have been taken by the Japanese in the North Pacific, and low numbers of small whales have been killed by artisanal whalers from villages in Indonesia (although at least some of these may be Omura's whales—see below). There are no estimates of global abundance, although there are probably about 20,000–30,000 Bryde's whales in the North Pacific, and about 10,000 in the eastern tropical Pacific. The species is not considered to be endangered or threatened, and at least the western North Pacific stock is thought to be increasing. Habitat modification and noise disturbance may be additional human-caused threats.

IUCN status Data Deficient.

References Heimlich et al. 2005; Kato 2002; Perrin et al. 1996; Siciliano et al. 2004; Yoshida and Kato 1999.

Omura's Whale—*Balaenoptera* cf. *B. omurai*

Wada, Oishi, and Yamada, 2003 (nomenclature unresolved)

Recently-used synonyms None.

Common names En.–Omura's whale; Sp.—*ballena de Omura*; Fr.—*rorqual de Omura*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. This species was described in 2003, and there is now abundant evidence from molecular genetic studies to confirm that it is a valid species, different from and not closely related to the Bryde's whale. The confirmation of the nomenclature awaits determination of the affinities of a type specimen in the Calcutta Museum. In the past, some specimens of this species were included among "pygmy/dwarf Bryde's whales" in various studies, but we now know it to be an early offshoot of the rorqual lineage, perhaps more closely related to the blue whale.

Species characteristics Omura's whales have a streamlined and sleek body shape. Although not much is known of their external appearance, they apparently only have one prominent ridge on the rostrum (most Bryde's whales have three). The shape of the dorsal fin is not well known, but it is suspected to be like that of Bryde's and sei whales, i.e., tall and falcate and rising abruptly out of the back. Some preliminary evidence suggests that it may be very falcate. The flukes are broad, with a relatively straight trailing edge.

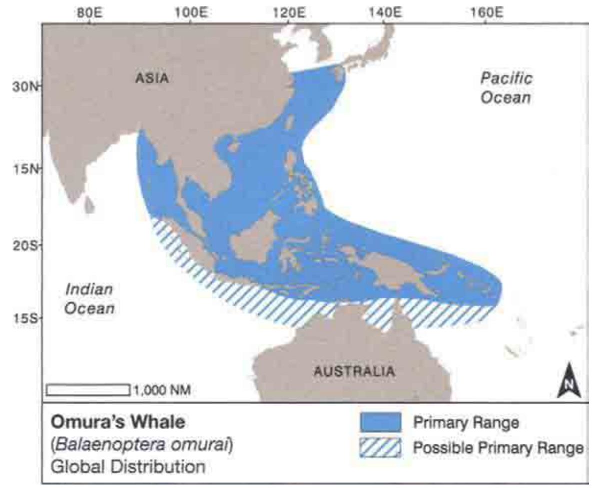
The color pattern of this species is not completely known. However, it most closely resembles that of the fin whale—with an asymmetrical lower jaw (white on the right and dark on the left). Also, at least some animals have light streaks and blazes that extend up from the light ventral side onto the darker back. The anterior edges and inner surfaces of the flippers are white, as is the ventral surface of the flukes (they have a black margin). The 80–90 throat pleats reach to beyond the navel. The 180–210 pairs of baleen plates are short and broad, and are yellowish-white to black in color (some may be two-tone).

Adults of Omura's whales are generally no longer than about 11.5 m (although some may reach close to 12 m). Females presumably grow slightly larger than males, as in other rorquals. Physical maturity may occur at lengths as short as 9.0 m. Maximum weight is not known (but is probably not over 20,000 kg).

Recognizable geographic forms None.

Can be confused with Omura's whale has only recently been described, and its external appearance is not yet well-documented. For these reasons, special care must be taken in identifying this species and in ruling out other small to medium-sized balaenopterids (small fin, sei, Bryde's, and minke whales). When observed clearly, the complex color pattern of Omura's whale (with an assymetrical lower jaw and light streaks and chevrons on the back) should make it relatively easy to distinguish these animals from all but small fin whales in the field. The dor-

A mid-sized rorqual, possibly an Omura's whale, observed off Indonesia. However, the accessory ridges on the rostrum suggest that it could in fact be a Bryde's whale. PHOTO: B. KAHN/ APEX ENVIRONMENTAL



A whale, identified as an Omura's whale based on genetic profiling, surfaces in waters off Komodo National Park, Indonesia. The coloration visible in this photo is very similar to that of the fin whale, even sharing the asymmetrical color of the head. PHOTO: B. KAHN/APEX ENVIRONMENTAL

Very little is known about the external physical features of the recently-described Omura's whale. However, if this turns out to be a typical dorsal fin for the species, it might be fairly easy to identify at sea. PHOTO: T. YAMADA

sal fin may help here, as Omura's whales appear to have a very hooked fin rising at a steep angle, and fin whales almost always have fins rising at a shallow angle. The presence of three head ridges has for many years been taken to confirm a whale's identity as a Bryde's whale, but there is some suggestion that Omura's whales may also have accessory head ridges, at least sometimes (and be aware that rippling water on the head of other species can be mistaken for accessory head ridges). Both species of minke whales can also cause some confusion, but minke whales are generally slightly smaller, with a much sharper point to the head when viewed from above, and white bands on the flippers are diagnostic of common minkes. Also, minkes have symmetrical head coloration, unlike that of Omura's whale. Clearly, a multitude of characters will be required to confirm an identification as an Omura's whale. Genetic samples may be required in some cases for confirmation.

Distribution This species appears to be restricted to the western Pacific and eastern Indian oceans, although the exact limits of its range are not well-established. It is apparently restricted to tropical and subtropical waters, and mostly occurs over the continental shelf in relatively nearshore waters. The records available are mostly from the eastern Indian Ocean (off the Cocos Islands), Indonesian waters, the Philippines, Sea of Japan, and the Solomon Islands.

Ecology and behavior Very little is known of the ecology of this species. Although generally seen alone or in pairs, they may well aggregate into larger groups on feeding grounds. In the few confirmed sightings of these animals, they generally have not fluked-up on a dive.

Unlike most other rorquals, it is suspected that the warm-water Omura's whale probably does not have a well-defined breeding season. Virtually nothing is known of its reproductive biology.

Feeding and prey While there is little information on specific prey species, Omura's whales are probably primarily schooling-fish eaters. They are lunge feeders, like most other rorquals.

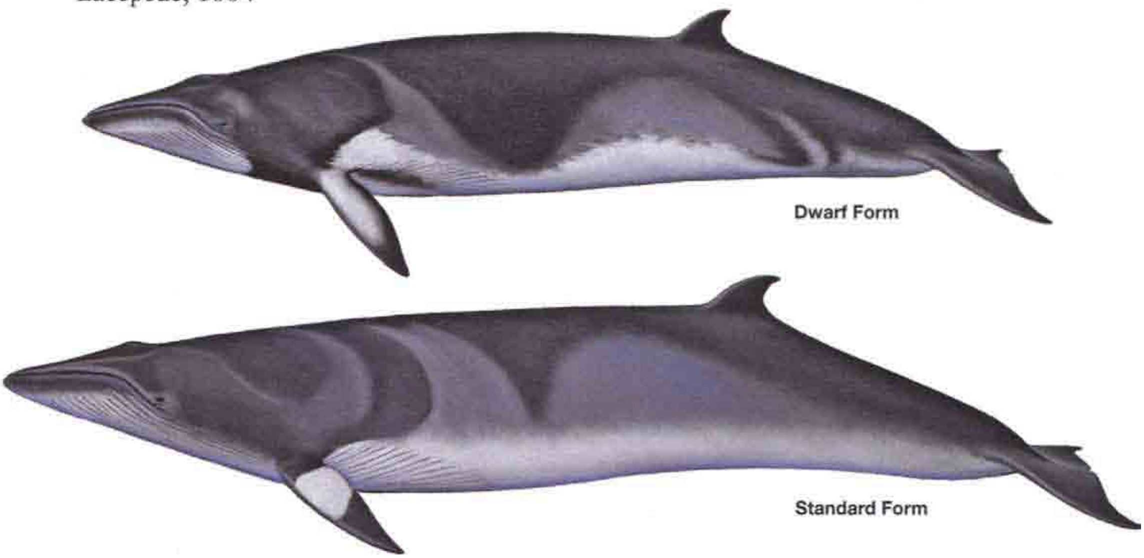
Threats and status Omura's whales were probably never hunted as heavily as their larger cousins, the blue, fin, sei, and Bryde's whales. Due to this fact, the Omura's whale has probably not been seriously depleted, except possibly in the Philippines. They have been hunted during "scientific whaling" by the Japanese in the Solomon Sea, and near the Cocos Islands in the Indian Ocean. Omura's whales have also been killed by artisanal whalers from villages in the Philippines (and probably Indonesia). There are no estimates of abundance available for this species. Habitat modification and noise disturbance are probably among the human-caused threats.

IUCN status Not Listed.

References Kato 2002; Sasaki et al. 2006; Wada et al. 2003; Yoshida and Kato 1999.

Common Minke Whale—*Balaenoptera acutorostrata*

Lacépède, 1804



Recently-used synonyms *Balaenoptera davidsoni*

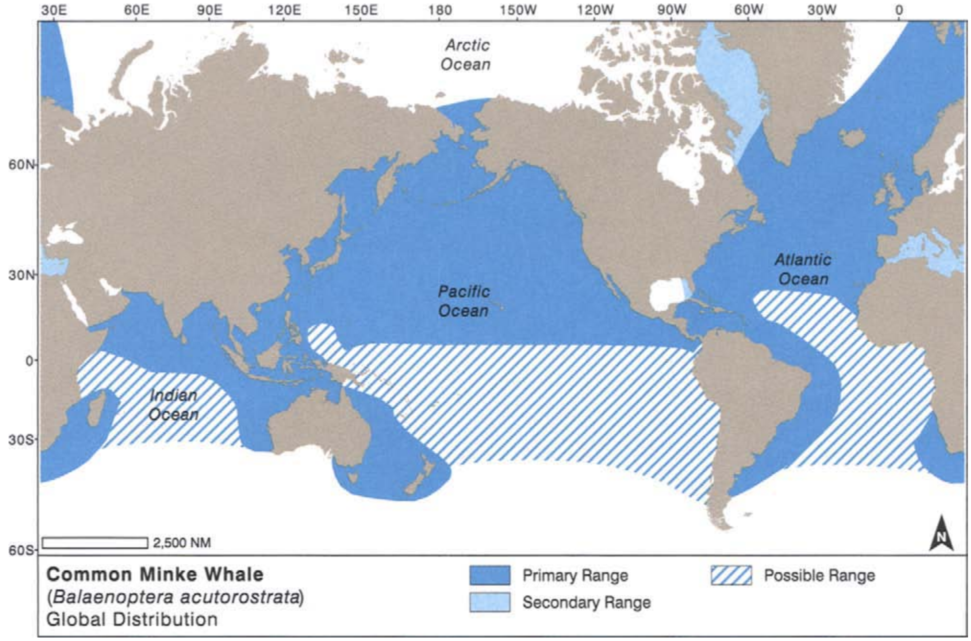
Common names En.–common minke whale; Sp.–*rorcual enano* or *ballena minke*; Fr.–*petit rorqual*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. The minke whales have long been considered to comprise only one species (*B. acutorostrata*), but in recent years the distinctness of the Antarctic minke whale (*B. bonaerensis*) has become clear, and it has now been split-off as a separate species (see below). Three subspecies of the common minke whale are currently recognized: *B. a. acutorostrata* (in the North Atlantic), *B. a. scammoni* (in the North Pacific), and a third unnamed subspecies (the dwarf minke whale, mostly occurring in the Southern Hemisphere).

Species characteristics Minke whales are generally easy to distinguish from the larger rorquals. The body is quite sleek. The head is sharply pointed and V-shaped, viewed both from the side and from above, and the median head ridge is very prominent. The dorsal fin is tall (for a rorqual), recurved, and located about two-thirds of the way back from the snout tip. The flippers are narrow with pointed tips. There are 50–70 moderately short throat pleats (often extending just past the flippers) and 231–285 pairs of white to cream-colored baleen plates (however, some may be dark in color).

The minke whale's coloration is distinctive. It is dark gray dorsally and white beneath, with streaks and/or lobes of intermediate shades on the sides. Some of the streaks may extend onto the back behind the head. The most distinctive light marking is a brilliant white patch

Typical surfacing profile of the common minke whale, showing the relatively tall dorsal fin, rising at a steep angle from the back. This species is small enough that the blow is not usually visible. Eastern Canada. PHOTO: BLIND BAY CETACEAN STUDIES, COURTESY S. GOWANS



on each flipper, which varies in extent between the dwarf and standard-form minkes (the white is not usually present on Antarctic minke whales). This band is generally visible through the surface when animals are swimming near the surface. The blow tends to be diffuse and is often not visible at all.

Adult length ranges from about 6.5–8.8 m. No significant external differences between the two Northern Hemisphere subspecies are known, but the dwarf minke is somewhat smaller. Females are longer than males in all forms. Length at birth for common minke whales is 2.0–2.8 m. Maximum body weight is about 9,200 kg.

Recognizable geographic forms

Standard minke whale *(B. a. acutorostrata/scammoni)*—Standard-form minke whales occur throughout the North Pacific and North Atlantic oceans. They may show varying amounts of mottling on the sides, belly, and back. The flippers are completely dark gray to black, except for a brilliant white band that runs across the middle half of each one. The shoulder area just above the flipper is generally dark. There may be a light gray rostral 'saddle' in some individuals. The standard form of minke whale averages about 8.0 m for adult males and 8.5–8.8 m for adult females. Maximum body weight is about 9,200 kg.

A common minke whale surfaces alongside a research vessel in Southeast Alaska. The pointed snout and brilliant white flipper bands can be clearly seen. PHOTO: T. A. JEFFERSON

Dwarf minke whale *(B. a. subsp.)*—The dwarf minke whale (an unnamed subspecies) occurs in the Southern Hemisphere, but may sometimes move north of the equator. It is distinguished from the standard-form minke mainly by coloration differences. Some of the streaks on the sides typically extend onto the back behind the head, and form a chevron pattern. The white blaze on the flipper extends up onto the shoulder area just above the flipper, and extends back to join light patches on the belly and thorax. The axilla is dark. There is also a well-developed light gray rostral 'saddle'. The baleen plates of the dwarf minke whale tend to have a narrow, dark fringe, and about half of the plates may be dark in color. The dorsal fin is slightly larger and the tail is slightly longer than in the common minke whale. This subspecies is somewhat smaller than the Northern Hemisphere ones, averaging about 6.5–7.0 m as adults. They reach a known maximum of 7.8 m and weights of up to only about 6,400 kg.

Can be confused with When seen well, common minkes are among the easiest to distinguish of the whales of the genus *Balaenoptera*, by a combination of their small size, usual absence of a visible blow, unique

A dwarf minke whale underwater. In this form, the white of the flipper extends up onto the shoulder area. There are what appear to be killer whale tooth rake marks on the body above the flipper. Great Barrier Reef, Australia. PHOTO: D. PERRINE

A common minke whale in the North Atlantic, clearly showing its pointed head and brilliant white flipper bands. Norway. PHOTO: P. OLSON

A unique view of a dwarf minke whale, showing color pattern asymmetry, a chevron, and the sharply pointed head characteristic of all minke whales. Great Barrier Reef, Australia. PHOTO: D. PERRINE

head shape, and distinctive color patterns (especially the white flipper bands). The Antarctic minke whale overlaps the dwarf minke in distribution in the southern summer, and can be difficult to distinguish. The best way to distinguish them is by the presence/absence of the white flipper patch (Antarctic minkes generally do not have the patch). The pygmy right whale may also present identification problems, but a good look at the head and color pattern will allow accurate identifications. Sei and Bryde's whales, and some beaked whales, may also present confusion, but generally only if the animals are seen at a distance.

Distribution Common minke whales are widely distributed from the tropics and subtropics to the ice edges in both hemispheres. The specific distribution, especially in the Southern Hemisphere, is not well-known, due to lumping of all minke whales into one species in the past. Although they can be seen offshore as well, common minkes are more often seen in coastal and inshore areas. Minke whales are very rare in some tropical oceanic areas, such as the eastern tropical Pacific. They occur at least occasionally in the Mediterranean Sea. At least some populations migrate from high latitude summer feeding grounds to lower latitude winter breeding areas. Dwarf minke whales are found only in the Southern Hemisphere, as far south as 65°S. They may have a circumpolar distribution, although this is not well-established.

Ecology and behavior Common minke whales sometimes aggregate for feeding in coastal and inshore areas of cold temperate to polar seas. Group sizes are generally small (singles, pairs, and trios), although larger groups of animals may aggregate on productive feeding grounds. They are often segregated by age, sex, and/or reproductive class, and appear to have a complex social structure. Minke whales do not fluke-up on a dive, but they do sometimes breach and perform other aerial behaviors. They often approach and swim around stationary vessels. Upon surfacing, the dorsal fin generally appears simultaneously with the blowholes. Minkes in Puget Sound, Washington, have exclusive, adjoining home ranges, something that may be unique to baleen whales.

Calving probably occurs in dispersed low latitude areas (although the migrations of minkes are not as well-defined as those of larger rorquals) in winter months. Some females may give birth annually, and gestation lasts about 10–11 months. Minke whales have recently been

Minke whales have a series of light streaks and blazes that extend onto their backs from below. North Atlantic, off Norway. PHOTO: P. OLSON

Common minke whales have the shortest baleen plates of all the rorquals, but like other rorquals they also have a series of ventral pleats that allow their throats to distend during feeding. PHOTO: COURTESY S. LEATHERWOOD

found to make a number of unique vocalization types, although the functions of these are not well-known. Longevity is unknown, but probably reaches about 50 years. Killer whales appear to be a significant predator of this small rorqual.

Feeding and prey The diversity of prey types of common minke whales primarily consist of small invertebrates (euphausiids and copepods) and small schooling fishes (sand lance, sand eel, salmon, capelin, mackerel, cod, coal fish, whiting, sprat, pollack, haddock, herring, anchovy, saury, walleye pollack, and lanternfish), which they capture by lunging into large prey aggregations. They also take larger fish species (such as wolfish and dogfish).

Threats and status Until the latter half of the 1900s, common minke whales were often considered too small to hunt, and were generally passed up. However, with the depletion of the larger rorquals, common minke whales have been heavily hunted in recent years (> 100,000 in the North Atlantic alone), and this is now the species of whale most commonly taken by commercial and "scientific" whalers (at least in the Northern Hemisphere). It is still hunted by Norway in the North Atlantic and by Japan and Korea in the North Pacific and Antarctic. Despite this exploitation, the common minke whale generally remains abundant in most areas of its range (over 180,000 are thought to occur in the Northern Hemisphere, although accurate numbers are hard to come by). Some are caught in fishing gear and suffer from vessel strikes and habitat disturbance.

IUCN status Lower Risk/Near Threatened.

References Arnold et al. 1987, 2005; Heide-Jorgensen et al. 2001; Horwood 1990; Perrin and Brownell 2002; Stewart and Leatherwood 1985.

Antarctic Minke Whale—*Balaenoptera bonaerensis*

Burmeister, 1867

Recently-used synonyms None.

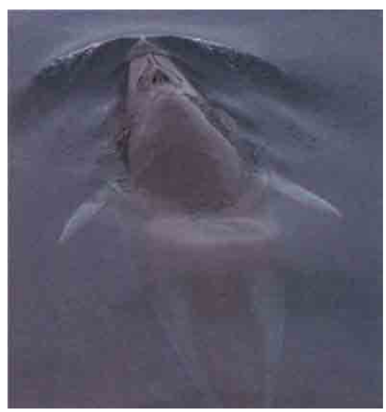
Common names En.–Antarctic minke whale; Sp.–*rorcual enano or ballena minke*; Fr.–*petit rorqual*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae. Until recently, all minke whales were classified as *B. acutorostrata*, but the distinctiveness of the Antarctic minke whale is now well-established, and it has been designated its own species as of the late 1990s. This species is actually more closely related to the sei and Bryde's whales than to the common minke whale. Due to its tangled history with the common minke whale, our knowledge of the Antarctic minke's biology is limited.

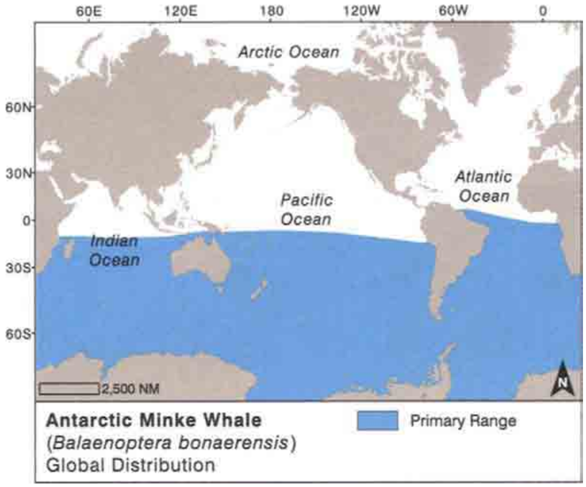
Species characteristics As in the common minke whale, the body is sleek and streamlined, the head is pointed, and there is a single prominent median ridge on top of the rostrum. The dorsal fin, situated about two-thirds of the way back from the snout tip, is quite tall and falcate (for a rorqual). There are 22–38 short throat pleats, which extend just past the flippers (almost to the umbilicus) and 200–300 pairs of baleen plates, most of which are black. The color of the baleen is asymmetrical, and some of the anterior plates are white (more so on the right side).

Antarctic minke whales are dark gray dorsally and white ventrally, with streaks and/or lobes of grayish color on the lateral surface. Some of the streaks may even extend onto the back behind the head, forming a chevron. The distinctive white band on the flipper of Northern Hemisphere and dwarf minke whales is not present on Antarctic minke whales, and flippers are relatively uniformly colored. However, the flippers are not particularly dark in color—they are usually light gray, often with a distinct dark border. The short blow is generally conspicuous in Antarctic waters, but can be more faint at times, and may even be invisible.

Antarctic minke whales do not have the brilliant white flipper bands that are found in the common minke whales. They do often have a visible blow though, as shown here. PHOTO: K. SEKIGUCHI



Although Antarctic minke whales lack the white flipper bands of common minke whales, their flippers are paler than the rest of the body; notice the asymmetric chevron on the back. PHOTO: P. OLSON



The dorsal fin of the Antarctic minke whale is sometimes very strongly hooked. PHOTO: S. HEINRICH

Adult Antarctic minke whales average about 8.5–9.0 m, and can reach 10.7 m in length. Length at birth is about 2.8 m. Maximum body weight is about 9,100 kg.

Recognizable geographic forms None.

Can be confused with Antarctic minke whales are generally easy to distinguish from the larger rorquals that occur in the Antarctic (blue, fin, and sei whales), due to their small size, pointed head, specifics of the color pattern, and quicker movements. Although they are generally about 2 m longer, they can be quite difficult to distinguish from dwarf minke whales. When the flippers are seen, the best feature is the lack of distinct white flipper patches on Antarctic minkes. Pygmy right whales and some beaked whales may also cause some confusion at a distance, but a good look at the head and color pattern should make distinction possible.

Distribution Antarctic minke whales occur widely in coastal and offshore areas of the Southern Hemisphere, and are found from at least 7°S south to the ice edges. Some may cross the equator into the Northern Hemisphere. The range is thought to be circumpolar, and in general they are more oceanic than dwarf minke whales. Although there is a general shift northward for breeding in the winter months (known breeding grounds are off Australia, South Africa, and Brazil), not all Antarctic minke whales migrate. They tend to be more polar than common minke whales, and most spend their summers in waters around the Antarctic continent. Some may even overwinter in the Antarctic.

Ecology and behavior The biology of the Antarctic minke whale is not well-understood, at least partially due to a long-standing lack of distinction from common minke whales. Singles and pairs are not uncommon. Although groups elsewhere are generally much smaller, feeding aggregations in the Antarctic may contain hundreds of animals. Antarctic minke whales migrate to the Antarctic for the summer for feeding, and to more moderate climates in the winter for breeding. Although they are not as aerially active as some other whales, Antarctic minke whales do occasionally breach and spyhop. They often

Antarctic minke whales sometimes get trapped in the ice and can spend the winter at a breathing hole, such as this one near McMurdo Station in the Ross Sea. PHOTO: COURTESY R. L. PITMAN

Antarctic minke whales are sometimes curious around vessels and will occasionally come over to take a look. Atlantic part of Southern Ocean, near the ice edge. PHOTO: P. OLSON.

approach vessels, and are easily approachable when feeding. They do not fluke-up upon diving. Antarctic minke whales are often seen among the ice floes in the Antarctic summer months.

Antarctic minke whales exhibit similar life history parameters to those of Northern Hemisphere minkes. Annual and biennial breeding may be the norm, and peak calving occurs in July and August after a gestation of about 10 months. Attainment of sexual maturity occurs at average ages of 7–8 years for females and 8 years in males. Whales may segregate by age, sex, and reproductive status during migrations. Unique, species-specific vocalizations have been described. Killer whales appear to be important predators of this species.

Antarctic minke whales often travel in groups; the lead animal here in Antarctic waters shows a typical dorsal fin; the trailing animal shows details of complex, but subtle color patterning. Atlantic part of Southern Ocean, near the Antarctic Circle. PHOTO: P. OLSON

Feeding and prey Antarctic minke whales eat mostly krill, although they do occasionally feed on small schooling fishes. They are lunge feeders, often actively plunging through patches of euphausiids with throat pleats distended.

Antarctic minke whales create a "roostertail" of spray when they travel fast. The white spots on this animal are cookie-cutter shark bites, which they acquire in lower latitudes during the winter. The all-gray flipper distinguishes it from other minkes. Atlantic part of Southern Ocean, near the Antarctic Circle. PHOTO: P. OLSON

Threats and status Large numbers of minke whales of both species (>100,000, mostly Antarctic minkes) have been killed in Antarctic waters in the past century. Japan's so-called "scientific whaling" focuses mainly on this species, which is still quite abundant in Southern Hemisphere waters. Japan currently takes several hundred Antarctic minkes each year under special scientific permit, but the meat is marketed, and many conservationists see this program as simply a ploy to get around the International Whaling Commission's moratorium on commercial whaling. There is much controversy about their current abundance, but they clearly number several hundred thousand.

IUCN status Lower Risk/Conservation Dependent.

References Horwood 1990; Matsuoka et al. 2003; Perrin and Brownell 2002; Stewart and Leatherwood 1985; Zerbini et al. 1997.

Antarctic minke whales are sometimes curious of boats and will approach a stationary vessel; notice the pigment swirls extending behind the blowholes. PHOTO: K. SEKIGUCHI

Balaenopteridae

Antarctic Minke Whale

Humpback Whale—*Megaptera novaeangliae*

(Borowski, 1781)

Recently-used synonyms *Megaptera nodosa.*

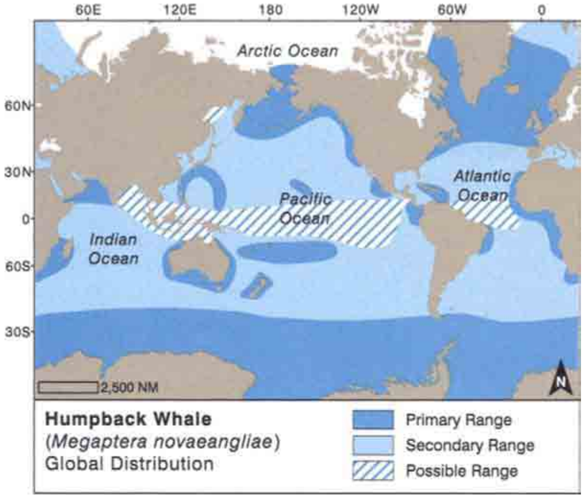
Common names En.–humpback whale; Sp.–*rorcual jorobado* or *ballena jorobada*; Fr.–*baleine a bosse* or *mégaptere* or *jubarte.*

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Balaenopteridae.

Species characteristics The humpback whale differs substantially from the general rorqual body plan. The body is more robust; the flippers are extremely long (up to one-third of the body length) with a series of bumps (known as tubercles), including two more prominent ones in consistent positions on the leading edge, which more-or-less divide the margin into thirds. The tail flukes have a serrated trailing edge. The dorsal fin is located approximately two-thirds of the way back from the rostrum tip, and is low and broad-based (often sitting on a raised hump of tissue, which is most obvious when whales arch their backs to dive). It is highly variable in shape, ranging from a small nubbin to a prominent falcate fin—researchers use these variations to aid in identifying individual humpbacks. The head has a single low median ridge, which is lined with a series of tubercles. The anterior portion of the head also has several tubercles (each containing a single sensory hair). The tubercles are most prominent near the lips and on the chin.

The body is black or dark gray dorsally and generally has significant amounts of white ventrally (although largely black animals are known). The borderline between dark and light is highly variable and seems to differ by population (the white extends up onto the sides and back in many Southern Hemisphere humpbacks).

Typical features of humpback whales include a broad head with a series of tubercles (knobs) and the dorsal fin on a step. PHOTO: M. W. NEWCOMER



The flippers are white on the ventral side and vary from all-white to mostly black on the dorsal surface—again this is variable among different populations. The ventral side of the flukes also varies from all-black to all-white, with individually distinctive patterns of white and black. This patterning, along with the serrations on the trailing edges of the flukes, are the primary means that biologists use to identify individual humpback whales. Anomalously-white (possibly albino) individuals have been observed.

There are 270–400 black to olive baleen plates on each side of the upper jaw (although the anterior-most plates may be lighter in color), and 14–35 ventral pleats extending back to the navel or beyond. The blow is often rather low and bushy, reaching only 3 m; however, in large animals it can be quite tall and columnar. It may sometimes appear V-shaped.

Adult humpback whales are 11–17 m long (females are about 1–1.5 m longer than males) and newborns are about 4.3 m in length and weigh about 680 kg. Weights of at least 40,000 kg are attained by adults.

Recognizable geographic forms Distinct geographic forms of the humpback whale are not widely-recognized. However, Southern Hemisphere humpback whale populations generally have more extensive white on the lower part of the body, which may even extend up onto the back. They also typically have more extensive white on the flippers than their Northern Hemisphere counterparts.

Can be confused with At close range, the humpback is very distinctive, and is one of the easiest whales to identify. At a distance, however, there can be some confusion with other large whales, especially right, gray, and sperm whales. This is largely due to the similarity in their bushy blows and the absence of a large dorsal fin. When a closer look is obtained, humpbacks are gener-

Humpback whales exhibit a great deal of variation in the shape of the dorsal fin. In some whales, it is very small and sits on a hump; in others it is more dolphin-like. Monterey Bay, California. PHOTO: T. A. JEFFERSON

Humpback whales sometimes lay at the surface flailing their enormous flippers, up to 5 m long. The flippers are often white and have a series of bumps along the leading edge. Monterey Bay, California. PHOTO: T. PUSSER

A breaching humpback whale in central California shows its very long, usually all-white flippers, which are diagnostic of the species. Humpbacks often breach, and may be the most acrobatic of all large whales. PHOTO: K. WHITTAKER

Some Southern Hemisphere populations of humpback whales have much more white on their sides and back than those in the Northern Hemisphere. South Pacific. PHOTO: A. GANNIER

Humpback whales (this one in Monterey Bay, California) have a very broad head, with a single median ridge and a series of knobs, each containing a sensory hair. Also visible are barnacles and white circles where barnacles have fallen off. PHOTO: K. WHITTAKER

Humpback whales often feed cooperatively, lunging through schools of fish or krill, distending their throat pleats to allow expansion of the oral cavity for taking in huge amounts of food and water. Eastern North Pacific. PHOTO: C. OEDEKOVEN/NOAA FISHERIES/SWFSC

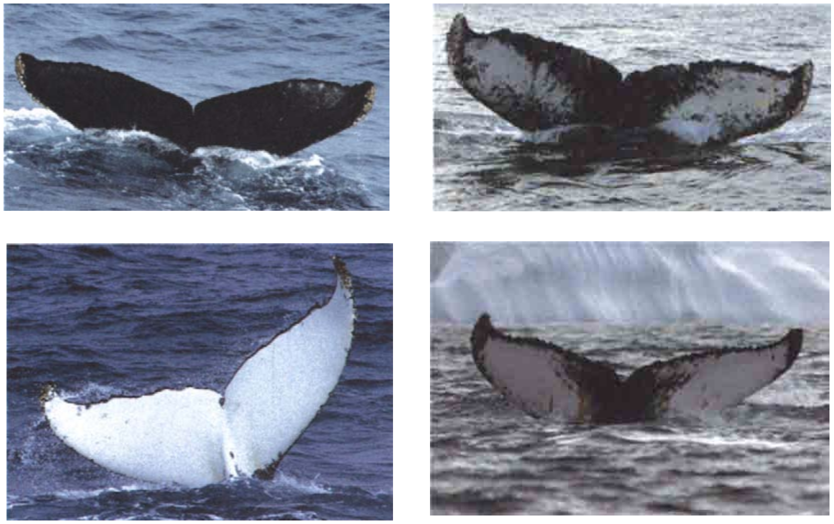
ally easily distinguished by the combination of head and body shape, dorsal fin shape, and size and shape of the flippers.

Distribution The humpback whale is a cosmopolitan species. The only places where they are clearly absent are in some equatorial regions, a few enclosed seas, and some parts of the high Arctic. Humpbacks do most of their feeding and breeding in coastal waters over continental shelves of all the continents, often near human population centers. This helps make them one of the most familiar of the large whales. They migrate from winter grounds in the tropics (breeding areas) to temperate and polar summer grounds, reaching the ice edges in both hemispheres (feeding areas). Their migrations often take them through oceanic zones, but in general, their migratory routes are not well-known. Humpbacks congregate in certain well-known "grounds" (many of these were first discovered by whalers), but they may also occur at lower densities in other areas outside these regions of concentration. Humpback whales in the Arabian Sea are unusual, in that they appear to remain there year-round. They are rare in the Mediterranean, and the few records from the Persian Gulf are considered extralimital.

Ecology and behavior Humpback whales have been studied extensively on many of their feeding and breeding grounds, and as a result they are one of the best known of all the large whales. Although they generally occur singly or in small groups, larger aggregations develop in feeding and breeding areas. Sometimes humpbacks gather into coordinated groups of up to 20 or more whales, which appear to work together to herd and capture prey. The only long-term bonds that are known are those of mothers and calves, although some whales do associate more frequently on feeding grounds. Humpbacks are probably the most acrobatic of all the great whales, sometimes performing full breaches that bring their entire bulk out of the water. Flipper and fluke slapping behavior is also common.

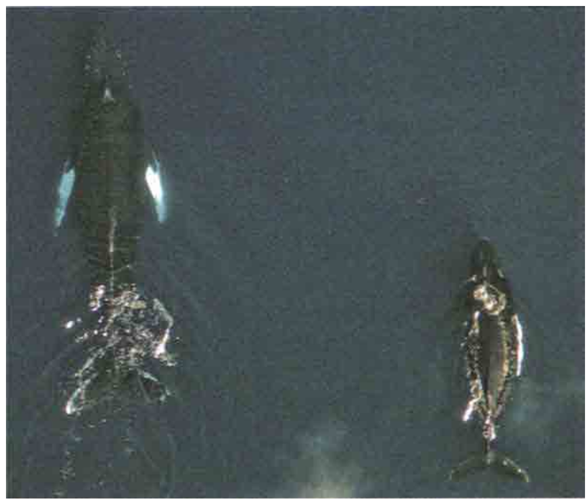
Humpback whale migrations are among the longest known for any mammal species, and can reach 8,000 km one-way. The specific reasons for the migration are often debated by scientists, but it is generally agreed that one reason is to take advantage of both the highly productive summer blooms of high latitudes and the energy-conserving properties of warm tropical areas in winter. On the breeding grounds, males compete for access to estrous females, apparently using their well-known, complex songs as part of the breeding display. Males also compete physically, and (sometimes violent) male/male aggression is commonly observed on the wintering grounds. Calves are born on wintering grounds in tropical and subtropical regions, and most calves are weaned and independent from their mothers by the time they are one year old.

When diving, humpback whales frequently lift their flukes high out of the water, exposing the lower surface. Individual humpback whales can be identified using photographs of the distinctive markings on the undersides of their flukes. Such photos can be of great help in defining movements and migrations of this and other species. Humpback whales are heavily parasitized, and the external surfaces of their bodies are often dotted with whale lice and barnacles (the latter especially tend to attach to the tubercles). Killer whales (and occasionally false killer whales) are known predators, and it is not uncommon to see killer whale tooth rake scars on their bodies and appendages. Longevity is not well-known, but probably exceeds 50 years.



The underside of the flukes of humpback whales can range from virtually all-black, to combinations of black and white, to all-white. The sculpted trailing edge of this species is very distinctive. PHOTOS: C. OEDEKOVEN; H. FEARNBACH BOTH NOAA FISHERIES/SWFSC; F. UGARTE; R. L. PITMAN.

Feeding and prey Humpback whales have a diverse diet for a baleen whale, feeding largely on krill and a wide variety of small schooling fish (such as herring, sand lance, mackerel, sardines, anchovies, and capelin). They are adaptable lunge-feeders, which use bubble nets, bubble clouds, tail flicks, and other techniques to help concentrate prey for easier feeding. They are also one of the few species of baleen whales that appear to use cooperative feeding techniques.



Humpback whales are unmistakable from the air—their knob-covered heads and extremely long flippers are unlike those of any other whale species. Eastern Pacific. PHOTO: SWFSC PHOTOGRAMMETRY LAB

Threats and status Humpback whales have been hunted by commercial whalers in all major oceans, and many stocks have been seriously depleted by whaling that took place mostly in the 1900s. They were taken both by coastal and oceanic whaling operations, and some have continued to be taken by artisanal whalers in the Caribbean and the South Pacific in the past few decades. About 200,000 were killed in the Southern Hemisphere in the twentieth century. The species has been fully protected by the International Whaling Commission since 1965, but the Soviets illegally killed almost 50,000 humpbacks until 1973. Additional threats include entanglement in fishing gear, vessel collisions, disturbance by human-caused noise and traffic, coastal habitat destruction, and climate change effects. Globally, there may be about 35,000–40,000 humpback whales (about 12,000 in the North Atlantic, 6,000–8,000 in the North Pacific, and over 17,000 in the Southern Hemisphere), and while some stocks are still depleted, most are showing evidence of strong recovery. As a species, the humpback whale clearly is in no immediate danger of extinction.

IUCN status Vulnerable.

References Calambokidis and Barlow 2004; Clapham 2002; Clapham et al. 1999; Clapham and Mead 1999; Johnson and Wolman 1984; Perry et al. 1999.

Gray Whale—*Eschrichtius robustus*

(Lilljeborg, 1861)

Recently-used synonym *Eschrichtius gibbosus*, *Rhachianectes (Eschrichtius) glaucus*.

Common names En.–gray whale; Sp.–*ballena gris*; Fr.–*baleine grise*.

Taxonomic information Order Cetacea, Suborder Mysticeti, Family Eschrichtiidae.

Species characteristics Gray whales are easy to distinguish from other whale species. They are intermediate in robustness between right whales and rorquals. The upper jaw is moderately arched, and the head is acutely triangular in top view and slopes downward toward the tip in side view. The small eyes are located just above the corners of the mouth. The flippers are broad and paddle-shaped, with pointed tips. The flukes are wide (> 3 m in adults), and have smooth S-shaped trailing edges, with a deep median notch. There is a dorsal hump about two-thirds of the way back from the snout tip, followed by a series of 8–14 smaller "knuckles" on the dorsal ridge of the tail stock. There may be several (generally 2–7) short, but deep, creases on the throat that allow some expansion of the throat during suction feeding.

Gray whales often fluke when they dive, showing the "knuckles" along the tail stock as they do. Monterey Bay, California. PHOTO: M. KINZEL

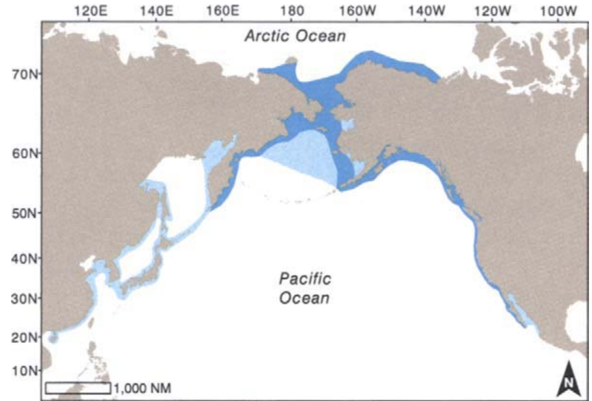
Although young calves are dark charcoal gray, all other gray whales are brownish-gray to light gray in color. They are nearly covered with light blotches and white to orangish patches consisting of whale lice and barnacles, especially on the head and tail. These patches of ectoparasites are very helpful in distinguishing this species, and gray whales may appear quite light-colored when viewed through the water's surface. The flippers and flukes of gray whales are often scarred by marks from killer whale bites.

The mouth contains 130–180 pairs of short (5–40 cm) yellowish baleen plates, with very coarse bristles. The blow is bushy, heart-shaped when viewed from ahead or behind, and rises less than 3–4 m. In some conditions it can appear a bit more columnar.

At birth, gray whales are about 4.6–4.9 m long and weigh about 920 kg; adults are 11–15 m in length, with females slightly larger than males. Maximum body weight is about 45,000 kg.

Recognizable geographic forms None.

Can be confused with Gray whales are unique in body shape (somewhat torpedo-shaped, when viewed



Gray Whale
(*Eschrichtius robustus*)
Global Distribution

from above) and patterning (irregular blotches of white on gray), and there is usually no problem with identification at close range. From a great distance, however, they can sometimes be confused with other whales lacking a prominent dorsal fin (e.g., right, bowhead, sperm, or humpback whales). A closer look at the body shape and coloration will generally allow them to be distinguished.

Distribution Gray whales are found only in the North Pacific Ocean and adjacent seas. There are two populations, a large eastern Pacific stock and a very small, remnant western North Pacific stock. They are primarily bottom feeders and are thus restricted to shallow continental shelf waters for feeding. In fact, they are the most coastal of all great whales, living much of their lives within a few tens of kilometers of shore (although they do feed great distances from shore on the shallow flats of the Bering and Chukchi seas). The eastern Pacific stock ranges from the southern Gulf of California, Mexico, to the Beaufort and Chukchi seas in the Arctic. The western Pacific stock ranges from the coast of southern China to the Sea of Okhotsk (however, only a portion of this historic range is currently occupied by the remnant population).

Ecology and behavior The behavior and ecology of the gray whale has been relatively well-studied, especially on the breeding lagoons in Baja California, Mexico. Most gray whale groups are small, often with no more than three individuals, but gray whales do sometimes migrate in pods of up to 16. Large aggregations are common on the feeding and breeding grounds. Although they are generally slow-moving, this is a fairly aerially-active species. Breaching, spy-hopping, and other aerial behaviors are common, especially during migration, and in and near the breeding lagoons of Baja California. The annual migrations from winter breeding grounds in Mexico to summer feeding grounds in the Bering, Chukchi, and occasionally Beaufort, seas is witnessed by tens of thousands of people each year along the west coast of North America. This is one of the longest migrations known for any mammal—some 15,000–20,000 km round trip. During migration, they generally swim at speeds of 5–9 km/hour and dive for 3–5 minutes at a time. When feeding, gray whales roll on their sides to suck up epi-

A gray whale on the feeding grounds off Sakhalin Island, Russia. Until recently, this western North Pacific population was thought to be extinct, but it is now known to number about 100 individuals. Unlike rorquals, gray whales do not have long throat pleats (though they do have short creases). PHOTO: D. WELLER

An aerial view of a feeding gray whale in Alaskan waters, showing distinctive mottling and rather pointy head. These animals feed on benthic prey in shallow waters, and they often leave mud plumes behind them as they surface to breathe between feeding dives. PHOTO: H. W. BRAHAM, COURTESY OF D. RUGH

A young gray whale calf surfaces close to its mother in San Ignacio Lagoon, Mexico. Gray whales have strong, bushy blows, but mothers with calves are capable of exhaling without a visible blow if they suspect danger. PHOTO: T. A. JEFFERSON

A gray whale surfaces in the calving lagoons of Baja California, Mexico, showing the low, bushy, sometimes V-shaped blow that is typical of the species. PHOTO: T. A. JEFFERSON

The scalloped trailing edge of the flukes of an eastern gray whale appear above the surface as it goes down on a dive in California waters. PHOTO: M. KINZEL

benthic fauna in bottom sediments, and then surface with mud streaming out of the sides of their mouths. The unique feeding method leaves distinctive feeding pits on the shallow sea floor.

Calving of eastern Pacific grays occurs in late November to early December, during the southbound migration (before animals have reached the lagoons of Baja California). Sperm competition is thought to be important in the mating system. Apparent mating behavior has been seen throughout the year. The location of the western gray whale's wintering grounds are a mystery, although there is evidence that the southern coast of China was used in the past. Gray whales were known as "devilfish" by American whalers, due to their tendency to ferociously fight back when attacked. This is in contrast to the gentleness (termed "friendly" behavior) that they usually show to modern-day "whale-huggers", who approach and pet them in the wintering lagoons. Gray whales may routinely live to be over 40 years old, and one was aged at 75–80 years.

Feeding and prey Gray whales are suckers, using suction to take in food, water, and sediments in shallow waters—then expelling the water and sediment, while trapping the prey on the inside of their baleen plates. They feed primarily on swarming mysids, amphipods, and polychaete tube worms in the northern parts of their range, but are also known to opportunistically take red crabs, baitfish, and other food (crab larvae, mobile amphipods, herring eggs and larvae, cephalopods, and megalops).

Threats and status Gray whales were one of the first of the great whale species to be targeted by whalers in the Pacific. They are relatively large and slow-moving, and nearly their entire lives are spent in nearshore areas, with easy access from the shoreline. In these respects, they were ideal targets, however gray whales can also be aggressive when attacked (earning them the nickname 'devilfish'), and many whalers lost their lives at the hands of a thrashing gray whale. The North Atlantic population was wiped-out by whalers, apparently sometime in the late 1600s or 1700s.

Until recently, the western North Pacific (Korean-Okhotsk) stock was thought to have followed the North Atlantic group into extirpation. However, a small remnant group (about 100 whales) was recently found to be spending its summers feeding off Sakhalin Island, Russia. It is not known if there are other such groups, but at least the population appears to be surviving.

The eastern North Pacific (California-Chukchi) stock was twice reduced to near extinction in the last 150 years. Since its protection after World War II, the

This 'friendly' gray whale calf is young enough that it still has hairs present along the end of its rostrum and very few of the barnacles and whale lice that will infest it as an adult. PHOTO: M. KINZEL

Gray whales are mostly benthic feeders, but they occasionally surface skim, as shown here. The baleen plates are short with coarse bristles for filtering relatively large prey from the mud. Monterey Bay, California. PHOTO: T. PUSSER

"California" gray whale has rebounded to numbers thought to be near pre-exploitation levels. In 1997/98, there were about 30,000 whales, but the numbers have dropped recently to under 20,000, as the population reaches an equilibrium with its environment. Climate change (especially warming of arctic waters) may have severe ramifications for food resource availability. Exploration and extraction of petroleum reserves may also have important implications for the viability of the species, especially in the Okhotsk Sea, where a large effort is underway to extract oil from an area within the only known feeding area of the western gray whale.

IUCN status Critically Endangered (western Pacific stock), Lower Risk/Conservation Dependent (eastern Pacific stock).

References Braham 1984; Jones and Swartz 2002; Jones et al. 1984; Reeves and Mitchell 1988; Rice et al. 1984; Weller et al. 2002.

Sperm Whale—*Physeter macrocephalus*

Linnaeus, 1758

Recently-used synonyms *Physeter catodon.*

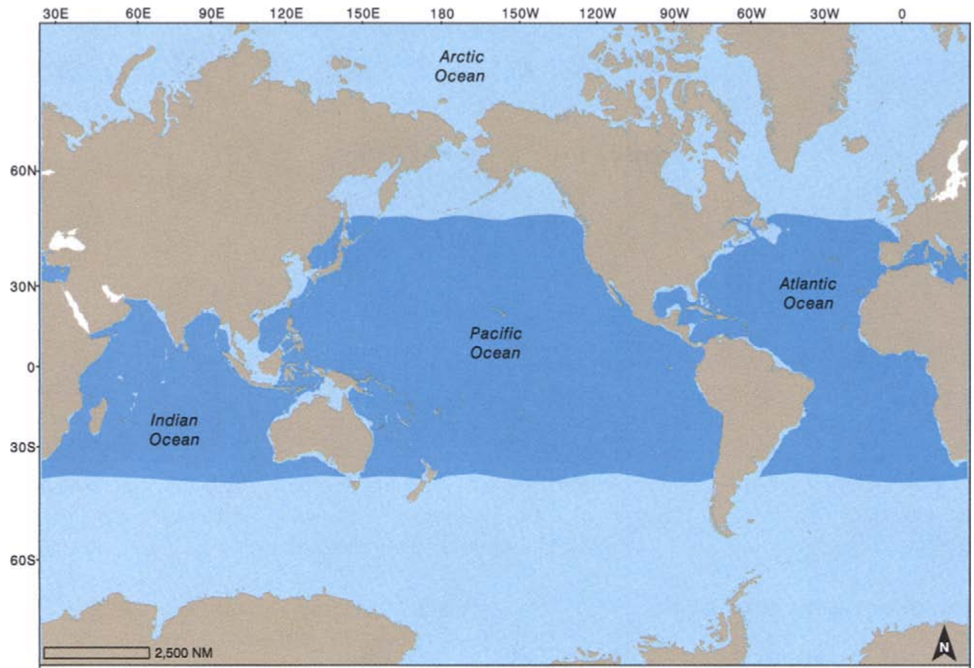
Common names En.–sperm whale; Sp.–*cachalote*; Fr.–*cachalot*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Physeteridae. Great controversy has existed in recent years about whether *Physeter macrocephalus* or *P. catodon* is the correct scientific name for the species. The former seems to have won-out, and this name is now almost universally used. There has also been some disagreement about whether the sperm whale is most closely related to other toothed whales or to baleen whales. It now appears that the genetic data supporting a relationship with baleen whales were misinterpreted, and sperm whales are now considered to be perfectly good odontocetes.

Species characteristics As the largest toothed cetacean, the sperm whale, is unlikely to be confused with any other species. The body is somewhat laterally compressed and the head is huge (one-quarter to one-third of the total length, and an even greater proportion of the total bulk) and squarish, when viewed from the side. The lower jaw is much narrower than the upper, and is underslung, making it barely visible from the side. There are 2–10 short, deep throat grooves. The single S-shaped blowhole is set at the front of the head and is offset to the left. The flippers are short, but wide and spatulate. The flukes are broad and triangular with a nearly straight trailing edge (often with various nicks and notches), rounded tips, and a deep notch. The caudal peduncle is very deep, and may have a post-anal keel. There is a thick, low, rounded dorsal hump and a series of bumps, or crenulations, on the dorsal ridge of the tail stock. The body surface tends to be wrinkled behind the head and on the sides. Many (about 75%) adult females and some young males (about 30%) have white to yellowish calluses on the dorsal hump, whereas bulls almost never have them.

Sperm whales are predominantly black to brownish-gray, with white areas around the mouth and often on the belly. The white areas are

A sperm whale mother and calf. The corrugated appearance of the body is characteristic of all age and sex classes. The pectoral flippers lie flush to the body—perhaps as protection from predators. North Atlantic. PHOTO: D. PERRINE



Sperm Whale
(*Physeter macrocephalus*)
Global Distribution

Primary Range
Secondary Range

of highly variable extent and pattern. White scratches and scars are common on the bodies (especially the heads) of some large adults. These are presumably caused mostly by other sperm whales and the beaks of their cephalopod prey. Anomalously-white individuals have been observed (in at least one case, this was an albino).

Functional teeth (18–26 pairs that fit into sockets in the upper jaw) are present in the lower jaw only. The teeth are large and may range from sharply pointed in young animals to rounded stumps in old individuals. The bushy blow projects up to 5 m and, because of the position of the blowhole, is directed forward and to the left. On windless days, such an angled blow originating from the most forward part of the head is diagnostic.

Newborn sperm whales are 3.5–4.5 m long and weigh about 1,000 kg. Adult females are up to 12 m and adult males are up to 18.3 m in length. Weights of up to 57,000 kg have been recorded. Sperm whales are the most sexually dimorphic of all cetacean species, with males weighing nearly three times as much as females.

Calf—Length < $^1/_2$ of adult length, color pattern somewhat faded, mouthline relatively short, flukes very broad (anterior–posterior).

Subadult—Medium-sized (slightly smaller than adult females), dorsal fin callus may be present in some individuals.

Adult female—Relatively large size, pale dorsal fin callus usually present (although sometimes difficult to see), dorsal fin more anterior than in adult males.

Adult male—Large body size (up to about 50% larger than females), often with extensive scarring on head, head proportionately large (up to $^1/_3$ body length), upper jaw tends to overhang tip of lower jaw, dorsal fin more posterior than in adult females, callus rarely present on dorsal fin, trailing edges of flukes somewhat convex.

A sperm whale photographed underwater. The large, overhanging upper jaw, and extensive scarring on the head clearly indicate that this is an adult male. PHOTO: B. KAHN

Sperm whales at the surface often expose the tip of the head at a 45° angle like this; the animal is facing left and slightly toward the photographer, exposing its flat 'forehead' and single blowhole. PHOTO: C. JOHNSON

Sperm whales, especially groups of mothers and their young, are highly social creatures with strongly synchronized diving and surfacing patterns; when resting, they often log at the surface in tight groups. Maldives. PHOTO: T. A. JEFFERSON

Recognizable geographic forms None.

Can be confused with Sperm whales are generally easy to distinguish from other large whales at sea, even at a great distance. The uniquely-angled blow is diagnostic, but one must be careful to take into account the effects of wind on a whale's blow. Only humpbacks, and possibly gray whales would be likely to be confused with sperm whales, and this only at a great distance. Once a closer look is obtained, the unique body shape, and exhalation patterns of sperm whales will make them distinguishable.

Distribution Perhaps only killer whales and humans are more widely distributed than the sperm whale. Sperm whales are somewhat migratory and are distributed in a cosmopolitan fashion from the tropics to the pack ice edges in both hemispheres, although generally only large males venture to the extreme northern and southern portions of the range (poleward of about 40–50° latitude). Deep divers, sperm whales tend to inhabit continental slope and oceanic waters deeper than about 1,000 m, but some (especially adult males) do come closer to shore, especially where submarine canyons or other physical features bring deep water near the coast. They may even occasionally be seen over the continental shelf in specific areas (such as in the Gulf of California and off Long Island, New York). Their migrations are not as clear-cut as they are in most baleen whales, and in some tropical areas sperm whales appear to be largely resident. The distribution includes semi-enclosed seas with deep entrances, like the Gulf of Mexico, Caribbean Sea, Gulf of California, Sea of Japan, and Mediterranean Sea. However, it excludes seas with shallow, narrow entrances, like the Black Sea and Persian Gulf (there are also some records from the Red Sea, probably extralimital). Sperm whales occur in higher densities in certain areas of high productivity, often near steep drop-offs and areas with strong currents – many of these areas were discovered by Yankee whalers and are thus called the "grounds."

A diving sperm whale in Indonesian waters, showing the squarish head, wrinkled skin and triangular dorsal hump—it has been said to resemble a swimming boxcar. PHOTO: B. KAHN

A sperm whale, with mouth agape, showing the very narrow, underslung lower jaw and peg-like teeth. Only the lower jaw has teeth, which fit into sockets in the upper jaw. PHOTO: B. KAHN

Ecology and behavior Although bulls are sometimes seen singly (especially above 40° latitude), sperm whales are more often found in medium to large groups of 20–30, but can occur in groups of up to 50 or so whales (generally with only one bull per breeding group). In the past twenty years or so, the social system of sperm whales has been relatively well-studied. They are polygynous;

The sperm whale's characteristic blow is angled forward and to the left, as shown here. Because they are deep divers, they often appear to be hyperventilating as they catch their breath at the surface. PHOTO: R. W. BAIRD

The single blowhole of the sperm whale is situated at the very front of the blunt head, and to the left of center. PHOTO: R. L. PITMAN

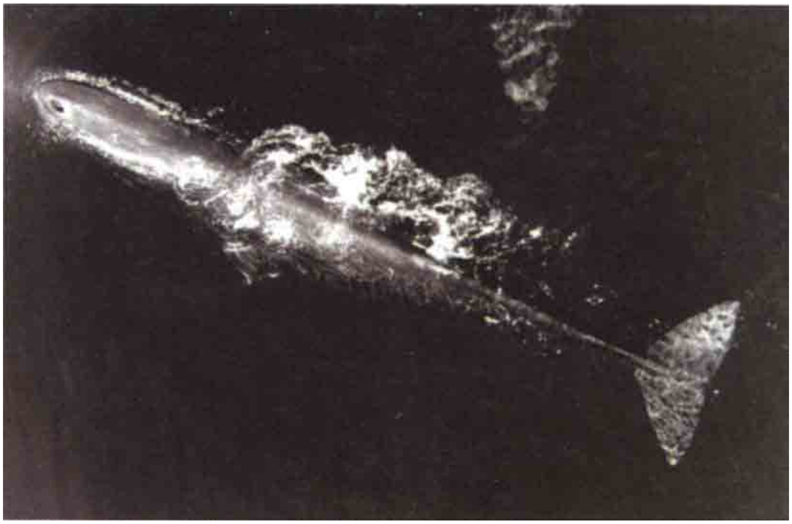
adult males seem to employ a "searching" strategy for mating, associating with nursery groups of the much more social adult females and their offspring for only short periods of time. The female groups are characterized by some long-term stability. Sperm whales range widely, and adult males may move across and even between ocean basins. Although fights between males have seldom been observed, the evidence indicates that males compete for access to nursery groups. Sexually-mature, but non-breeding, males that have left their natal pods may form bachelor herds. Most births occur in summer and fall, but reproductive rates are very low. Whales of this species can live to be at least 70 years old, and possibly much older. Sperm whales are sometimes attacked by killer whales (and very occasionally other odontocetes), but these rarely appear to be fatal. When attacked by killer whales or other predators, sperm whales may gather into a circle, with heads pointing inwards, and calves protected in the middle. This is known as a "marguerite" formation.

The two principal activities are foraging (in which whales gather in small clusters, fluking-up and diving consistently) and socializing (in which they gather into larger surface-active groups). Sperm whales may raft at the surface between bouts of diving. They are extremely deep and long divers, apparently capable of reaching depths of 3,200 m or more for well over one hour. Most commonly, during foraging they dive to about 400 m and for 30–45 minutes. Groups of females may spread out over distances of more than 1 km when foraging, but adult males tend to be solitary when foraging. Some dives of bulls, which are longer than those of the smaller cows, last as long as two hours. Fluking-up is common before a long dive, and rafting (whales lying nearly motionless at the surface) is common afterwards. The most common aerial behaviors are breaching and fluke-slapping.

Low-frequency, stereotyped, clicked vocalizations, some of which are termed "codas," are apparently distinct to groups of sperm whales and may act as acoustic signatures. Some clicks are also probably used in echolocation. In addition, sperm whales also produce occasional "squeals" and "trumpets." Some scientists studying sperm whales argue that their complex social organization and behavior patterns fit the definition of 'culture.'

Feeding and prey An amazing variety of cephalopods and other invertebrates, deep-sea fish, and non-food items have been found in the stomachs of sperm whales from around the world. Cephalopods (squid and octopuses), however, are considered to be the major prey items. Primary prey species include squids of the genera *Architeuthis* (the giant squid), *Moroteuthis*, *Gonatopsis*, *Histioteuthis*, and *Galiteuthis*, as well as fishes like lumpsuckers and redfishes. Like all odontocetes, they

Sperm whales show their flukes prior to a deep dive, holding them high and perpendicular. The flukes are straight across the trailing edge (but with notches that allow individuals to be identified), and are very triangular overall, with rounded tips. Maldives. PHOTO: T. A. JEFFERSON



A sperm whale from the air shows the triangular shaped flukes and a rounded head, with the blowhole all the way forward and to the left. Eastern Pacific. PHOTO: NOAA FISHERIES, SWFSC

seize individual prey items. Males eat larger prey than females and young. In some areas, sperm whales take fish from longlines.

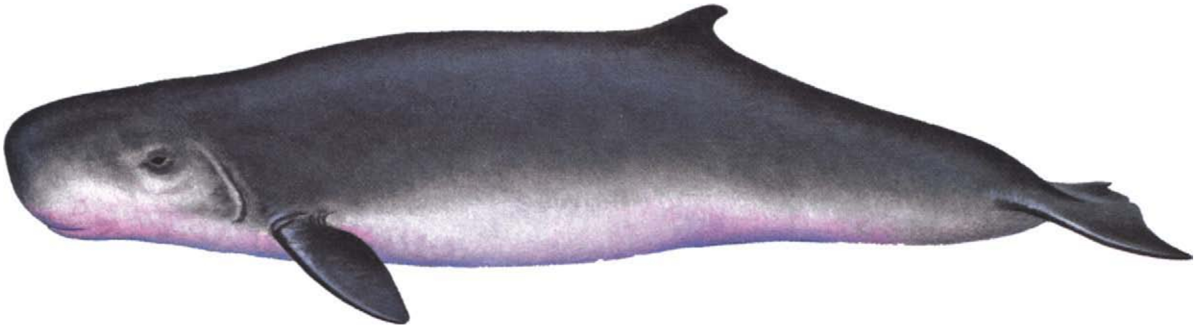
Threats and status Sperm whales were the primary targets of Yankee whalers, based on the northeast coast of the U.S. from the mid-18th to the mid-19th centuries. Their primary goal was to obtain oil (extracted from boiled down blubber and from the inside of the head), which was a prime commodity at the time. Later, a second major phase of exploitation occurred, and sperm whales were taken by pelagic and land-based whaling operations in many parts of the world, mostly from 1945 to 1980. This continued until recent decades, although sperm whales are still occasionally killed, primarily in native, non-commercial hunts. The sperm whale has not been depleted to the level of some of the baleen whales (it is estimated that current abundance is about one-third of original levels), nevertheless some populations were severely reduced. In 1988, the International Whaling Commission banned the hunting of sperm whales, but some may still be taken (generally in small numbers) by aboriginal whalers in the Caribbean and in some of the eastern islands of Indonesia. In addition, Japan still hunts some under its "scientific" whaling program.

While sperm whaling today is but a small remnant of what it once was, the effects of whaling appear to be continuing. Especially in the southeast Pacific, populations are not showing strong signs of recovery. In other areas, sperm whales are relatively numerous, and these animals are very commonly seen in many tropical zones. There are at least 14,000 in the North Atlantic, 80,000 in the North Pacific (including at least 4,000 in the eastern tropical Pacific), and 9,500 in the Antarctic. Global abundance is not known, but is broadly estimated to be about 360,000, making it probably the most abundant of all the great whales. Today the threat from commercial whaling has largely been replaced by concerns about impacts of vessel strikes, fishing gear interactions, human-induced noise, chemical pollution and climate change.

IUCN status Vulnerable.

References Perry et al. 1999; Reeves and Whitehead 1997; Rice 1989; Whitehead 2002, 2003; Whitehead and Weilgart 2000.

Pygmy Sperm Whale—*Kogia breviceps*
(Blainville, 1838)



Recently-used synonyms None.

Common names En.–pygmy sperm whale; Sp.–*cachalote pigmeo*; Fr.–*cachalot pygmée*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Kogiidae. Only one species (*K. breviceps*) was recognized in this genus until 1966, when studies clearly showed the pygmy and dwarf sperm whales to be distinct species.

Species characteristics Pygmy sperm whales are very difficult to detect, except in extremely calm seas. These animals have a very unusual body shape, which in some ways, looks like that of a small sperm whale. They are quite robust, and are not as streamlined as most other odontocetes. Pygmy sperm whales have a shark-like head with a narrow underslung lower jaw. The head becomes more squarish in older individuals. The small flippers are set far forward on the sides near the head. The small dorsal fin (< 5% of the body length) is usually set well behind the midpoint of the back. The dorsal fin is typically strongly falcate, with the tip well below the highest point. There is often the appearance of a hump on the back (between the blowhole and dorsal fin) in this species, especially when the animals are rafting at the surface. In pygmy sperm whales, the blowhole is positioned >10% of the way back from the snout tip. The ratio of the height of the dorsal fin, divided by the distance from the tip of the forehead to the anterior insertion of the dorsal fin is usually < 8%.

Pygmy sperm whales are countershaded, ranging from dark brownish gray or black on the back to white below. Usually a somewhat darker patch encircles the eye. Often the belly has a pinkish tone. There is a light colored bracket mark, dubbed the "false gill," along the side of the head between the eye and the flipper. This is thought to be an adaptation related to mimicry of their shark predators.

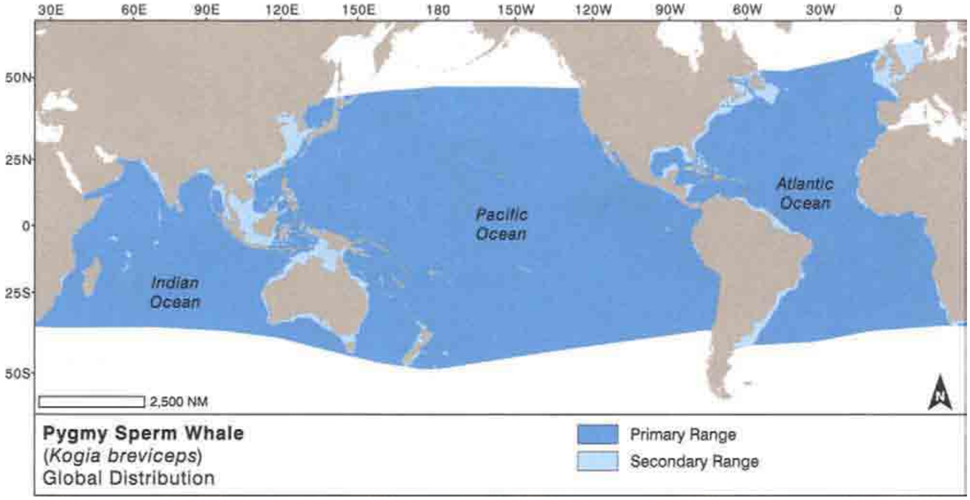
The lower jaw contains 12–16 (sometimes 10 or 11) pairs of long, sharp, fang-like teeth that fit into sockets in the upper jaw. There are usually no teeth in the upper jaw.

Adult pygmy sperm whales are 2.7–3.8 m long. Females are somewhat larger than males. Adults may weigh as much as 450 kg. Newborns are about 1.2 m and weigh around 53 kg.

Recognizable geographic forms None.

Can be confused with Pygmy and dwarf sperm whales can be rather difficult to distinguish at sea. Pygmy sperm whales grow to somewhat greater total lengths,

A pygmy sperm whale mother and calf lie motionless at the surface off Baja California, Mexico. This logging behavior is typical of both species of *Kogia*; the rounded arch in the back and the low, rounded dorsal fin distinguish this species.
PHOTO: M. W. NEWCOMER



and have smaller, more rounded dorsal fins, generally set farther back on the body. The position of the blowhole is another good indicator (>10% of the way back from the snout tip in pygmy sperm whales). There is some degree of overlap in most characteristics of these two species, and identifications must be made cautiously, even with a specimen "in hand." It is probably best to leave confirmed identifications up to experts who have a great deal of experience with both species in the genus. For stranded animals, genetic or biochemical analyses may be needed to distinguish the two species of *Kogia*.

Distribution Pygmy sperm whales are known from deep waters (outer continental shelf and beyond) in tropical to warm temperate zones of all oceans. They appear to be more common over and near the continental slope, although they also occur in very deep oceanic regions. This species appears to prefer somewhat more temperate waters than does the dwarf sperm whale. The frequency with which they strand in some areas (such as Florida and South Africa) suggests that they may not always be as uncommon as sightings would suggest.

Ecology and behavior Most sightings of pygmy sperm whales are of small groups of less than five or six individuals. Almost nothing is known of the behavior and ecology of this species, other than what has been learned from brief sightings during research cruises. They are generally not commonly seen alive at sea, but they are among the most frequently-stranded small whales in some areas. This may be due to the fact that they are easily missed at sea, and are rarely seen in anything except calm seas. When seen at sea, they usually appear slow and sluggish, and often raft montionless at the surface with no visible blow. They may simply sink out of sight, or may roll to dive (especially if startled). However, captive animals have sometimes shown intense levels of activity. Pygmy sperm whales may also emit a reddish-brown fluid from the anal area when startled. They do not show their flukes on diving. They are at least occasionally preyed upon by sharks and killer whales.

A pygmy sperm whale, which stranded in Florida, in an oceanarium tank. Notice the "false gill" marking on the side of the head, behind the eye; its purpose is unknown, but may be an example of shark mimicry. PHOTO: D. PERRINE

The vast majority of information available on this species comes from strandings, including several live-strandings. Very little is known of the reproductive biology of the pygmy sperm whale. Sexual maturity in South Africa appears to be reached at ages between 2.5 and 5 years. Births mostly occur from March to August, and females may reproduce annually. Some evidence suggests that sperm competition

A young pygmy sperm whale that stranded alive, showing the body shape and coloration typical of the species. PHOTO: COURTESY S. LEATHERWOOD

may be important in male reproductive success. In some areas, such as the southeastern United States (especially Florida) and South Africa, *Kogia* whales are among the most commonly stranded marine mammals. This indicates that they may be more common than their low sighting frequency suggests. From studies in South Africa, it appears that these are not long-lived animals, and maximum known longevity is only 23 years. Recent genetic studies suggest that there is some gene flow between the Atlantic and Indian oceans.

Feeding and prey Studies of feeding habits, based on stomach contents of stranded animals, suggest that this species feeds in deep water, primarily on cephalopods and, less often, on deep-sea fishes and shrimps. In South Africa, they take at least 67 different prey species, and appear to feed in deeper waters than do dwarf sperm whales.

Threats and status Although they have never been taken in large numbers, either directly or incidentally in fisheries, pygmy sperm whales have been occasional victims of dolphin and small whale fisheries, as well as gillnet and purse seine operations. Other potential threats include plastic debris ingestion (and associated gut-blockage) and ship strikes. There are no estimates of global abundance, but there are thought to be at least 3,000 of them off California.

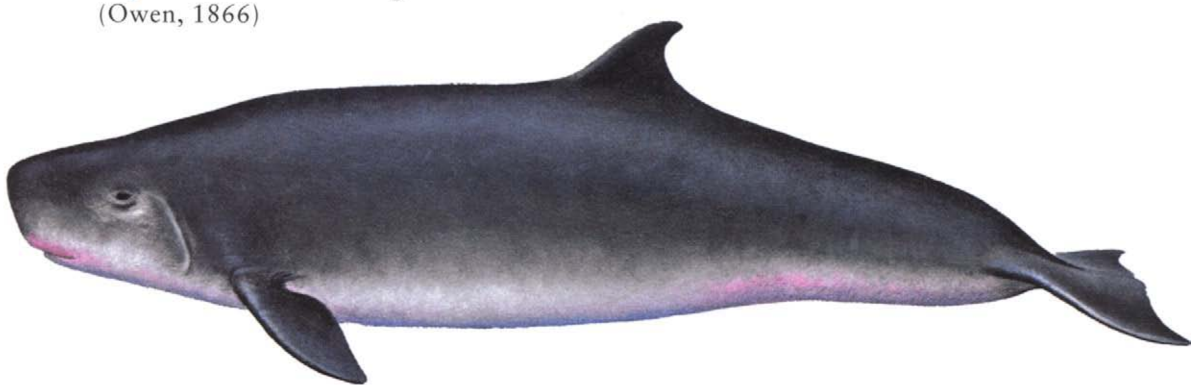
IUCN status Least Concern.

References Baird 2005; Caldwell and Caldwell 1989; Chivers et al. 2005; McAlpine 2002; Ross 1979.

A close-up view of a stranded pygmy sperm whale, showing the blunt head, underslung lower jaw, fang-like teeth, and small eye. Texas coast. PHOTO: T. A. JEFFERSON

This pygmy sperm whale stranded in the British Isles; it cannot be distinguished from a dwarf sperm whale in this photo. The "false gill" pattern is visible between the eye and the flipper. PHOTO: S. MURPHY

Dwarf Sperm Whale—*Kogia sima*
(Owen, 1866)



Recently-used synonyms *Kogia simus*.

Common names En.–dwarf sperm whale; Sp.–*cachalote enano*; Fr.–*cachalot nain*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Kogiidae. Because this species was not generally recognized until the mid-1960s, there is still some confusion in the older literature about which species is represented. The specific name, *simus*, was changed to *sima* to reflect proper nomenclatural gender. A recent study of molecular genetic variation suggests that there may be two separate species of dwarf sperm whales, one in the Atlantic and one in the Indo-Pacific.

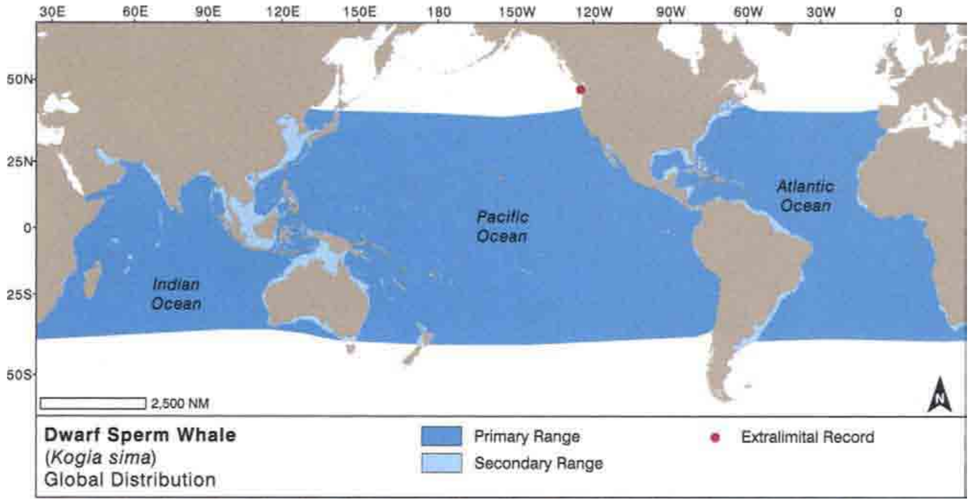
Species characteristics The dwarf sperm whale is similar in appearance to the pygmy sperm whale, with a robust body that tapers rapidly behind the dorsal fin. It has a rather triangular or squarish (more so in older animals) head profile and a narrow, underslung lower jaw. The head shape and light-colored false gill slit give the animal a somewhat shark-like appearance, like its congener (and this may be an example of adaptive mimicry). However, it has a larger dorsal fin (> 5% of the body length), with the tip usually at the highest point. The dorsal fin is generally set near the middle of the back. The ratio of the height of the dorsal fin, divided by the distance from the tip of the forehead to the anterior insertion of the dorsal fin is usually > 11%. The flippers are small, with somewhat blunt tips, and are positioned near the head. The dwarf sperm whale's blowhole is also positioned further forward (generally < 10% of the way back from the snout tip). Generally, a pair of short grooves, similar to those in beaked whales, is present on the throat. The overall appearance of this species is more dolphin-like than in the pygmy sperm whale.

Like its congener, the dwarf sperm whale is countershaded, with a brownish-gray (dorsal) to white (ventral) coloration. There is also a white bracket marking shaped like a shark's gill slit on the side of its head. A ring of darker color surrounds each eye. The belly often has a pinkish tinge.

There are 7–12 (rarely up to 13) pairs of teeth in the lower jaw; sometimes up to three pairs of teeth are present in the upper jaw as well. The teeth are extremely sharp and fang-like. There is generally no visible blow.

Adults of this species are up to 2.7 m long (although at least in the northwestern North Atlantic they generally do not exceed 2.5 m) and may weigh up to 272 kg. Males may be slightly larger than females. Length and weight at birth are about 1 m and 14 kg.

Both the pygmy and this dwarf sperm whale show a low profile at the surface, and are therefore extremely difficult to observe in anything but very calm conditions. Taiwan. PHOTO: J. Y. WANG



Recognizable geographic forms None.

Can be confused with Dwarf sperm whales are most likely to be confused with pygmy sperm whales, which are very similar in appearance. Besides reaching smaller maximum lengths, dwarf sperm whales have taller, more dolphin-like dorsal fins, usually set more toward the middle of the back. Also, the position of the blowhole can help (>10% of the way back from the snout tip in pygmy sperm whales, and <10% in dwarf sperm whales). However, because sizes overlap and dorsal fins are variable in size and position, many at-sea sightings of *Kogia* whales may not be identifiable to species. Generally, it is difficult for non-experts to reliably distinguish the two species, especially in sightings as sea. For stranded specimens, genetic or biochemical means may be needed to confirm identifications.

Distribution The dwarf sperm whale, like the pygmy sperm whale, is known mostly from strandings. It is generally not a commonly-seen species at sea, although this may have more to do with its cryptic appearance than actual rarity. It appears to be distributed widely in tropical to warm temperate zones, apparently largely offshore. Its distribution shows somewhat more of a preference for warmer waters than that of the pygmy sperm whale, and this species probably does not range as far into high-latitude waters. There is no evidence of migrations. There are records for some enclosed seas, such as the Persian Gulf. A single record exists for the Mediterranean, where the species is considered extralimital.

Ecology and behavior There is very little known of the ecology of this species. Much of what is known comes from records of dead- and live-strandings (one animal survived well over a year in rehabilitation). Group sizes tend to be small, most often less than about six individuals (although groups of up to 10 have been recorded). This species (like the pygmy sperm whale) is also typically shy and undemonstrative when observed at sea. They don't generally lift their flukes when they dive. Aerial behavior is very rarely seen, although they do sometimes breach. They often float motionless at the surface, and may be mistaken for a piece of driftwood or flotsam at a distance. They tend to be difficult to approach, and may sink slowly below the surface or arch their backs to begin a dive. When startled, dwarf sperm whales may leave a large rust-colored cloud of fecal material behind as they dive.

The relatively large and erect dorsal fin, and the short, straight back of the dwarf sperm whale distinguish it from the pygmy sperm whale. They rarely swim at the surface, preferring instead to lie motionless. Baja California, Mexico. PHOTO: B. TAYLOR

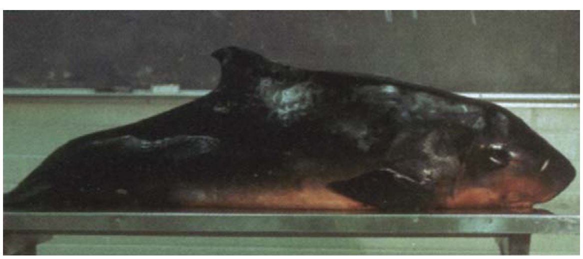
A dwarf sperm whale cow/calf pair in Hawaiian waters. The calf is very young, possibly newborn; the dorsal fin appears to still be folded over as it is *in utero*. PHOTO: R. W. BAIRD

An aerial view of a dwarf sperm whale, easily identified by its tall dorsal fin; note the pointy head when viewed from above. Eastern tropical Pacific Ocean. PHOTO: NOAA FISHERIES/SWFSC

In at least one area where detailed studies have been done (South Africa), there appears to be a calving peak in summer (December to March). Females may give birth annually, after a gestation period of about one year. Longevity does not appear to be long; the oldest known aged individual was just 22 years old. Sexual maturity is apparently attained at 2.5–5.0 years of age. Rather than direct male/male aggression, males may compete largely by sperm competition.

Feeding and prey Dwarf sperm whales appear to feed primarily on deep-water cephalopods, but also take other prey types. About 38 different prey species are known from South African waters, where this species is thought to feed in shallower water than does *K. breviceps*. They may also do some of their foraging near the sea bottom.

Threats and status Although never hunted commercially, these animals were sometimes harpooned by 19th-century whalers. Dwarf sperm whales are sometimes killed in directed fisheries in the Caribbean and Indo-Pacific regions, and a few are known to have died incidentally in fisheries throughout their range. Dwarf sperm whales have a habit of eating plastic discarded or lost at sea, and their tendency to lay quietly at the surface may make them vulnerable to vessel strikes. In general, there are not known to be any serious human impacts, and populations are probably relatively less affected by human activities than are those of most other cetaceans. No estimates of total abundance exist, but about 11,000 occur in the eastern tropical Pacific, and a few hundred exist in the northern Gulf of Mexico.



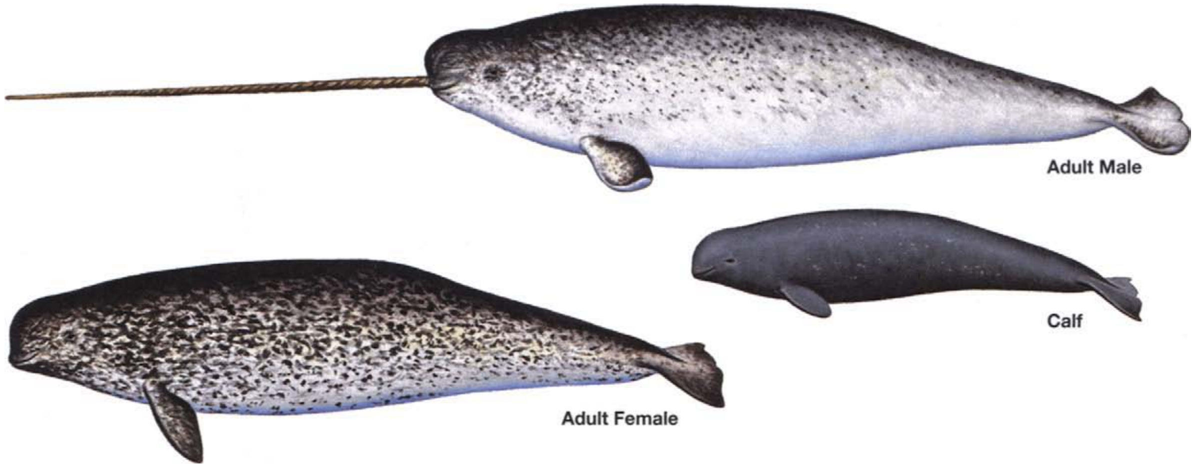
A dwarf sperm whale that stranded in Texas. This photo provides a good look at the characteristic body shape of the species. PHOTO: TEXAS MARINE MAMMAL STRANDING NETWORK, COURTESY T. A. JEFFERSON

IUCN status Least Concern.

References Cardona-Maldonado and Mignucci-Giannoni 1999; Chivers et al. 2005; McAlpine 2002; Nagorsen 1985; Ross 1979.

Narwhal—*Monodon monoceros*

Linnaeus, 1758



Recently-used synonyms None.

Common names En.–narwhal; Sp.–*narval*; Fr.–*narval*.

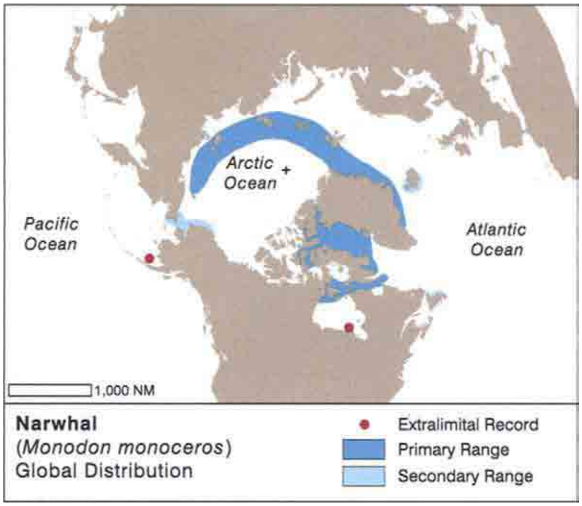
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Monodontidae. Specimens that appear to be hybrids between narwhals and belugas have been described.

Species characteristics Narwhals are characterized by a robust body, relatively small, bulbous head with little or no beak, short blunt flippers that curl up at the tips in adults, absence of a dorsal fin (however, a low fleshy dorsal ridge is present on the posterior half of the back), and unusually-shaped flukes. The flukes of adults become straight to concave on the leading edge, and convex on the trailing edge. They are deeply notched and the tips tend to curl upwards, especially in older animals. This tendency is exaggerated in adult males. The mouthline is short and upturned.

Young narwhals are uniformly gray to brownish-gray. As the animals age, they darken to all black and then white mottling develops. At this stage they appear spotted and the belly becomes light gray to white (with some dark mottling). Lightening continues as the animal ages. Older animals often appear nearly white, with some black mottling still remaining on the upper surfaces (especially the top and front of the head and along the dorsal ridge) and appendages (often as dark borders on the flukes and flippers).

The narwhal's most remarkable feature, however, is its teeth. There are only two teeth, both in the upper jaw. In females, these almost always remain embedded in the upper jaw bones, but in males the left tooth nor-

A group of traveling narwhals; the lead animal is a young male with a partially grown tusk. The mottled coloration distinguishes this species from the partially-sympatric beluga. PHOTO: K. LAIDRE



mally grows out through the front of the head (starting at the age of about 2–3 years) and becomes a left-hand spiraled tusk up to 2.7 m long. Occasionally, females with a tusk or males with two developed tusks (double tuskers) are seen. Narwhals are the only cetaceans with such a tusk protruding from the front of the head, and the myth of unicorn is thought to have derived from stories woven around narwhal tusks.

Adult females can be up to 4.2 m and males up to 4.8 m long (without tusk). Large male narwhals can reach weights of over 1,600 kg, although females generally don't get over 1,000 kg. Narwhals are about 1.6 m long and 80 kg at birth.

Calf—Length < 1/2 of adult length, color pattern uniform gray to nearly black with no spots, slight beak may be visible, no tusk.

When seen from the air, male narwhals, with their mottled coloration and "unicorn" tusk, are unmistakable. PHOTO: K. LAIDRE

Juvenile—Medium-sized (slightly smaller than adult females), body color dark gray to black with white spots on belly and sides, small tusk may be present in males.

Adult female—Relatively large size, ventral side largely white with varying amounts of black spotting (sometimes heavy) on sides and back, forehead bulbous, usually no tusk present.

Adult male—Large body size, lower body mostly white with varying amounts of black spotting especially in area around head and dorsal ridge, flipper tips generally curled up, flukes with convex trailing edge, head bulbous and often with overhanging melon, tusk present. Scarring on the head is fairly common.

Recognizable geographic forms None.

Can be confused with Because of their arctic distribution and unique appearance, the narwhal is likely to be confused only with the beluga whale. Young belugas, especially, can look like narwhals, because of the gray coloration of youngsters of both species and the absence of a tusk in young narwhals. The absence of blotching or spotting on white whales is probably the best guide, and male narwhals can be easily distinguished by their tusks.

Distribution This is a nearly panarctic species; it is found mostly above the Arctic Circle year-round. It has a largely discontinuous range, separated by the island of Greenland. Narwhals basically inhabit the Atlantic sector of the Arctic, and there are few records for the Pacific segment. The principal distribution of the narwhal is from the central Canadian Arctic (Peel Sound and northern Hudson Bay), eastward to Greenland and thence to the eastern Russian Arctic (around 180°W). They are rarely observed in the far eastern Russian Arctic, Alaska, or the western Canadian Arctic. There are annual migrations, primarily to open water in fall and back to inshore waters in spring. In summer, they follow the ice to more coastal areas. In winter, they remain in the pack ice, generally using cracks or holes. Five stocks are recognized on the basis of distribution and migration patterns.

Ecology and behavior The ecology of the narwhal has been relatively well-studied, due to the fact that it is such an important species in the culture and commerce of many northern peoples. In particular, many studies have recently been conducted on movements and diving, using satellite-linked transmitters attached to the dorsal ridge. Most pods of narwhals consist of 2–10 individuals, but there is some evidence that these groups are often parts of large dispersed herds of hundreds or even thousands of individuals, especially in summer. They scatter into smaller groups in winter, and at least in some areas, whales follow specific migratory routes (defined by sea ice formations). There is some age and sex segregation of narwhal groups, and all-male groups, as well as nursery groups, are common. Although belugas are sometimes seen in the same area as narhwhals, they generally do not form mixed herds. The average swimming speed of migrating narwhals is about 5 km/h. They occasionally lift their flukes upon diving.

The tusk of male narwhals has long been a source of scientific controversy. It now is generally agreed that the tusk is not necessary for survival. It appears to be used in male-male competition for females, perhaps primarily as a display, although male narwhals have been seen "sparring" with their tusks above water. Adult males also are often seen with broken tusks and scarring on the head, providing further evidence of the aggressive use of tusks.

Young narwhals are born mainly in summer, from July through August, after a gestation of about 13–16 months. Nursing lasts for at least a year. They live to be at least 25 years, and some may live to 50. Killer whales and polar bears are at least occasional predators.

Feeding and prey Fish, squid, and shrimp make up most of the narwhal's diet. A major component of their diet is made up of medium to large-size Arctic fish species, such as turbot, Arctic cod, and polar cod (the latter of which are often associated with undersides of ice). Narwhals feed at times in deep water and possibly at or near the bottom. Dives of up to nearly 1,200 m and 25 min. are known, and there are some seasonal differences in the depth and intensity of diving. They use suction to bring prey items into the mouth.

Threats and status Although never the targets of large-scale commercial hunting, narwhals have been hunted by native peoples of the Arctic for their valuable tusks (thought to be the source of the unicorn legend) and highly sought-after flesh, which is eaten and used for dog food. Their skin (known as "muktuk") and blubber are highly prized by Arctic native peoples. In the Middle Ages in particular, there was a large profit to be made from selling narwhal tusks as unicorn horns to naïve buyers. Hunting continues to be the major threat to these animals.

Narwhals are also prone to mortality from ice-entrapments (generally worsened by wind-driven or fast-

The upper left tooth grows with age to form the tusk of the narwhal, which is unique in the cetacean world. The lower jaw is slightly agape here. PHOTO: K. LAIDRE

Narwhals often raise their tusks out of the water and they regularly "cross swords". The tusk is rather brittle and broken tips are common, as seen here. PHOTO: J. K. B. FORD

The flukes of adult narwhals become increasingly convex on the trailing edge, so much so that some individuals may almost look like the flukes are stuck-on backwards. PHOTO: K. LAIDRE

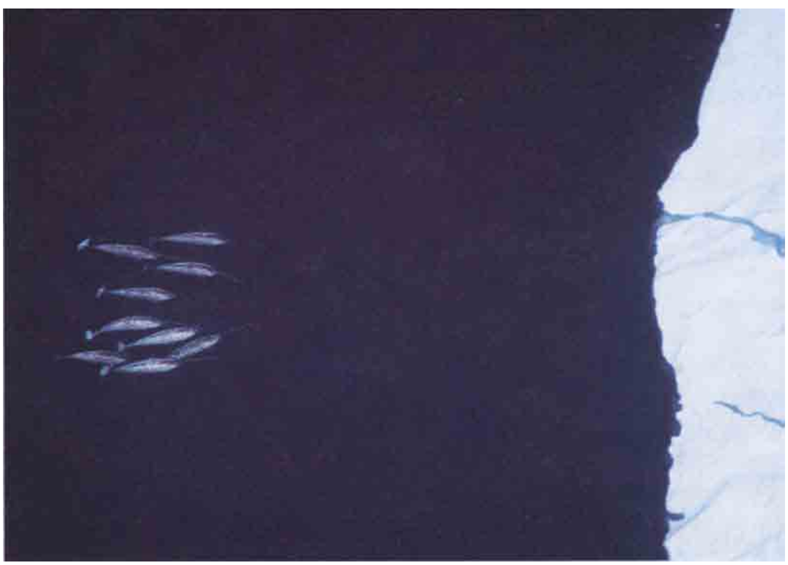
Monodontidae

Narwhal

forming ice), which may be happening more frequently these days, at least partially due to human-induced climate changes. When live, entrapped whales are discovered by Inuit hunters, they normally take advantage of the event by killing the animals (this is called a *savssat*). The tissues of narwhals contain high levels of environmental contaminants, although the specific effects of these are generally not known.

While not endangered on a global scale, some populations are clearly depleted, and continue to be subjected to unsustainable exploitation. There are probably over 50,000 narwhals throughout their range (including at least 35,000 in northern Davis Strait and Baffin Bay, 1,400 in Hudson Strait, and 300 in Scoresby Sound).

Narwhals are perhaps the most northerly of all cetaceans and are rarely found far from Arctic ice. PHOTO: K. LAIDRE

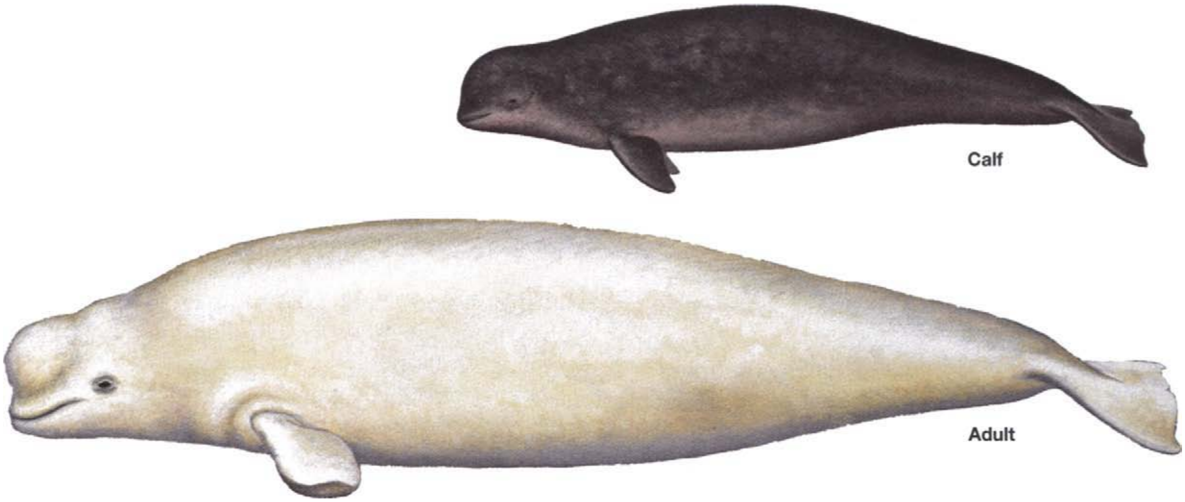


Narwhals are social animals that live among the Arctic ice—as such, they are likely to be affected by global warming more than most other species of marine mammals. PHOTO: J. K. B. FORD

IUCN status Data Deficient.

References Born et al. 1994; Heide-Jørgensen 2002; Heide-Jorgensen et al. 2003; Reeves and St. Aubin 2001; Reeves and Tracey 1980.

Beluga Whale—*Delphinapterus leucas*
(Pallas, 1776)



Recently-used synonyms *Delphinapterus freimani, Delphinapterus dorofeevi.*

Common names En.–white whale, beluga, or belukha; Sp.–*beluga*; Fr.–*bélouga*.

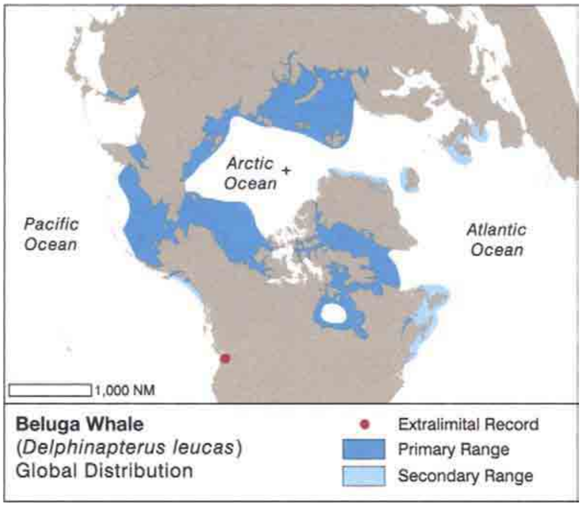
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Monodontidae. Specimens that appear to be hybrids between narwhals and belugas have been described.

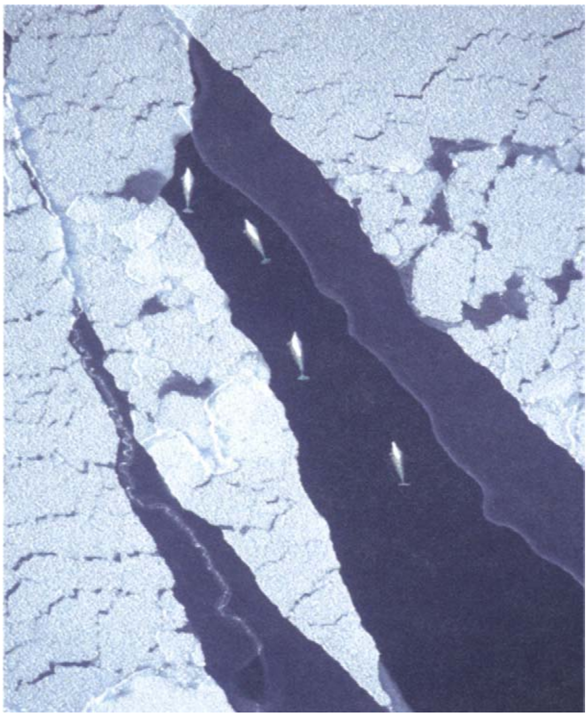
Species characteristics The beluga whale, or white whale, is a robust animal—some individuals may be truly rotund, with folds of fat along the belly and sides. Its basic body shape is much like that of the narwhal; it has a small bulbous head with only a very short beak, and a cleft upper lip. There is no dorsal fin (instead, a shallow transversely-nicked ridge runs along the midline of the back), small rounded flippers (with curled tips in adult males), and small flukes that often have a convex trailing edge. Belugas are "blubbery"; and the blubber layer may be up to 15 cm thick. Their bodies are supple and often wrinkled. There is often a visible neck, which is unusual for cetaceans. Because the cervical (neck) vertebrae are not fused, white whales can move their heads more than most other cetaceans and even have the ability to turn their heads sideways (which is very uncommon in whales and dolphins). The face and melon are also very supple (even the lips can move), and this species is capable of more "facial expressions" than any other species of whale or dolphin.

At birth, white whales are a creamy pale gray, and they rapidly turn dark gray to brownish-gray. They whiten increasingly as they age, reaching the pure white stage between five and twelve years of age. Some adults may have a yellowish tinge, especially when they congregate in estuaries in summer months. The mouth generally contains 8–9, often heavily worn, teeth in each row of the upper and lower jaws. The teeth may be worn down to the gums in some older animals.

Most beluga whales are less than 5.5 m (males) or 4.3 m (females), and males are about 25% longer than females. Large animals may weigh up to 1,600 kg. Calves average about 1.6 m and 80–100 kg at birth.

The typical surfacing profile of the beluga whale, showing the white color and lack of dorsal fin that distinguishes this high arctic species. The yellow coloration is from diatoms and the rake marks could be from killer whales or polar bears. PHOTO: N. KRUKOVA





A group of belugas swims in a lead in the Arctic ice. Getting trapped in shifting ice is an ever-present danger for this species. PHOTO: COURTESY S. LEATHERWOOD

Calf—Length 1/3–2/3 of adult length, color pattern uniform dark gray (may range from brownish to nearly black), slight beak may be visible.

Juvenile—Length 2/3–3/4 length of adults, color uniform gray (varies from dark to light gray).

Adult—Body very robust, color very light gray to white, with only some dark color on dorsal ridge and borders of appendages, flukes may be strongly convex on trailing edge, flipper tips may be curled upwards.

Recognizable geographic forms None.

Can be confused with Belugas can be confused with narwhals, which overlap in some parts of their range. The black and white spotting/blotching of narwhals, and the tusks of males of this species, should permit accurate identification in most situations. Particular care must be taken to distinguish calves of the two species, as both can be dark gray in color (and the narwhal's tusk is not yet developed). However, calves will usually be with adults, which should not be difficult to distinguish.

Distribution White whales have an almost panarctic distribution, and are found only in high latitudes of the Northern Hemisphere (mainly from 50–80°N). They are widely distributed throughout the arctic and subarctic regions, from the west coast of Greenland, west to eastern Scandanavia and Svalbard. They occur seasonally (mainly in summer) in coastal waters as shallow as 1–3 m deep; however, they often occur in deep (>800 m), offshore waters as well. Belugas enter estuaries (they are common in the lower St. Lawrence River estuary of eastern Canada), and even sometimes rivers; there are a few records of solitary individuals ranging thousands of kilometers up various rivers. The International Whaling Commission recognizes 29 management stocks of beluga whales, based on morphological, genetic, and distribution differences.

Ecology and behavior Belugas are well-studied, and much has been learned of their ecology and behavior from studies of carcasses and satellite tracking. The highly gregarious beluga is most often found in groups of up to about 15 individuals, but it is sometimes seen in aggregations of thousands (which sometimes gather in shallow estuaries). Groups are often segregated by age and sex; all-male groups and mixed aggregations, including females and young, are known. Group structure is largely fluid.

In general, white whales are not showy at the surface and they do not often leap. These animals generally swim slowly, rolling at the suface. During the summer, when they aggregate in large numbers in shallow estuaries, they can be very active, and may do quite a bit of spyhopping, tail waving or fluke-slapping. In some areas, they may have distinct foraging and resting periods throughout the day. Their extreme loquaciousness, which was heard through the hulls of old-time whaling ships, earned them the nickname "sea canary." Vocalizations can be divided into whistles and pulsed calls. Some of the descriptive names given to their vocalizations include groans, buzzes, trills, and roars.

Dives may last up to 25 minutes, and can reach depths of > 800 m. It is possible that they can dive to depths of 1,000 m or more, and they regularly appear to dive to the sea bottom. The beluga has an annual molt—something quite unusual for cetaceans. During this time, they may rub on the bottom to facilitate sloughing of dead skin and stimulate epidermal regrowth.

Sexual maturity in belugas is reached at ages of about 5 years for females and 8 for males. Calves are born in spring to summer, between April and September, depending on the population. Gestation probably lasts about 12–15 months, and lactation occurs for about 2 years. Longevity is not well-known, but is expected to be at least 40 years. Killer whales and polar bears are known predators. Bears may wait at breathing holes in the ice, and pull whales from the water as they surface to breathe.

Feeding and prey The beluga has a diverse diet, which varies greatly from area to area. Although various species of fish are considered to be the primary prey items (including salmon, herring, and Arctic cod), beluga whales also feed on a wide variety of mollusks (such as squid and octopus) and benthic crustaceans (shrimps and crabs). They may even eat marine worms and some forms of zooplankton at times. Based on stomach contents, belugas are thought to feed mostly on or near the bottom (in waters up to 300 m deep). Belugas mostly hunt individually. They use their flexible lips to create suction and pull in prey items.

Threats and status Belugas have been hunted commercially in the past, and exploitation by native Arctic peoples continues today in a number of areas. Some stocks have been badly depleted, if not extirpated, by past hunting. Their predictable migration patterns and habit of aggregating in shallow water make them relatively easy to kill, and hunters have taken advantage of these facts.

Entanglement in gillnet and other fisheries causes some mortality, and several hundred individuals have been captured alive for display and research over the past 150 years or so (in fact, this was one of the first species of cetacean to be held captive, beginning in New York in 1861). In addition, habitat degradation, behavioral disturbance (mainly by oil and gas exploration and extraction activities, as well as by hunters and fishermen), and pollution may be causing problems for these animals. The population in the St. Lawrence River is recovering more slowly than expected from past overhunting. The delay has been hypothesized to be related to the damaging effects of organochlorines and other pollutants on the health and reproduction of the animals. The status of some other populations is also being affected by environmental contamination. Abundance has been estimated for a number of the 29 recognized stocks. There is a small isolated population of approximately 350–400 belugas that occurs in Alaska's Cook Inlet—this population

The flipper tips of adult male belugas often curl upwards. The near animal is swimming on its side and to the left, with his back to the photographer. Russia. PHOTO: N. KRUKOVA

The arched back of a snowy-white beluga whale; apparently dorsal fins aren't a necessary appendage in areas of heavy ice. Russia. PHOTO: N. KRYUKOVA

Beluga calves are born dark gray, and they do not attain the white coloration until near adulthood. Note the slightly raised dorsal ridge on the mother. Russia. PHOTO: N. KRUKOVA

A beluga whale spyhops in the Russian Arctic. The short beak with very thick lips is shown clearly here. PHOTO: N. KRUKOVA

A herd of belugas observed from the air, giving a good impression of the thick layer of blubber that adults possess. Unlike most cetaceans, this species has unfused neck vertebrae, allowing it much more neck movement than most other species.
PHOTO: COURTESY S. LEATHERWOOD

is seriously threatened. The beluga is certainly not endangered at the species level, but some populations are in serious trouble. There are considered to be well over 150,000 belugas throughout their range, including about 40,000 in the Beaufort Sea, 18,000 in the Bering Sea and other Alaskan waters, 28,000 in Baffin Bay, Canada, 25,000 in western Hudson Bay, about 10,000 in other waters of eastern Canada and west Greenland, and 21,000–30,000 in waters of the former Soviet Union.

IUCN status Critically Endangered (Cook Inlet population), Vulnerable (all other stocks).

References Born et al. 1994; Moore and DeMaster 2000; O'Corry-Crowe 2002; Reeves and St. Aubin 2001; Stewart and Stewart 1989.

Baird's Beaked Whale—*Berardius bairdii*

Stejneger, 1883

Recently-used synonyms None.

Common names En.–Baird's beaked whale; Sp.–*zifio de Baird* or *ballena picuda de Baird*; Fr.–*baleine a bec de Baird* or *bérardien de Baird*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. There has been some suggestion that Baird's and Arnoux's beaked whales may actually be the same species, but this does not appear to be case.

Species characteristics Baird's beaked whales are the largest whales in the ziphiid family. They are slender (maximum girth is only 50–60% of total length), with a small head. They have a long, well-defined, tube-like beak and a steep, rounded forehead (rising at a shallower angle than in bottlenose whales, *Hyperoodon* spp., but steeper than in *Ziphius* or *Mesoplodon*). When viewed from above, the beak protrudes forward from the rounded forehead. The body, however, is relatively more slender than that of the otherwise-similar bottlenose whales. There is often a visible depression on the back between the blowhole and the dorsal fin.

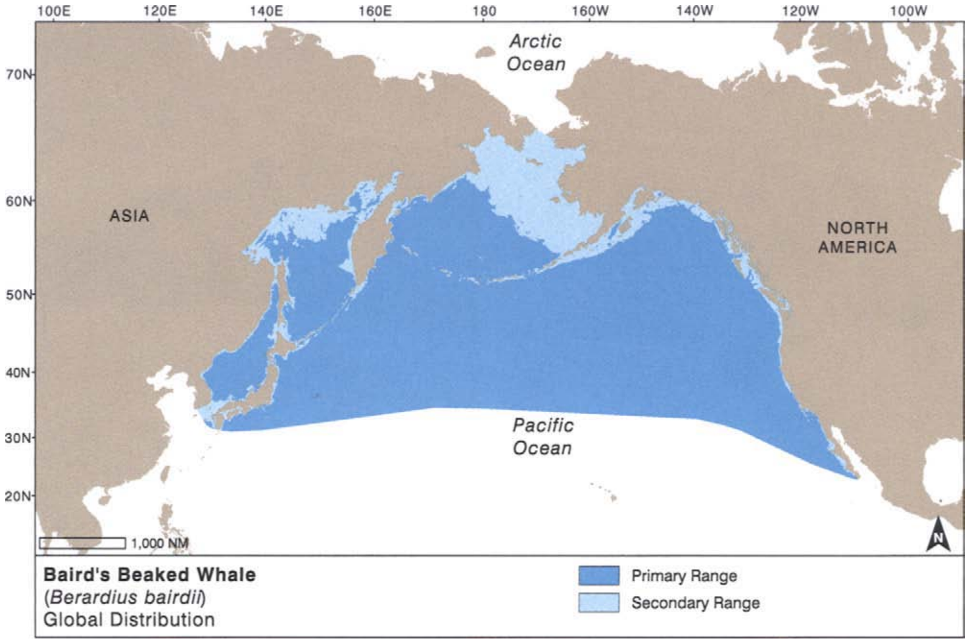
The small, but prominent, triangular dorsal fin is about two-thirds of the way along the back and is generally rounded at the tip. The tip is often curled under. The small rounded flippers fit into depressions along the sides. There is the usual V-shaped pair of throat grooves characteristic of beaked whales, and some animals have accessory throat grooves. Though some animals have a median notch on the flukes, most have no notch (and some even have a bulge). The blowhole is crescent-shaped and has the concavity pointed forward.

There are two pairs of large teeth near the tip of the lower jaw, which erupt at about the time of sexual maturity in both sexes (rather unusual for beaked whales). The forward pair of teeth in adults is visible at the tip of the protruding lower jaw, even when the mouth is closed. The tips may be rounded and heavily worn in older animals, and on some individuals the teeth are heavily infested with barnacles.

Baird's beaked whales are dark brownish-gray, with a slightly lighter belly. Larger animals are usually heavily scarred with light scratches or splotches on the back and, often, on the undersides (especially on adult males). Many of the scratches appear to be made by conspecifics, and may be quite extensive on adult males. On some animals, the forehead may appear largely white. Whale lice and diatoms may be found on the skin surface and appendages, the latter giving the body a greenish-brown tinge.

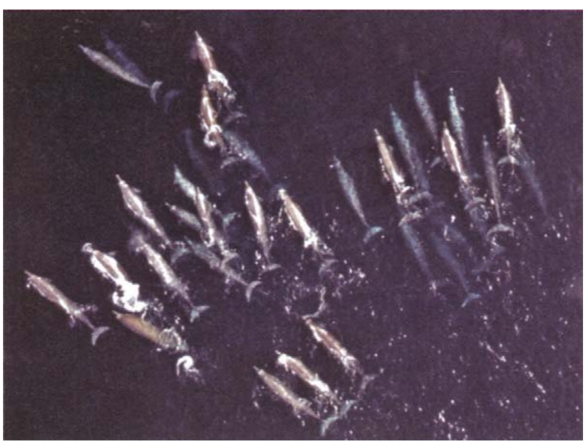
Baird's beaked whales reach lengths of 10.7 m (males) and 11.1 m (females), and weights of up to 12,000 kg. There is considered to be less sexual dimorphism in this species than in any other in the family Ziphiidae, and females are only slightly larger than males. They are about 4.6 m long at birth. The conspicuous blow is low and rounded, and is often given in rapid succession.

Baird's beaked whales are highly social and gregarious. They are often piled up in log jams, either when traveling or when resting at the surface between bouts of deep diving. Guadalupe Island, Baja California, Mexico. PHOTO: T. PUSSER



Recognizable geographic forms None.

Can be confused with Several of the other beaked whales (Cuvier's beaked whale and some species of mesoplodont) are found within the Baird's beaked whale's range, but the larger adult size and unique head and dorsal fin shape of the latter species should make them identifiable. The larger group sizes of Baird's beaked whales will also provide a good clue. Minke whales could, in some circumstances, be confused with Baird's beaked whales; when a good look is obtained, differences in dorsal fin shape, head shape, and coloration make the two easily distinguishable.



Baird's beaked whales occur in larger groups than any other species of beaked whale; often numbering in the dozens, they are always in very tight groups, practically piled on top of each other. Eastern Pacific. PHOTO: NOAA FISHERIES/SWFSC

Distribution Baird's beaked whales are found in deep oceanic waters of the North Pacific Ocean and the Japan, Okhotsk, and Bering seas. Their range extends to the southern Gulf of California in the eastern Pacific, and to the island of Kyushu, Japan, in the western Pacific. Though they may be seen close to shore where deep water approaches the coast, their primary habitats appear to be over or near the continental slope and near oceanic seamounts. There are seasonal inshore/offshore shifts in the eastern North Pacific. They may occur in the vicinity of drift ice in the northern Sea of Okhotsk. Off the Pacific coast of Japan, they migrate into waters over the continental slope from May to October, but where they go in winter is not known. Their distributional limits in oceanic waters of the mid-Pacific are also not well known.

Ecology and behavior Baird's beaked whales live in pods of 5–20 whales (average about 5.9 whales), although groups of up to 50 are occasionally seen. They often assemble in tight groups drifting along at the surface. At such times, beaks are often seen as animals slide over one another's backs. They are deep divers, capable of staying down for over an hour (67 minutes is the current record). After a dive, they stay at the surface for up to 14 minutes, and may blow almost continuously after a long dive. They do breach and perform other aerial behaviors (spyhops, fluke- and flipper-slaps) on occasion (more so than most other beaked whales).

This is an extremely long-lived species. From Japanese whaling data, it appears that males have lower mortality rates and live longer than females (up to about

Baird's beaked whales rarely lift their flukes when diving—this animal is tail-slapping. Monterey Bay, California. PHOTO: D. FRANK

Baird's beaked whales are often active at the surface and breach fairly often. A throat groove is evident on this spyhopping young animal in Monterey Bay, which appears to be curious about the photographer. PHOTO: D. FRANK

84 vs. 54 years) and that females have no post-reproductive stage; this suggests that Baird's beaked whales have an unusual life history pattern. There is a calving peak in March and April. The length of the gestation period is not known with any certainty, but is thought to be around 17 months.

Three stocks are recognized in the western North Pacific (Sea of Japan, Okhotsk Sea, and Pacific Ocean), where these whales have been exploited for centuries. Wounds thought to be caused by killer whales are common on the bodies of Baird's beaked whales, as are cookie-cutter shark bites.

Feeding and prey Baird's beaked whales feed mainly on deepwater and bottom-dwelling gadiform fishes, cephalopods, and crustaceans. The also feed on some pelagic fish, such as mackerel, sardines, and sauries. The diet off the Pacific coast of Japan consists of 82% fish and 18% cephalopods, while in the southern Sea of Okhotsk the proportions are 13% and 87%, respectively. They may do much of their feeding at depths of 800–1,200 m.

Threats and status Baird's beaked whales are one of the few species of ziphiids to be commercially hunted. Although small numbers were hunted by the Soviets, Canadians and Americans, hunts in Japan have been the only major ones. The Japanese fishery started in the early 1600s and underwent several expansions and declines. At its peak, after World War II, over 300 whales were killed annually. Now the Japanese annual quotas add up to slightly over 60 whales.

Other than hunting, and possibly occasional captures in fishing gear (especially incidental captures in drift nets), no other threats to the species are known. There are an estimated 1,100 or so Baird's beaked whales in the eastern North Pacific, including about 400 off the US west coast. Abundance in Japanese waters has been estimated at about 7,000 individuals (about 5,000 off the Pacific coast, 1,300 in the eastern Sea of Japan, and 660 for the southern Okhotsk Sea). The general consensus seems to be that the takes are sustainable, and there is no immediate concern over the future of this species.

The rounded melon and blowhole of a Baird's beaked whale in Monterey Bay, showing the scratching and scarring that occur so frequently on the adults of both sexes of this species. PHOTO: T. R. KIECKHEFER

The long, stout beak, underslung jaw and prominent melon identify these as Baird's beaked whales; the animal in the foreground has no scratches or erupted teeth and is probably a juvenile. PHOTO: P. WADE; NOAA FISHERIES/NMML

IUCN status Lower Risk/Conservation Dependent.

References Balcomb 1989; Kasuya 2002; Kasuya and Miyashita 1997; Kasuya et al. 1997; Reeves and Mitchell 1993.

Arnoux's Beaked Whale—*Berardius arnuxii*

Duvernoy, 1851

Recently-used synonyms None.

Common names En.–Arnoux's beaked whale; Sp.–*ballenato de Arnoux*; Fr.–*béradien d'Arnoux*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. Some researchers question whether Baird's and Arnoux's beaked whales are really separate species; however, the lack of known morphological differences may have more to do with lack of specimens than anything else.

Species characteristics Similar in appearance to Baird's beaked whale (in fact, there are no known body shape differences between the two species), the Arnoux's beaked whale is rather slender. This species has a small head, with a long, tube-like beak, moderately steep bulbous forehead, small rounded flippers (which fit into flipper pockets), short slightly falcate dorsal fin, and (usually) un-notched flukes. The dorsal fin is set about 2/3 of the way back from the beak tip, and is generally very rounded at the tip. A pair of V-shaped throat grooves is present, with accessory grooves present in some individuals. The blowhole is oriented with the concave side pointing forward.

Arnoux's beaked whales are slate gray to light brown in color; the head region is generally lighter than the rest of the body. The body is typically heavily scarred and scratched, and the underside tends to be lighter, and is sometimes covered with white blotches. Scars caused by conspecifics (generally long scratches, most prominent on males), killer whales (shorter scatches and scrapes), and cookie-cutter sharks (round, white scars) may be present on the body as well.

Two pairs of triangular teeth are present at the tip of the lower jaw; they erupt in both sexes and the forward pair is visible outside the closed mouth. The rearward pair is somewhat smaller. Barnacles may attach to the teeth.

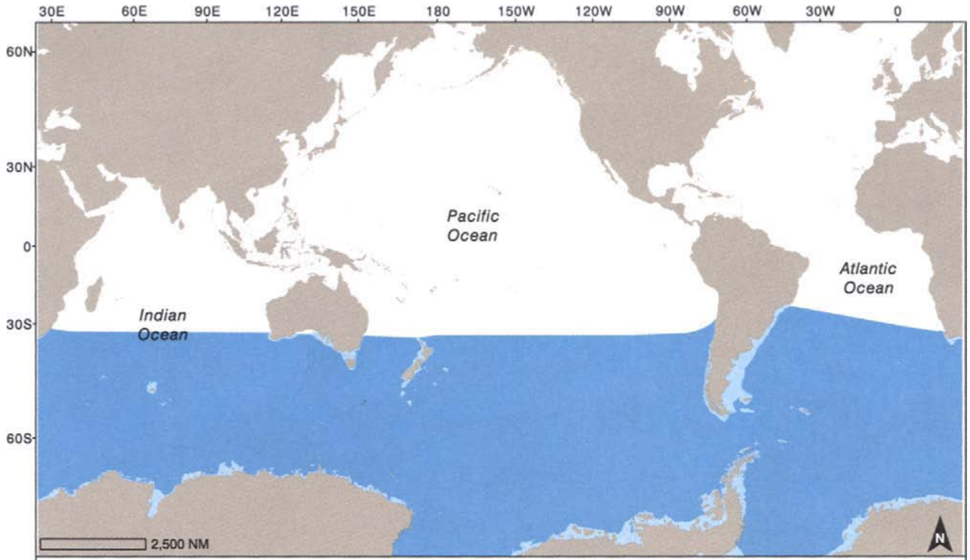
Arnoux's beaked whales reach a maximum known size of 9.3 m; females are probably a bit larger than males, as is generally true in beaked whales. Length at birth is unknown, but is probably around 4 m.

Recognizable geographic forms None.

Can be confused with Arnoux's beaked whales

An Arnoux's beaked whale surfaces at a breathing hole in the Antarctic ice; notice the massive beak, underslung jaw and tusks protruding from the tip of the lower jaw. PHOTO: BRITISH ANTARCTIC SURVEY

The rarely-observed Arnoux's beaked whale in Antarctica. The long backs, rounded melons, conspicuous blows and the large, densely-packed group are all features of this Southern Ocean species. PHOTO: G. KOOYMAN



Arnoux's Beaked Whale
(*Berardius arnuxii*)
Global Distribution

can be easily confused with southern bottlenose whales, which share much of their range and have a broadly similar body shape. Differences in coloration, head shape, dorsal fin shape, and tooth size and position should be sufficient to distinguish them, when clearly seen. Individuals of some species of *Mesoplodon* and *Indopacetus* could also be confused with this species at a distance, but they are generally much smaller. Minke whales may also be confused, at a distance, but at close range will present no identification problems.

Distribution Although this species probably has a vast circumpolar distribution in deep, cold, temperate and subpolar waters of the Southern Hemisphere, most records are from the southeast coast of South America, near the Antarctic Peninsula, South Africa, and southern Australia and New Zealand. Although the exact northern limits are not known, they clearly do not reach the tropical zones. Although most records are south of 40°S, in some areas they may reach about 34°S (and there are even some records to as far north as 24°S).

Ecology and behavior Not much is known of the biology of this species, as it lives in a part of the world where little marine mammal research has been done, and has never been hunted. Most groups number between 6 and 10 individuals, but some as large as 80 whales have been seen. Arnoux's beaked whales are reportedly shy of boats and can dive for over an hour (maximum known dive of 70 minutes), although most dives probably last less than about 25 minutes. One group that was beling followed by researchers in the Antarctic traveled more than 6 km underwater before resurfacing. Their elusive behavior and deep-diving capabilities can make observation difficult.

This species' reproductive biology is poorly known. It is unknown if it shares the unusual traits of its northern cousin, the Baird's beaked whale. Some individuals have been trapped in ice and forced to spend the winter in the Antarctic. This may be a significant cause of mortality. Killer whales are also known to attack Arnoux's beaked whales. Little is known of their longevity, but their Northern Hemisphere cousins can live to be at least 84 years old.

Feeding and prey Very little is known about the feeding habits of this species, other than that they feed on squid (based on stomach contents). The feeding habits of Arnoux's beaked whales are assumed to be similar to those of their Northern Hemisphere relatives, Baird's beaked whales, thus consisting mostly of deepwater benthic and pelagic fishes and cephalopods.

Threats and status This species has never been hunted to any significant degree, and other threats are not known at this point. No abundance estimates are available, but Arnoux's beaked whale appears to be less common than the southern bottlenose whale, which shares much of its range. Although they may be naturally rare, there is no reason to believe that the Arnoux's beaked whale is facing any serious threats to its survival.

IUCN status Lower Risk/Conservation Dependent.

References Balcomb 1989; Kasamatsu and Joyce 1995; Kasuya 2002; Ponganis et al. 1995.

Cuvier's Beaked Whale—*Ziphius cavirostris*

G. Cuvier, 1823

Recently-used synonyms None.

Common names En.–Cuvier's beaked whale or goosebeaked whale; Sp.–*zifio de Cuvier* or *ballena picuda de Cuvier*; Fr.–*ziphius* or *baleine a bec de Cuvier*.

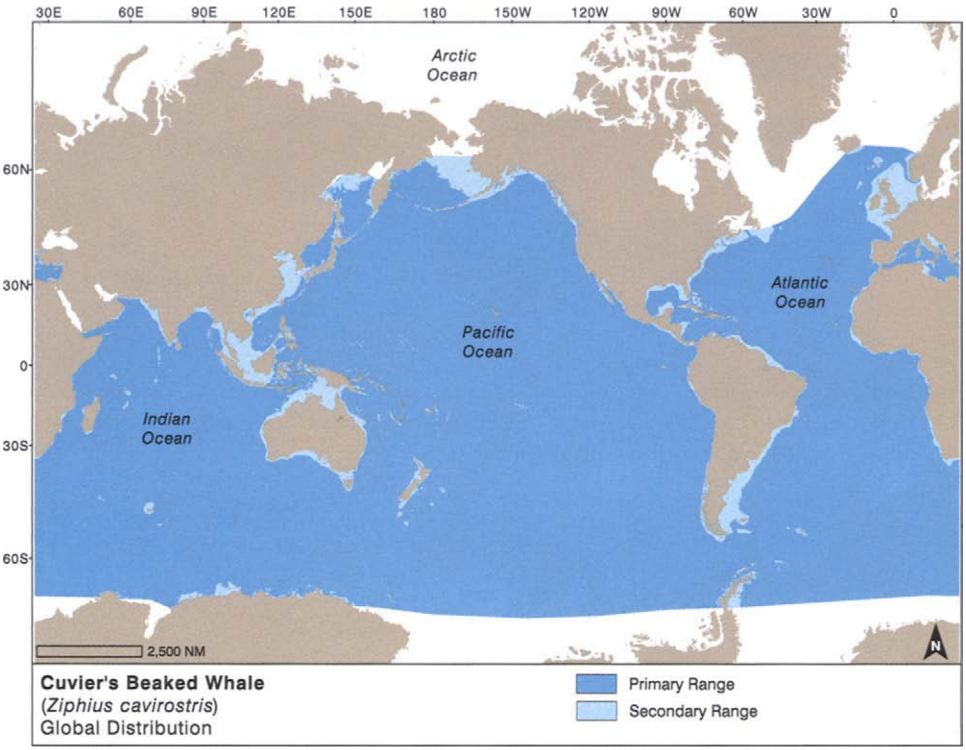
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Cuvier's beaked whales have a body shape broadly similar to that of other species in the family, but are relatively robust, as beaked whales go. They have a short, poorly-defined beak, a smoothly-sloping forehead (although the melon appears to become more prominent, even bulbous, in adult males), and a mouthline that is curved along most of its length, with an upturn at the rear. A pair of V-shaped throat grooves is present. A diagnostic feature is the slight concavity on the top of the head, which increases in detectability in older animals. The flukes are relatively large, and a fluke notch is only sometimes present. The dorsal fin is small and falcate, and is set about two-thirds of the way back from the snout tip. There are "flipper pockets," slight depressions into which the small, rounded flippers can be tucked to be kept flush with the body. Barnacles may be found on the flukes and dorsal fin.

The body is dark gray to light rusty brown, with lighter areas around the head and belly, although the ventral area darkens somewhat with age. Lighter color develops around the head and upper thorax with age in both sexes. The head and much of the upper back of adult males can be completely white. The eyes are usually surrounded by dark coloration, and there may be light crescent-shaped streaks around the eye area. Generally, adults are covered with white linear scratches and circular or oval marks. The latter are thought be caused by bites from lampreys or cookie-cutter sharks. There may be orangish-yellow films (from algae or diatoms) on the body. Calves are more plainly countershaded, dark above and lighter below.

There is a single pair of forward-pointing conical teeth at the tip of the lower jaw; they generally

Cuvier's beaked whale shows a stout body, a prominent melon (often with a white head), and stubby beak. This one in the Azores is probably an adult female—it has marks on the body, but not the preponderance of linear scars that males show.
PHOTO: L. STEINER/WHALE WATCH AZORES



erupt only in adult males and are exposed outside the closed mouth in large bulls. The teeth may be infested with stalked barnacles. The blow is typically low and diffuse. It is often directed slightly forward. Although lengths of up to 8.5 m (females) and 9.8 m (males) have been recorded for Cuvier's beaked whales, total length measurements over 7.0 m are considered unreliable and therefore suspect. Maximum recorded weight is nearly 3,000 kg. Newborn are about 2.7 m long and weigh about 250–300 kg.

Recognizable geographic forms None.

Can be confused with All beaked whales are prone to identification problems, but when adult males are present this species is easier to identify than most. However, Cuvier's beaked whales are likely to be confused with other beaked whales, especially various species of *Mesoplodon*. The very robust body (often visible above the surface as a broader back), blunt head (with only a very stubby beak), and lighter coloration (especially around the head, especially in adult males) may be sufficient to distinguish Cuvier's beaked whales, if visible. Whales of the genera *Hyperoodon* and *Berardius* are larger and have more bulbous foreheads and long tube-like snouts. Also, Longman's beaked whales may cause some confusion, but attention to coloration and head shape should allow distinction, if seen reasonably well.

Distribution Cuvier's beaked whales are widely distributed in offshore waters of all oceans, from the tropics to the polar regions in both hemispheres. Their range covers most marine waters of the world, with the exception of shallow water areas, and very high-latitude polar regions. They are found in many enclosed seas, such as the Gulf of California, Gulf of Mexico, Carribean Sea, Mediterranean Sea (in fact, this is the only beaked whale species that regularly occurs in the Mediterranean), and the Sea of Okhotsk. They have the most cosmopolitan

A breaching Cuvier's beaked whale in the Canary Islands, giving a good look at its robust body, pale head and stubby beak. These beaked whales are often tan colored. PHOTO: N. AGUILAR DE SOTO

Ziphiidae

Cuvier's Beaked Whale

Older male Cuvier's beaked whales get whiter and more heavily scarred with age. In sightings at sea, the very stubby beak is often visible, but much less often are the apical teeth shown here. PHOTO: N. AGUILAR DE SOTO

The smoothly sloping forehead and stubby beak (with characteristic "self-satisfied" smile) identify Cuvier's beaked whale, but they are rarely so evident as in this photo taken off North Carolina. A pair of erupted teeth in the tip of the lower jaw, extensive white on the back, and numerous parallel tooth rake marks identify this as an adult male. Fresh gouges on the melon may have been from a recent encounter with another male. PHOTO: T. PUSSER

A surfacing Cuvier's beaked whale. As there are no tusks visible, this is probably a female or subadult male. Ligurian Sea, Mediterranean. PHOTO: COURTESY D. ALLEN

range of any beaked whale species. Although they can be found nearly anywhere in deep (>200 m) waters, they seem to prefer waters over and near the continental slope, especially those with a steep seabottom.

Ecology and behavior Due to their widespread distribution and relatively frequent stranding, Cuvier's beaked whale may be one of the most familiar of the beaked whales. They are found mostly in small groups of 2–7, but are not uncommonly seen alone. Their behavior tends to be rather elusive, and they can be difficult to approach. However, they have been seen breaching on a number of occasions. Dives of up to 40 minutes have been documented.

Seasonality of calving is not known in this species. In general, Cuvier's beaked whale life history is very poorly-known. Sexual maturity occurs at around 6.2 m. It is assumed that males fight for access to females (resulting in the long scratches seen on the bodies of most adult males), but this has never been witnessed. Strandings are relatively common (at least for beaked whales) in some areas, and this suggests that Cuvier's beaked whales are not as rare as was once thought. They sometimes come ashore in groups. Killer whales are probably predators.

This is the only widely-distributed beaked whale species for which a global assessment of genetic diversity has been conducted. The results of this study suggest that there is probably little movement of Cuvier's beaked whales among different ocean basins, and that there may even be a distinct population in the Mediterranean Sea.

Feeding and prey Cuvier's beaked whales, like all beaked whales, appear to prefer deep waters for feeding. Although few stomach contents have been examined, they appear to feed mostly on deep-sea squid, but also sometimes take fish and some crustaceans. They apparently feed both near the bottom and in the water

Cuvier's beaked whales are much more robust animals than mesoplodonts, although this specimen, stranded in La Jolla, California, has some post-mortem bloating. Notice the dorsal fin placement; short, stubby beak; and the distinctive *Ziphius* "smile." PHOTO: W. F. PERRIN

The head of a stranded male Cuvier's beaked whale, showing the short "goose beak" with a pair of exposed tusks at the tip of the lower jaw. Linear scars are from tusks of other males; spots are cookie-cutter shark bites. PHOTO: COURTESY S. LEATHERWOOD

column. Suction appears to be used to draw prey items into the mouth at close range. They may sometimes ingest non-food items.

Threats and status Never the main target of commercial whalers, Cuvier's beaked whales have sometimes been taken in other fisheries, however, such as those in the Caribbean islands, Indonesia, Taiwan, Peru, and Chile. A few (3–35 per year) were taken in past years in the Baird's beaked whale fishery off the coast of Japan. Some are occasionally taken in deep water drift gillnets. The only other threat that is known is the mass mortality of Cuvier's beaked whales that has apparently resulted from Naval sonar exercises, such as those occurring recently in the Bahamas, Caribbean, Canary Islands, and the Mediterranean. This species appears to be particularly vulnerable to such events, the exact causes of which are not known. However, they may somehow result in an increase in bubbles in the blood (causing decompression sickness, or the bends) when returning to the surface from a deep dive. About 20,000 Cuvier's beaked whales are estimated to inhabit the eastern tropical Pacific. In the eastern North Pacific, over 90,000 are thought to occur, including about 1,600 in California and over 12,000 in Hawaiian waters. Off the US northeast coast, there are probably at least 25, and at least 95 are thought to inhabit the northern Gulf of Mexico. They are among the most common and abundant of all the beaked whales.

IUCN status Data Deficient.

References Baird et al. 2006; Dalebout et al. 2005; Fernandez et al. 2005; Heyning 1989, 2002.

Northern Bottlenose Whale—*Hyperoodon ampullatus*

(Forster, 1770)

Recently-used synonyms *Hyperoodon rostratus.*

Common names En.–northern bottlenose whale; Sp.–*ballena nariz de botella del norte*; Fr.–*hyperoodon boréal.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Northern bottlenose whales are robust animals. They are appropriately named, having a moderately-long, tube-like beak that is distinct from the melon (reminiscent of the beak of some dolphins). In young animals and females, the rounded forehead slopes upward from the beak, but in adult males the forehead becomes very steep, with a nearly-squarish profile. A pair of forward-pointing grooves is found on the throat. The prominent dorsal fin (up to 30 cm tall) is falcate and pointed at the tip; it is located far back on the body. The flippers are small and blunt at the tips, and the flukes generally lack a median notch.

Calves are generally brownish-gray on the body, with complex light coloration on the head. There is some disagreement as to whether young animals are countershaded. Adults are dark grayish to chocolate brown above and somewhat lighter below. The brownish tinge is often enhanced by a covering of diatoms. Some individuals are mottled with white to yellowish splotches and oval scars, which increase in number with age. Much of the melon and face may be light gray, or in adult males, nearly white. Older females often have a white band around the neck.

At the tip of the lower jaw are two conical teeth that erupt only in bulls, and are not always visible outside the closed mouth. They lean slightly forward, and sometimes have stalked barnacles attached to them. A second pair of teeth is sometimes buried in the gums behind the first, and 10–20 additional vestigial teeth may be found in the gums of both upper and lower jaws.

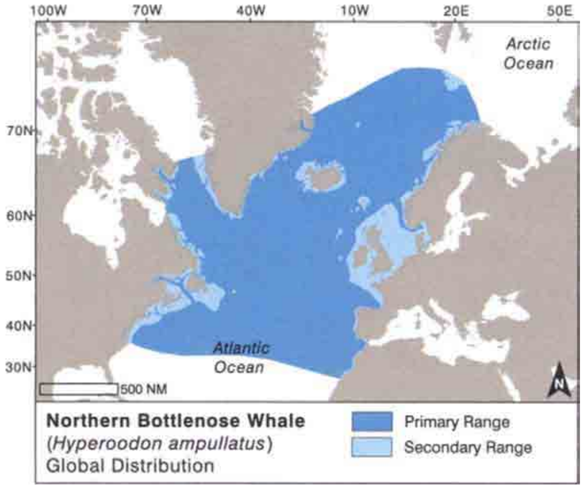
Adult females are up to 8.6 m and adult males up to 10.0 m in length (perhaps up to 11.2 m). This species is unusual for beaked whales in having males significantly larger than females. They can weigh up to 7,500 kg. At birth calves are about 3.0–3.5 m.

A cow and calf pair of northern bottlenose whales in the Gully. The calf in the foreground shows a pale melon that is relatively smaller than in the adults. PHOTO: R. W. BAIRD

Calf—Less than about 1/2 adult size, melon sloping and not bulbous. Dark eye patches and a light-colored forehead are present, body color darker than adults.

Female/subadult male— Full- or nearly adult-size, melon bulbous and gray in color, with a whitish neck collar behind the blowhole.

Adult male—Body size very large; melon extremely bulbous and often overhanging with a flattened front



The northern bottlenose whale is a very robust animal with a bulging melon, stubby beak, and very small flippers. PHOTO: G. CRESSWELL

(giving the melon a somewhat squared-off appearance), most of melon and head back to the eyes white.

Recognizable geographic forms None.

Can be confused with This is the largest beaked whale species in the North Atlantic. A good look will allow Cuvier's beaked whales to be distinguished from bottlenose whales by differences in head shape and body color. Mesoplodonts (only the Sowerby's beaked whale has a broadly-overlapping distribution) are distinguishable by their smaller size and more cone-shaped head. Northern bottlenose whales look similar to Longman's beaked whales (in fact, sightings of these animals in the past were attributed to the genus *Hyperoodon*). However, Longman's beaked whales are only found in the Indo–Pacific and thus do not overlap northern bottlenose whales in range.

Distribution Northern bottlenose whales are found only in the North Atlantic, from New England to Baffin Island and southern Greenland in the west and from the Strait of Gibraltar to Svalbard in the east. The most famous population occurs in the "Gully," off Nova Scotia, Canada. However, there have been strandings at least as far south as North Carolina in the western Atlantic. The pelagic distribution extends from the ice edges south to approximately 30°N. These cold temperate to subarctic whales are found in deep waters, mostly seaward of the continental shelf (and generally over 500–1,000 m deep) and near submarine canyons. There is some evidence from whaling records to suggest a north/south migration, but it is not clearcut. They inhabit the most northerly waters of the Barents and Greenland seas in summer (May to August). Strandings have been recorded in the Baltic Sea, but this area is probably too shallow to be regularly inhabited by this species. The northern bottlenose whale forms an antitropical species pair with the southern bottlenose whale.

Ecology and behavior The behavior and ecology of northern bottlenose whales have been better studied than that of any other species in the family Ziphiidae. Most groups contain at least four whales, sometimes with as many as 20, and there is some segregation by age and sex. There is a well-studied, resident population in the "Gully" (a large submarine canyon off the coast of Nova Scotia, Canada). Much of their movement there is defined by short-term residence in ranges of about 25 km^2. Most dives last less than 10 minutes. However, these deep divers can remain submerged for an hour, possibly as long as two, and can reach depths of well over 1,400 m. They are known for their habit of "standing by" injured companions, which permitted whalers to

An exceptional view of a northern bottlenose whale adult male off eastern Canada, showing placement of the very prominent dorsal fin, bulging melon, and stout beak. Eastern Canada. PHOTO: T. WIMMER

Northern bottlenose whales are distinguished by their large size, prominent dorsal fins and bulbous melons. They are large enough that the blow is clearly visible under most conditions. Eastern Canada. PHOTO: T. WIMMER

A northern bottlenose whale swimming upside-down; beaked whale beaks can appear deceptively longer when viewed from below. The Gully, off Newfoundland, Canada. PHOTO: COURTESY OF T. WIMMER

Viewed from above, the beaks of these northern bottlenose whales in the Gully, eastern Canada, appear surprisingly narrow and long. However, the bulbous, sometimes overhanging, melon; large dorsal fin; and large overall size allow easy recognition of this species. PHOTO: T. WIMMER

kill large numbers of whales at the same site. Bottlenose whales are also often curious and are attracted to stationary vessels. They can travel over long distances of over 1,000 km. These whales may be curious of vessel and have been known to approach and swim around boats for some time. Whales will "stand-by" injured pod members, and whalers would often exploit this behavior to facilitate hunting of an entire group.

Northern bottlenose whale males may use their large heads to "butt" each other in male/male combat. They have a peak in calving in spring to early summer (April–June). Lengths of the gestation and lactation periods are both probably over one year. Sexual maturity is reached at about 9 years in females, slightly later in males. Indviduals in the Gully population can be identified by natural markings, and several long-term studies have been conducted on them. Their social organization is one of fission-fusion, with mostly very short-term associations (much like that of most dolphin species). Adult males, however, form long-term companionships with other males, the functions of which are unknown. Groups may be segregated by age and sex. Longevity is at least 37 years, possibly much longer.

Feeding and prey Although primarily adapted to feeding on squid (especially *Gonatus* sp.), these whales also eat fish (such as herring and redfish), sea cucumbers, starfish, and prawns. They apparently do much of their feeding on or near the bottom in very deep water (> 800 m, and as deep as 1,400 m).

Threats and status The northern bottlenose was sought after for its oil (including a form of spermaceti oil in the head) and later for pet food. This is one of only a few species of beaked whales to be hunted commercially on a large scale, largely by Canada and Norway. Whalers took advantage of the habits of whales of this species to approach vessels. Hunts occurred from the 1850s to the 1970s, and over 80,000 whales were killed (with many more struck, but lost). They have also been hunted in a drive fishery in the Faroe Islands, with over 800 taken there. Current numbers are largely unknown, although there are an estimated 5,000+ in the waters around Iceland and the Faroe Islands. An estimated 40,000 occur in the eastern North Atlantic. In the Gully, the current population numbers only about 130 (with about 230 different individuals spending some time there). Most populations are probably still depleted, due to these large kills in the past. The Gully population may be threatened by oil and gas activities, fishing, and shipping in the region.

IUCN status Lower Risk/Conservation Dependent.

References Dalebout et al. 2001; Gowans 2002; Gowans et al. 2000; Mead 1989; Wimmer and Whitehead 2004.

Southern Bottlenose Whale—*Hyperoodon planifrons*

Flower, 1882

Recently-used synonyms None.

Common names En.–southern bottlenose whale; Sp.–*ballena nariz de botella del sur*; Fr.–*hyperoodon austral*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. For many years, there was speculation that a species of "tropical bottlenose whale" that had been repeatedly observed at sea in the Indo–Pacific may have been a representative of this species. However, it is now known to be Longman's beaked whale *Indopacetus pacificus* (see below).

Species characteristics This species resembles the northern bottlenose whale, with a robust body. The southern bottlenose whale also has a steep forehead, bulbous melon (it may be bluff and squared-off in adult males), and tube-like, well-demarcated beak. There is a single pair of throat grooves. Along the rear half of the back is a small, but prominent, falcate dorsal fin. The small blunt flippers fit into "flipper pockets" along the sides of the animal. The flukes are wide, typically with no notch (or only a shallow one).

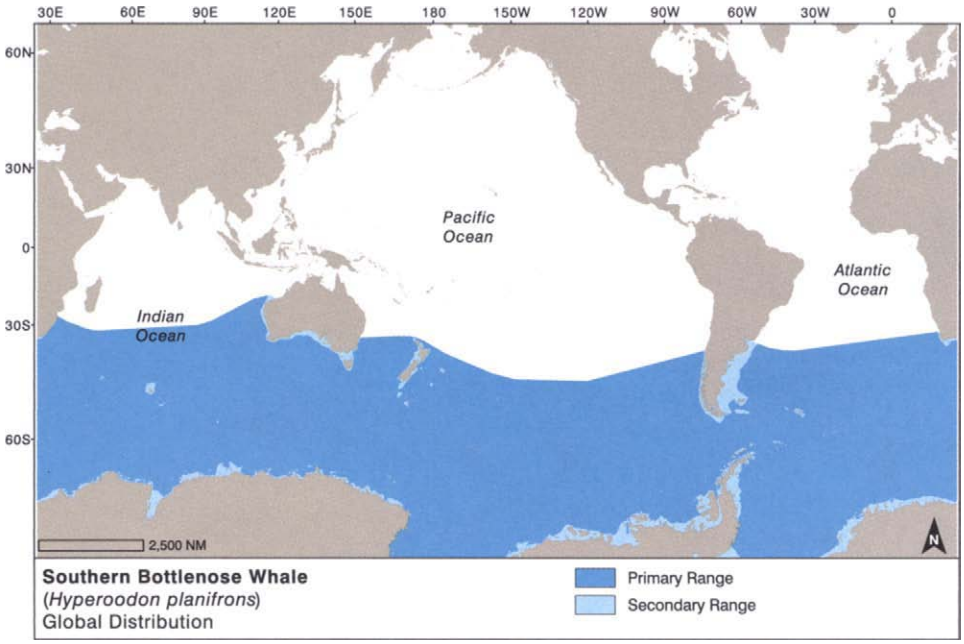
Southern bottlenose whales are light grayish-brown to dull yellow in color (diatoms have been said to be the cause of the yellowish tinge, but this is not confirmed). The belly and often much of the head are lighter. Large animals can be covered with light splotches, scratches, and scars. The color pattern of young calves and juveniles is bold and distinct (see below). The head (often back to behind the blowhole) of younger individuals is white, and distinctly demarcated from the darker back. Some adult males are very light in color along the entire back.

There is a single pair of conical teeth at the tip of the lower jaw, which erupt only in adult males, and are not visible outside the closed mouth. There is sometimes a smaller second pair. Rarely, several sets of vestigial (unerupted) teeth may be present in either jaw. The blow is short and bushy.

Maximum confirmed sizes are 7.5 m for females and about 7.0 m for males. However, specimens of up to 7.8 m have been reported. If females are, in fact, larger than males, this species would differ from its northern counterpart. However, the disparity is more likely a result of the small sample size of measured animals. Length at birth appears to be around 2–3 m.

Calf/juvenile— Less than about $^{2}/_{3}$ adult size, melon sloping and not bulbous. Dark eye patches often pres-

The beak is just visible in this southern bottlenose whale, as it pushes forward a "bow wave" with its steep forehead. Notice the light color of the head, extending back behind the blowhole and the forward-canted blow. Atlantic sector of Southern Ocean, near ice edge. PHOTO: P. OLSON



ent. Top and sides of head white to cream colored, with a dark stripe extending from the blowhole to the end of the beak. Spinal field relatively dark compared to adults.

Female/subadult male— Full or nearly adult size, melon bulbous and darker in color than in juveniles, with some remnants of the whitish head patch often still present. Spinal field lighter than in calves/juveniles.

Adult male— Body size large; melon bulbous and may be overhanging, with a flattened front. The spinal field and much of the back may be very light (almost white) in color. Usually they are heavily scarred.

A breaching southern bottlenose whale south of Madagascar, Indian Ocean; probably a young animal based on the fact that it appears to be unscarred. The paleness of the melon extends behind the constriction where the blowhole is located.
PHOTO: R. L. PITMAN

Recognizable geographic forms None.

Can be confused with Southern bottlenose whales are most likely to be confused with Arnoux's beaked whales, and there is wide overlap in the distribution of these two species. They can be distinguished by differences in dorsal fin and head shape, as well as coloration differences. Cuvier's beaked whales and various mesoplodonts may cause some identification problems from a distance. They can be differentiated primarily by attention to size, head shape, and body patterning. Southern bottlenose whales may also be confused with Longman's beaked whale, and detailed views of the animals may be needed to distinguish the species. The overlap in distribution between these two species is minimal, however, with the Longman's preferring more tropical climates.

Distribution Southern bottlenose whales have a circumpolar distribution in the Southern Hemisphere, south of about 30°S. Most sightings are from about 57°S to 70°S. There are known areas of concentration between 58°S and 62°S in the Atlantic and eastern Indian Ocean sectors of their range. They apparently migrate, and are found in Antarctic waters during the summer, where they tend to occur within about 120 km of the ice edge (sometimes reaching the edge itself). Like other beaked whales, these deep-water oceanic animals do not often stray over the continental shelf.

Ecology and behavior There is much less known about southern bottlenose whales than there is for their

This southern bottlenose whale is identifiable as an adult male by its bulbous forehead and light-colored scratches on the back and head. PHOTO: R. L. PITMAN

Northern Hemisphere counterparts. Groups of less than 10 are most common, but groups of up to 25 have been seen. Nothing is known about their social organization. They are deep divers that can remain underwater for over an hour. Southern bottlenose whales do breach and perform other aerial behaviors on occasion and they may "porpoise" away from vessels. Based on what is known of their northern cousins, they are probably capable of diving to well over 1,000 m. They may undertake long seasonal movements of over 1,000 km.

Due to the fact that it has never been commercially hunted, and there have been no ecological studies, there is virtually nothing known of the reproductive biology of this species. Sparse information suggests that births off South Africa take place in spring to early summer. Longevity is not known.

Feeding and prey Southern bottlenose whales are thought to feed on primarily squid (over 200 squid beaks were found in the stomach of one specimen stranded in New Zealand), but also eat fish (including Patagonian toothfish) and possibly some crustaceans. They may compete with sperm whales for some of the same prey species, but bottlenose whales probably take smaller individuals.

Threats and status No significant exploitation of southern bottlenose whales is known, and they have never been hunted on a large scale. Some have been incidentally killed in driftnets. These animals are not rare by any means. They are the most common beaked whales sighted in Antarctic waters, and are clearly quite abundant there. One estimate puts their numbers south of the Antarctic Convergence at around 500,000 individuals.

IUCN status Lower Risk/Conservation Dependent.

References Gowans 2002; Kasamatsu 1991; Kasamatsu and Joyce 1995; Mead 1989.

Shepherd's Beaked Whale—*Tasmacetus shepherdi*

Oliver, 1937

Recently-used synonyms None.

Common names En.–Shepherd's beaked whale; Sp.–*ballena picuda de Shepherd*; Fr.–*tasmacete*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Shepherd's beaked whales have spindle-shaped bodies (generally similar to those of the mesoplodonts), and long pointed beaks, which are distinct from the relatively steep foreheads. However, they have rather pronounced melons, which are unusual in that they are somewhat narrow and flattened laterally. There is no evidence that the melon gets larger with age. There is a shallow pair of throat creases. The flippers are small and tapered at the tips. The dorsal fin, set far back on the body, is short (about 30–35 cm high) and falcate. Generally, the notch between the flukes (characteristic of most cetaceans) is absent.

Shepherd's beaked whales have a distinctive color pattern, perhaps the most diagnostic of all the beaked whales. It appears to be present on all age and sex classes (including calves). The back and sides are mostly dark brownish gray, and the belly is white or light gray. The light ventral field extends up onto the sides in three areas 1) on the side of the face to just below the gape and eye, 2) in a rounded patch posterior of the flippers to just past midway up the side, and 3) on the tail stock posterior to the dorsal fin to just past midway up the sides. There is usually strong contrast between the light and dark areas, but the line separating them is generally not sharp. The dorsal fin, flukes, and beak are mostly dark, but there is also a light patch on the melon. The light melon patch appears to be very prominent, when seen from the air. The color of the flippers appears to be variable, but the dark dorsal field extends onto the upper surface.

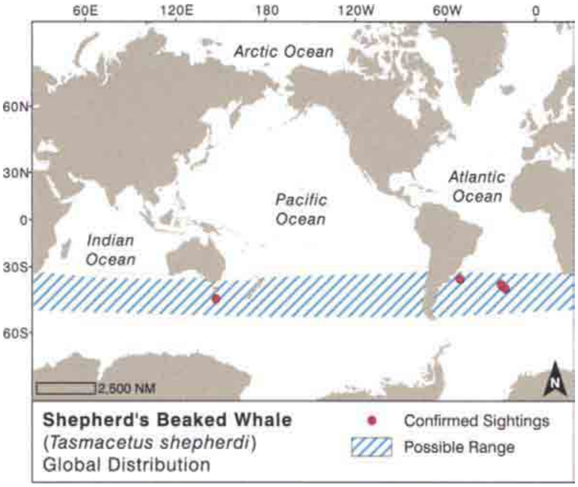
Unique to beaked whales, this species has a mouthful of sharp, functional teeth. There are 17–21 teeth per row in the upper jaw, and 18–28 in the lower. At the tip of the lower jaw is a pair of enlarged terminal teeth, which erupt only in adult males. The blow observed from vessels has been inconspicuous, although it appears that it may be more prominent when viewed from the air.

Few specimens have been measured accurately. Lengths of up to 6.6 m (females) and 7.0 m (males) have been recorded, and measurements over 7 m are considered suspect. Length at birth is unknown, but is presumed to be around 3 m (the only known calf was 3.4 m long).

Recognizable geographic forms None.

Can be confused with When seen well, Shepherd's beaked whales should be quite easy to identify, due to their unique color pattern. They can be confused with other beaked whales, especially mesoplodonts at a distance. However, they appear to be somewhat larger than most mesoplodonts, and have a sharper beak (from above) and more pronounced melon. They may also be confused with southern bottlenose and Longman's beaked whales, both of which have similarities in the shape of the head and beak, but careful attention to details of head shape and color pattern will help separate them.

Distribution Shepherd's beaked whales are primarily known from a few dozen strandings, all south of 30°S, around New Zealand, southern Australia, southern South America, the Juan Fernandez Islands, and Tristan de Cunha. There have been only a few sightings reported in the literature and the validity of most of those is suspect (or clearly erroneous). The confirmed sightings have been from south of Tasmania, near Tristan da



Cunha and in oceanic waters of the South Atlantic. It is presumed that they have a circumpolar distribution in cold temperate waters of the Southern Hemisphere. Like other members of the family, these are probably almost exclusively oceanic, deep-water animals.

Ecology and behavior Very little is known of the natural history of this species, making it one of the least-known of all cetaceans. There are no more than a few dozen records. Groups sizes reported for the four reliable sightings have been moderate (for beaked whales), ranging from 3–6 individuals. They have sometimes been observed to lift their beaks out of the water upon surfacing, but little is known of their behavior.

Many of the confirmed records are at least partially decomposed strandings. Almost all that we know of this species' biology comes from strandings. There are only a handful of fresh specimens and four confirmed sighting records.

Feeding and prey Shepherd's beaked whales are known to feed on several species of fish (primarily eelpouts), as well as squid and crabs, possibly near the bottom in deep waters. This seems somewhat unusual, as most beaked whales appear to feed almost exclusively on cephalopods.

Threats and status As is true for most of the beaked whales, this species has never been hunted (that we know of), and fisheries interactions are not known. They may sometimes ingest plastic debris, which can result in death. Shepherd's beaked whales appear to be relatively rare, but there are no estimates of abundance available.

IUCN status Data Deficient.

References Mead 1989, 2002; Pitman et al. 2006.

The Shepherd's beaked whale has a moderately long beak. The white blaze behind the dark flipper band can be visible when the animal rolls at the surface. PHOTO: M. HALL/MUSEUM OF NEW ZEALAND

This young Shepherd's beaked whale stranded in New Zealand has the muted color of an adult, but still shows a pale melon and a dark flipper band with a white blaze behind it. PHOTO: M. HALL/MUSEUM OF NEW ZEALAND

A neonate Shepherd's beaked whale; as in most ziphiids, the beaks of juveniles are shorter than in adults. The dark slit at the lower part of the throat is one of the paired throat grooves. PHOTO: M. HALL/MUSEUM OF NEW ZEALAND

Note on Beaked Whales of the Genus Mesoplodon

The species of the genus *Mesoplodon* (collectively called mesoplodonts, a sort-of scientific slang term) are very poorly known, and are in fact the most poorly-known of all the families of large mammals. Several of the species are known only, or primarily, from study of skeletal material or a few stranded carcasses. Because the external appearance and behavior of most species are so poorly documented and apparently similar among species, it is often impossible, even for experts, to identify whales of the genus to species from sightings at sea. Even with a specimen in hand, museum preparation or genetic testing is often required for positive identification (except for adult males of some species). Useful field characters are overall size, beak length and shape, shape of mouthline, location and size of teeth, coloration and scarring patterns, and to a lesser extent, size and shape of the dorsal fin.

All species have the same basic body plan, with a laterally-compressed body. Because of the similarity and poor documentation of external morphology and coloration among species, genetic techniques have recently become invaluable in distinguishing species. In fact, a new species (*M. perrini*—see below) was recently discovered from genetic data.

Although data are now rapidly building up, the distribution of most species is also poorly documented, and is mostly known from stranding records. More information is available from the eastern tropical Pacific than for any other area, because of the extensive survey effort associated with the tuna fisheries there. Even for this area, however, the picture is very blurry.

There are 14 species of *Mesoplodon* currently recognized. The newest of these (*M. perrini*) was only described in 2002, and it is possible (perhaps even likely), that other undescribed species exist. All mesoplodonts have low, inconspicuous (usually invisible) blows and a small, triangular to slightly-falcate dorsal fin set about two-thirds of the way back from the beak tip. Most species are very similar in appearance, and in many cases only adult males are likely to be identifiable to species at sea.

Coloration is usually brownish-gray to olive, often with extensive white spots and scarring, especially in adult males. It should be noted, however, that the color pattern (along with its age and sex-related variation) is not well-known for many species. The patterns described below are subject to change as our knowledge increases. In fact, our knowledge has expanded greatly in the last few years, as more fresh specimens are examined, and the first studies of the ecology of these mysterious whales begin to take shape. For instance, we have found that several species (e.g., True's, Gray's, strap-toothed, pygmy, and Stejneger's beaked whales) have fairly complex color patterns, often with significant amounts of geographic, developmental, and sexual variation.

The tusks do not appear to be used in feeding, and are apparently used in male/male combat. It has been suggested that the variation in their size, shape, and placement is largely related to species recognition among multiple, sympatric species. The pattern of scarring is caused by intraspecific closed-mouth fighting among adult males, and has been suggested to act as an indicator of male 'quality' in aggressive intraspecific interactions. The exact pattern of scars may be useful in narrowing identifications to several species. For example, sets of closely-paired scratches suggest two teeth located near the tip of the lower jaw (such as in True's, Perrin's, and Hector's beaked whales), while more widely spaced parallel scratches may implicate species with more elevated, and widely-separated teeth set farther back in the jaws (e.g., Blainville's, pygmy, Stejneger's, Andrews', and Hubbs' beaked whales). On the other hand, Gervais', Sowerby's, Gray's, and ginkgo-toothed beaked whales have teeth that are somewhat removed from the tip of the jaw, and which do not project above the upper jaw. Thus, these species would not be expected to produce paired scars, and any scratches on their bodies would likely be single. The strap-toothed whale is a bit enigmatic. Although it has long tusks that rise over the middle of the upper jaw, they curve inwards and backwards, thus making it less likely that they would produce widely-separated paired scars. The newly-discovered spade-toothed beaked whale (external appearance unknown) may be similar.

In general, mesoplodonts are slow and sluggish. Most sightings are brief, as these whales do not spend much time on the surface. They are presumed to pursue mostly squid at great depths. Groups are usually small, almost always seven whales or less. Until recently, very little was known of their behavior and social organization. Recent studies on Blainville's beaked whales in the Bahamas suggest that adults may occur in harem-like groups, and other species may have similar social organization. Mesoplodonts are generally seen surfacing briefly, before disappearing on a long dive that may go down to 1,400 m or more. Breaching and other aerial behavior appears to be rare (but that may be partially due to the brevity of most sightings).

Generally, mesoplodonts are difficult to observe for more than short periods, due to their deep diving habits and apparent shyness of vessels. However, in recent years, sightings of more species at sea have been confirmed, and detailed long-term studies of populations of Blainville's beaked whales in the Bahamas and Hawaii have been undertaken. As opportunities for observing these mysterious animals accumulate, we will be in a position to review our knowledge over the next several years. We may find that much of what we know (or think we know) needs to be revised.

References Dalebout et al. 2007; MacLeod 2006; MacLeod et al. 2006; Pitman 2002.

Adult males of the various species of *Mesoplodon*, showing the shape of the jaw-line and shape and placement of the tusks:

A) Blainville's beaked whale PHOTO: N. B. BARROS

B) Gray's beaked whale PHOTO: G. LENTO, COURTESY M. DALEBOUT

C) Ginkgo-toothed beaked whale PHOTO: M. AIZAWA, COURTESY OF T. YAMADA

D) Hector's beaked whale PHOTO: F. P. MARTINEZ, COURTESY T. PUSSER

E) Perrin's beaked whale PHOTO: J. G. MEAD

F) Hubbs' beaked whale PHOTO: H. TARU/KANAGAWA PREFECTURAL MUSEUM

G) pygmy beaked whale (adult female) PHOTO: J. C. REYES

H) Sowerby's beaked whale PHOTO: N. TREGENZA

I) Gervais' beaked whale PHOTO: C. MANIRE

J) True's beaked whale PHOTO: J. G. MEAD

K) strap-toothed beaked whale PHOTO: K. WESTERSKOV

L) Andrews' beaked whale PHOTO: AUSTRALIAN DEPARTMENT OF ENVIRONMENT AND CONSERVATION

M) Stejneger's beaked whale PHOTO: T. YAMADA

Blainville's Beaked Whale—*Mesoplodon densirostris*

(Blainville, 1817)

Recently-used synonyms None.

Common names En.–Blainville's beaked whale or dense-beaked whale; Sp.–*zifio de Blainville* or *ballena picuda de Blainville*; Fr.–*baleine a bec de Blainville*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Blainville's beaked whales (like other species in the genus) are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes.

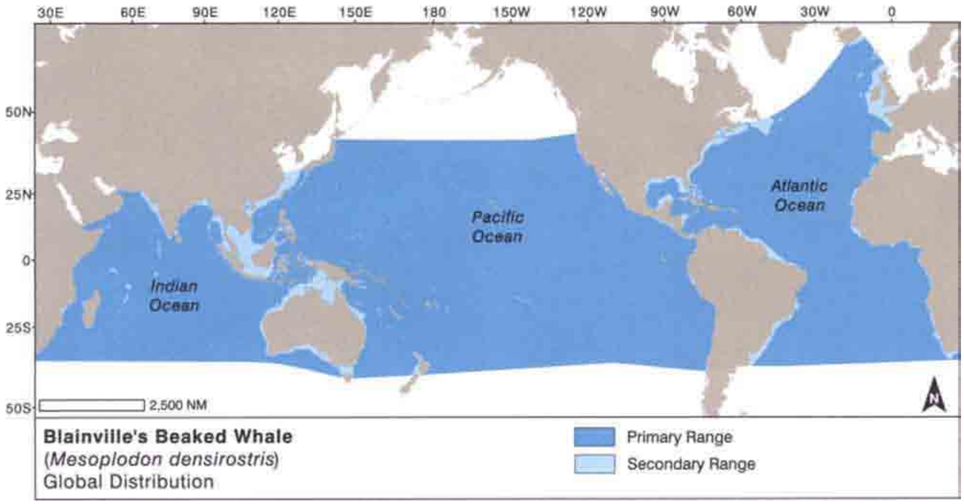
This Blainville's beaked whale is identified as an adult, because it is heavily pocked by cookie-cutter sharks, and as a female (or possibly young male), because it has no linear scars. Bahamas. PHOTO: T. PUSSER

There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is moderately long in adults, but much shorter and stubbier in younger animals.

This is one of the most distinctive of the mesoplodont beaked whales. The posterior half of the lower jaw of this species is highly arched, even in females and calves. In adult males, the arches are massive and very wide; flattened tusks erupt from the top of these arches (angled forward at about 45°), and the tips extend above the top of the upper jaw. In some individuals, the tusks may be covered by a tassel of barnacles. The "cheeks" of the lower jaw arches rise up along the melon, and the melon looks relatively flat in comparison. The "cheeks" are quite wide, especially when viewed from above, and they may have a "squared-off" top.

Coloration is relatively non-descript in this species. Adult Blainville's beaked whales are brownish or blue-gray above and lighter below. Coloration of young has not been well-described, but they appear to be generally countershaded, with a dark patch around the eye. The dark areas of larger animals tend to have round or oval white scars and widely-separated, paired scratches are common on what are (often presumed to be) adult males. This species generally shows more white scratches and scarring in adult males than in most other *Mesoplodon* species. There is very often a yellowish-orange sheen (probably resulting from diatom films) to the head and anterior part of the thorax.

Maximum known size for males appears to be around 4.7 m, and for females also about 4.7 m (but on



average, females are larger than males). Weights of up to 1,033 kg have been recorded. Length at birth is presumed to be between 2.0 and 2.5 m.

Calf— Less than about 1/2 adult size, arch of lower jaw present, but not exaggerated. Dark eye patches present, body color darker than adults.

Female/subadult male— Full or nearly adult size, back dark brownish-gray in color, lower jaw arched more strongly than in calf.

Adult male— Full or adult size, back dark brownish-gray in color, with numerous white parallel scratches on back, lower jaw with massive arches, and forward-leaning triangular tusks sitting atop each arch.

Recognizable geographic forms None.

Can be confused with Generally, at sea only adult males of this species will be distinguishable from other mesoplodonts. The high arching mouthline and massive flattened tusks (often covered in barnacles) that extend above the upper jaw may allow identification of bulls, if they are observed well, but some other species (such as *M. stejnegeri*) have similar features. The massive size of the arches in Blainville's beaked whales and relatively flat-looking melon are the best clues to separate this species from other, similar-appearing ones in the genus. Coloration and head-shape differences, along with a more peaked dorsal surface, will help to distinguish this species from Cuvier's beaked whale, which overlaps its distribution extensively.

Distribution Blainville's beaked whales occur in temperate and tropical waters of all oceans. This species has the most extensive distribution of any species of the genus *Mesoplodon*, and is also one of the most tropical. Like other beaked whales, they are found mostly offshore in deep waters. A detailed analysis of habitat preferences in the Bahamas, where this species is commonly encountered, indicated that Blainville's beaked whales were found preferentially in waters of intermediate depth gradients and depths between 200 and 1,000 m (continental slope waters). These may be areas of increased prey availability caused by interactions of currents and local topography. Sightings are also common at some areas in the Hawaiian and Society Islands. They occur in many enclosed seas with deep water, such as the Gulf of Mexico, Caribbean

This unscarred, and therefore presumably female or young, Blainville's beaked whale has an unidentified orange film that is commonly seen on these animals. It may be pigmentation, diatoms, or some other factor. PHOTO: V. GLEZ

The broken teeth of adult male Blainville's beaked whales are testimony to the fierce battles they apparently wage over access to females. Bahamas. PHOTO: J. DURBAN

This dorsal view of a stranded adult male Blainville's beaked whale from Florida shows the massive boney arches that buttress the teeth in the lower jaws. PHOTO: N. B. BARROS

A battle-scarred adult male Blainville's beaked whale in Hawaii, showing old and fresh linear tooth rake marks, along with oval cookie-cutter shark bites. The pair of teeth are elevated and exposed for maximum effectiveness; they also lean inwards and may prevent full opening of the mouth. PHOTO: R. W. BAIRD

A female or young Blainville's beaked whale. Although the prominent arch in the jaw is a clue, this animal can be positively identified only by the presence of an identifiable adult male. Bahamas. PHOTO: T. PUSSER

Sea, and the Sea of Japan. However, there are only rare records of this species occurring in the Mediterranean.

Ecology and behavior There is more information available on the behavior and ecology of Blainville's beaked whale than for any other species of *Mesoplodon*. There is a population of this species that is being studied in detail in the Bahamas. Individual whales have been identified, based on natural marks, and this represents only the second case (in addition to the northern bottlenose whales in the Gully) that a beaked whale population has undergone long-term behavioral and ecological study. Groups of 3–7 Blainville's beaked whales have been recorded, although singles or pairs are most common. In the Bahamas, adults are generally grouped into what appear to be harems, with a single adult male accompanying several adult females. Subadults appear to stay in separate groups. The "harems" tend to occur in more productive waters over the continental shelf waters of canyon walls, while subadults tend to occur in less productive waters inshore and offshore of these areas.

Dives of up to 1,400 m and over 54 minutes have been recorded in Hawaiian waters. However, they also appear to spend prolonged periods in the upper layer of the water column (< 50 m deep), and this may be an adaptation to compensate for pushing the body's physiological limits on long, deep dives. Animals often lift their beaks out of the water upon surfacing, and sometimes slap them down on the surface again.

There are almost no data on sexual maturity for any mesoplodont, but a 9-year old female of this species had just reached maturity.

Feeding and prey Squid are apparently the main food items, but some deepwater fish may be taken as well. Like other mesoplodonts, they are thought to be suction feeders.

A mother Blainville's beaked whale and her very young calf. This photo clearly shows that the lower jaw arches are present even from birth in this species. PHOTO: C. MACLEOD

Two Blainville's beaked whales at the surface. The closer animal is an adult male, as indicated by the raised tusks and heavy scarring on the back and especially around the top of the head. PHOTO: T. PUSSER

Threats and status Some Blainville's beaked whales have been taken incidentally by Japanese tuna boats off the Seychelles and western Australia, as well as directly by small cetacean hunters in various areas. They are sometimes injured or killed by naval operations using mid- and low-frequency sonar, which cause multiple animals to strand over an extensive area of coastline. Subadult whales, found in more offshore waters, appear to be most vulnerable. Some may also die from ingestion of marine debris. Overall, the species appears to be fairly common in most tropical seas. Estimates of abundance are generally not available, but there are thought to be about 2,100 in waters of Hawaii.

IUCN status Data Deficient.

References Baird et al. 2006; Dalebout 2002; MacLeod and Zuur 2005; Mead 1989; Pitman 2002.

Gray's Beaked Whale—*Mesoplodon grayi*

von Haast, 1876

Recently-used synonyms None.

Common names En.–Gray's beaked whale or Scamperdown whale; Sp.–*zifio de Gray*; Fr.–*baleine a bec de Gray*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

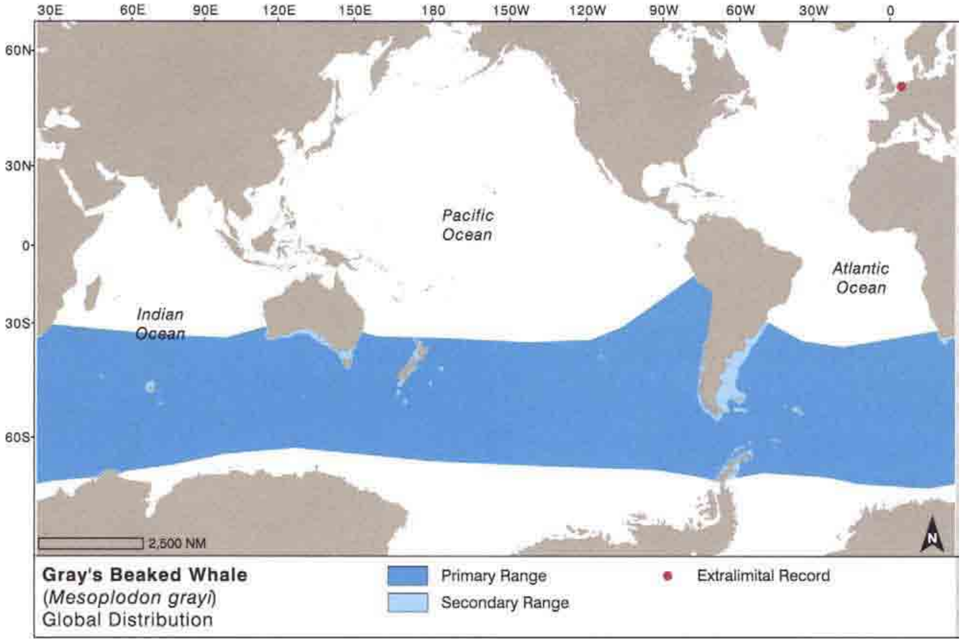
Species characteristics Gray's beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and flukes that typically have no median notch. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. They are relatively slender, with extremely long, narrow beaks, the longest of any of the mesoplodonts. The mouthline is straight, even in bulls. It is reminiscent of the beak of the rough-toothed dolphin. The melon bulges slightly between the beak and the blowhole.

This species has a distinctive color pattern. Although mostly gray, sometimes with a tan tinge, white patches are found in the genital region and the beak (both upper and lower jaws) and much of the front of the forehead also becomes white in adults. Young animals appear to have much darker beaks and lighter bellies than adults. There may be dark patches around the eyes in young individuals. Cookie-cutter shark bite scars have been observed on the bodies of some individuals, and adult males may have a number of long linear scars on the body.

There are two triangular teeth set in the middle of the lower jaw, which erupt only in bulls, and 17–22 pairs of small teeth in the posterior half of the upper jaw. The tusks of males are located midway along the length of the mouthline, and are mostly covered in gum tissue, with only the tips exposed. They may be narrow or quite wide (up to 10 cm). A low and diffuse blow has been reported for some sightings.

Maximum known sizes are 5.6 m for males and 5.3 m for females. These animals are known to reach

A Gray's beaked whale in New Zealand, showing the tapered head; long, all-white beak; and a barely visible tooth in the middle of the lower jaw. The exposed tooth and heavy scarring indicate this is an adult male. PHOTO: G. LENTO, COURTESY OF M. DALEBOUT



weights of at least 1,100 kg. Length at birth is estimated to be between 2.1 and 2.2 m.

Recognizable geographic forms None.

Can be confused with When seen from a distance, this species may be confused with any of the other species of the genus that overlap it in distibution (e.g., Andrews', Hector's, Blainville's, and strap-toothed beaked whales). The extremely long white beak of adults (often stuck up out of the water as the animal surfaces) and straight mouthline may allow Gray's beaked whales to be distinguished from other mesoplodonts, if a good look at these features is obtained.

Distribution Gray's beaked whale is primarily a Southern Hemisphere cool temperate species, which is apparently circumantarctic in occurrence. It typically occurs in deep waters beyond the edge of the continental shelf, with most records south of 30°S. There are many sighting records from Antarctic and subantarctic waters, and in summer months they appear near the Antarctic Peninsula and along the shores of the continent (sometimes among sea ice). Many of the stranding records are from New Zealand and southern Australia, South Africa, Argentina, Chile, and Peru. The area between the South Island of New Zealand and the Chatham Islands has been suggested to be a "hot spot" for sightings of this species. There is one record of a Gray's beaked whale straying into the Northern Hemisphere, a stranding record in the Netherlands. This was almost certainly an extralimital occurrence, however.

Ecology and behavior Not a great deal is known of the biology of this species. Gray's beaked whales are seen mostly as singles or pairs; however, there is one record of a mass stranding of 25–28 of these whales (and other mass strandings are known). They are relatively frequently stranded, especially in New Zealand. Gray's beaked whales generally raise their long beaks

A genetic sample was used to identify this juvenile as a Gray's beaked whale. The long beak and clearly delineated dark head may prove to be useful for identifying young animals of this species. Western Australia. PHOTO: N. GALES

Stranded adult male Gray's beaked whale; the orientation of the tusks indicates that tooth rakes are probably going to leave single (as opposed to parallel) scars. PHOTO: G. LENTO, COURTESY OF M. DALEBOUT

Gray's beaked whales often lift their long beaks out of the water upon surfacing, facilitating identification. As there are no tusks, this is probably a female or young male. PHOTO: P. ENSOR

A stranded adult female Gray's beaked whale; as in the adult male, the entire beak, upper and lower jaws, are white. PHOTO: COURTESY OF M. DALEBOUT

out of the water when surfacing. Breaching, spyhopping, flipper-slapping, and fluke-slapping behavior has been observed, and they may almost "porpoise" out of the water when moving fast. They typically do not lift their flukes out of the water upon commencing a dive.

A female with a calf that was observed in Mahurangi Harbor, New Zealand, had a series of corrugated scars behind the dorsal fin suggesting that the animal had been struck by a vessel. Observations in such shallow waters are very unusual for this species.

Feeding and prey Like other mesoplodonts, they are thought to feed mainly on cephalopods in deep waters.

Threats and status This species may not be as rare as some other species of the genus *Mesoplodon*, based on the number of records. In particular, they seem to be fairly common around New Zealand. No significant exploitation is known, and there are no known estimates of abundance.

IUCN status Data Deficient.

References Dalebout 2002; Dalebout et al. 2004; Mead 1989; Pitman 2002.

Ginkgo-toothed Beaked Whale—*Mesoplodon ginkgodens*

Nishiwaki and Kamiya, 1958

Recently-used synonyms *Mesoplodon hotaula.*

Common names En.–ginkgo-toothed beaked whale; Sp.–*zifio Japonés* or *ballena picuda de dientes de gink-go*; Fr.–*baleine a bec de Nishiwaki*.

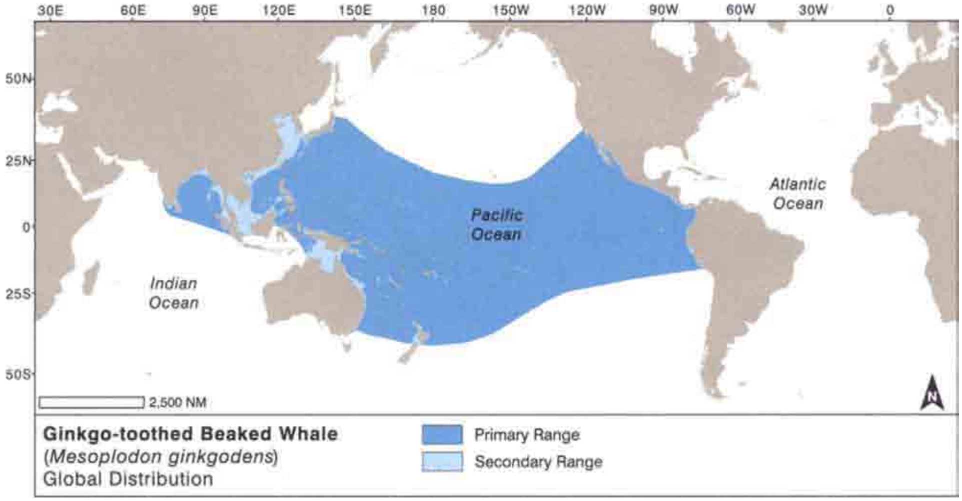
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. A subspecies (or even a distinct species) may occur in the tropical central/western Pacific.

Species characteristics Ginkgo-toothed beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is moderate in length and the mouthline has a slight arch in adult males. The forehead has a shallow rise to it.

The color pattern is poorly-known (few fresh specimens have been examined), but appears to consist largely of basic countershading. Adult male ginkgo-toothed beaked whales are dark gray, and apparently the anterior portion of the beak is white. Females are reported to be somewhat lighter than males. It is unclear whether females share the white beak, but there is some evidence for at least a paler lower jaw in females. Light spots on the back and ventral surface of the tail stock also appear in adults. These white scars are considered to be caused by parasites (lampreys or cookie-cutter sharks). Unlike most other beaked whales, males generally have few or no white scratches (this may be due to the small amount of tooth that erupts from the gums).

Bulls have wide (up to 10 cm), round or elliptical, flattened tusks with an S-shaped outline sloping down from the point, which sit atop small arches slightly behind the middle of the lower jaw. They barely break the gumline, and most of the tusks are buried in gum tissue. Teeth

This ginkgo-toothed beaked whale from Taiwan has numerous cookie-cutter shark bites and no obvious linear scarring, correctly suggesting it is an adult female. The females of most mesoplodonts are not identifiable to species in the field, including this one. PHOTO: J. Y. WANG



do not erupt from the gums in females. In juveniles (but not adults), they resemble the leaves of the ginkgo tree.

Maximum known sizes are 5.3 m (for both males and females), although females appear to be larger on average. At birth, gingko-toothed beaked whales are thought to be about 2.0–2.5 m.

Recognizable geographic forms None.

Can be confused with The uniform dark pigmentation, small posteriorly-placed teeth, and lack of characteristic ziphiid scars make it nearly impossible to identify these animals at sea, even when adult males are seen. Generally, this species may be virtually indistinguishable from other mesoplodonts that share its range (e.g., Hubbs', Blainville's, and Stejneger's beaked whales).

The arched beak of this adult female ginkgo-toothed beaked whale from Japan suggests that the teeth of adult males probably erupt in the middle of the lower jaw. This is a species with a medium-sized beak – otherwise skull characteristics and/or genetics will be needed to identify animals such as this. PHOTO: K. NAKAMURA, COURTESY OF T. YAMADA

Distribution The ginkgo-toothed beaked whale is known from a few dozen widely-scattered (albeit sparse) strandings and captures (no sightings) in temperate and tropical waters of the Indo–Pacific Ocean, from Sri Lanka, east to the shores of North America and the Galapagos Islands. There have been a few records from New Zealand, indicating that this species also inhabits the southern Indo–Pacific. Most records are from the seas around Japan. Sightings of what may have been this species were also made in the Arabian Sea. It is generally hypothesized that the range is continuous across the Pacific and at least to the eastern Indian Ocean, but until the species can be identified at sea, its true distribution will probably remain unknown.

Ecology and behavior Almost nothing is known of the ecology and biology of the ginkgo-toothed beaked whale, short of what little has been gleaned from stranded specimens. It has never been reliably identified alive in the wild.

Feeding and prey Ginkgo-toothed beaked whales are presumed to be primarily squid eaters, but may also take some fish.

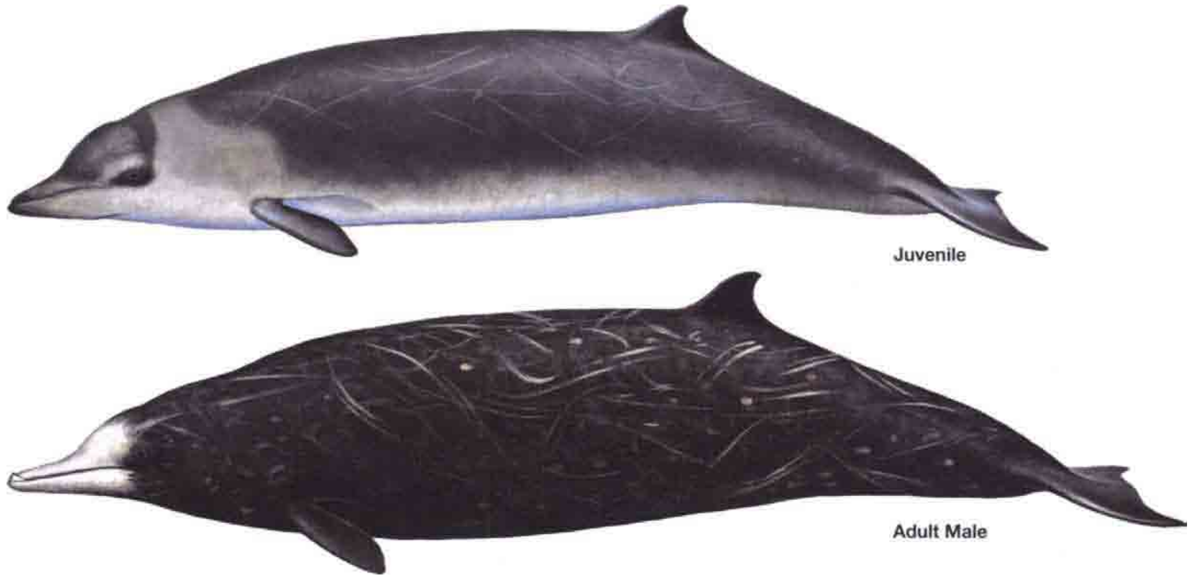
Threats and status Ginkgo-toothed beaked whales have occasionally been taken by Japanese and Taiwanese whalers, and some have been caught in deepwater drfit gillnets. There are no estimates of abundance, but the species does not appear to be very common.

IUCN status Data Deficient.

References Dalebout 2002; Dalebout et al. 2007; Mead 1989; Pitman 2002.

Hector's Beaked Whale—*Mesoplodon hectori*

(Gray, 1871)



Recently-used synonyms None.

Common names En.–Hector's beaked whale; Sp.–*zifio de Hector* or *ballena picuda de Hector*; Fr.–*baleine a bec de Hector*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. Several sightings and strandings of beaked whales originally thought to be this species occurred in southern and central California in the 1970s. However, these are now known to have been Perrin's beaked whales (see below).

Species characteristics Hector's beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. In adults, the beak is quite long, and the mouthline is relatively straight.

The single pair of flattened, triangular tusks are moderate in size and they are located near the tip of the lower jaw. They erupt only in bulls, and may be angled slightly outwards.

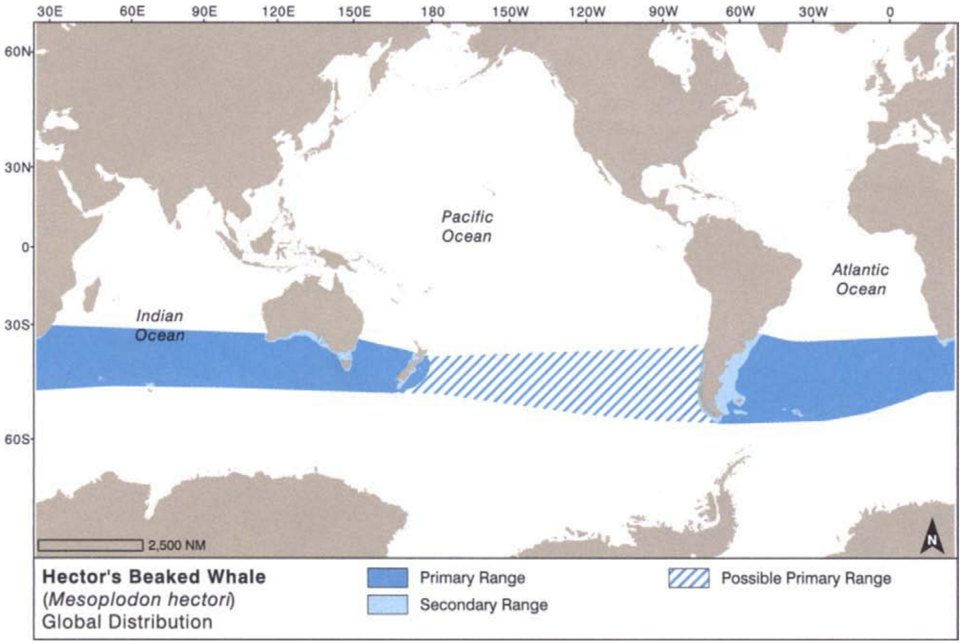
Body color of Hector's beaked whales was not well-known until recently (2006), as few fresh specimens had been examined. However, it is now known that adult males are dark gray-brown above and slightly lighter below. Single and closely-paired scratches, as well as white cookie-cutter shark scars, may be present on the body. The most distinctive feature of the adult male is its' white beak and anterior part of the head (although this description is based on only one specimen). Females and young, in contrast, appear to be relatively non-descript. In at least some individuals, probably younger animals, there is a dark patch surrounding the eye and running forward to connect to the melon and upper beak. The lower jaw may be light in color.

Specimens of up to 4.3 m have been reported, although few have been measured. Females are probably slightly larger than males. Size of newborns is unknown, but is presumably about 1.9–2.0 m.

Recognizable geographic forms None.

Can be confused with If adult males are not present, it may be nearly impossible to identify these animals at sea. For bulls, the placement of the flattened teeth at

This juvenile Hector's beaked whale was identified from a genetic sample; otherwise it appears to be virtually indistinguishable from several other species. Western Australia. PHOTO: N. GALES



the tip of the lower jaw, in combination with their white beaks and closely-paired scratches, should allow them to be distinguished from other species of *Mesoplodon* that are sympatric, if the head is seen quite well. Of the species that share the range of Hector's beaked whale, Gray's beaked whale can be similar in appearance. For adult males, note the presence (Hector's) or absence (Gray's) of paired scratches, and placement of the tusks at the tip (Hector's) or middle (Gray's) of the lower jaw.

Distribution Hector's beaked whale is considered to be a Southern Hemisphere cool temperate species. The records (mostly strandings) are from southern South America, South Africa, southern Australia, and New Zealand. The single sighting record is from southwest Australia. It has been speculated that the species has a continuous distribution in the Atlantic and Indian oceans at least from South America to New Zealand. Although there are no current records from the central and eastern Pacific Ocean, the range may prove to be circumpolar. They may be relatively common around New Zealand.

This is the only known photo showing the color pattern of an adult male Hector's beaked whale, this one stranded in Argentina. The all-white upper and lower jaws, and long tapering head are similar to Gray's, but the teeth at the tip of the jaw distinguish this species. PHOTO: COURTESY OF H. L. CAPPOZZO AND T. PUSSER

Ecology and behavior Almost nothing is known of the biology of the Hector's beaked whale. Most of what had previously been attributed to this species was later found to be referable to Perrin's beaked whale (when that species was described in 2002). Even the external appearance was not adequately described until recently.

In the only known confirmed identification of this species alive at sea, a single individual was observed nearshore in western Australia—almost definitely atypical for the species. The animal breached several times near a research vessel. It dove for periods of up to 4 minutes, but these are clearly not representative of the diving capabilities of this species.

Feeding and prey Little is known of the diet, but Hector's beaked whales are known to feed on squid, like most other beaked whales.

Threats and status There are no known threats, and no estimates of abundance. It is possible that this species is naturally rare; however, the paucity of records may have much to do with the challenge of identifying it at sea.

IUCN Status Data Deficient.

References Cappozzo et al. 2005; Dalebout et al. 2002; Mead 1989; Pitman 2002.

Perrin's Beaked Whale—*Mesoplodon perrini*

Dalebout, Mead, Baker, and van Helden, 2002

Recently-used synonyms None.

Common names En.–Perrin's beaked whale; Sp.–*zifio de Perrin*; Fr.–*baleine a bec de Perrin*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. In the 1970s, several sightings and strandings of beaked whales thought to be Hector's beaked whales occurred in California. Genetic evidence recently indicated that a new species was actually involved, and these are now known to have been Perrin's beaked whales.

Species characteristics Externally, this species appears very similar to Hector's beaked whale, and in fact, the two were thought to be the same until *M. perrini*'s description in 2002. It has a spindle-shaped body, with a small head and a slight bulge to the melon, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is shorter than in any other *Mesoplodon*, except pygmy beaked whales; it is even shorter in calves.

Apparently, these animals are countershaded, with a dark gray back and whitish belly. Adult males, at least, have a white patch around the umbilicus, and a mask of dark gray color extending from near the gape to the eye and from there dorsally. The lower jaw and throat are light in color. The ventral surface of the flukes exhibits white striations. Any tooth scrapes on adult males tend to be singular, not paired. Cookie-cutter shark scars may be present on the body.

The flattened, triangular tusks of adult males are situated just behind the tip of the lower jaw, and the mouthline is relatively straight. The tusks are splayed outwards at an angle of about 15°, and barnacles may infest the teeth. Females may have similar teeth, but they do not erupt.

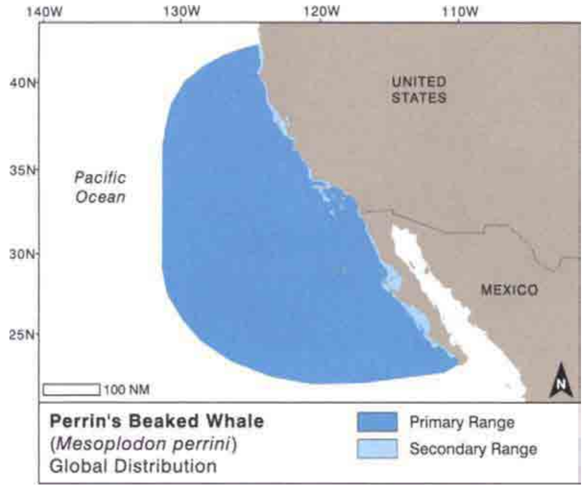
Only five specimens have been examined, but these indicate that the animals can grow to at least 4.4 m (females) and 3.9 m (males).

Recognizable geographic forms None.

Can be confused with Only adult males will likely be identifiable from their external appearance. Perrin's beaked whale is most likely to be confused with Hector's beaked whale; however, the two probably do not overlap in distribution. A specimen of unknown origin will require expert examination of the skull or genetic analyses to distinguish the two with certainty.

Distribution All five specimens so far examined have been from southern and central California (between 32° and 37°N), and it is likely that this species is endemic to the North Pacific Ocean (possibly even the Eastern

Almost nothing is known about the color pattern of Perrin's beaked whale, but the adult male's large, protruding, triangular teeth at the end of a short beak should allow for positive identification at sea. Southern California. PHOTO: J. G. MEAD



North Pacific). Like other members of the genus, it presumably prefers oceanic habitats with waters > 1,000 m deep, and sightings thought to be of this species have occurred in deep waters.

Ecology and behavior This is one of the most recently discovered species of marine mammal; its original description was only published in July 2002. Almost nothing is known of its biology or behavior. The specimens that are currently known were mostly erroneously thought to have been Hector's beaked whales in the past. The only possible sightings are of two groups off southern California, and they are not confirmed to be of this species. Calves may be weaned by the time they reach about 2.5 m in length.

Feeding and prey Based on a limited sample of stomach contents, Perrin's beaked whale probably feeds mainly on squids (including *Octopoteuthis* sp.). The remains of an unidentified invertebrate have been found in the stomach of an animal stranded in California.

Threats and status All records have been of strandings, so nothing is known of potential threats. No estimates of abundance exist.

IUCN status Not Listed.

References Dalebout 2002; Dalebout et al. 2002; Pitman 2002.

The teeth of an adult male Perrin's beaked whale, viewed head-on. This species has never been identified alive in the wild, but this distinctive tooth placement separates it from all other North Pacific mesoplodonts. PHOTO: J. G. MEAD

Hubbs' Beaked Whale—*Mesoplodon carlhubbsi*

Moore, 1963

Recently-used synonyms None.

Common names En.–Hubbs' beaked whale; Sp.–*zifio de Hubbs* or *ballena picuda de Hubbs*; Fr.–*baleine a bec de Hubbs*.

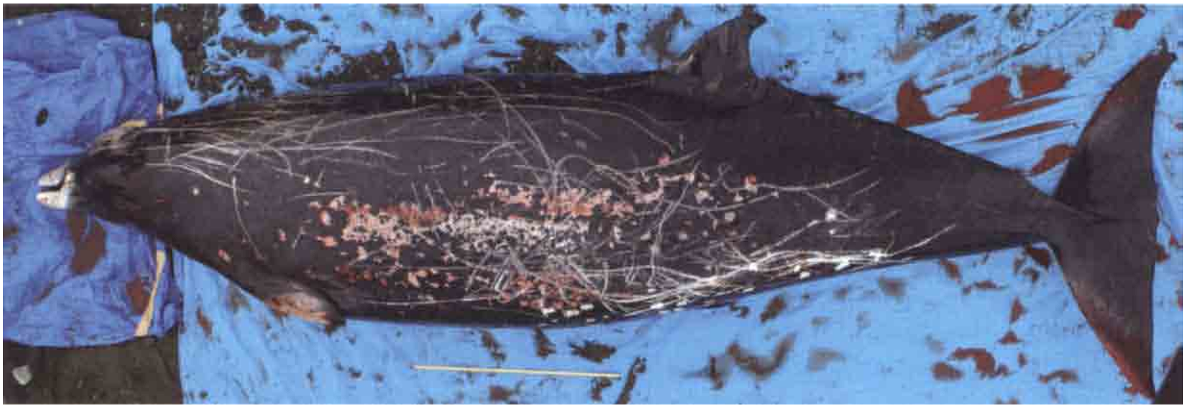
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. In the past, there was some suggestion that this species may simply be a subspecies of *M. bowdoini* (and some previous records were erroneously attributed to that species), but recent genetic studies confirm its specific distinctness.

Species characteristics Hubbs' beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin (generally 22–23 cm high in adults) located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is fairly short and there is a strong "arch" to the lower jaw of adult males, although the arch is more subdued in females. The length of the arched area is much smaller than in the Blainville's beaked whale (<1/3 of the lower jaw vs. well over 1/2). There is a distinct bulge on the melon.

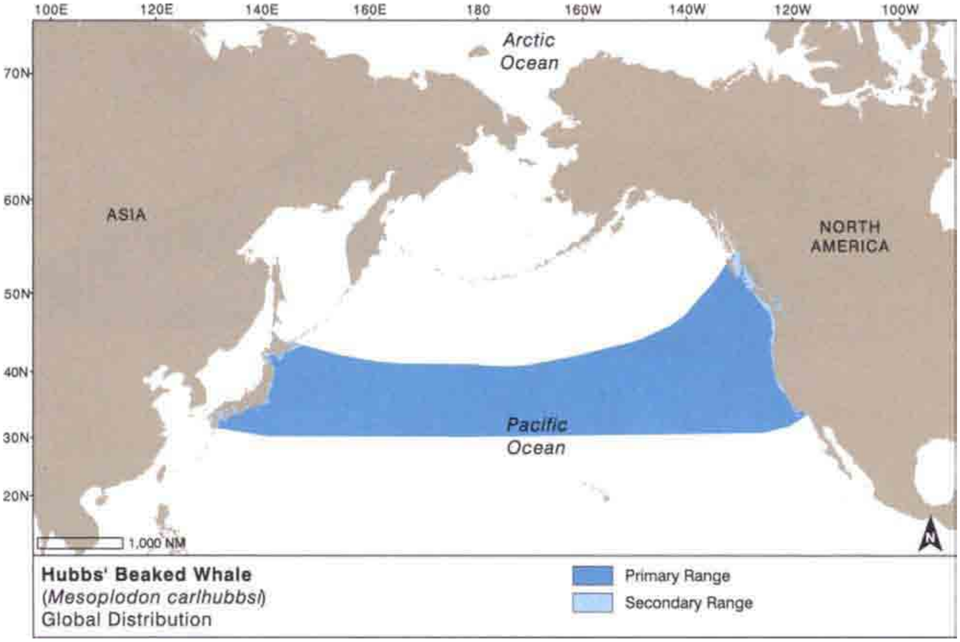
Males have massive flattened tusks erupting from the middle of narrow arches in each side of the lower jaw. The "arch" is actually mostly gum tissue surrounding the tusk, and only the tips of the teeth are exposed. The tusks protrude above the level of the upper jaw.

The basic body color is dark gray to black. Adult males of this species are more readily identifiable than individuals of most other species of mesoplodont. They have a white beak and a brilliant white "cap" or "beanie" on the melon ahead of the blowhole. The combination of these two features is diagnostic. Females and young are more generic, being more-or-less countershaded, but they may also have a light beak. Adult males are generally covered with long scratches, many of which are arranged in pairs.

Maximum known size for both sexes is about 5.3–5.4 m. Weights of over 1,500 kg are attained. Newborns are thought to be about 2.5 m long.



Adult male Hubbs' beaked whales are readily identified by their stout white beak (upper and lower jaws) and white patch on the top of the head in front of the blowhole. Despite this, sightings at sea have been rare. Japan. PHOTO: COURTESY T. YAMADA



Recognizable geographic forms None.

Can be confused with If a good look is obtained of the head, the white "beanie" and beak tip, and large tusks may allow bulls of this species to be distinguished from other species of *Mesoplodon*. Other age classes will be nearly impossible to distinguish from congeners, based on their external appearance. Genetic testing or cranial examination may be required.

Distribution Apparently limited to the North Pacific Ocean, Hubbs' beaked whale is known from central British Columbia to southern California in the east, and from Japan in the west. Sightings have been made off the coast of Oregon. It is an oceanic species, and the range is thought to be continuous across the North Pacific, although this is not confirmed.

Head of a 523 cm female *Mesoplodon carlhubbsi* that stranded in Oregon. The white upper and lower jaw separates it from other mesoplodonts within its North Pacific range. The crescentic blowhole is visible just behind the melon and the eye is located between the two large white pigment patches on the face. PHOTO: M. GRAYBILL

Ecology and behavior Very little is known about the biology of this species, as only a few reliable sightings at sea have been made. This is somewhat surprising, as this is one of the more distinctive species of the genus (at least for adult males). The long, white, parallel scratches on the bodies of males are thought to be caused by closed-mouth fighting in this and other mesoplodonts. Hubb's beaked whale has particularly dense bone in the rostrum as an adaptation to strengthen the upper jaw for such combat. Not much is known of the reproductive biology of this species, but calving may occur mainly in summer months.

Feeding and prey Hubbs' beaked whales feed on squid (including the genera *Gonatus*, *Onychoteuthis*, *Octopoteuthis*, *Histioteuthis*, and *Mastigoteuthis*) and some deepwater fishes.

Threats and status Hubbs' beaked whale has occasionally been taken by Japanese whalers in several small cetacean fisheries. Incidental catches in drift gillnets occur off the coast of California. There are no estimates of abundance.

IUCN status Data Deficient.

References Dalebout 2002; Mead 1989; Mead et al. 1982; Pitman 2002.

Pygmy Beaked Whale—*Mesoplodon peruvianus*

Reyes, Mead, and Van Waerebeek, 1991

Adult Female

Adult Male

Recently-used synonyms None.

Common names En.–pygmy beaked whale; Sp.–*ballena picuda*; Fr.–*baleine a bec pygmée*.

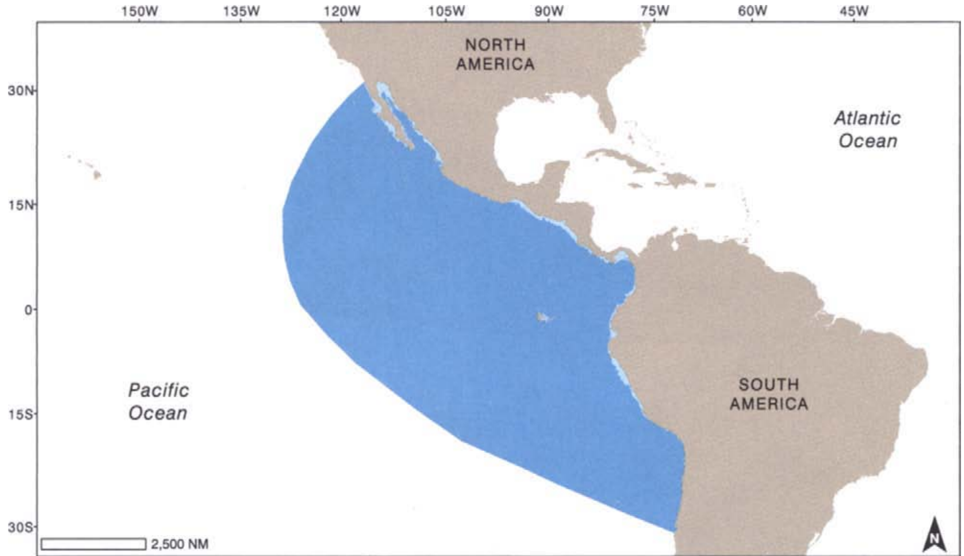
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. The pygmy beaked whale was described as a new species only in 1991. Whales now known to be of this species had previously been sighted in the eastern tropical Pacific. Since it was unknown to what species they belonged, they were listed in some previous field guides as "*Mesoplodon* sp. A."

Species characteristics The pygmy beaked whale is one of the most recently described members of the genus, and appears to be the smallest of the species of *Mesoplodon*. These whales are characterized by a spindle-shaped body, with a small head with a slightly bulging melon, short beak, dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. These animals have fairly short beaks, and slightly arched mouthlines. Their small, triangular, wide-based dorsal fins are shaped quite like those of harbor porpoises, and their tail stocks are deepened.

Two morphs exist, a scarred black and white form with a white swathe across the back that is easily identified in the field (apparently adult males), and another one that is largely uniformly colored on the back (females and subadults). The latter tend to be dark brownish-gray above and lighter below, with relatively little scarring.

The most distinctive characteristic is the teeth, however, which erupt from the middle of the lower jaw in adult males. They are quite small and oval or egg-shaped

Adult male pygmy beaked whale photographed from a helicopter in the eastern tropical Pacific. A combination of white pigmentation and tooth scarring from other males produce what appears to be a large white chevron on the back. Parallel tooth rake marks are clearly visible and two white areas near the front of the beak indicate where this animal's teeth have erupted. PHOTO: C. STINCHCOMB; NOAA FISHERIES/SWFSC



Pygmy Beaked Whale
(*Mesoplodon peruvianus*)
Global Distribution

Primary Range
Secondary Range

in cross section (although generally they are not visible in at-sea sightings). They lean forward at an angle of 20–40°. The mouthline has a slight to moderate arch.

This is the smallest known species of *Mesoplodon*; maximum known length is only about 3.7–3.9 m in both sexes. At birth, these animals are probably about 1.6 m long.

***Calf*—**Approximately 1/2 to 2/3 the length of adults, coloration simply countershaded.

***Female/subadult*—**Adult size, lower jaw with slight arch, no erupted teeth, back grayish-brown with lighter belly, scarring minimal or absent.

***Adult male*—**Adult size, body may be especially robust, most of upper body dark brown to black, prominent white or cream-colored blaze extending from ventral area forward over back to just behind head (may present appearance of a chevron), often white beak tip, light patches on lower jaw near teeth, white scratches moderate to extensive, lower jaw moderately arched, with protruding tusks.

Recognizable geographic forms None.

Can be confused with Adult male pygmy beaked whales may be easily distinguishable from other mesoplodonts in their range (several species, but only *M. densirostris* appears to be common) by the presence of a broad light swathe that runs from the head and down the sides, on the otherwise dark brown or black body. Females and immatures are not easily distinguishable

A probable pygmy beaked whale, most likely a young male. It has scratches on its back, but the large white chevron that identifies older males is just starting to appear. Off western Mexico. PHOTO: M. CARWARDINE

Pygmy beaked whales surface in the rain; the low, triangular dorsal fins and 4 m body length distinguish this species. Eastern tropical Pacific. PHOTO: M. RICHLEN, NOAA FISHERIES/SWFSC

A female pygmy beaked whale in a fish market in Peru. This is the smallest species of *Mesoplodon*; its small size and triangular dorsal fin are important features for identifying young and females. PHOTO: J. C. REYES

from other mesoplodonts. It is likely that osteological or genetic methods will need to be used to identify anything other than adult males.

A female pygmy beaked whale found floating dead in the eastern tropical Pacific; note the low, triangular dorsal fin. PHOTO: NOAA FISHERIES/SWFSC

Distribution The pygmy beaked whale is known from a handful of specimens and several dozen sightings from the eastern tropical/warm temperate Pacific, including the Gulf of California. These records extend from about 30°S to 28°N, and suggest that the species may be an eastern Pacific endemic. However, there is a single record of a stranding in New Zealand, possibly suggesting that this species may have a more extensive distribution than previously believed. Alternatively, the New Zealand record may be an extralimital wandering. This is the most frequently sighted *Mesoplodon* whale in the eastern tropical Pacific (ETP). Like other members of the genus, it occurs in deep waters beyond the continental shelf.

Ecology and behavior Most groups have been of about two animals (average is 2.3 individuals), but have ranged up to five. The behavior of these animals appears to be similar to that of other species of mesplodonts. Groups may include mixed sex and age classes. During a sighting of a single male in the ETP, the animal breached three times.

Virtually nothing is known of the reproductive biology of this species. Small calves are generally not seen in the ETP late in the year, when effort there is concentrated, which suggests either a calving peak early in the year or that females segregate from adult males during the calving season.

Feeding and prey The diet consists of small midwater fishes, oceanic squids, and shrimps. Presumably, these are taken at moderate to great depths.

Threats and status Little is known of the pygmy beaked whale's status or threats. They are killed in drift gillnets for sharks off Peru. Although there are no estimates of abundance available, they are seen quite frequently in the ETP, and they do not seem to be rare there.

IUCN status Data Deficient.

References Dalebout 2002; Pitman 2002; Pitman et al. 1987; Pitman and Lynn 2001; Reyes et al. 1991.

Sowerby's Beaked Whale—*Mesoplodon bidens*

(Sowerby, 1804)

Recently-used synonyms None.

Common names En.–Sowerby's beaked whale or North Sea beaked whale; Sp.–*zifio de Sowerby*; Fr.–*baleine a bec de Sowerby*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Sowerby's beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. Although there is some variation, Sowerby's beaked whales have a long and thin (for mesoplodonts) beak and often a prominent bulge on the forehead. There may be a very slight arch to the lower jaw, but typically the mouthline is straight.

The two flattened, triangular tusks of adult males erupt from the lower jaw, about two-thirds of the way back from the beak tip. They are visible outside the closed mouth, although they are not particularly large.

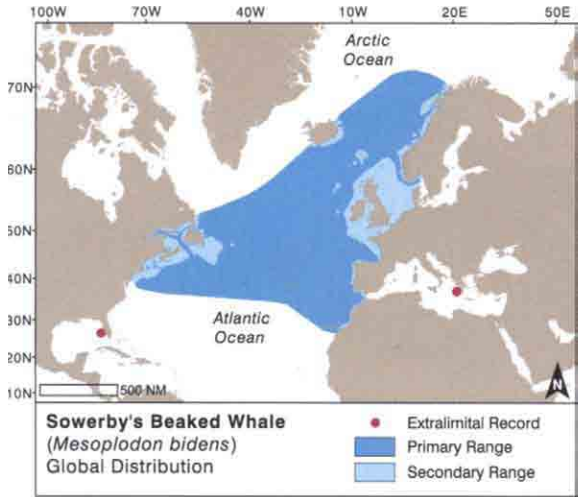
Coloration is not well-known, but generally appears to be indistinctive, with a charcoal gray back and somewhat lighter belly. White or light gray spots are common on the bodies of adults; however, young animals appear to have less spotting. Scarring of adult males is generally in the shoulder region and lower flanks. The scars generally consist of single scratches (not paired).

Males reach lengths of at least 5.5 m and females, 5.1 m. They attain weights of at least 1,300 kg. Newborns average about 2.4 m.

Recognizable geographic forms None.

Can be confused with Sowerby's beaked whales can be confused with other North Atlantic species of *Mesoplodon* (e.g., True's, Gervais', and Blainville's

An adult female Sowerby's beaked whale. This is the only long-beaked mesoplodont that normally occurs in the North Atlantic. The small melon gives the head a very tapered look; note also the rather straight gape. Eastern North Atlantic. PHOTO: COURTESY S. LEATHERWOOD



beaked whales); without a close look, even bulls would be difficult to distinguish from related species at sea. However, the limited distribution and presence of a long beak (and posteriorly-set tusks in males) may help to make an identification, if the head is seen well. This species may also appear somewhat darker than others in its range.

Distribution Sowerby's beaked whales are known almost exclusively from the colder waters of the North Atlantic, from at least Massachusetts to Labrador in the west, and from Iceland to Norway in the east. This is the most northerly distributed of the Atlantic species of *Mesoplodon*, and most records are north of 30°N. The range is known to include the Baltic Sea, but only rarely (possibly as a stray) the Mediterranean. The species appears to be more common in the eastern North Atlantic than in the western. Based on strandings, northern Europe appears to be the center of abundance. There is a single record from Florida in the Gulf of Mexico, but this appears to represent an extralimital wandering. As with other members of the genus, it occurs in deep waters past the continental shelf edge.

Ecology and behavior Very little is known of the natural history of this species beyond what has been learned from occasional sightings and strandings, which have generally involved singles and pairs. However, in several sightings observed at sea off Nova Scotia, groups ranged in size from 3–10 and some were of mixed composition. Mass strandings of up to six individuals of this species have been recorded. Recorded dives lasted 12–28 minutes. These whales often bring their heads up out of the water at a 45° angle when surfacing, and often arch their backs relatively high when diving. Breaching, spy-hopping, and fluke-slapping have been observed in sightings at sea. There have also been some instances in which the animals approached vessels.

This Sowerby's beaked whale provides a good view of the head and beak, which is essential for distinguishing this species from the other three North Atlantic species of the genus (True's, Gervais', and Blainville's beaked whales).
PHOTO: J. QUARESMA

A Sowerby's beaked whale mother and calf surface, lifting their heads out of the water in the eastern North Atlantic.
PHOTO: J. QUARESMA

The breeding season for Sowerby's beaked whale appears to be late winter to spring. Males possess tusks, which are presumably for male/male combat over access to females (as in other species of the genus). As they reach maturity, structural changes in the tusks and lower jaw occur, which strengthen and reduce the prospects of injury to them. Essentially nothing else is known about the reproductive biology of this species.

Feeding and prey Sowerby's beaked whales feed on squid and small fish, including Atlantic cod.

Threats and status There is little specific information on the status or threats to this species, and no abundance estimates exist. However, some are known to have been incidentally killed by whalers in Newfoundland, Iceland, and in the Barents Sea. A few entanglements in fishing gear (e.g., driftnets) have been documented. Sowerby's beaked whale is not thought to be endangered.

IUCN status Data Deficient.

References Coles 2001; Hooker and Baird 1999; Mead 1989; Pitman 2002.

Gervais' Beaked Whale—*Mesoplodon europaeus*

(Gervais, 1855)

Recently-used synonyms *Mesoplodon gervaisi.*

Common names En.–Gervais' beaked whale; Sp.–*zifio de Gervais*; Fr.–*baleine a bec de Gervais*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

A whale, thought to be a Gervais' beaked whale, surfaces in the northern Gulf of Mexico. PHOTO: K. D. MULLIN

A beaked whale, thought to be a Gervais' beaked whale, with coloration very similar to that in the previous photo. Off North Carolina. PHOTO: G. ARMISTEAD, COURTESY T. PUSSER

Species characteristics Gervais' beaked whales are characterized by a spindle-shaped body, with an especially small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is fairly short, and generally blends smoothly into the forehead.

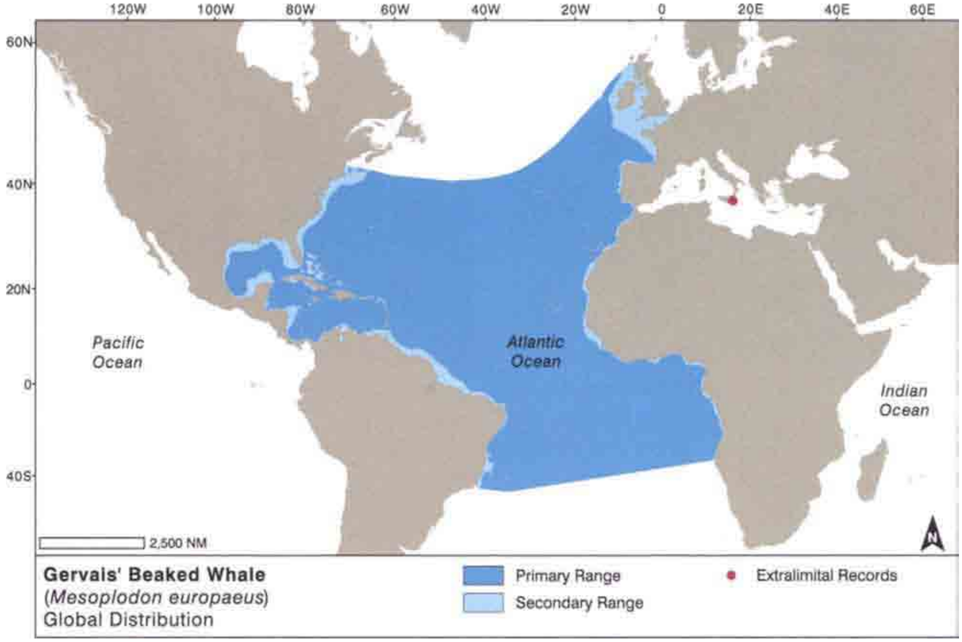
The triangular teeth of adult males are found one-third of the distance from the tip of the lower jaw. Although they are mostly buried in gum tissue, the exposed tips are angled slightly outwards, and are visible outside the closed mouth. They may fit into grooves in the gums of the upper jaw. The mouthline tends to be relatively straight (with only a slightly raised area around the tusks).

Gervais' beaked whales have a relatively nondescript mesoplodont color pattern. They are dark gray above and lighter gray below. In young animals, the belly is white, but it appears to darken with age. In females, there is often a white patch in the genital area. Scarring is generally not heavy, even on adult males, and any scars present are generally single lines. There is often a dark patch around the eye, which appears to be more pronounced in this species than in some other mesoplodonts.

Gervais' beaked whale males attain lengths of at least 4.6 m, and adult females reach at least 4.8 m. Females appear to be larger, on average. Weights of at least 1,200 kg are attained. Newborns are about 2.1 m in length.

Recognizable geographic forms None.

Can be confused with Due to their relatively generic color pattern and non-distinctive tusks, Gervais' beaked whales are extremely difficult to distinguish from



overlapping mesoplodonts at sea. In the North Atlantic, it may be nearly impossible difficult to distinguish them from True's beaked whales (if no adult males are present). Only a very detailed view of the head of an adult male would allow identification, and that would be based largely on tusk shape and position. Genetic study or details of the morphology of the skull will generally be required for positive identification.

Distribution Although sometimes depicted as a North Atlantic endemic, this species is probably continuously distributed in deep waters across the tropical and temperate Atlantic Ocean, both north and south of the equator. Most records are from the east and Gulf coasts of North America, from New York to Texas, but Gervais' beaked whales are also known from several of the Caribbean islands. This is the most commonly stranded beaked whale in the southeastern United States. In the eastern Atlantic, they are known from the British Isles to Guinea-Bissau in West Africa. There is only one record of this species from the Mediterranean. There are also strandings at Ascension Island in the central South Atlantic, and along the coast of Brazil. There is speculation that its Southern Hemisphere distribution could extend to Uruguay and Angola.

Ecology and behavior The favored habitat of Gervais' beaked whales appears to be warm temperate and tropical waters. Little else is known of their biology. They have only rarely been reliably identified alive in the wild, mostly in the eastern Atlantic, although many *Mesoplodon* sightings in the Gulf of Mexico are thought to have been of this species. Around the Canary Islands, they sometimes lift their heads out of the water upon surfacing. Live-stranded individuals have been held in captivity for short periods of time.

Growth layer group counts in the teeth of one specimen suggest they live to at least 48 years of age. Other aspects of their life history are not known.

Feeding and prey Like other members of the genus, Gervais' beaked whales are known to feed primarily on squid, although some fish may be taken as well. There is also a record of a mysid shrimp found in the stomach of a stranded specimen.

Threats and status Specimens of Gervais' beaked whale have been entangled and killed in pound nets off

A Gervais' beaked whale from the Canary Islands, confirmed by genetic analysis of a biopsy sample; it was with an adult male and is presumably an adult female. Notice the dark dorsal ridge and the perpendicular wavy lines. PHOTO: V. MARTIN

This, and the photograph below, show the same adult male Gervais' beaked whale. In the first, the erupted teeth are just visible, and the head is not as flat or the teeth raised as high as in Blainville's beaked whale. Off North Carolina. PHOTO: S. HOWELL

A Gervais' beaked whale; a female with this male was genetically identified as this species. Apparently, the teeth aren't raised high enough in this species to produce parallel tooth rake marks, as in *M. densirostris*. Canary Islands. PHOTO: V. MARTIN

This Gervais' beaked whale shows what appear to be linear tooth rake marks from other males; why these did not heal white, as in most other beaked whales, is not known. Off North Carolina. PHOTO: S. HOWELL

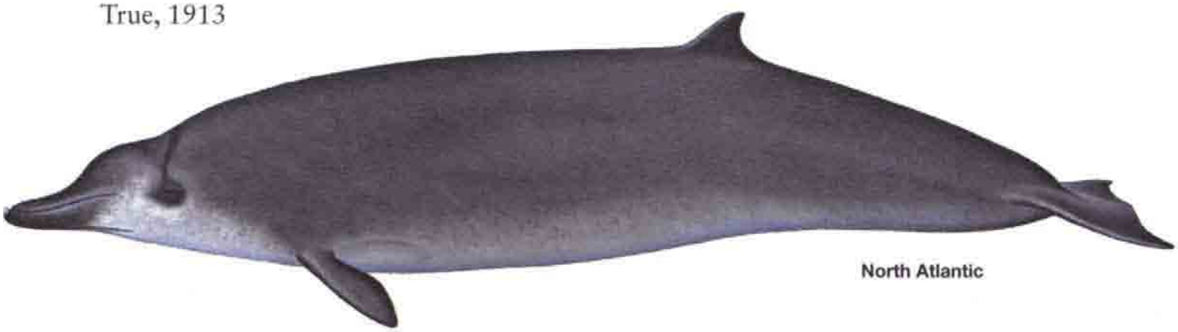
New Jersey. Based on the frequency with which they strand, they are presumed to be relatively common in waters along the east coast of North America. No specific estimates of abundance exist; however, about 100 *Mesoplodon* whales occur in the northern Gulf of Mexico (most of which are probably of this species).

IUCN status Data Deficient.

References Coles 2001; Mead 1989; Norman and Mead 2001; Pitman 2002.

True's Beaked Whale—*Mesoplodon mirus*

True, 1913



Recently-used synonyms None.

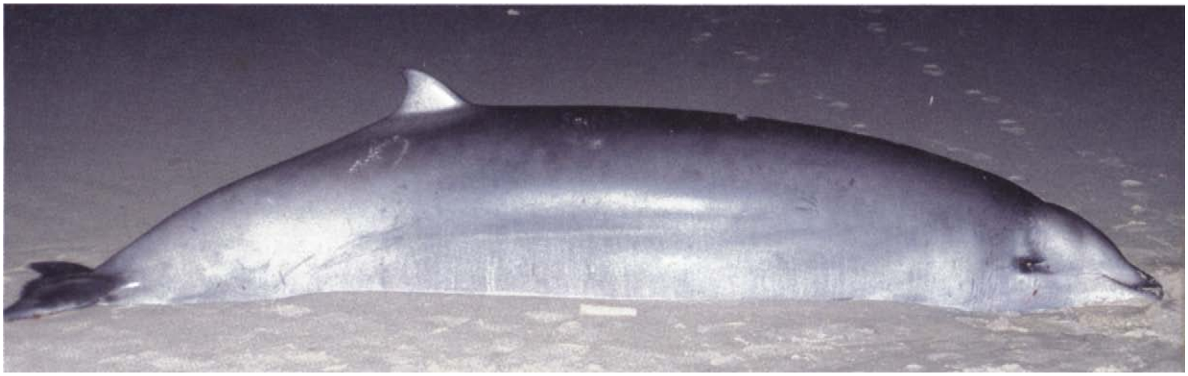
Common names En.–True's beaked whale; Sp.–*zifio de True*; Fr.–*baleine a bec de True*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. Two geographic forms are recognized (see below), and they appear to be genetically quite distinct.

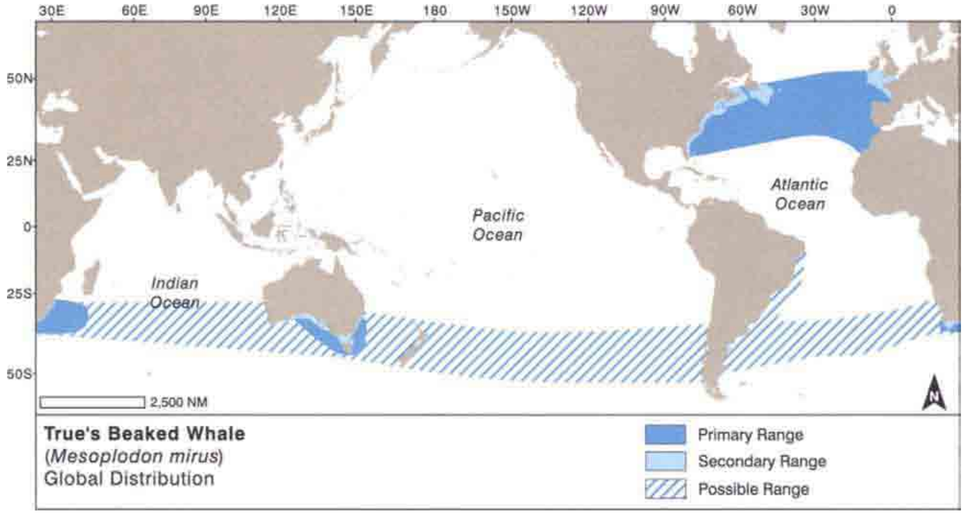
Species characteristics True's beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The forehead transitions into a moderately-short beak, with a straight or slightly-curved mouthline. The melon tends to be rounded and prominent, reminiscent of that of the bottlenose dolphin. Some animals may have a distinct indentation behind the blowhole.

The overall color pattern appears to be one of basic countershading, with a light belly and darker sides and back. However, there is significant geographic variation (see below). There is generally a dark ring around the eye, which often connects by a narrow line to the darker color on top of the head. There may be dark flecking on the throat and lower jaw, which probably increases with age. There is also a white urogenital patch in some animals. Calves may have a more simple countershaded pattern.

These animals usually show little or no scarring. However, any scarring that exists is generally in the form of closely-spaced parallel scratches. The existence of two



A stranded True's beaked whale, providing a good view of the body shape. PHOTO: COURTESY S. LEATHERWOOD



apparently widely-separated and morphologically-distinct forms suggests possible subspecific (or even specific) differentiation. However, this remains to be confirmed.

These beaked whales are characterized by the position of the mandibular teeth at the very tip of the lower jaw. The small tusks are oval in cross-section (i.e., acorn-shaped), lean forward, and are visible outside the closed mouth of adult males. The blow is usually bushy or indistinct.

Both sexes are known to reach lengths of up to about 5.3–5.4 m (with females presumably slightly larger). Weights of up to 1,400 kg have been recorded. Newborns are probably between 2.0 and 2.5 m long.

These animals were previously identified as True's beaked whales, but they are indistinguishable from the Gervais' beaked whale on page 133; clearly we have more to learn about mesoplodont identification. Off North Carolina. PHOTO: M. TOVE

Recognizable geographic forms

***North Atlantic form*—**In the Northern Hemisphere, adult True's beaked whales possess a brownish-gray dorsal fin and upper tail stock, and the belly is light gray to white. However, on the entire dorsal surface they may be significantly lighter in color than other members of the genus within their North Atlantic range. The anterior half of the beak is dark gray to black, fading to a lighter gray behind.

***Southern Hemisphere form*—**In most (or all) Southern Hemisphere adults, the white or light gray ventrum extends back to encompass the tail stock and underside of the flukes, and another extension goes forward to surround the dorsal fin (this light patch appears to fade rapidly postmortem, however). The light ventral surface of the flukes develop dark streaks radiating out from the center of the trailing edge; the dorsal surface of the flukes is dark, however. The anterior half of the upper jaw is dark, while the lower jaw is nearly all light gray to white.

Can be confused with At sea, True's beaked whales are difficult to distinguish from other mesoplodonts that share their range. In the North Atlantic, it may be nearly impossible to distinguish them from Gervais' beaked whales (if no adult males are present). The unique color pattern (white patch on the tail stock and

This neonate True's beaked whale (southern form) looks like most other mesoplodonts do at this age. PHOTO: COURTESY OF THE PORT ELIZABETH MUSEUM

A southern geographical form of True's beaked whale with a short, dolphin-like beak and dark eye patch—very similar to several other short-beaked species. Brazil. PHOTO: S. SEBASTIAS

dorsal fin) can allow identification in at least the Southern Hemisphere. Otherwise, if the teeth of adult males are seen, they may be identifiable. The only other species in which males have oval teeth at the tip of the lower jaw is Longman's beaked whale. However, the latter species is generally much larger, and the forehead is much more steeply-rising than in True's beaked whale. Also, Longman's is a more tropical species, which does not appear to occur in the North Atlantic.

This adult female True's beaked whale (southern form) would be impossible to identify at sea, unless the white tail stock was observed. Northern Australia. PHOTO: D. COUGHRAN

A South African True's beaked whale showing white on the caudal peduncle that extends forward of, and includes, the dorsal fin. PHOTO: COURTESY PORT ELIZABETH MUSEUM

Distribution True's beaked whales appear to have a disjunct, antitropical distribution. In the Northern Hemisphere, they are known only in the North Atlantic, from records in eastern North America (Nova Scotia to Florida), Bermuda, Europe to the Canary Islands, the Bay of Biscay, and the Azores. They also occur at least in the southern Indian and Atlantic oceans, from South Africa, Madagascar, southern Australia, and Brazil. This peculiar disjunct pattern suggests that there may actually be separate species or subspecies in the Northern and Southern Hemispheres, and also that the southern form may extend into the South Pacific.

Ecology and behavior Since True's beaked whale has rarely been identified in the wild until recently, and is not one of the more commonly-stranded species, there is not much information available on the natural history of this species of beaked whale. Groups observed at sea have consisted of up to three individuals. They may show their beaks when surfacing. Energetic breaching behavior, up to 17 times in a row, has been observed in what is thought to be this species in the Bay of Biscay.

Essentially nothing is known of the life history of True's beaked whale, other than a record of a female that was simultaneously pregnant and lactating. Their unusual antitropical distribution and apparently different color morphs north and south of the equator lure one to believe that multiple species or subspecies may be involved, but this question will have to await further morphometric or genetic work.

A ventral view of a True's beaked whale stranded in eastern South America, showing the white peduncle characteristic of the species in the Southern Hemisphere.
PHOTO: S. SEBASTIAS

Feeding and prey Like other members of the genus, stranded animals have had squid (mostly *Loligo* spp.) in their stomachs. They may also take fish, at least occasionally.

Threats and status Almost no information is available on the threats and status of this species. It appears never to have been hunted. True's beaked whales are not commonly identified at sea, and there are no estimates of abundance.

IUCN status Data Deficient.

References Coles 2001; Dalebout 2002; Mead 1989; Pitman 2002; Ross 1984.

Strap-toothed Beaked Whale—*Mesoplodon layardii*

(Gray, 1865)

Recently-used synonyms None.

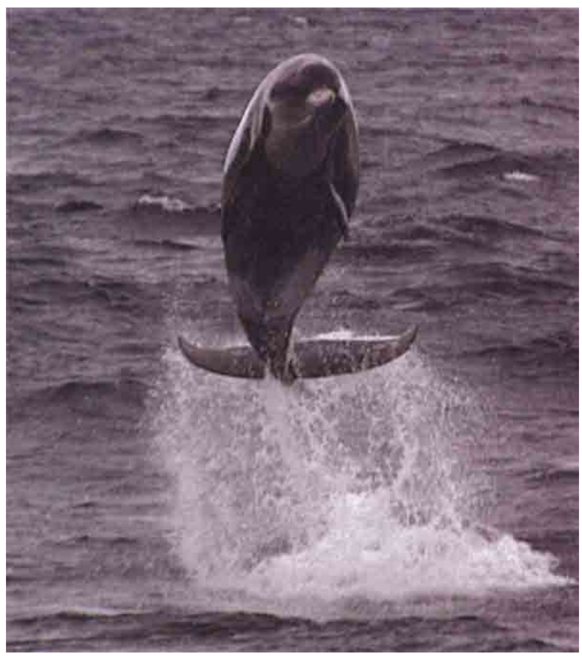
Common names En.–strap-toothed beaked whale; Sp.–*zifio de Layard*; Fr.–*baleine a bec de Layard*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

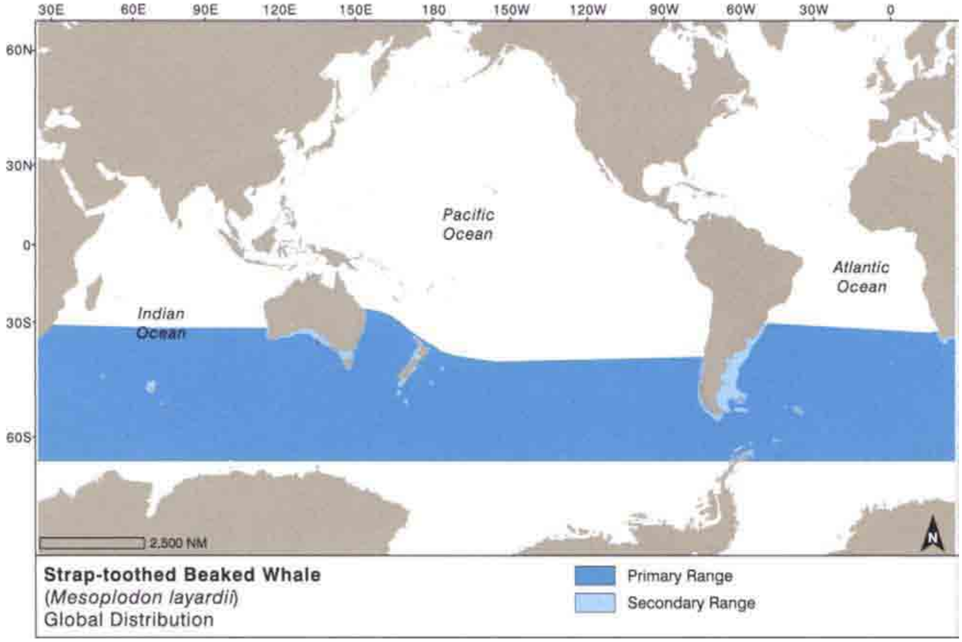
Species characteristics Strap-toothed beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is quite long, among the longest in the genus. The forehead may appear to have a slightly steeper rise than in most other mesoplodonts.

The complex adult color pattern is distinctive and is better known than that of most other mesoplodonts, as this species is documented from quite a large number of specimens. Subadults and calves do not appear to possess the distinctive coloration of adults, and they appear more generic, with a general countershaded pattern. However, the belly does darken with age. In larger animals, the body is mostly gray or black, sometimes with a purple or brown tinge. Distinct white to light gray patches develop in the thoracic area, and these are connected to a light throat patch, which extends to cover most of the lower jaw. The top of the head and the area around the eye remain dark, however. The melon darkens and the rostrum becomes white in adults. A white or light gray patch is found around the urogential area. The result of all this is a rather complex adult color pattern of contrasting dark and white patches.

The dentition of this species is very distinctive, one of the most bizarre sets of teeth of any mammal. The long (up to 30 cm) tusks emerge from near the middle of the lower jaw and curl backward at about 45° and inward, extending over the upper jaw, often preventing



An amazing image of an airborne strap-toothed beaked whale. Between South Orkneys and South Georgia. PHOTO: A. WILSON



it from opening more than a few centimeters. There is a small denticle at the tip of each tooth, and the teeth often possess stalks of barnacles. How the animals eat with such an arrangement is unknown, although like other beaked whales, they do seem to use suction to bring prey into the mouth.

Adult females reach lengths of at least 6.2 m and males reach about 6.1 m, making this the largest of the mesoplodonts. They probably reach weights of well over 1,300 kg. Length at birth is unknown, but may be close to 3.0 m.

Recognizable geographic forms None.

Can be confused with The unique tusks of adult males of this species will make them easily identifiable, if seen. The primary confusion would be with the spade-toothed beaked whale, which has similar tooth morphology. Adult females may be identifiable if a good view of the unique color pattern is obtained. However, since nothing is known of the external appearance of the spade-toothed beaked whale, it will be virtually impossible to fully exclude this species in sightings at sea. Calves and juveniles, however, will likely be nearly impossible to distinguish from other mesoplodonts.

Distribution Strap-toothed beaked whales apparently have a continuous distribution in cold temperate waters of the Southern Hemisphere, mostly between 35° and 60°S; there have been strandings in South Africa, Australia, Tasmania, New Zealand, the Kerguelen Islands, Heard Island, Argentina, Uruguay, Brazil, and the Falkland Islands. The seasonality of strandings suggests that this species may migrate. Like all beaked whales, they occur mostly in deep waters beyond the edge of the continental shelf. There is some evidence of sexual segregation in distribution.

An adult male strap-toothed beaked whale stranded in Australia. Notice the extremely long tusks, covered in barnacles. PHOTO: K. WESTERSKOV

Ecology and behavior Groups of up to three strap-toothed beaked whales have been seen. These animals are difficult to approach. Strap-toothed whales are commonly stranded, in fact more commonly than most other species of *Mesoplodon*. However, little has been learned from the few sightings

A rare sight—a breaching strap-toothed beaked whale, bringing its entire body out of the water. Mesoplodont beaked whales are not known to be particularly acrobatic, but this one shows that they can perform energetic leaps on occasion. Between South Orkneys and South Georgia. PHOTO: A. WILSON

A strap-toothed beaked whale surfaces in waters of the subantarctic, providing a good view of the light coloration found on the thorax of this species. The color pattern of this species is diagnostic, perhaps more so than for any other species of *Mesoplodon*. PHOTO: I. BEASELY

The black cap and long, bicolored beak of the strap-toothed beaked whale are diagnostic. PHOTO: I. BEASLEY

The strap-toothed beaked whale with its white beak, black cap and white cowling, is one of the easiest mesoplodonts to identify at sea. PHOTO: R. L. PITMAN

of live animals. These animals often bring their head up out of the water at a 45° angle when surfacing. In adult males, the teeth will show in such surfacings. They have been observed to respond to ships by slowly sinking below the surface.

The bizarre teeth of adult males are thought to be used in male/male combat for female access, although this has never been observed directly. This may be a good example of strong sexual selection forces, as some males can only open their mouths about 3–4 cm. This restricts them to eating only small squid. Calving appears to occur in the southern spring to summer months.

Feeding and prey Strap-toothed beaked whales eat primarily squid, although they may also take fish and crustaceans. Males appear to be restricted to eating only very small, slender squid (mostly < 16 cm and 100 g), because of their unusual dentition.

Threats and status There is little information available on the status of the strap-toothed whale, but based on the number of strandings, it is probably not a rare species. Whales of this species have not been hunted, and there are no estimates of abundance.

A juvenile strap-toothed beaked whale; this animal lacks the distinctive coloration of the adult and would be difficult to identify by itself at sea, although the long beak provides a useful clue. PHOTO: S. BROWN, COURTESY OF C. KEMPER

IUCN status Data Deficient.

References Dalebout 2002; Mead 1989; Pinedo et al. 2002; Pitman 2002.

Recently-used synonyms None.

Andrews' Beaked Whale—*Mesoplodon bowdoini*

Andrews, 1908

Common names En.–Andrews' beaked whale; Sp.–*zifio de Andrews*; Fr.–*baleine a bec de Bowdoin*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. Some researchers have suggested that this species and Hubbs' beaked whale may represent subspecies of the same species. However, recent genetic and morphological studies have supported the distinctness of the two species.

Species characteristics The external appearance of Andrews' beaked whale has only recently become known. We now know that this, along with its osteology, are similar to that of Hubbs' beaked whale. It has the basic *Mesoplodon* body plan, which consists of a spindle-shaped body, with a small head, small, somewhat triangular dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers (fitting into flipper pockets), and un-notched flukes (sometimes a prominence is present instead). The beak is relatively short and can be quite stubby, and the forehead rises at a shallow angle. The mouthline of females is slightly arched, and in adult males the arch is much more pronounced. A pair of throat grooves is present, which converge toward the tip of the jaw.

A young male Andrews' beaked whale, just beginning to develop the large jaw arches and tusks that are characteristic of the species. PHOTO: C. KEMPER.

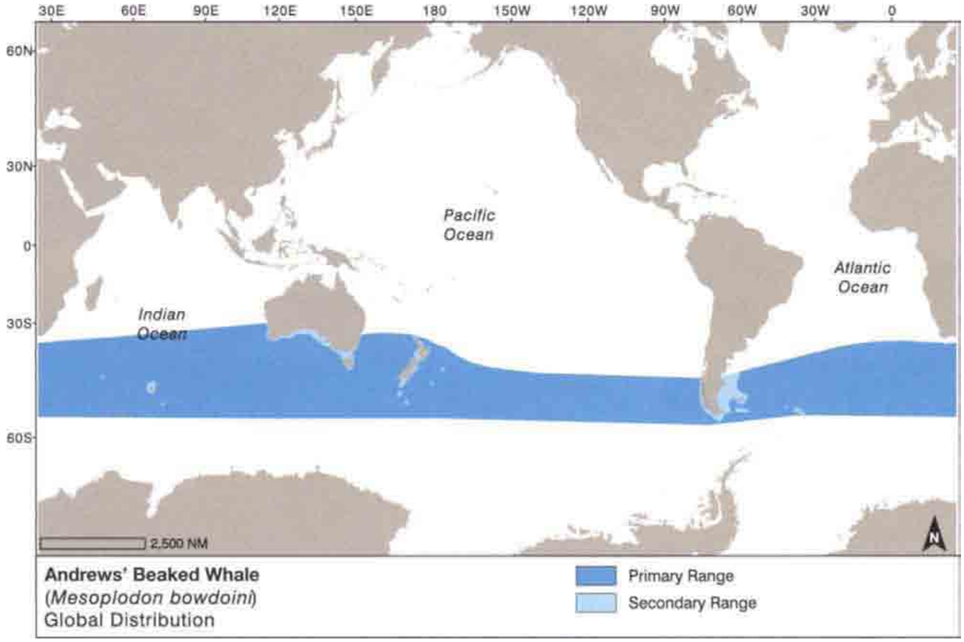
The basic color pattern appears to be dark bluish-gray, like that of most mesoplodonts. The anterior half of the beak to just past the teeth are white in adult males (and maturing ones). Males may also be covered in white scratches, some of which may be paired. Females and juveniles are basically countershaded, apparently with a white lower jaw and dark upper jaw, and light patches in front of each eye. Cookie-cutter shark scars may be present on the body.

The laterally flattened tusks of males emerge from the middle of the lower jaw on raised arches of gum tissue, and the tips are exposed, protruding slightly above the upper jaw and splaying outwards. The tusks are very reminiscent of those of the Hubbs' beaked whale (and for some time these two species were thought to be closely related). There is a denticle at the tip of each tooth, and stalked barnacles may attach to the tusks.

Only a few specimens have been measured, but both male and female Andrews' beaked whales reach at least 4.4 m in length. Length at birth is estimated to be about 2.2 m.

Recognizable geographic forms None.

Can be confused with The short, white beak tip may help to rule-out some other species of *Mesoplodon* that overlap in range (e.g, *M. layardii, M. hectori, and M. grayi*, which have much longer beaks). The tusks of bulls are fairly unique (only the Hubbs' beaked whale has similar ones, and that species is a North Pacific endemic). If seen well, *M. bowdoini* tusks may allow these animals to be distinguished from most other mesoplodonts. Among those mesoplodonts that share their range, they are perhaps most likely to the mistaken for Blainville's beaked



whales, but the lower jaw arch is much more massive and wider in that species, and it lacks the white beak.

Distribution To date, Andrews' beaked whale is known only from a few dozen stranding records between 32° and 55°S; most of these have come from the South Pacific and Indian oceans (well over half are from New Zealand). Strandings have occurred in southern Australia, New Zealand, Tasmania, Tristan de Cunha, the Falkland Islands, Macquarie Island, and Argentina. The overall range may be circumpolar in the Southern Hemisphere; however, there is a gap in the known distribution between Chatham Island and the east coast of South America. It is presumably a creature of deep, offshore waters.

Ecology and behavior Virtually nothing is known of the biology of this species, other than the few facts that have been gleaned from stranded individuals. This species has never been identified alive in the wild, so there is nothing known of its social organization and behavior.

Not much is known of the life history of this species, other than evidence for a summer-autumn breeding season, at least in the seas around New Zealand. A male specimen stranded in Uruguay appeared to be sexually immature at 430 cm length.

Feeding and prey Andrews' beaked whales are assumed to feed primarily on cephalopods, like other members of the genus.

Threats and status Virtually nothing is known of the population status of Andrews' beaked whale. At least around New Zealand, the frequency of stranding records suggest that it may not be all that rare. No estimates of abundance exist.

An adult male Andrews' beaked whale stranded in northern Australia. This animal shows several sets of long, paired scratches on the head and back—evidence of many fights with other males. PHOTO: AUSTRALIAN DEPARTMENT OF ENVIRONMENT AND CONSERVATION.

IUCN status Data Deficient.

References Baker 2001; Dalebout 2002; Mead 1989; Pitman 2002.

Stejneger's Beaked Whale—*Mesoplodon stejnegeri*

True, 1885

Recently-used synonyms None.

Common names En.–Stejneger's beaked whale; Sp.–*zifio de Stejneger*; Fr.–*baleine a bec de Stejneger*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae.

Species characteristics Stejneger's beaked whales are characterized by a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes. There is also a single pair of shallow throat grooves, and the blowhole is a crescent with the ends pointing forward. The beak is relatively short, and the lower jaw contains a moderate arch in all age classes. The flipper pockets typical of mesoplodonts are present.

The massive flattened tusks of males are situated near the middle of the lower jaw, and point forward and slightly inward. They are located on broad raised prominences or arches, so that the crowns extend above the upper surface of the beak. They may somewhat restrict the opening of the jaws. The size and shape of the teeth and arches are somewhat reminiscent of those in the Blainville's beaked whale.

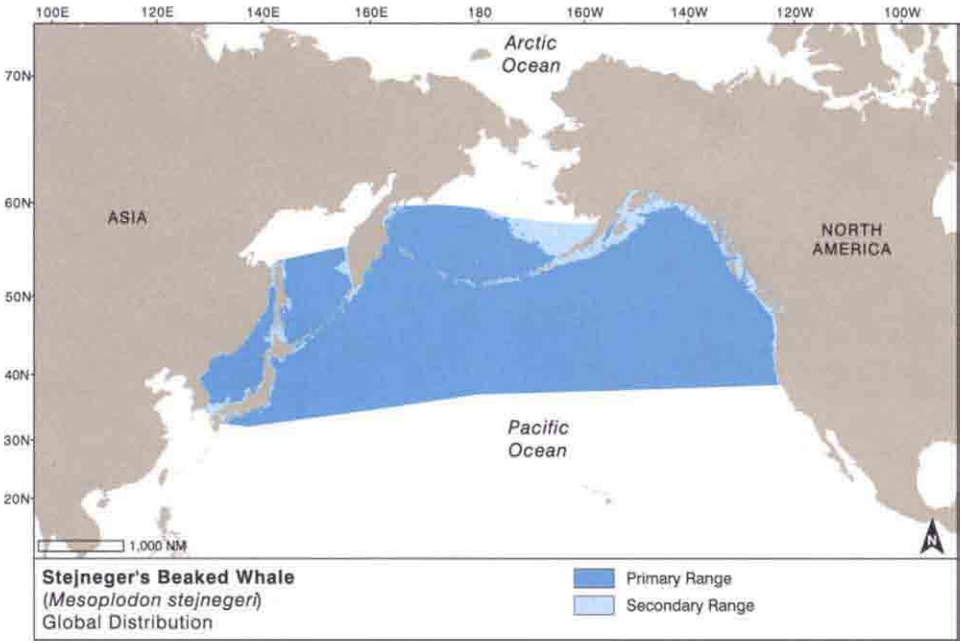
Perhaps the only photo of a live Stejneger's beaked whale, the black on the head is apparently diagnostic in the North Pacific. Off Volcano Bay, Hokkaido, Japan. PHOTO: K. SASAMORI

Apparently, both sexes are uniformly brownish-gray to nearly black in color, although females may be somewhat lighter on the back. The body is often covered with white mottling, especially on the ventral surface; these may represent healed scars from cookie-cutter shark bites (more common on older individuals). Adult males often have prominent scratches on the back, many of which may be arranged in paired patterns. Most age classes appear to have a dark upper jaw and cranial cap, extending back to about the level of the blowhole, with extensions ventrally to surround the eyes. The area behind this appears to be somewhat lighter in color. The ventral surface of the flukes of adults has a series of white concentric lines, radiating from the midpoint of the trailing edge. Such markings are found in other mesoplodonts, but appear to be more exaggerated in adults of this species.

Stejneger's beaked whale females may be larger than males on average. The largest male measured was 5.7 m long. They reach weights of at least 1,600 kg. A fetus of 2.2 m was measured, and therefore newborns are assumed to be between 2.3 and 2.5 m in length. They may weigh about 80 kg at birth.

Recognizable geographic forms None.

Can be confused with When seen well, adult males will be distinguishable from most other mesoplodonts by tooth shape and position, and the shape of the lower jaw arch. Within the range of the Stejneger's beaked whales, both Hubbs' and Blainville's beaked whale males have



broadly similar teeth, but attention to details of the color pattern may allow an identification. Also, these other species are more common in the warm temperate to tropical waters of the North Pacific.

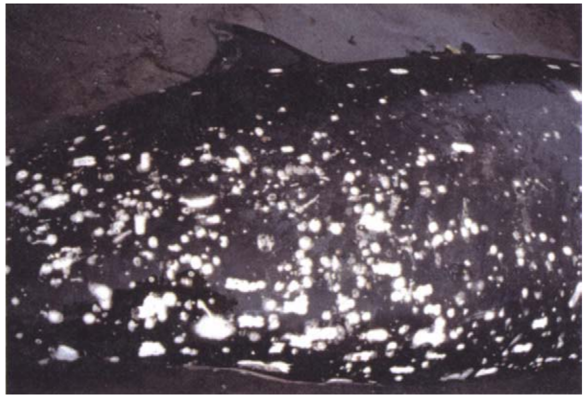
Distribution Stejneger's beaked whales are found in continental slope and oceanic waters of the North Pacific Basin, from central California, north to the Bering Sea, and south to the Sea of Japan (presumably including the southern Okhotsk Sea). This appears to be primarily a cold temperate and subarctic species, and this is probably the only species of the genus common in Alaskan waters. It is most commonly stranded in Alaska, especially along the Aleutian Islands. Also, there are a large number of strandings (at least 34) from along the Sea of Japan coast of Japan, and much fewer along the Pacific coast. The large peak in strandings in this area in winter and spring suggests the species may migrate north in summer.

Ecology and behavior A great deal has been learned of the biology of this species in recent years, based on strandings that have occurred in the Aleutian Islands and along the west coast of Japan. In Stejneger's beaked whales, groups of 5–15 individuals have been observed, often containing animals of mixed sizes. Groups may be tightly bunched at the surface. Stejneger's beaked whales are presumably deep divers, feeding in the mesopelagic and bathypelagic zones.

It has been hypothesized that there may be a resident population in the Sea of Japan and southern Okhotsk

A stranded adult male Stejneger's beaked whale showing mostly parallel tooth rake marks. This animal has been in the sun too long and lost has its original color pattern components. Japan. PHOTO: M. AMANO

Four Stejneger's beaked whales stranded in the Aleutian Islands of Alaska. The white streaks radiating from the center of the trailing edge of the flukes appear to be typical of the species, although some other species in the genus have similar markings. PHOTO: B. HANSON



Extensive circular scarring on the flanks of a stranded Stejneger's beaked whale. Most aren't oval (and therefore were not caused by cookie-cutter sharks); they may have been from lampreys. Aleutian Islands, Alaska. PHOTO: M. B. HANSON

Stejneger's beaked whales, like all mesoplodonts, have flipper pockets that allow the flippers to lay flush against the body. PHOTO: M. B. HANSON

A Stejneger's beaked whale stranded on a beach in the Aleutian Islands, Alaska. This photo of a living specimen shows the dark cap extending from both eyes over the top of the head, which appears to be characteristic for this species. PHOTO: E. DEWAYNE ASH, COURTESY SMITHSONIAN INSTITUTION

This female Stejneger's beaked whale would not be distinguishable from any of several other mesoplodont females if seen at sea; however, the arched jawline would rule out the species with a straight gape. Japan. PHOTO: T. YAMADA

A bull Stejneger's beaked whale, with the tusks covered in barnacles—something that is common on adult males of many species of *Mesoplodon*. PHOTO: NATIONAL SCIENCE MUSEUM, COURTESY OF T. YAMADA

Sea. Based on a number of fetuses that have recently been examined, calving in the North Pacific appears to occur mainly from spring to early autumn, although the season may be protracted. Sexual maturity apparently occurs by about 4.5 m. Longevity is known to be at least 36 years, based on the aging of 7 specimens.

Feeding and prey Stejneger's beaked whales are known to feed primarily on squids of the families Gonatidae and Cranchiidae, mostly in mesopelagic to bathypelagic depths. They also take some fish as prey. A pelagic tunicate was also found in the stomach of one stranded specimen. Stomachs of some specimens have contained non-food items, such as plastic bags and string.

Threats and status Not much is known about the status of Stejneger's beaked whale, but in the past some were taken in the Japanese salmon driftnet fishery in the Sea of Japan and in driftnets off the west coast of North America. They were also hunted to a certain degree in a Japanese fishery, along with Cuvier's beaked whales. There are no available estimates of abundance, but the species may not be rare in the northern North Pacific and Sea of Japan.

IUCN status Data Deficient.

References Loughlin and Perez 1985; Mead 1989; Pitman 2002; Walker and Hanson 1999.

Spade-toothed Beaked Whale—*Mesoplodon traversii*

(Gray, 1874)

External Appearance Unknown

Recently-used synonyms *Mesoplodon bahamondi.*

Common names En.–spade-toothed beaked whale; Sp.–*zifio de Travers*; Fr.–*baleine a bec de Travers*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. In 1995, a new species of beaked whale was described as *Mesoplodon bahamondi*. However, further study showed that it was actually the same as a previously-described beaked whale that had long been considered synonymous with the strap-toothed beaked whale. *Mesoplodon traversii* was found to be the proper scientific name of the new species.

Species characteristics Because no whale of this species has ever been seen in the flesh, nothing is known of the external appearance of this beaked whale, except that adult males have a large tusk erupting from each side of the lower jaw. It is presumed that the tusks extend high above the lower jaw, but it is unknown whether the lower part of the tooth is surrounded by gum tissue (as in for instance Hubbs' and Andrews' beaked whales) or whether it is largely exposed (as in the strap-toothed whale).

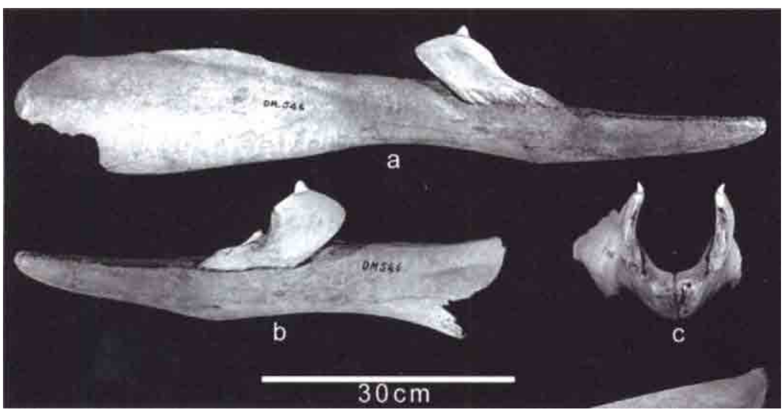
The tusks lean backwards at an angle of about 45°, and are considered spade-shaped, with a large denticle at the tip. If they are like other species in the genus, they would have a spindle-shaped body, with a small head, small dorsal fin located about two-thirds of the way back from the snout tip, small and narrow flippers, and un-notched flukes.

Size is unknown, but adults are presumed to be about 4.5–5.5 m long.

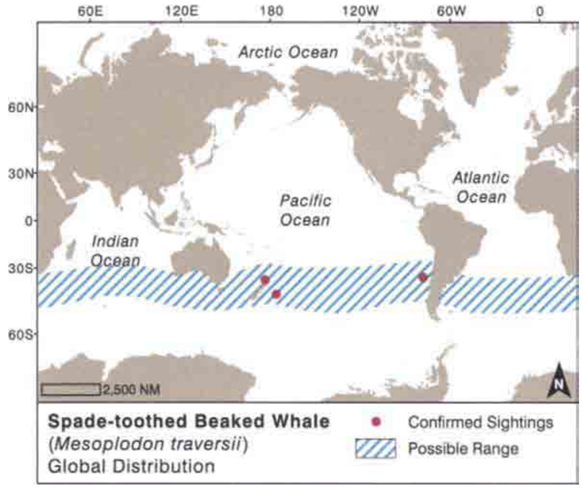
Recognizable geographic forms None.

Can be confused with Until the external appearance of this species is known, it can only be identified from the examination of the skull and/or teeth. The skulls of spade-toothed beaked whales are most likely to be confused with those of strap-toothed beaked whales, which are very similar. They can be distinguished by the detailed structure of the male's tusks and cranial features; however, this will most likely require expert examination.

Distribution The three specimens so far examined have come from White Island (New Zealand), Pitt Island (Chatham Islands), and Robinson Crusoe Island (Juan Fernandez Archipelago) off Chile. Therefore, this is probably a Southern



Although nothing is known of the external appearance of the spade-toothed beaked whale, the tusks of the adult male are similar in size, shape, and location to those of the strap-toothed beaked whale, but they do not wrap over the rostrum. PHOTO: A. VAN HELDEN



Hemisphere (possibly circumantarctic) species, or maybe a South Pacific species. However, it may be much more widely-distributed, and until more records are available, this will remain unknown.

Ecology and behavior The spade-toothed beaked whale is probably the most poorly-known of all mammal species. Nothing is known of the biology and behavior of this species, which is known only from two skulls and the mandibles and teeth from a third. It is assumed to be similar to the other *Mesoplodon* species in general behavior and habits.

Feeding and prey Nothing is known of the diet, other than an assumption that squid are the main prey.

Threats and status Nothing is known of the status of the species. It is probable that the species is relatively rare, given the small number of records of its occurrence so far discovered.

IUCN status Not Listed.

References Pitman 2002; Reyes et al. 1995; Van Helden et al. 2002.

Longman's Beaked Whale—*Indopacetus pacificus*

(Longman, 1926)

Recently-used synonyms *Mesoplodon pacificus*.

Common names En.–Longman's beaked whale or Indo–Pacific beaked whale; Sp.–*zifio de Longman*; Fr.–*baleine a bec de Longman*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Ziphiidae. Some marine mammal scientists believe this species should be in the genus *Mesoplodon*, but recent genetic studies have suggested its generic distinctness. Until just a few years ago, this species was known only from two skulls. Sightings of what are now known to be this species in tropical waters were often mistakenly attributed to a whale of the genus *Hyperoodon*.

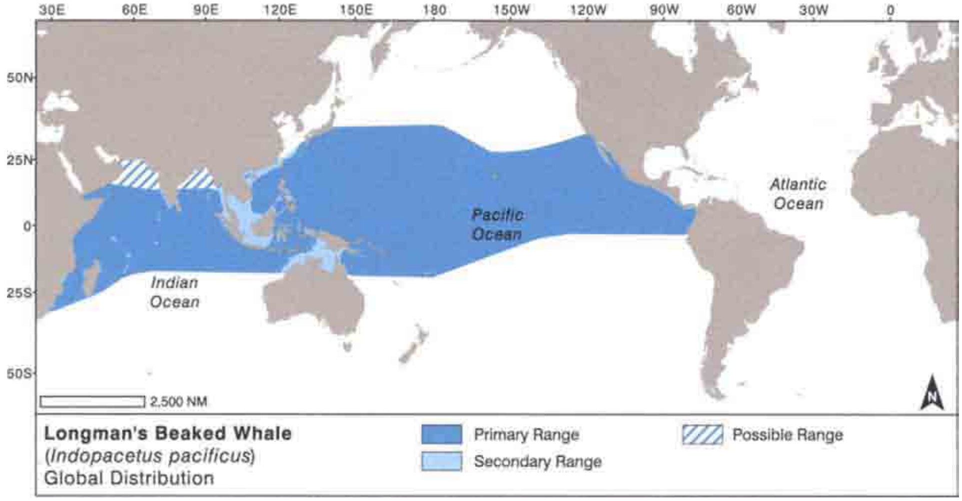
Species characteristics Longman's beaked whales have moderately steep, bulging foreheads and moderate, tube-like beaks. Adults generally have a crease between the melon and beak. As in most other beaked whales, the dorsal fin is located behind the midpoint of the back, but it is a bit larger than in other beaked whales. The fin is falcate and shaped like a dolphin's dorsal fin. Typically, there is no notch on the trailing edge of the flukes. There is generally a pair of V-shaped grooves on the throat. The small, blunt flippers fit into "flipper pockets" on the sides. When seen, the blowhole was oriented with the ends pointing anteriorly, the opposite of the situation in Baird's and Arnoux's beaked whales, species with which it can be confused.

Coloration ranges from umber-brown to bluish-gray above, generally with light areas on the sides and around the head. These light areas are often separated by a diffuse dark band just behind the blowhole, which extends down to the flipper and to surround the eye. The dark band is continuous with the dark upper back. The above color pattern features appear to be most pronounced in young animals, and may fade with age. The white of the melon extends back only as far as the blowhole. Some individuals have had scratches on the back, and white circular scars (probable cookie-cutter shark bites) are not uncommon. The upper surface of the flippers is dark and the underside is light. The upper surfaces of the flukes are dark (nearly black), and the lower surfaces generally have a series of light streaks.

There is a single pair of oval teeth at the tip of the lower jaw, which may be embedded in the gums. During at-sea sightings, the teeth have not been visible outside the closed mouth. The blow is low and bushy, but fairly conspicuous.

This is a relatively large beaked whale; size estimates from at-sea sightings have been in the range

A group of Longman's beaked whales surfaces in the Indian Ocean, showing the typical surfacing profile of the species. Maldives. PHOTO: R. C. ANDERSON



of 4–9 m. Two presumably adult females that stranded recently in Japan and the Maldives measured about 6.0 and 6.5 m, and a specimen live-stranded in the Philippines was 5.7 m long. Length at birth is not known, but a neonate measured 2.9 m long.

Recognizable geographic forms None.

Can be confused with The large size and relatively steep forehead of this species should rule-out confusion with most species of beaked whales. However, the southern bottlenose and Baird's and Arnoux's beaked whales may cause some confusion. However, there is little overlap in distribution with these high latitude species. In shape and position, the teeth most closely resemble those of True's beaked whale. Examination of the skull by experts or genetic analyses may be required for positive identification. Longman's can also be mistaken for southern bottlenose whales, but attention to details of head and body shape and coloration should allow distinction. Longman's are a bit more slender than southern bottlenose whales.

Distribution There have been many sightings at widespread locations in the tropical Pacific and Indian oceans of what we now know to be the Longman's beaked whale. The distribution of this species is not fully known, but it appears to be limited to the Indo–Pacific region. The available specimens are from Australia, Somalia, South Africa, the Maldives, Kenya, Sri Lanka, the Philippines,

A Longman's beaked whale surfaces in the Indian Ocean, showing the long tube-like beak that these whales possess. Maldives. PHOTO: C. JOHNSON

A Longman's beaked whale that stranded in Myanmar (Burma) showing the long, well-defined beak. PHOTO: COURTESY I. BEASLEY

A Longman's beaked whale that stranded in Japan. The white spots are probably healed cookie-cutter shark bites. PHOTO: COURTESY T. YAMADA

A cow and calf Longman's beaked whale—calves always have a conspicuous pale melon; some adults do as well, but they may lose it with age. Maldives. PHOTO: C. JOHNSON

Longman's beaked whales often occur in groups of 10 or more animals—numerous individuals often show the distinctive pale melon. Maldives. PHOTO: R. C. ANDERSON

and Japan. The sightings come from scattered locations, many in deep oceanic waters, in the tropical to subtropical Indo-Pacific. Sightings have occurred in areas with surface water temperatures of 21–31°C. These beaked whales are relatively infrequently seen in the eastern tropical Pacific, and may be more common in the western Pacific and western Indian Ocean. They also appear to be especially common around the Maldives archipelago.

Ecology and behavior Large, coordinated herds appear to be characteristic of Longman's beaked whales. Herds sighted in the Pacific Ocean have contained from 1 to an estimated 100 individuals, with many groups of 10 or greater (this is much larger than for Cuvier's beaked whale or the various *Mesoplodon* species). Groups in the western Indian Ocean have generally been smaller. They often swim in tight groups, and have been seen associated with pilot whales and bottlenose and spinner dolphins. Breaching has been observed, and these whales swim aggressively when moving along at the surface. Dive times may be quite long and can range up to at least 33 minutes.

All aspects of the biology of Longman's beaked whale are very poorly known—the species is known from only 7 specimens (as of late 2005). It was known from only two skulls until as recently as 2003, when it was redescribed from several fresh strandings. A live-stranding occurred in the Philippines in 2004, and sightings have become more common in the western Indian Ocean in recent years. There is virtually nothing known of its reproductive biology. Probable predators of Longman's beaked whales are killer whales and large sharks.

Feeding and prey Nothing is known of its feeding habits, except for the stomach contents of a single specimen from Japan. These suggested that whales of this species may feed primarily on cephalopods, like other beaked whales.

Threats and status There is no known human exploitation of this species. Most records are of strandings or sightings, although some animals have been by-caught in Sri Lankan waters. Gillnet fisheries in the western Indian Ocean may be a threat. While certainly not the rarest of beaked whales, the paucity of recent sightings indicate that it is not particularly common either. The only estimate of abundance available is of about 760 individuals in the waters around Hawaii.

IUCN status Data Deficient.

References Anderson et al. 2006; Dalebout et al. 2003; Pitman 2002; Pitman et al. 1999.

Irrawaddy Dolphin—*Orcaella brevirostris*

(Owen *in* Gray, 1866)

Recently-used synonyms *Orcaella fluminalis, Orcella brevirostris.*

Common names En.–Irrawaddy dolphin; Sp.–*delfín del Irawaddy*; Fr.–*orcelle.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Although there has long been considered to be only one species in the genus, recent studies have demonstrated there are two: *O. brevirostris* and *O. heinsohni.*

Species characteristics The Irrawaddy dolphin resembles the finless porpoise, but unlike that species, it has a dorsal fin. It is a moderately robust species. The dorsal fin is small (averaging 3% of total length) and rounded, and is set just behind mid-back. It is variably shaped. The large paddle-shaped flippers (width averaging 7.3% of total length) have curved leading edges and rounded tips. The head is blunt and bulbous, with no beak; the mouthline is straight, and there may be an indistinct neck crease. There is generally a distinct dorsal groove running along the back from the neck region to just before the dorsal fin. The U-shaped blowhole is open toward the front, the reverse of the situation in most dolphin species.

Coloration is somewhat variable, and animals kept captive indoors may nearly lose their pigmentation, becoming almost white in color. In the wild, Asian animals are two-tone—the back and sides are gray to bluish-gray; the belly from the lower chin to the anus is somewhat lighter. The light ventral coloration extends up as an 'elbow' onto the underside of the flippers.

Tooth counts in each row range from 8–19 and average about 15 (upper); and range from 11–18 and average about 13–14 (lower). The teeth have slightly expanded crowns. In dolphins from the Mahakam River population, the teeth may not erupt.

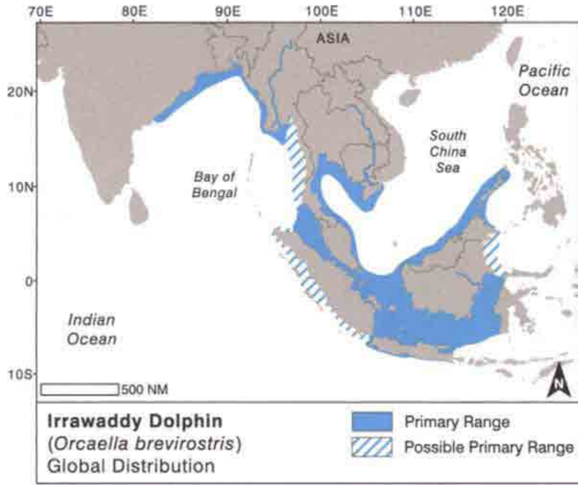
This is a relatively small dolphin; adults range from 1.73 to 2.75 m and average about 2.05 m. Males are somewhat larger than females. Average weight is about 115–130 kg. Scant evidence indicates that the length at birth is about 1 m, and weight is about 10–12 kg.

Recognizable geographic forms While there are clearly many populations of this species, and freshwater populations are clearly distinct (from each other, as well as from marine stocks), recognizable geographic forms have not yet been described.

Can be confused with Irrawaddy dolphins can be confused with finless porpoises or dugongs throughout most of their range, where these species overlap in distribution. When a clear view is obtained, Irrawaddy dolphins are easily distinguishable, because neither of the other species has a dorsal fin.

In Papua New Guinea and West Papua/Irian Jaya, there is some possibility of the two species of *Orcaella*

Cetaceans with round heads rarely porpoise out of the water—a rare photograph of a leaping Irrawaddy dolphin from Malampaya Sound in the Philippines. PHOTO: M. MATILLANO.



A traveling group of Irrawaddy dolphins showing their small fins and round heads; the animal on the right shows the dorsal groove that distinguishes this species from *O. heinsohni*. PHOTO: I. BEASLEY

being sympatric. They can be distinguished by coloration (two-tone in *O. brevirostris* vs. three-tone in *O. heinsohni*), and external morphology (*O. brevirostris* has a dorsal groove and *O. heinsohni* has a more distinct neck crease).

Distribution Irrawaddy dolphins inhabit coastal, brackish, and fresh waters of the tropical and subtropical Indo-Pacific. They occur from Borneo and the central islands of the Indonesian archipelago, north to Palawan in the Philippines, and west to the Bay of Bengal, including the Gulf of Thailand. There are freshwater populations in the Ayerawaddy (up to 1,500 km upstream), Mahakam (up to 560 km upstream), and Mekong (up to 690 km upstream) rivers, and Songkhla and Chilka lakes. The range is poorly documented in much of southeast Asia. These animals appear to favor shallow estuaries throughout most of their coastal range.

The Irrawaddy dolphin is one of the only dolphins that regularly spits water, and these dolphins even use this to assist in feeding. PHOTO: D. SUTARIA

Ecology and behavior Groups of fewer than six individuals are most common, but sometimes up to 15 Irrawaddy dolphins are seen together. Aggregations of up to 25 dolphins can be found in deepwater pools of the Mekong River during the dry season. Irrawaddy dolphins have been seen in the same areas as bottlenose and Indo-Pacific humpback dolphins, as well as finless porpoises. Irrawaddy dolphins are not especially active, but they do make low leaps, breaches, and spyhops on occasion. They are not known to bowride. These dolphins have been observed cooperating with fishermen to herd fish into nets in the Ayeyarwaddy River of Myanmar. Also, their mobile lips allow them to spit water, and there is some evidence suggesting that this is used as a feeding technique. A maximum dive time of 12 minutes has been recorded, but most dives are less than 3 minutes

This Irrawaddy dolphin gives the impression that it can see out of the water; the unfused cervical vertebrae in this species give great flexibility to the neck. Chilka Lake, India. PHOTO: D. SUTARIA

A newborn calf lunges at the surface. Neonates of all cetacean species swim with jerky, erratic movements at first and often seem unable to judge the surface. Mekong River, Cambodia. PHOTO: I. BEASLEY;

long. They will occasionally lift their flukes out of the water upon diving. The lack of fusion of neck vertebrae means that Irrawaddy dolphins can move their head and bend their neck much more so than most other dolphin species.

The calving season is not well-known. Some calves appear to have been born in June–August, but one captive female from the Mahakam River gave birth in December. Gestation has been estimated at 14 months. There is probably a great deal of geographic variation in life history parameters. Maximum known longevity is about 30 years.

Irrawaddy dolphins in Chilka Lake, India, one of several places where this species occurs in freshwater habitats. PHOTO: D. SUTARIA

Irrawaddy dolphins have the lumpy bodies, rounded heads, and low rounded dorsal fins characteristic of slow swimmers. Chilka Lake, India. PHOTO: D. SUTARIA

A mother and calf Irrawaddy dolphin killed in fishing nets in the Mekong River of Cambodia/Laos. PHOTO: I. BAIRD, COURTESY OF S. LEATHERWOOD

Feeding and prey Irrawaddy dolphins appear to be generalist feeders, taking a wide variety of fishes (including freshwater species, such as catfish), and cephalopods (squid, cuttlefish, and octopus). Dolphins from freshwater populations sometimes spit water while feeding, apparently to herd fish.

Threats and status Irrawaddy dolphins may not be immediately threatened with extinction on a global scale, but certain populations appear to be reduced and are in serious danger of local extinction. This is especially true for freshwater stocks, such as those in the Mahakam, Ayerawaddy, and Mekong rivers, as well as that in Songkhla Lake, which each appear to number less than 100 individuals. The nearshore and freshwater occurrence of this species makes it particularly vulnerable to threats from human modification and degradation of the coastal and freshwater environments. These result from fishing net entanglement, habitat loss, dam and waterway construction, prey depletion, environmental contamination, and vessel strikes. Live captures for aquaria display have also been a conservation issue in some areas. Irrawaddy dolphins have been hunted directly in the past, at least in Cambodia, but are also revered by local people in many other areas of Asia. Abundance estimates are available only for certain portions of the range: 77 animals in Malampaya Sound, Philippines; < 100 in the Mekong River; 33–55 in the Mahakam River, Indonesia; 55–70 in the Ayeyarwaddy River, Myanmar, and 5,400 in Bangladesh. Nothing certain is known of trends in abundance, but there have been strong suggestions of population declines in some areas.

IUCN status Critically Endangered (Mahakam River, Ayeyarwady River, Malampaya Sound, Mekong River, and Sonkhla Lake populations), Data Deficient (all others).

References Arnold 2002; Beasley et al., 2005; Marsh et al. 1989; Stacey and Arnold 1999; Stacey and Leatherwood 1997.

Australian Snubfin Dolphin—*Orcaella heinsohni*

Beasley, Robertson, and Arnold, 2005

Recently-used synonyms None.

Common names En.–Australian snubfin dolphin; Sp.–*delfín del Australia*; Fr.–*orcelle de Australia*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. For many years, only a single species was recognized in the genus. Recent studies have found evidence of two species of Irrawaddy dolphin, and *O. heinsohni* has now been split-off as a second species in the genus.

Species characteristics The Australian snubfin dolphin resembles the Irrawaddy dolphin and the finless porpoise, but unlike the latter species, it has a dorsal fin. The fin is small (averaging 4.4% of total length) and rounded, and is set slightly behind mid-back. The large flippers (width averaging 6.6% of total length) have curved leading edges and rounded tips. The head is blunt and can be bulbous, with no beak; the mouthline is straight; and there is a distinct neck crease. The dorsal groove characteristic of the Irrawaddy dolphin is absent in this species. The U-shaped blowhole is open toward the front, the reverse of the situation in most dolphin species.

Coloration of the Australian snubfin dolphin is slightly different than in the Irrawaddy dolphin. These animals have a tripartite pattern, with a distinct dark grayish-brown cape, lighter sides, and whitish belly. The margin of the cape is fairly straight and extends fairly low on the sides.

Tooth counts in each row are 11–22, averaging 18 (upper); and 14–19, averaging 17 (lower). The teeth have slightly expanded crowns.

This is a relatively small dolphin, although a bit larger than the Irrawaddy dolphin. Adults range from 1.86 to 2.70 m. The average adult size is 2.18 m. They are known to reach weights of at least 130 kg. Scant evidence indicates that the length at birth is about 1 m.

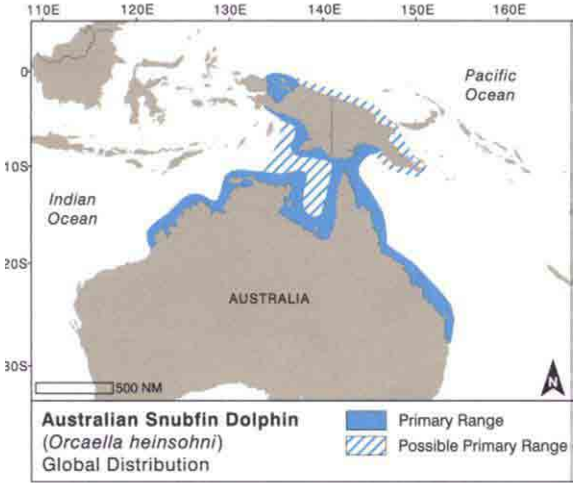
Recognizable geographic forms None.

Can be confused with Australian snubfin dolphins can be confused with dugongs in most parts of their range. When a clear view is obtained, Irrawaddy dolphins are easily distinguishable, because dugongs do not have a dorsal fin. Confusion with the finless porpoise is also possible at a distance. Again, the presence of a dorsal fin in the Australian snubfin dolphin will clear-up any identification problems.

In Papua New Guinea and West Papua/Irian Jaya, there is some possibility of the two species of *Orcaella* being sympatric. They can be distinguished by coloration (2-tone in *O. brevirostris* vs. 3-tone in *O. heinsohni*), and external morphology (*O. brevirostris* has a dorsal groove and *O. heinsohni* has a more distinct neck crease).

An Australian snubfin dolphin that was killed in a northern Australian anti-shark net. The subtle tripartite color pattern of this species is often difficult to discern. PHOTO: G. HEINSOHN, COURTESY OF I. BEASLEY

Distribution Australian snubfin dolphins inhabit coastal, brackish waters of the tropical and subtropical zones of Australia, and at least some parts of Papua New Guinea (PNG). In Australia, they occur from Broome,



Western Australia, to the Brisbane River, Queensland. They most often occur near river and creek mouths, generally in waters < 10 m deep (with a preference in some areas for waters < 2 m deep). The range in northern Australia and PNG is poorly documented.

Ecology and behavior Very little is known of the ecology of these animals, largely because they were only recently split-off as a separate species from the Irrawaddy dolphin. Group sizes typically range from 1 to 10, but they sometimes occur in aggregations of up to 14 dolphins. Average group size is 5.3 individuals in northeast Queensland. Groups are somewhat fluid in structure, with dolphins having a series of constant companions and also casual acquaintances. At least in Cleveland Bay, Queensland, most dolphins are not resident in the bay.

Australian snubfin dolphins have been seen in the same area as Indo-Pacific humpback dolphins. In Cleveland Bay, snubfin dolphins are sometimes aggressively chased and "harassed" by humpback dolphins. Individual dolphins have been identified by scars and marks on the back and dorsal fin. They are not especially active, but do make low leaps on occasion. They are not known to bowride.

Almost nothing is known of the life history of this species. A few dolphins that were aged from tooth growth layers reached adult size at 4–6 years, and some lived as long as 30 years. Longevity may be greater than this, however.

Feeding and prey Australian snubfin dolphins appear to be generalist feeders, taking a wide variety of fishes (including anchovies, sardines, eels, halibut, breams, grunters, and other estuarine species). They also eat cephalopods (squid, cuttlefish, and octopus), and crustaceans (shrimps and isopods, although the latter may be incidental).

Threats and status There are only two abundance estimates available for the Australian snubfin dolphin: about 1,000 in the Gulf of Carpentaria, and <100 in Cleveland Bay. The nearshore occurrence of this species makes it vulnerable to detrimental human activities. However, most of the range of the species in northern Australia has not yet been severely degraded. Animals do die from fishing and anti-shark net entanglement, and habitat loss, prey depletion, environmental contamination may be other, long-term threats. The designation of a series of marine parks in the northern waters of Australia bodes well for the survival of this species, although some populations need greater protection.

IUCN status Not Listed.

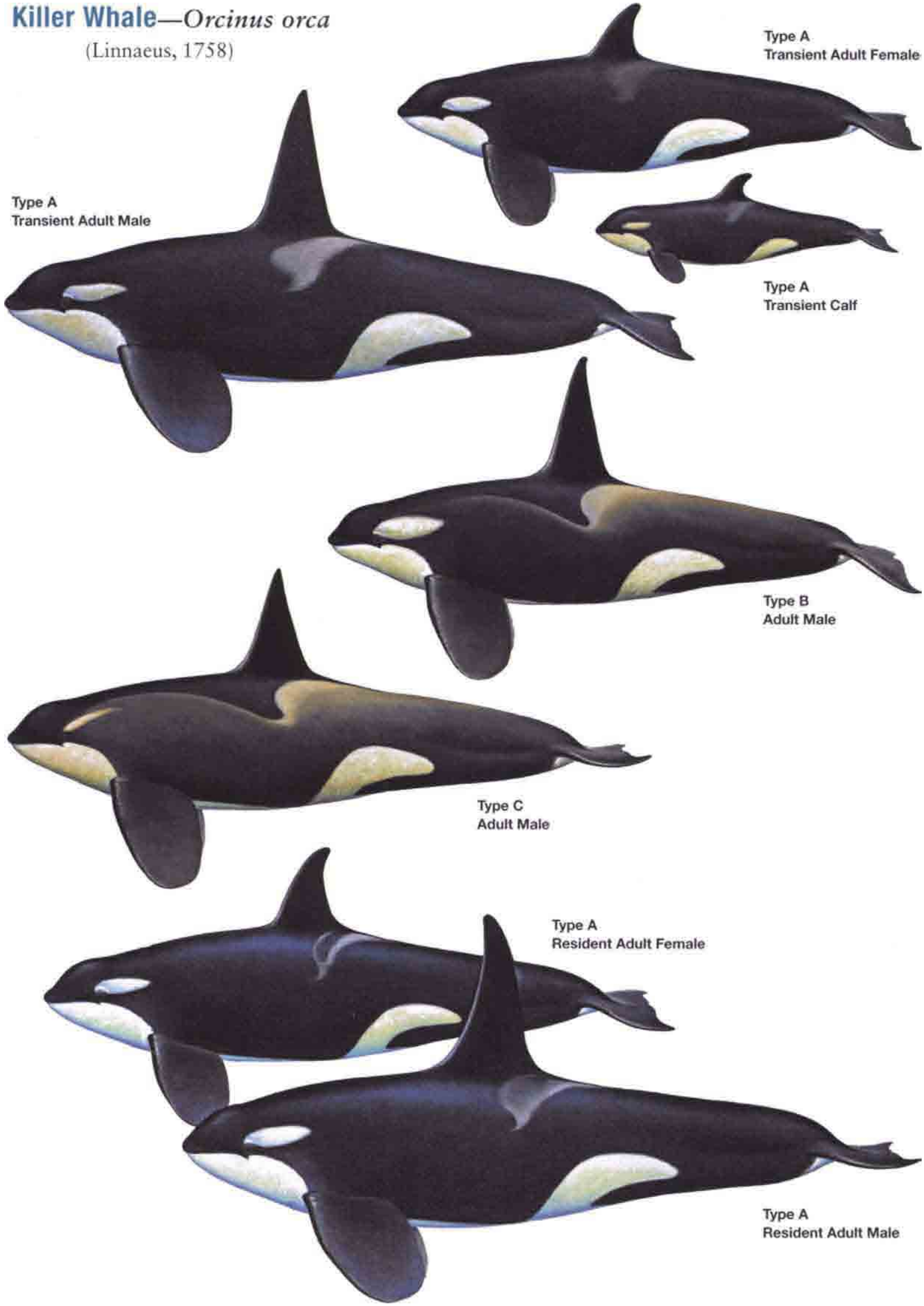
References Arnold 2002; Beasley et al. 2005; Parra and Corkeron 2001; Parra et al. 2002.

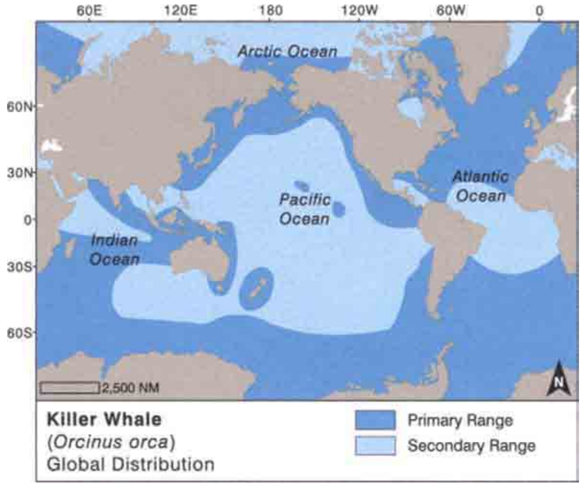
Two snubfin dolphins surface in the waters of northeastern Australia. Note the distinctive head and dorsal fin shape of this species. PHOTO: G. PARRA

The dorsal groove that is often present in the Irrawaddy dolphin is absent in the Australian snubfin dolphin. PHOTO: G. PARRA

Killer Whale—*Orcinus orca*

(Linnaeus, 1758)





Recently-used synonyms *Grampus (Orcinus) rectipinna, Orcinus nanus, Orcinus glacialis.*

Common names En.–killer whale; Sp.–*orca*; Fr.–*orque or épaulard.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. A single species of killer whale has been recognized for many decades, and this has been somewhat supported by the results of studies of mitochodrial DNA patterns. However, recent genetic, morphological, coloration, and ecological evidence suggests that there may be many different geographical forms of killer whale. Currently, at least four separate forms of killer whales are known, at least some of which may represent separate species. The taxonomy of this genus is clearly in serious need of revision, and it is very likely that *O. orca* will be split into a number of different species (or at least subspecies) over the next few years.

Species characteristics Killer whales are among the most distinctive, and therefore easily identified, of all cetaceans. The body is robust, but somewhat spindle-shaped. The tall, erect dorsal fin is nearly as distinctive as the color pattern. It may reach 0.9 m high in females and 1.8 m in males. The dorsal fins of females and young whales are falcate, and are generally pointed or slightly rounded at the tip. Adult males tend to have dorsal fins that are triangular or that may even cant forward to varying degrees. The flippers are large (especially so in bulls) and oval, with blunt tips, and grow to lengths of up to 2 m (about 11–17% of total length for adult females, and 18–22% for adult males). Scant information suggests that tropical females may have larger flippers. The flukes are broad, with a straight or even slightly convex trailing edge. The fluke tips may be curled down in some large adults (especially bulls). Killer whales have blunt snouts, with only very short and poorly-defined beaks. The mouthline has a slight downward curve toward the gape.

The black-and-white color pattern of the killer whale is unmistakable. The lower jaw, undersides of the flukes, and ventral surface from the tip of the lower jaw to the urogenital area are white. White lobes extend up the sides behind the dorsal fin, and there is a white oval patch above and behind each eye. The rest of the body is black, except for a light-gray "saddle patch" behind the dorsal fin, and there may be a distinct cape extending forward from the lower point of the saddle. The boundaries between black and white are generally very distinct and sharp. Anomalously-white individuals have been observed and held in captivity (in the latter case, the white color was not from albinism, but from a genetic condition called Chediak-Higashi Syndrome).

Killer whales have 10–14 large, slightly recurved teeth in each half of both jaws, which are pointed and oval in cross section. They can be up to 2.5 cm in diameter. In older animals, they are often extensively worn and can be damaged by abscesses.

Newborn killer whales are 2.1–2.6 m in length and about 160–180 kg in weight. Adult females are up to 8.5 m long and 7,500 kg in weight; adult males can be up to 9.8 m and nearly 10,000 kg. There is clearly extensive geographic variation among different populations,

The iconic killer whale is perhaps the most universally recognized marine species; unmistakable even when it is not hanging in the air. Puget Sound, Washington.
PHOTO: I. VISSER

This killer whale is swimming to the left (the saddle patch is always behind the dorsal fin); the very tall, erect dorsal fin indicates it is an adult male. Iceland. PHOTO: F. UGARTE/ARC-PIC.COM

Resident killer whales in Puget Sound often show "open" saddle patches (i.e., with black incursion in gray saddle), virtually never found in the transient type. Notice the more rounded dorsal fin tips, also typical of residents. PHOTO: K. PARSONS

An adult female transient killer whale. Notice the closed saddle patch that extends far forward and the more pointed dorsal fin tip, all indicative of this type. Monterey Bay, California. PHOTO: T. A. JEFFERSON

but this is only beginning to be adequately documented to recognize different geographic forms (see below).

Calf— Much smaller than adults; with a muted color pattern, often with a yellowish to orangish tinge to the eye patch, and no saddle patch.

Juvenile— Noticeably smaller than adult size; dorsal fin small and generally falcate.

Adult female— Of adult size; dorsal fin of moderate height (< 1 m) and usually falcate to a varying extent.

Adult male— Noticeably larger than all other age classes; dorsal fin extremely tall (up to almost 2 m) and erect or canted forward; extremely large flippers; flukes often convex, with tips curved downward.

Recognizable geographic forms Several geographic forms of killer whale have been recognized, and most killer whales worldwide fall into the Type A pattern. Preliminary genetic studies indicate that Types B and C are more closely related to each other than either is to Type A. The actual taxonomic status of each of these forms still remains to be confirmed, but mounting evidence is pointing to different species status for each of them:

Type A resident killer whale— This form is best-known from the Pacific Northwest and Alaskan waters (where it has been intensively studied), but it may occur in many areas throughout the globe. Type A "residents" have a relatively rounded tip to the dorsal fin, and the saddle patch can be open or closed. The saddle patch generally extends no further forward than the midpoint of the dorsal fin base. There is no obvious dorsal cape in Type A residents, and the eye patch is a medium-sized oval oriented parallel to the body axis. Type A "offshores" are very similar in appearance to resident killer whales, and reliable methods of distinguishing them from external appearance in the field have not yet been found.

Type A transient killer whale— Although best-known from the Northeast Pacific, animals resembling Type A transient killer whales are found throughout the globe. These are the largest of the three types, with adult females about 6–7.5 m and adult males up to at least 9.2 m long. Type A "transients" have a more pointed dorsal fin tip than residents, and always possess a closed saddle patch. The saddle patch typically extends quite far forward, sometimes nearly to the anterior insertion of the dorsal fin. There is no obvious dorsal cape, and the eye patch is a medium-sized oval oriented parallel to the body axis.

Type B killer whale— Occurring in Antarctic and subantarctic waters, the Type B killer whale generally appears to be smaller than the Type A killer whale (but probably not as small as Type C). It has dorsal coloration with a distinct narrow black cape, below which the dark areas are more nearly charcoal gray. The white areas usually have a yellowish tinge (caused by diatoms), and the eye patch is very large and oriented horizontally. Saddle patches are always of the closed type.

Type C killer whale—Type C killer whales are apparently restricted to Antarctic and surrounding waters. This type is a dwarf form, and grows to lengths about 1–3 m shorter than the other types. Adult females average about 5.2 m and adult males about 5.6 m, with the maximum known about 6.1 m. It also has a distinct cape and yellowish light patches, but the eye patch is very small and is oriented at about a 45° angle to the long axis of the body. The saddle patch is rarely open.

Can be confused with Killer whales are easily recognizable to almost anyone who has spent time on the water or along the coast. The great size of the dorsal fin (especially of adult males) and unique black and white color pattern are diagnostic. At a distance, groups without adult males can be confused with Risso's dolphins or false killer whales. However, the confusion should disappear as a closer look is obtained.

Distribution The killer whale is undoubtedly the most cosmopolitan of all cetaceans, and may be the second most wide-ranging mammal species, after humans. Killer whales can literally be seen in any marine region, from the equator to the ice edges, and they have even been known to ascend rivers (although this is uncommon). They occur in many enclosed seas, such as the Mediterranean, Red Sea, Persian Gulf, and Gulf of California, although they may not be common there. Although they are generally more common in nearshore areas and at higher latitudes, there appear to be no hard and fast restrictions of water temperate or depth on their range. Type A killer whales are found in all oceans and seas, from the ice edges to the equator, in both hemispheres; however, they appear to be more common in nearshore, cool temperate to subpolar waters. They don't often occur among ice floes. Type B killer whales are found mainly in the Antarctic and surrounding waters (there are records from the Falklands and New Zealand), often among the pack ice. They appear to be concentrated around the Antarctic Peninsula. Type C is also an Antarctic form, but seems to prefer waters of East Antarctica, occurring mainly in the pack ice. Killer whales are known to enter, at least as visitors, virtually all enclosed seas of the world at times, although they would be considered extralimital in the Baltic Sea. They are rare in the Mediterranean proper, but there is a resident population in the Strait of Gibraltar.

Ecology and behavior In terms of ecology and behavior, killer whales are among the best-studied of all ce-

Killer whales "spyhopping;" the relatively small pectoral fins identify them as females or juveniles. PHOTO: F. UGARTE/ARC-PIC.COM

Type B killer whales, providing a good view of the distinct cape and large eye patch. Southwest of South Georgia. PHOTO: T. PUSSER

An Antarctic type B killer whale identified by its very large eye patch and distinctive cape pattern—dark gray above and lighter gray below. Near South Georgia. PHOTO: I. VISSER

Type B killer whales often have a heavy diatom film that turns white areas yellow and the black and gray areas brownish. Antarctic Peninsula. PHOTO: S. HEINRICH

Type C killer whales often spyhop among restricted breathing holes in an environment that is often more ice than water. Southern Ross Sea, Antarctica. PHOTO: R. L. PITMAN;

Antarctic type C killer whales can be distinguished by their combination of small size, distinct dorsal cape and small, slanted eye patch. They often occur among the Antarctic pack ice. Southern Ross Sea, Antarctica. PHOTO: R. L. PITMAN

tacean species, with a few long-term ecological studies running for several decades. Studies in the eastern North Pacific, from Washington State to Alaska, have distinguished three types of killer whales, referred to as residents, transients, and offshores. Although distinguished by ecological differences, there are also differences in coloration and external morphology. In Washington and British Columbia, at least, residents and offshores are primarily fish eaters and transients eat mostly marine mammals. Studies in other parts of the world suggest that while other populations also tend to have similar prey preferences, the relationships among the different types are complex. The evidence that at least residents and transients in the Pacific Northwest are different species is quite strong.

Pods of resident killer whales in British Columbia and Washington represent one of the most stable societies known among non-human mammals; individuals stay in their natal pod throughout life. Pods are structured around matrilines (maternally-based patterns of descent). Differences in vocal dialects among sympatric groups appear to help maintain pod discreteness. Most pods contain 1–55 whales and resident pods tend to be larger than those of transients (however, it should be noted that subunits within a pod often break-up and travel independently from other such units for periods of time). Transients in the Pacific Northwest also have a matrilineal-based social structure, but there appears to be much more dispersal from the natal pod. Pods are thus much smaller (generally less than 10 members).

Killer whales are among the most enthralling of all animals to observe in the wild. They do not typically ride bow waves, but this behavior has been seen in the Gulf of Mexico, and in some other areas. They may show great interest in vessels; at other times they may avoid them. This is a very aerially active species, and killer whales often breach, spyhop, flipper-slap and fluke-slap; they often perform these behaviors in bouts. The flukes are sometimes lifted out of the water when whales make a steep dive. When resting, they often travel line abreast and surface at regular intervals. Although they do not appear to migrate, movements can be extensive; for instance, some killer whales have been documented to have moved between Alaska and central California.

In the Pacific Northwest, calving occurs year-round, with a peak from October to March. Similarly, in the northeast Atlantic, it occurs from late fall to mid-winter. Gestation appears to last for 15–18 months, which is extremely long for a mammal. The calving interval is about 5 years in the Pacific Northwest, and a post-reproductive period is known for females. The age at weaning is thought to be about 1–2 years, but may occur somewhat later. Sexual maturity is reached at ages of 10–15 years for females and about 15 years for males. These are extremely long-lived animals, with males living to 50–60 years and females up to 80–90 years!

Feeding and prey Though best-known for their habits of preying on warm-blooded animals (killer whales are known to attack marine mammals of all groups, from sea otters to blue whales, except river dolphins and manatees), killer whales often eat various species of fish (including sharks and rays) and cephalopods. Killer whales also occasionally eat seabirds and marine turtles. Killer whales often use cooperative techniques to herd fish and to attack large prey. They have a great diversity of feeding strategies, including intentional beaching to gain access to seals onshore.

At least some populations are known to show extreme dietary specializations on particular types of prey. Thus the Pacific Northwest residents are salmon specialists (at least during the summer months). Transients in Puget Sound appear to focus their foraging on harbor seals, and killer whales in the Norwegian fjords specialize on herring. There is even evidence that some killer whales in New Zealand may forage mostly on sharks and other elasmobranchs. In the Antarctic, Type A killer whales specialize on minke whales, Type B eats mostly seals, and Type C is a fish-eater.

Threats and status Killer whales have at one time or another been targets of both commercial and subsistence whalers, although never on a particularly large scale. They are still killed in small numbers in fisheries in Japan, Greenland, Indonesia, and the Caribbean islands. They have also been persecuted because of real or perceived interference with fisheries and their supposed dangerousness. Entanglements in fishing nets, vessel collisions, and live-captures for oceanaria have also contributed to their problems. Recently, the effects of high levels of environmental contaminants and acoustic "pollution" have become issues of concern, especially for northeast Pacific pods. Although not considered to be highly abundant anywhere, killer whale populations in many areas appear to be healthy. No global estimates of abundance are available. There are thought to be about 80,000 south of the Antarctic Convergence, and about 445 in northern Norway. In the eastern tropical Pacific, there are estimated to be about 8,500 killer whales. There are about 1,500 of these animals in coastal waters

In subantarctic waters of the Southern Hemisphere, killer whales with extremely small eye patches have been observed recently. These do not match any known type, and have been dubbed "Type D" killer whales. Near South Georgia. PHOTO: M. GREENFELDER, COURTESY I. VISSER

A group of Type D killer whales surfaces, showing the extraordinarily small eye patch. Theses animals steal fish from longliner fishing vessels near Crozet Island. PHOTO: M. GREENFELDER, COURTESY I. VISSER

Saddle patches on tropical populations of killer whales are typically faint or even absent, as on these from Fiji. PHOTO: D. COTHRAN, COURTESY I. VISSER

of North America, from the Aleutian Islands to California, and about 2,000 in Japanese waters. The resident population that inhabits the inland waters of Washington and southern British Columbia is apparently depleted and is considered to be endangered.

IUCN status Lower Risk/Conservation Dependent.

References Baird 2002; Dahlheim and Heyning 1999; Ford 2002; Ford and Ellis 1999; Ford et al. 1994; Heyning and Dahlheim 1988; Pitman and Ensor 2003.

Long-finned Pilot Whale—*Globicephala melas*

(Traill, 1809)

Recently-used synonyms *Globicephala melaena, Globicephala edwardii.*

Common names En.–long-finned pilot whale; Sp.–*calderón comun*; Fr.–*globicéphale commun*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Three subspecies are recognized in some classifications: *G. m. melas* in the North Atlantic, *G. m. edwardii* in the Southern Hemisphere, and an un-named subspecies in Japanese waters (now extinct).

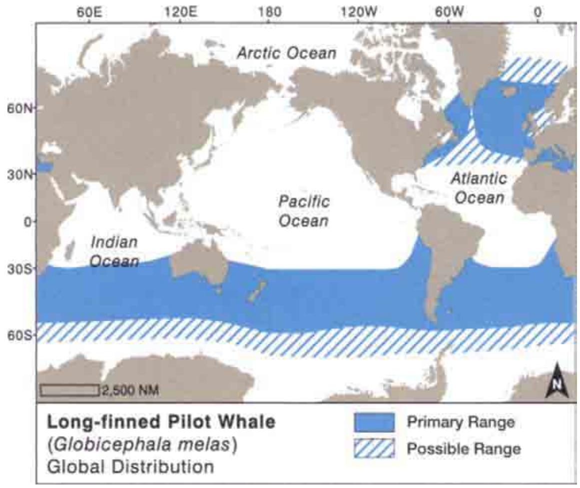
Species characteristics Externally, the long-finned pilot whale resembles its short-finned relative, *G. macrorhynchus*. The body is relatively robust, but the tail stock is long. The head is globose, with an upsloping mouthline, and there is only a slightly discernible beak (if any). The flippers are extremely long (18–27% of the body length) and slender, with pointed tips and a strongly angled leading edge that forms an "elbow." The dorsal fin is about 1/3 of the way back from the snout tip, and is low, extremely wide-based, and falcate. The tail stock is deepened (it remains of more-or-less uniform depth from the the saddle patch to just ahead of the flukes). Compared to females, male pilot whales have larger, more bulbous heads (which may actually be rather squarish); larger, thicker dorsal fins; and deeper tail stocks.

Predominantly dark grayish-brown to black in color, pilot whales have a white to light gray anchor-shaped patch on the chest, extending back to the urogenital area, a light gray post-dorsal fin saddle, and light gray "eyebrow" streaks. A line between the forward extension of the saddle and the eyebrow streak may be present, forming a cape—this tends to be especially prominent in Southern Hemisphere animals. Calves are significantly lighter than adults, and may have a distinct brownish tinge.

Inside the mouth are 8–13 pairs of sharp, pointed teeth in each jaw.

They are extremely sexually dimorphic. Adults reach 6.7 m (males) and 5.7 m (females) in length. Females reach weights of up to 1,300 kg, and males up to 2,300 kg. Newborns are 1.7–1.8 m long, and weigh about 75 kg.

Recognizable geographic forms In the Southern Hemisphere, at least some pilot whales appear to have a more extensive "eyebrow" streak and more exaggerated post-dorsal fin saddle than in North Atlantic specimens. However, the extent and degree of potential overlap of these characters has not yet been adequately studied.



Can be confused with In some temperate waters (e.g., South Pacific; North Atlantic; off southern Africa; and off southern Brazil, Uruguay, and northern Argentina), long-finned and short-finned pilot whales overlap in distribution. In these areas, the two species are virtually impossible to distinguish at sea. Tooth counts and relative flipper lengths (both of which are generally not useful in at-sea sightings) are the only reliable means of separating the two. In the lower latitude areas of its range, the long-finned pilot whale can be confused with false killer and less likely, pygmy killer and melon-headed whales; however, the differences in head shape and dorsal fin shape and position (in particular, the short, forward-placed, wide-based dorsal fin of the pliot whale) should permit correct identification.

Distribution Long-finned pilot whales occur in temperate and subpolar zones. They are found in oceanic waters and some coastal waters of the North Atlantic Ocean, including the western Mediterranean Sea and North Sea. In the western North Atlantic, they occur in high densities over the continental slope in winter and spring months. In summer and autumn months, they move over the shelf. Long-finned pilot whales were previously found in the western North Pacific, but appear to be absent there today. The circumantarctic population(s) in the Southern Hemisphere occur as far south as the Antarctic Convergence, sometimes to 68°S. They are isolated from those of the Northern Hemisphere.

Ecology and behavior Pilot whales are highly social; they are generally found in pods of about 20–100, but some groups contain over 1,000 individuals. These large pods are generally dispersed in smaller subgroups of 10–20. Based on photo-identification and genetic work, pilot whales appear to live in relatively stable, maternally-based pods like those of killer whales, and not in fluid groups characteristic of many smaller dolphins.

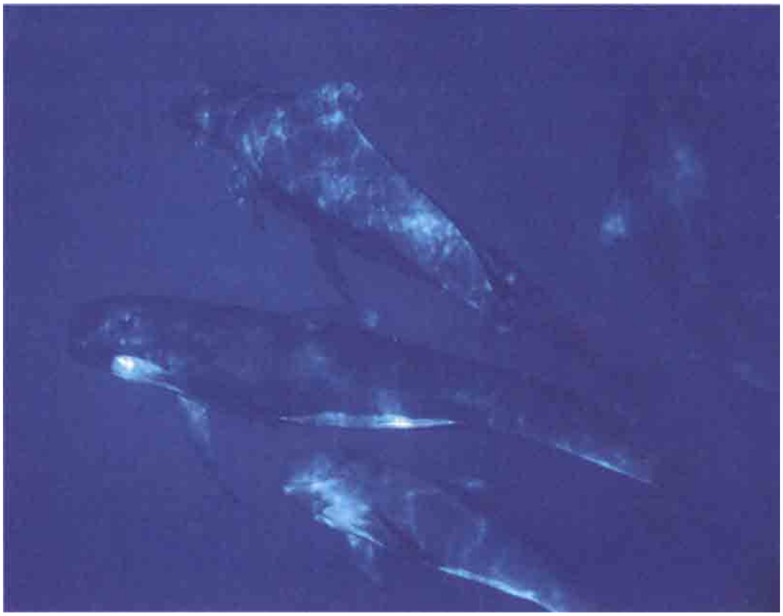
The mating system is thought to be polygynous; this is consistent with the observed sexual dimorphism and adult sex ratio. Pilot whales are apparently deep divers. Groups sometimes forage in broad ranks, sometimes with other species. Although they sometimes are aerially active, pilot whales are often seen rafting in groups at the surface, apparently resting. They often spyhop, but breaching is much less common.

This is one of the species most often involved in mass strandings. Strandings are fairly frequent, for instance, on Cape Cod (Massachusetts, USA) beaches from October to January. Their tight social structure also makes pilot whales vulnerable to herding, and this has been taken advantage of by whalers in drive fisheries off Newfoundland, the Faroe Islands, and elsewhere. Pilot whales frequently associate with other marine mammal species, including several species of dolphins and large whales.

Breeding of long-finned pilot whales can apparently occur at any time of the year, but peaks occur in summer

Long-finned pilot whales often have a distinct light streak above the eye, which forms part of the border of the dorsal cape. North Atlantic. PHOTO: R. W. BAIRD

Long-finned pilot whales, especially the southern form (shown here), often show a prominent whitish saddle behind the dorsal fin, and eye patch. Here we see a female and her calf. Western Australia. PHOTO: L. MORSE



A group of female and young long-finned pilot whales peer wide-eyed at the underwater photographer. The blunt heads clearly indicate that this is a slow-swimming species. Mediterranean. PHOTO: A. GANNIER/GROUPE DE RECHERCHE SUR LES CETACES

All pilot whales show this characteristic white ventral color, but it is more extensive and contrasting on the long-finned species. Mediterranean. PHOTO: A. GANNIER/GROUPE DE RECHERCHE SUR LES CETACES

in both hemispheres. Mating occurs primarily in spring to summer. Pilot whales have a polygynous mating system. Sexual maturity occurs at about 8 years for females and about 12 for males. Longevity is about 35–45 years for males and more than 60 for females.

Feeding and prey Primarily squid eaters, pilot whales will also take small to medium-sized fish, such as mackerel, when available. Other fish species taken include cod, turbot, herring, hake, and dogfish. They will sometimes also ingest shrimp. Most feeding appears to take place at depths of 200–500 m.

Threats and status Long-finned pilot whales have been taken directly in several large-scale drive fisheries in the North Atlantic Ocean. The most famous of these occurred previously in Newfoundland, and another one still operates in the Faroe Islands. The annual catches in the Faroes were about 1,000–1,500 in the 1990s. Other such drive fisheries used to occur in the USA (Cape Cod), Norway, Iceland, Greenland, Ireland, and Scotland (Orkney and Hebrides Islands). A drive fishery in the Falkland Islands has taken whales from the southern population(s). In addition, there are incidental catches in several fisheries, especially trawls, driftnets, and longlines. Other threats that have been identified include live-captures for captive display and the effects of environmental contaminants. There are estimated to be about 200,000 long-finned pilot whales in summer south of the Antarctic Convergence in the Southern Hemisphere; approximately 10,000–20,000 in the western North Atlantic; and about 780,000 in the eastern North Atlantic. The species is clearly not endangered.

IUCN status Least Concern.

References Bernard and Reilly 1999; Donovan et al. 1993; Olson and Reilly 2002; Ottensmeyer and Whitehead 2003.

Short-finned Pilot Whale—*Globicephala macrorhynchus*

Gray, 1846

Recently-used synonyms *Globicephala seiboldii, Globicephalus scammoni, Globicephala brachyptera.*

Common names En.–short-finned pilot whale; Sp.–*calderón de aletas cortas*; Fr.–*globicéphale tropical*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Hybrids with common bottlenose dolphins have been reported from captivity.

Species characteristics Pilot whales are large, with bulbous heads, dramatically upsloping mouthlines, and extremely short or non-existent beaks. The shape of the head varies significantly with age and sex, becoming more globose in adult males. In some forms, the head of adult males may appear very squarish, when viewed from above or below. The dorsal fin, which is situated only about 1/3 of the way back from the head, is low and falcate, with a very wide base (it also varies with age and sex). The flippers are long and sickle-shaped, 14–19% of the body length. The shape of the flippers are more curved in this species, than in the long-finned species. Adult males are significantly larger than females, with large, sometimes squarish foreheads that may overhang the snout, very hooked dorsal fins with thickened leading edges, and deepened tail stocks with post-anal keels.

Except for a light gray, anchor-shaped patch on the chest, a gray post-dorsal fin saddle, and a pair of roughly parallel bands high on the back that sometimes end as a light streak or teardrop above each eye, pilot whales are black to dark brownish-gray. This is the reason for one of their other common names, blackfish (the term blackfish is variously used, usually by fishermen, to refer to killer, false killer, pygmy killer, pilot, and melon-headed whales). Calves are paler than adults.

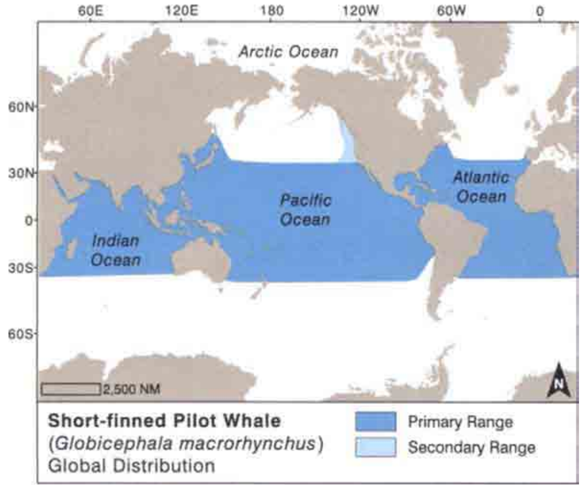
There are two geographical forms of short-finned pilot whales off Japan, differing in external and cranial morphology. Their exact taxonomic status is unresolved, but they may represent separate subspecies.

There are usually 7–9 short, sharply pointed teeth in each tooth row.

Short-finned pilot whales are about 1.4–1.9 m long at birth. Adults reach 5.5 m (females) and 7.2 m (males). Males may weigh nearly 3,600 kg.

Short-finned pilot whales often do not show the pale saddle patch and eye marks that are so common on long-finned pilot whales. Mozambique Channel, near Mayotte. PHOTO: J. KISZKA

Among pilot whales, including the short-finned shown here, adult males are easily identified by their massive, often lobed-looking dorsal fin. Mayotte. PHOTO: J. KISZKA



The light saddle patch behind the dorsal fin (and eye patch) is often difficult to discern on short-finned pilot whales; however, it shows up fairly well on this adult male. PHOTO: R. L. PITMAN

A group of short-finned pilot whales; the near animal shows a typical adult female dorsal fin—more pointy and less lobed than in the male. Eastern tropical Pacific. PHOTO: H. FEARNBACH/SWFSC/CSCAPE

Recognizable geographic forms Two geographic forms have been described from Japanese waters, and these appear to represent separate subspecies, although they have not yet been formally described as such:

Japanese northern form—This form of pilot whale is found off the Pacific coast of Japan, north of 35°N. It is much larger than the southern form, with females attaining lengths of up to 5.1 m and males reaching 7.2 m. Newborns are about 1.85 m. There is a distinct, light gray saddle behind the dorsal fin. When viewed from above or below, the head of adult males is rounded.

Japanese southern form—This form of pilot whale is found off the Pacific coast of Japan, south of 39°N. It is much smaller than the northern form, with females reaching lengths of only 4.05 m and males reaching only 5.25 m. Newborns are about 1.4 m long. The saddle patch behind the dorsal fin is very faint and indistinct. When viewed from above or below, the head of adult males of this form is squarish.

Can be confused with In and near the areas of overlap (South Pacific; North Atlantic; off southern Africa; and off southern Brazil, Uruguay, and northern Argentina), the two species of pilot whales are difficult or impossible to distinguish at sea. Most sightings can be tentatively assigned to species, based on the area. Other smaller blackfish, such as false killer whales, and less commonly, pygmy killer and melon-headed whales, may be confused with pilot whales at a distance. Dorsal fin shape and position are the best clues to distinguishing pilot whales from these species.

Distribution Short-finned pilot whales are found in warm temperate to tropical waters of the world, generally in deep offshore areas. They do not usually range north of 50°N or south of 40°S. There is some distributional overlap with their long-finned relatives (*G. melas* is the only other species currently recognized), which appear to prefer cold temperate waters of the North Atlantic, Southern Hemisphere, and previously the western North Pacific. Only short-finned pilot whales are thought to inhabit the North Pacific, although distribution and taxonomy of pilot whales in this area are still largely unresolved. There are two geographic forms of short-finned pilot whale off Japan. They occur in the Red Sea, but not the Mediterranean.

Ecology and behavior In the eastern Pacific, short-finned pilot whales are commonly associated with other species (such as bottlenose, Pacific white-sided, common, and Risso's dolphins, and sperm whales). Pods of up to several hundred short-finned pilot whales are seen, and members of this highly social species are almost never seen alone. Strong social bonds may partially explain why pilot whales are among the species of cetaceans that most frequently mass-strand. Although detailed studies of behavior have only begun recently, pilot whales appear to live in relatively stable maternal groups.

In 1982–83, a strong El Niño event brought about major ecosystem changes off the southern California coast. Pilot whales avoided the area (presumably due to the absence of spawning squid) for much of the next 10 years.

Sexual maturity occurs at around 8–9 years for females and 13–17 years for males. Females become post-reproductive at around 40 years, but may continue to suckle young for up to 15 additional years, suggesting a complex social structure in which older females may give their own or related calves a "reproductive edge" through prolonged suckling. Calving peaks occur in spring and fall in the Southern Hemisphere, and in fall and winter in most Northern Hemisphere populations. However, the southern form off the Pacific coast of Japan gives birth mostly in July and August. Longevity is at least 63 years.

Adult male short-finned pilot whales off southern Japan (and elsewhere) develop a characteristic flat front to the melon. Mayotte. PHOTO: J. KISZKA

Short-finned pilot whales often loll at the surface in tight groups during the daytime, and individuals will sometimes spyhop to look at a nearby boat. Solomon Islands. PHOTO: B. KAHN/APEX ENVIRONMENTAL

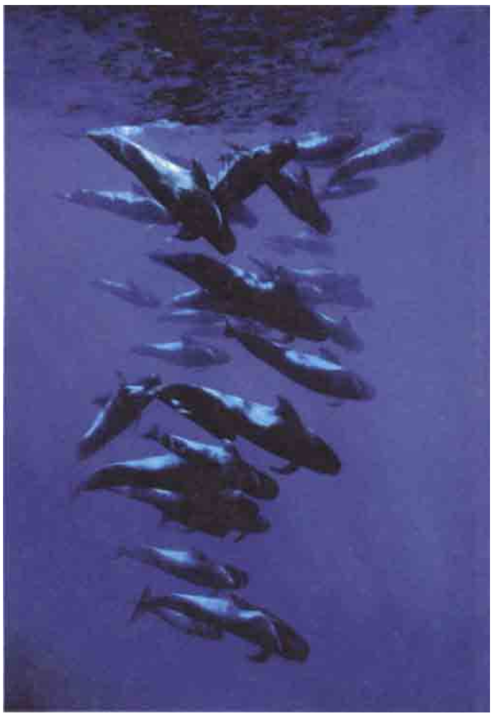
Feeding and prey Although they also take fish, pilot whales are thought to be primarily adapted to feeding on squid. One of the main genera taken off the California coast is the market squid (*Loligo* sp.). They show the tooth reduction typical of other squid-eating cetaceans.

Threats and status Short-finned pilot whales have been killed directly in drive fisheries in Japan and in harpoon fisheries in the Caribbean and Indonesia. This species is also taken as by-catch in several fisheries in

With its blunt head, the short-finned pilot whale is clearly a slow swimmer; the squared-off shape suggests that this is an adult male. Bahamas. PHOTO: T. PUSSER the North Pacific, including driftnet fisheries for swordfish and sharks. At least in the past, they have also been incidentally taken in the squid purse seine fishery that operates off the Cailfornia coast. Several short-finned pilot whales have been captured for public display and research in the US and Japan. There are no estimates of global abundance, but some estimates for specific areas do exist. Off the west coast of the US there are about 1,000, in the eastern tropical Pacific there are about 500,000, in the Sulu Sea of the Philippines there are about 7,700, and off Japan there are around 60,000 (53,000 of which are of the southern form). Clearly, the species is not endangered.

IUCN status Lower Risk/Conservation Dependent.

References Bernard and Reilly 1999; Kasuya 1992; Kasuya and Marsh 1984; Olson and Reilly 2002.



A group of short-finned pilot whales "stacked vertically"; pilot whales often occur in large groups and appear to rest during the daytime. Canary Islands.
PHOTO: S. HANQUET

False Killer Whale—*Pseudorca crassidens*

(Owen, 1846)

Recently-used synonyms None.

Common names En.–false killer whale; Sp.–*orca falsa*; Fr.–*faux-orque*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Hybrids with common bottlenose dolphins have been reported from captivity.

Species characteristics The false killer whale is one of several species of delphinids that some people call "blackfish." It is a large, dark gray to black dolphin, with a faint light gray patch on the chest, and sometimes light gray areas on the head. Any indication of a cape is generally very faint and indistinct.

The false killer whale has a long, slender, cigar-shaped body, a rounded overhanging melon (more so in males than in females), and no discernable beak. The dorsal fin, although variable in shape, tends to be falcate and slender along most of its height, and is generally somewhat rounded at the tip (however, there is a great deal of within-species variation). It is located near the midpoint of the back. The flippers have rounded tips and a characteristic hump on the leading edge, probably the species' most diagnostic character. This gives the flippers the appearance of an S-shape.

Each jaw contains 7–12 pairs of large conical teeth, which are round in cross-section.

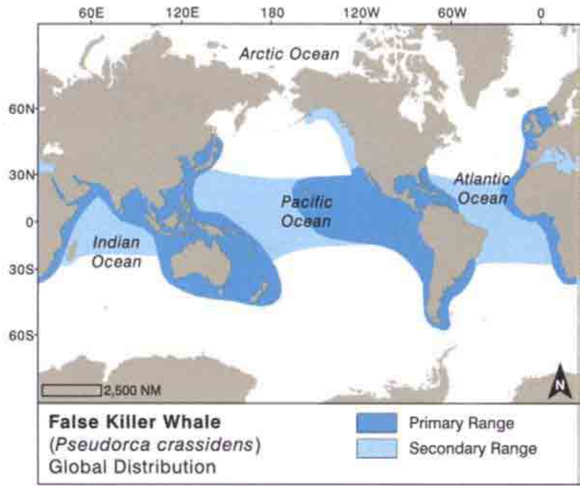
Adult false killer whales are up to 6 m (males) or 5 m (females) long; newborns are 1.5–2.1 m. Large males may weigh up to 2,000 kg.

Recognizable geographic forms Skulls of false killer whales from Australia, South Africa, and Scotland have been shown to differ, and this suggests the existence of different populations in these areas. However, distinctive geographical forms have not been described in terms of external appearance.

Can be confused with False killer whales are most commonly confused with other "blackfish," especially pygmy killer and melon-headed whales, and less commonly, pilot whales. The differences in head shape (bulbous in pilot whale adults and rounded, but more slender, in false killers) and dorsal fin shape and position (very wide-based and located on forward part of the back in pilot whales, and much more slender and

A false killer whale makes an acrobatic leap. Clearly visible are the distinctive S-shaped flippers, the blunt but conical head, and the small, centrally-placed dorsal fin. Hawaii. PHOTO: R. W. BAIRD

A young false killer whale shows the all-black coloration and uniquely tapered head of this species. Mayotte. PHOTO: J. KISZKA



positioned mid-back in false killers) will make it easy to separate pilot whales. Size will be helpful with the other two species, as false killer whale adults are much larger than pygmy killer and melon-headed whales. Small false killer whales will present the most difficulty, as they may overlap in size with these two. Shape of the head (more elongated and narrow from above in false killers), dorsal fin (more rounded at the tip in false killers), and flippers (S-shaped in false killers, with the diagnostic flipper hump) will be the best characters to use in distinguishing them. Ideally, a multitude of characters should be used to confirm an identification as a false killer whale.

Distribution False killer whales are found in tropical to warm temperate zones, generally in relatively deep, offshore waters of all three major oceans. In addition to deep, oceanic areas, they do sometimes occur over the continental shelf and appear to move into very shallow waters on occasion. They do not generally range poleward of about 50° in either hemisphere. However, some animals may move into shallow and more high-latitude waters, on occasion. They are found in many semi-enclosed seas and bays, but only occasionally occur in the Mediterranean Sea. There are also records from the Persian Gulf and Red Sea.

Ecology and behavior As is the case for most of the tropical oceanic delphinids, this species is rather poorly-known. In some areas, false killer whales take fish from longlines and therefore are not popular with fishermen. This species is considered to be extremely social. Groups of 10–60 are typical, though much larger groups are known. Some groups are very tight-knit, while others may be spread over a kilometer or more of ocean. Individual false killer whales have been photo-identified in Costa Rica and Hawaii. Some site fidelity has been noted, although there was a considerable amount of inter-island movements in Hawaii. The Costa Rica study also supported the idea that false killer whales may exhibit stable associations (like their larger cousin, the killer whale).

This is one of the most common species involved in cetacean mass strandings. In one case, over 800 stranded together! The false killer whale is a lively, fast-swimming cetacean, which behaves more like the spritely smaller dolphins than other mid-sized cetaceans. It occasionally rides bow waves of vessels. False killer whales are known to behave aggressively toward other small cetaceans, and have even been seen chasing and attacking dolphins and large whales.

No dramatic seasonality in breeding is known for the false killer

Only under excellent lighting conditions like this is the cape pattern of false killer whales visible. The dorsal fin often appears somewhat flat on top, like on the animal in the foreground. Hawaii. PHOTO: R. W. BAIRD

A false killer whale swims with a mahi mahi (dorado) in its mouth. This and other large fish, such as billfish (and perhaps dolphins), are the main prey of false killers. Taiwan. PHOTO: J. Y. WANG

A false killer whale riding the bow wave, and providing a good view of the species' diagnostic S-shaped flippers. Western North Atlantic. PHOTO: C. FAIRFIELD

The long black body with tapered head, and relatively small dorsal fin identify this false killer whale. South Pacific. PHOTO: C. GARRIGUE

whale, although one population has an apparent peak in late winter. Surprisingly (considering how commonly it strands), life history of this species has not been well-studied. From what little is known, both sexes are thought to reach sexual maturity at between 8 and 14 years of age. Longevity may reach 57 years for males and 62 for females.

Feeding and prey Although false killer whales eat primarily fish and cephalopods, they also have been known to attack small cetaceans, humpback whales, and on one occasion, even sperm whales! They eat some large species of fish, such as mahi mahi and tunas.

Threats and status False killer whales have a propensity for taking fish from longlines, thus earning them the ire of fishermen. Because of this habit, they have been shot and otherwise persecuted. In Japan, they have been targets of drive fisheries, largely because of perceived competition with fishermen. Incidental catches in fishing gear, such as driftnets and purse seines occurs at least occasionally. Live captures (mostly in the US and Japan) and damaging effects from pollutants are among the other potential threats to this species. There are few estimates of abundance, and none for the total population size, but in general false killer whale populations are not thought to be in particular trouble from human activities. The Hawaiian population appears to number no more than a few hundred individuals.

IUCN status Least Concern.

References Baird 2002; Odell and McClune 1999; Stacey et al. 1994.

A false killer whale swims on its side and displays its unique S-shaped flipper. Eastern tropical Pacific. PHOTO: R. L. PITMAN

A large group of false killer whales riding the bow wave in the northern Gulf of Mexico. Notice the distinctive head and flipper shape. PHOTO: K. D. MULLIN

Pygmy Killer Whale—*Feresa atenuata*

Gray, 1874

Recently-used synonyms *Feresa intermedia*.

Common names En.–pygmy killer whale; Sp.–*orca pigmea*; Fr.–*orque pygmée*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics The body of the pygmy killer whale is slender to moderately robust, narrowing significantly posterior to the dorsal fin. The head is rounded (even bulbous) in profile, and has no beak (except in some young animals). The head also appears rounded (as opposed to triangular) from above. The dorsal fin is tall and slightly falcate, often rising at a relatively shallow angle from the back. The flippers have rounded tips, with a convex leading edge and concave trailing edge. The pygmy killer whale is often confused with the false killer whale and melon-headed whale, which are both very similar in general appearance.

Pygmy killer whales are superficially similar to melon-headed whales. However, they have blunter heads, a shallower cape and more extensive white on the face. Taiwan. PHOTO: J. Y. WANG.

When the lighting is good, the high cape of the pygmy killer whale shows quite well, such as in these animals off Taiwan. PHOTO: J. Y. WANG

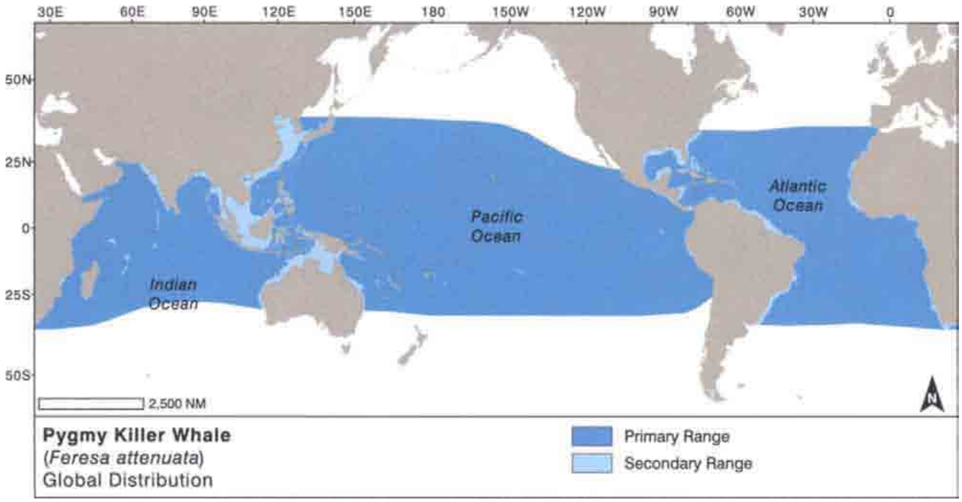
The color of the pygmy killer whale's body is dark gray to black, with a fairly prominent narrow cape that dips only slightly below the dorsal fin, and a white to light gray ventral band that widens around the genitals. Also, the lips and snout tip are often white. Occasionally, this white color may extend to the entire front of the head (apparently in older animals). White cookier-cutter shark scars are quite common on the bodies of many larger pygmy killer whales.

The upper jaw contains 8–11 pairs of teeth, and the lower jaw has 11–13 pairs. The teeth are quite large and heavy.

Newborns are about 80 cm long, adults up to 2.6 m. Males are apparently slightly larger than females. Maximum known weight is 225 kg.

Recognizable geographic forms None.

Can be confused with Pygmy killer whales are most easily confused with melon-headed whales, and less



commonly with false killer whales. Flipper shape (rounded tips in the pygmy killer whale, pointed tips in the melon-headed whale, and with a prominent hump in the false killer whale) and the contour of the cape (relatively distinct and straight in the pygmy killer whale, indistinct and dipping low below the dorsal fin in the melon-headed whale, and virtually absent in the false killer whale) are the best features to use in distinguishing these three species. Also, the shape of head when viewed from above (rounded in this species, triangular in the melon-headed whale) may be useful.

Distribution This is a tropical/subtropical species that inhabits oceanic waters around the globe (Atlantic, Pacific and Indian oceans), generally not ranging north of 40°N or south of 35°S. They are rarely seen in nearshore waters, but may occur relatively close to shore where the water is deep and clear.

Ecology and behavior There is little known of the biology of the pygmy killer whale. It is rarely encountered in most areas, making it one of the least-known of all the delphinids. Groups generally contain about 12–50 individuals, although herds of up to several hundred have been seen. In Hawaiian waters, pygmy killer whales show high fidelity to specific islands, and association patterns are strong and stable. Its movements tend to be slow and lethargic compared to the similar-appearing melon-headed whale. It generally does not bow ride, but has been known to on occasion. Leaps and spyhops are sometimes seen. In captivity, most of the few animals that have been held have been very aggressive.

Not much is known of the reproductive biology of this species. Reliable estimates of length and age at sexual maturity are not available, but it is thought that these animals probably reach adulthood at something over 2.0 m.

Feeding and prey Pygmy killer whales eat mostly fish and squid, although they occasionally have been known to attack other dolphins, at least when the dolphins are involved in tuna fishery interactions in the eastern tropical Pacific.

Threats and status Pygmy killer whales have been killed both directly in harpoon and driftnet fisheries (Caribbean islands, Sri Lanka, and Indonesia) and incidentally in various types of fishing gear (most areas of the species' range). The only abundance estimate available is of about 39,000 in the eastern tropical Pacific. Although

Three pygmy killer whales moving below the surface, displaying most of the species' identifying characteristics. Hawaii. PHOTO: D. PERRINE@/SEAPICS.COM

A pygmy killer whale breaches in waters of Taiwan. The bulbous head shape, white lips, and rounded flipper tips, all diagnostic of the species, clearly show here. PHOTO: J. Y. WANG

The longer, more rounded flippers of this pygmy killer whale not only distinguish it from the very similar melon-headed whale, but also correctly suggest that it is the slower swimmer of the two species. Balabac, Philippines. PHOTO: M. L. L. DOLAR

In the pygmy killer whale, the lips and much of the front of the head are often white in adults. PHOTO: COURTESY OF THE LATE S. LEATHERWOOD

few serious conservation problems are known, this species does not appear to be particularly abundant anywhere that it has been sighted—although widespread, it has been suggested that it may be naturally rare. In Hawaii, populations appear to be small, and this, along with their limited movements, suggests the species may be particularly vulnerable to human impacts.

IUCN status Data Deficient.

References Donahue and Perryman 2002; Leatherwood et al. 1991; Madsen et al. 2004; Ross and Leatherwood 1994.

Melon-headed Whale—*Peponocephala electra*
(Gray, 1846)

Recently-used synonyms *Lagenorhynchus asia, Lagenorhynchus electra, Electra electra.*

Common names En.–melon-headed whale; Sp.–*calderón pequeño* or *delfín cabaza de melón*; Fr.–*péponocéphale*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics Melon-headed whales are moderately robust small whales. The dorsal fin is tall and slightly falcate, and is located near the middle of the back. The head of adults can be bulbous, and the melon can be overhanging in adult males. However, younger animals have a more sloping forehead, although there is generally little hint of a beak. The flippers are sickle-shaped and have pointed tips. Compared to females, males have more bulbous melons, longer flippers, taller dorsal fins, and tail stocks with pronounced post-anal humps (often called keels).

Although often described as simply black with a few patches in older literature, the melon-headed whale actually has an interesting color pattern. The body is generally charcoal gray to nearly black (young are lighter gray), with a white urogenital patch with irregular margins. On many individuals, there is also an anchor-shaped patch of light color on the underside of the head, just ahead of the flippers. On larger animals, the black triangular "mask" on the face of melon-headed whales distinguishes them from the somewhat more uniformly-colored pygmy killer whale. A darker strip runs forward from the eye to the beak tip, and there is a pale, streaked blowhole stripe, which widens as it runs toward the tip of the upper jaw. The lips and tip of the lower jaw of larger animals are light gray or white. Much of the facial coloration is subtle and can only be seen when the lighting is right. Melon-headed whales also have a rounded cape that dips much lower below the dorsal fin than that of pygmy killer whales, although its margin is often faint and there is little contrast between it and the lighter flanks. The cape may not be visible in sightings at sea, unless the lighting is good.

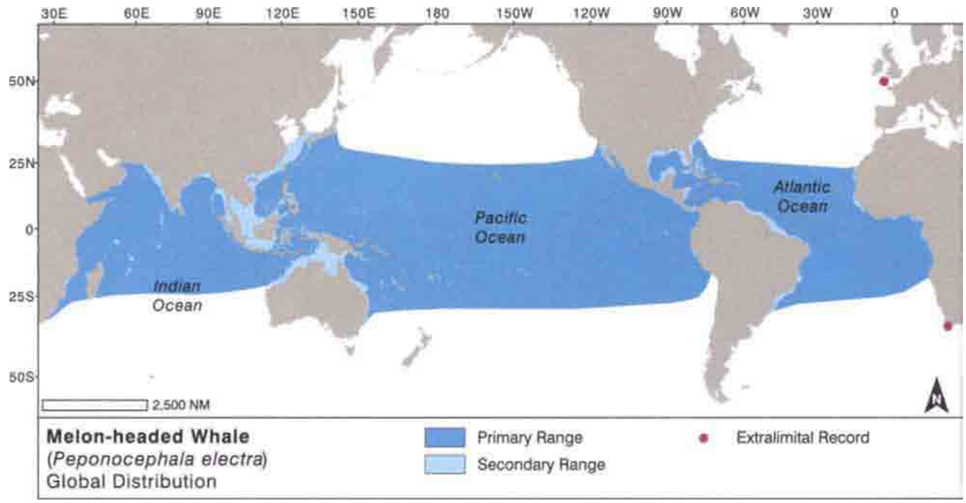
These animals have 20–25 small slender teeth in each tooth row. The teeth are much more similar to those of the smaller dolphins than they are to those of other blackfish species.

Melon-headed whales reach a maximum of about 2.78 m, with males reaching somewhat greater lengths than females. Length at birth is thought to be about 1 m or less. Maximum known weight is about 275 kg.

Recognizable geographic forms None.

Can be confused with Melon-headed whales can be difficult to distinguish from pygmy killer whales, especially when seen at sea from a distance. Head shape, flipper shape, and the shape and distinctness of the

A group of melon-headed whales at the surface, showing the tight social structure that is typical of these animals. Off Mayotte. PHOTO: J. KISZKA



cape can be useful in identification. Pygmy killer whales have rounded (as opposed to pointed) flipper tips and only 8–13 pairs of robust teeth (as opposed to 20–25 pairs of slender ones). Also, melon-headed whales tend to have a more triangular head shape (when viewed from above or below), and females and young have a beak, albeit very short and poorly defined. False killer whales may also be confused with this species at a distance, but size and close attention to body shape and coloration will allow them to be distinguished.

Distribution The range of the melon-headed whale coincides almost exactly with that of the pygmy killer whale in tropical/subtropical oceanic waters between about 40°N and 35°S. They are rarely found nearshore, unless the water is very deep. A few high-latitude strandings are thought to be extralimital records, and are generally associated with incursions of warm water.

Ecology and behavior Melon-headed whales are highly social, and are known to occur usually in pods of 100–500 (with a known maximum of 2,000 individuals). They are often seen swimming with other species, especially Fraser's dolphins in the Gulf of Mexico, eastern tropical Pacific, and Philippines. Melon-headed whales often move at high speed, porpoising out of the water regularly, and are eager bowriders in many areas, often displacing other species from the bow wave. In the calm waters of the Philippines and some other tropical archipelagos, this species is often seen in large schools of rafting individuals in resting formation.

This is a species that is sometimes involved in mass strandings, generally containing many dozens or even hundreds of animals. The largest ones known have included up to 250 animals.

There is some scant evidence to indicate a calving peak in July and August, but this is inconclusive. In Japanese waters, females reach sexual maturity at about 11.5 years and 235 cm, and males at 16.5 years and 244 cm. Little else is known of the species' life history or reproductive biology.

Feeding and prey Melon-headed whales are known to feed on several species of squid and small fish. They appear to feed mainly deep in the water column. Some shrimps have also been found in melon-headed whale stomachs.

The black 'bandit mask', pointy flippers, and dorsal cape dipping low beneath the dorsal fin are all evident in this melon-headed whale. It is a much faster swimmer than the similar-appearing pygmy killer whale. Western North Pacific. PHOTO: J. COTTON

Threats and status Although no regular, large hunts are known, melon-headed whales have been taken in various fisheries. This includes direct killing in drive fisheries in Japan and harpoon/driftnet fisheries in the Caribbean, Sri Lanka, the Philippines, and Indonesia, as well as incidental catches in tuna purse seines in the eastern tropical Pacific. This species is relatively common in

The pointier head and flippers of these melon-headed whales clearly distinguish them from pygmy killers. Rota, Mariana Islands. PHOTO: COURTESY OF M. MICHAEL

The dorsal cape of the melon-headed whale is narrower along the back and dips lower below the dorsal fin than in the very similar pygmy killer whale. PHOTO: COURTESY OF M. MICHAEL

An overhead view clearly shows the distinctive narrow dorsal cape pattern of a melon-headed whale; also note the pointy head and flippers of a fast swimming species. Gulf of Mexico. PHOTO: R. L. PITMAN

The distinctive saddle of the melon-headed whale is very thin along the back and dips suddenly below the dorsal fin. The dorsal fin is broad-based and fairly large. Off Mayotte. PHOTO: J. KISZKA

The melon-headed whale has a pointier head than the pygmy killer whale and much narrower white coloration on the lips. Off Mayotte. PHOTO: J. KISZKA

These actively-swimming melon-headed whales were observed in the North Pacific Ocean. PHOTO: NOAA FISHERIES/SWFSC

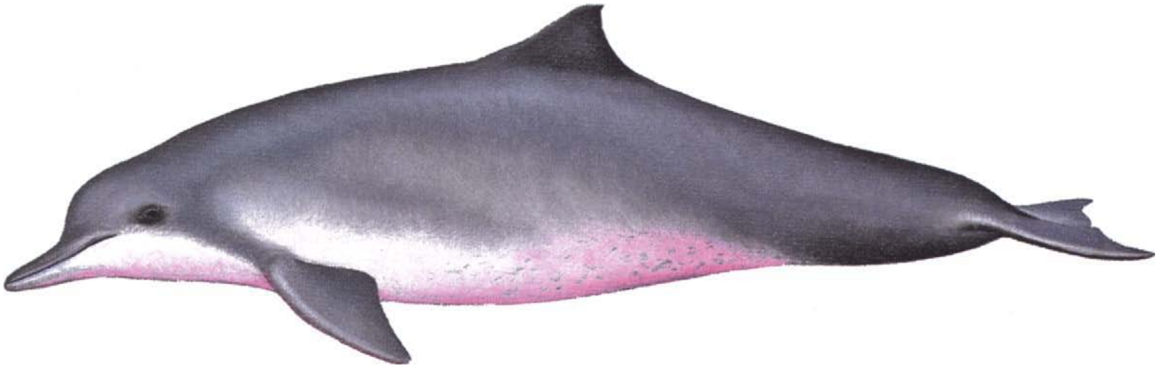
some areas of its range, such as parts of the Philippines and around some archipelagos in the western tropical Pacific. The only abundance estimates available are of about 45,000 animals in the eastern tropical Pacific, and 2,000 in the northern Gulf of Mexico. On a global scale, the melon-headed whale is not considered to be threatened or endangered.

IUCN status Least Concern.

References Jefferson and Barros 1997; Miyazaki et al. 1998; Perryman 2002; Perryman et al. 1994.

Tucuxi—*Sotalia fluviatilis*

(Gervais and Deville, 1853)



Recently-used synonyms *Sotalia tucuxi, Sotalia pallidus.*

Common names En.–tucuxi; Sp.–*bufeo gris, bufeo negro* Fr.–*sotalia*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Recently, it has been recommended that the riverine and marine forms of *Sotalia* be split into two species: *S. fluviatilis* in the Amazon River system and *S. guianensis* in coastal marine waters of central and South America. The evidence for separate species status appears to be overwhelming, and it appears very likely that this proposed split will be accepted by most marine mammal biologists.

Species characteristics This small dolphin resembles the bottlenose dolphin in general body shape. It is significantly smaller than its congener. It is rather chunky, with a moderately long and narrow beak, and broad flippers. The dorsal fin that is shorter and more triangular and wide-based than in the bottlenose dolphin—it is sometimes recurved at the tip. The tucuxi has a rounded melon, which is not separated from the beak by a distinct crease (as it is in most other dolphins).

On the upper surface, tucuxis are dark-bluish or brownish-gray, fading to light gray or white (usually with a pinkish tinge) on the belly. There is a broad, somewhat poorly-defined stripe from the eye to the flipper, with a distinct lower boundary between the dark above and light below. A lateral area of lighter gray is present behind the flipper, and another one laterally from mid-body to the anus. The flipper and flukes are dark gray on the undersides.

The mouth contains 28–35 small, pointed teeth in each upper tooth row and 26–33 in each lower.

Adult female dolphins of this species are only up to about 1.52 m in length, and males are slightly smaller, reaching 1.49 m. Size at birth is poorly-known, but it estimated to be 0.7–0.8 m.

Recognizable geographic forms None.

A pair of tucuxis surfaces alongside a boat in the Peruvian Amazon. They are somewhat reminiscent of small bottlenose dolphins. PHOTO: T. A. JEFFERSON

Can be confused with In the Amazon River system, Amazon River dolphins (botos) are the only other cetaceans present, and it is usually easy to distinguish the two species. Differences in size, coloration, dorsal fin shape, head shape, and behavior are the best clues to distinguishing them. The tucuxi and costero may be sympatric in waters near the estuary of the Amazon River, and it would be nearly impossible to distinguish them "at sea."

Distribution Tucuxis are almost exclusively freshwater animals, and

Tucuxis have relatively short beaks and well-developed dorsal fins, and they porpoise when moving fast. All these facts suggest that their adaptation to riverine life has only come in recent evolutionary times. Peruvian Amazon. PHOTO: T. HENNINGSEN

occur in the Amazon River and possibly the Orinoco system as well (although it is thought to be the costero that inhabits Orinoco waters). This species is found throughout the Amazon drainage basin, as far inland as southern Peru, eastern Ecuador, and southeastern Colombia.

Ecology and behavior Dolphins of this species live mostly in groups of four or fewer, although they may be found in groups of up to 20. They are social animals, and they often feed in groups, sometimes appearing to use cooperative techniques. Dive times are generally less than 1.5–2.0 minutes. They do not bow ride, but they are sometimes quite active, with various types of leaps and other aerial behaviors seen.

They are generally shy and difficult to approach. During the flood season, animals may move into smaller tributaries, but apparently do not move into the inundated forest to feed (as Amazon River dolphins often do), staying mainly in the main river channels, tributaries and lakes. Tucuxis are largely sympatric with botos in the Amazon system, but generally do not interact with them (although they have been known to do so at times).

Life history has been little studied; most of the studies involve the marine species. At least in Brazil, calving apparently occurs primarily during the low water period, October to November. Sexual maturity is reached at about 1.3–1.4 m in length. Lifespan is estimated to be at least 30–35 years.

Feeding and prey A wide variety of fish, mostly small schooling species, are eaten. Feeding occurs both individually and in large groups.

Threats and status There are no global estimates of abundance available, and only estimates for specific portions of the range have been made. The tucuxi has been taken in fishing gear, especially gillnets and seines, in many areas of its range. Damming of rivers has also contributed to problems for this species. Additional threats include the damaging effects of gold mining with mercury, habitat loss/destruction, vessel collisions, environmental contaminants, and behavioral disturbance. In the past, live captures have also resulted in the loss of some animals. The species is not uncommon, and in many parts of the Amazon River system it is actually quite abundant. It occurs in some of the highest densities known for any cetacean species, and receives some protection there from myths and legends that discourage killing.

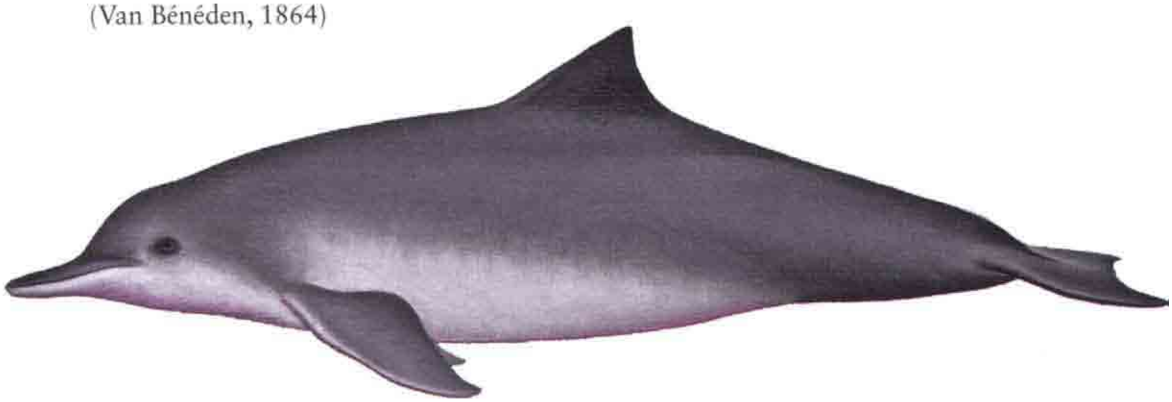
IUCN status Data Deficient.

References Caballero et al. 2007; Cunha et al. 2005; da Silva and Best 1994, 1996; Flores 2002.

A tucuxi leaps out of the water in the brownish, muddy waters of the Columbian Amazon. These animals can be quite acrobatic, and when seen so clearly, they are reminiscent of a bottlenose dolphin calf. PHOTO: F. TRUJILLO

Costero—*Sotalia guianensis*

(Van Bénéden, 1864)



Recently-used synonyms *Sotalia brasiliensis*.

Common names En.–costero; Sp.–*bufeo negro, tonina*; Fr.–*sotalia*. (Note—there are currently no universally agreed-upon common names for this species. In Brazil, they are *called boto*, *boto comun*, or *golfinho cinza*.)

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Recently, it has been recommended that the riverine and marine forms of *Sotalia* be split into two species, *S. fluviatilis* in the Amazon River system and *S. guianensis* in coastal marine waters of central and South America (and probably the Orinoco system as well). The evidence for separate species status appears to be overwhelming, and it appears very likely that this proposed split will be accepted by most marine mammal biologists.

Species characteristics This small dolphin resembles the bottlenose dolphin in general body shape. It is somewhat larger than its close relative, the tucuxi. It is rather chunky, with a moderately long and narrow beak, and broad flippers. The dorsal fin is shorter and more triangular and wide-based than in the bottlenose dolphin—it is often recurved at the tip. The costero has a rounded melon, which is not separated from the beak by a distinct crease (as it is in most other dolphins).

On the upper surface, dolphins of this species are dark-bluish or brownish-gray, fading to light gray (often with a pinkish tinge) on the belly. The belly tends to be darker than in the tucuxi. There is a broad, somewhat poorly-defined stripe from the eye to the flipper. They may have another light streak of gray on the sides of the tail stock. The undersides of the flippers and flukes are gray.

The mouth contains 30–36 small, pointed teeth in each upper tooth row, and 28–34 in each lower. This is slightly more than in the tucuxi.

Adult dolphins of this species can be up to nearly 2.1 m in length (the largest known male was 1.7 m and the largest known female 1.87 m). They reach weights of at least 40 kg. Size at birth is estimated to be 0.8–1.15 m.

Recognizable geographic forms None.

A group of the costeros in southeastern Brazilian waters, showing the typical surfacing profile. PHOTO: L. FLACH

Can be confused with Bottlenose dolphins could be mistaken for costeros, but they are much larger, with taller, more falcate dorsal fins. Franciscanas might also be difficult to distinguish from *Sotalia* in coastal waters, but only if not seen well. The franciscana generally has a smaller body, much longer snout, and squarish (rather than pointed) flippers. Also, the franciscana has a shorter, more rounded dorsal fin. Near the mouth of the Amazon, the costero may overlap with the tucuxi (unconfirmed), and distinguishing them would be nearly impossible.

Distribution Costeros are found along the Atlantic coast of central and South America, mostly in shallow, nearshore marine waters, and in estuaries. They occur from Nicaragua (perhaps even Honduras) to Florianopolis, southern Brazil. The species has also been reported around some Caribbean islands, such as Trinidad and Tobago, as well as the Abrolhos archipelago, off Brazil. There is a population in Lake Maracaibo, an estuarine system in Venezuela. Dolphins of the genus *Sotalia* also occur in the Orinoco River basin, as far as about 300 km upriver (to about Ciudad Bolivar), and it is thought they these are members of the present species, but this remains uncertain.

Ecology and behavior Costeros live mostly in groups of four or fewer, although they are found in groups of up to 50 at times. They are social animals, and they often feed in groups, sometimes appearing to use cooperative techniques. Dive times are generally less than 1.5–2.0 minutes. They do not bow ride, but they are sometimes quite active, with various types of leaps and other aerial behaviors seen. Long-term photo-identification studies have shown that at least some individuals display long-term residency. Costeros are easier to approach than are tucuxis. Along the coast of Brazil, there are apparently at least three populations.

Life history has been studied in some detail recently. There is little or no evidence of calving seasonality in this species. There appears to be a 2-year calving interval. Sexual maturity is reached at about 1.6–1.8 m and 5–8 years. Lifespan is estimated to be at least 30–35 years.

Feeding and prey Costeros consume a wide variety of pelagic and demersal fishes and cephalopods. Feeding occurs both individually and in large groups.

Threats and status There are no global estimates of abundance available, and only estimates for specific portions of the range have been made (e.g., about 420 animals in Guanabara Bay, Brazil). They have been taken in fishing gear, especially gillnets and seines, in many areas of their range. There has been some direct killing for human consumption and for shark bait. Additional threats include habitat loss/destruction, vessel collisions, environmental contaminants, behavioral disturbance and


A mother and small calf costero surface together in Sepetiba Bay, Brazil. PHOTO: L. FLACH


The marine form of *Sotalia* (the costero), which is common along much of the east coast of South America. Southeast Brazil. PHOTO: L. FLACH


Costero mother and calf surfacing in marine waters of Sepetiba Bay, Brazil. Notice the absence of a crease between the melon and beak. PHOTO: L. FLACH

Delphinidae
Costero

This costero calf still has a lumpy look and fetal folds, indicating it is still very young. Southeast Brazil. PHOTO: L. FLACH

Although costeros overlap in range and look similar to bottlenose dolphins, they are noticeably smaller, with lower, more triangular dorsal fins. Southeast Brazil. PHOTO: L. FLACH.

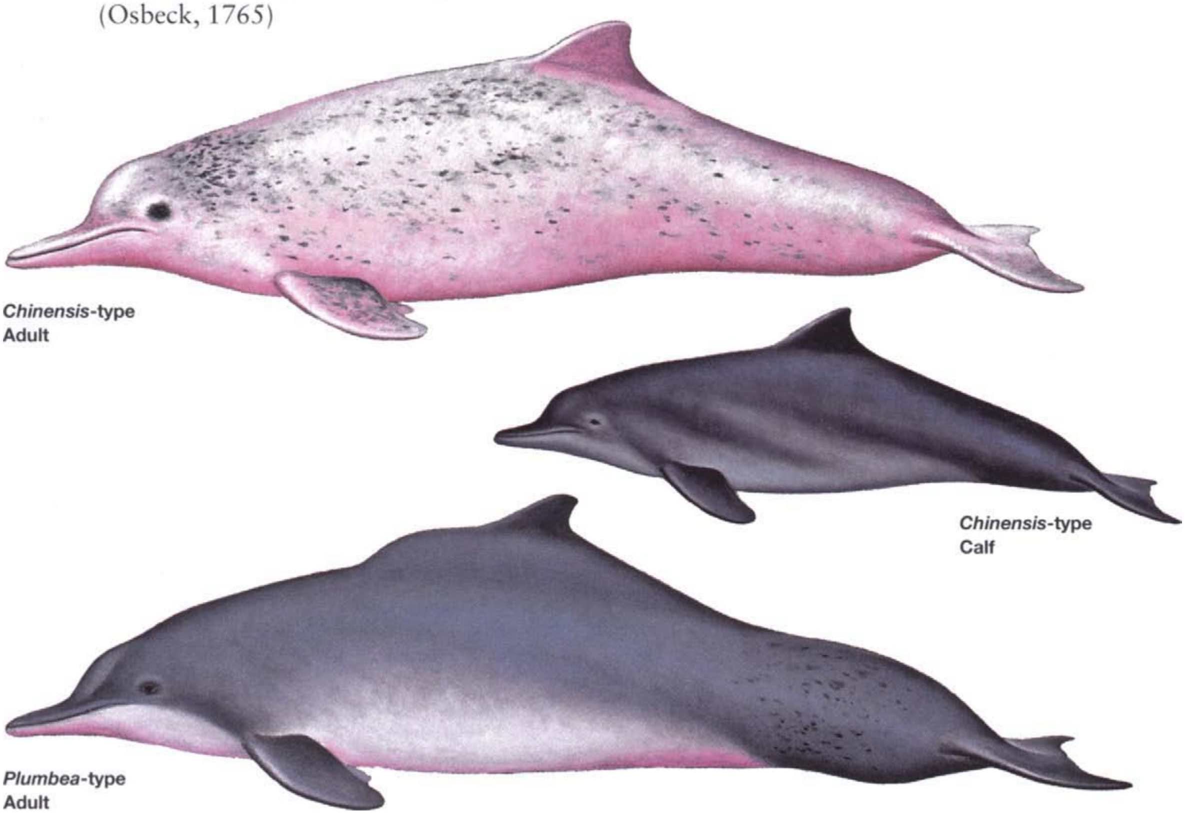
hand-feeding by tourist boats. In the past, live captures have also resulted in the loss of some animals. The species is relatively common throughout much of its range along the central and South American coast.

IUCN status Not Listed.

References Caballero et al. 2007; Cunha et al. 2005; da Silva and Best 1994, 1996; Flores 2002; Flores and Bazzalo 2004.

Indo–Pacific Humpback Dolphin—*Sousa chinensis*

(Osbeck, 1765)



Recently-used synonyms *Sousa plumbea, Sousa lentiginosa, Sousa borneensis.*

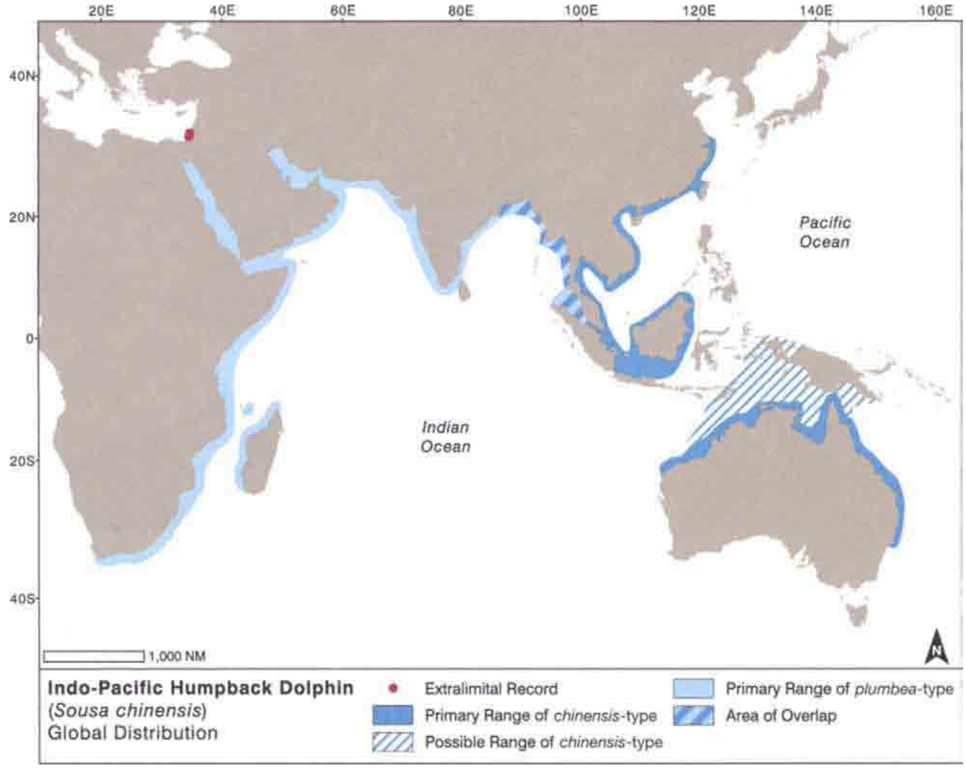
Common names En.–Indo–Pacific humpback dolphin; Sp.–*delfín jorobado del Pacífico*; Fr.–*dauphin a bosse de l'Indo–Pacifique*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Some biologists consider this group to consist of two species: *Sousa plumbea* from South Africa to India, and *Sousa chinensis* from the east coast of India to the east. Morphometric and genetic studies underway may resolve this controversy in the near future, but there is growing evidence that at least these two putative species (and others not yet well-described) may be valid.

Species characteristics Dolphins of this highly-variable species are characterized by robust bodies with long, well-defined beaks. The beak is distinctly set-off from the rounded melon, but not by a deep crease (as it is in many other dolphin species). In populations in the western Indian Ocean, the small dorsal fin sits on a hump, or ridge, in the middle of the animal's back. The hump is present in young animals, but gets larger in older animals, especially adult males. In humpback dolphins in the eastern Indian and Pacific oceans the ridge appears to be absent, or nearly-so, and the dorsal fin is short and very wide-based. In some western areas, there also appear to be well-developed dorsal and ventral ridges on the tail stock, which are more exaggerated in males.

The color pattern varies with age and area. In the western part of the range, light-colored calves darken with age to become dark lead gray above and light gray below as adults (sometimes with white scarring around the dorsal fin and hump). Spotting tends to be relatively sparse, if present at all. However, in the eastern Indian

A humpback dolphin porpoises in the Pearl River Estuary, west of Hong Kong. This animal is of the *chinensis*-type, which lacks the dorsal hump. PHOTO: T. A. JEFFERSON



and Pacific oceans, dark gray calves lighten with age. In most areas of Southeast Asia and Australia, adults become pinkish-white, often with spots and blotches. In at least southern China, the spotting disappears in old females, leaving them ghostly white (often with a pink tinge).

There are 31 to 39 sturdy teeth in each upper tooth row, and 29–38 in each lower row. *Plumbea*-type dolphins have more teeth, on average, than *chinensis*-type specimens.

Maximum known body lengths are 2.8 m (males) and 2.6 m (females). Although unconfirmed reports of lengths up to 3.2 m have been reported, these are probably erroneous. Weights of up to 280 kg have been recorded. Newborns appear to be around 1 m in length.

A captive humpback dolphin of the *chinensis*-type at an oceanarium in Singapore. This animal was captured in the Gulf of Thailand. PHOTO: T. A. JEFFERSON

Pacific humpback dolphin* (chinensis-*type)

Calf—About 1/3–1/2 of adult size; dark gray to black dorsal surface, with no spotting.

Juvenile—About 2/3–3/4 adult size; gray dorsal surface, often with some lightening of the dorsal fin.

Subadult—Close to adult size; dark ground color of the dorsal surface fades in blotches to leave gray/black spotting.

Adult—Ground color white (often with pinkish tinge); spotting on dorsal surface may be extensive to completely absent.

Indian humpback dolphin* (plumbea-*type)

Calf—About 1/3–1/2 of adult size; off-white to light gray coloration, with no spotting.

Juvenile/Subadult—Greater than about 2/3 adult size; uniform slate gray dorsal surface.

Adult—Body robust, generally with prominent dorsal hump and deepened tail stock; dorsal surface and head often whitened, scarred, and spotted.

Recognizable geographic forms

Pacific humpback dolphin* (chinensis-*type)—Pacific humpback dolphins occur from at least the Sundarbans delta of Bangladesh (and possibly further east into India)

Indo-Pacific humpback dolphins surface in waters of the Pearl River Estuary of southern China. These dolphins may lose all their pigmentation and become completely white as adults. PHOTO: HONG KONG CETACEAN RESEARCH PROJECT

A mother and calf humpback dolphin from China's Pearl River Estuary. Calves in this area are dark gray, and they lighten to white as adults. PHOTO: HONG KONG CETACEAN RESEARCH PROJECT

to central China and northern Australia. These animals have no prominent dorsal hump, and the dorsal fin is larger, with a wide base. Sexual dimorphism in body shape and size is weak or nonexistent. Coloration of adults generally ranges from gray to pure white, often with moderate to heavy spotting on much of the body (including the dorsal fin and back). Tooth counts are slightly lower than in the Indian form, ranging from 29–38 (with an average of about 33–35).

***Indian humpback dolphin* (plumbea-*type*)**—These animals are found in the Indian Ocean from South Africa to at least the Mergui Archipelago of southern Myanmar (and possibly southwards to the Strait of Malacca). They have a prominent dorsal hump (even in newborns), and the dorsal fin sits atop this hump. Sexual dimorphism is pronounced, with males larger than females and possessing a much larger dorsal hump. Coloration is generally brownish-gray, with a lighter belly and spotting is limited to small areas of the tail stock. The only white areas on the dorsal surface of the body are generally scarring in large adults. Tooth counts range from 32–39 (with an average of about 35–37).

Can be confused with Humpback dolphins are most likely to be confused with bottlenose dolphins. Differences in dorsal fin shape (including presence of the hump on many humpback dolphins), head shape, and color can be used to distinguish between the two. The surfacing behavior is also different, and may be useful once the observer has seen a number of groups of both species. Other species that share the nearshore range of this species (e.g., Irrawaddy dolphins, common

Not all *chinensis*-type humpback dolphins are white or pink as adults. This male individual, a regular in Hong Kong, is at least 15 years old and is undoubtedly an adult. PHOTO: T. A. JEFFERSON

dolphins, finless porpoises) should be easy to distinguish, based on size, general color pattern, head shape and dorsal fin shape.

Distribution Indo-Pacific humpback dolphins are found from both coasts of northern Australia and central China in the east, through the Indo–Malay Archipelago, and westward around the coastal rim of the Indian Ocean to southern Africa. They are inhabitants of tropical to warm temperate coastal waters and they often enter rivers, estuaries, and mangroves. The species' distribution

An Indo-Pacific humpback dolphin mother and calf, killed in anti-shark nets off South Africa. These animals are of the *plumbea*-type. Note that even the calf has a prominent dorsal hump. PHOTO: NATAL SHARKS BOARD

A large *plumbea*-type humpback dolphin in waters of Richard's Bay, South Africa. The dorsal hump of this animal is quite large, suggesting that it may be an adult male. PHOTO: T. A. JEFFERSON

A *plumbea*-type Indo-Pacific humpback dolphin, providing a good view of the fleshy dorsal hump, on top of which the small dorsal fin sits. Mayotte. PHOTO: J. KISZKA

Humpback dolphins in the Arabian area, such as this one off Oman, are gray in color as adults and have a prominent dorsal hump. PHOTO: COURTESY OF T. COLLINS

extends to enclosed seas: Persian Gulf, Red Sea, and Gulf of Thailand. There are a few extralimital records for the Mediterranean (apparent strays from the Red Sea).

Ecology and behavior Groups tend to be small, containing fewer than 10 individuals, although up to 30–40 have been seen together on occasion in Chinese waters. In Arabian waters, groups of over 100 are sometimes seen together. Group structure has been studied using photo-identification techniques. At least off South Africa and in Hong Kong, fluidity in group structure is the rule. Ranging patterns appear to vary, depending on the type of coastline involved, but residency of at least some individuals appears to be typical.

Off South Africa, where the behavior of these dolphins has been most thoroughly studied, herds often patrol slowly parallel to shore and preferentially use sandy bays for resting and socializing, and rocky coastline and larger estuarine areas for foraging. They are moderately acrobatic. Groups in Hong Kong and in Australian waters often feed behind active trawlers. In Hong Kong, they do not feed around reefs, but often consume fish near the bottom in shallow, murky waters. Bowriding behavior is extremely rare, although some individuals may ride swells or vessel wakes. They are shy of boats in South Africa and many other parts of the range, but in Hong Kong, dolphins are very accustomed to heavy vessel traffic.

Little is known about reproductive biology. Sexual maturity appears to be reached at around 9–10 years for females, and a few years later for males. Mating and calving occur all year, at least in South Africa and China, but there appear to be calving peaks in late spring to summer.

Feeding and prey Humpback dolphins appear to be rather opportunistic feeders. Feeding is primarily on a very wide variety of nearshore, estuarine, and reef fish. They also eat cephalopods in some areas, although crustaceans appear to be rare in the diet.

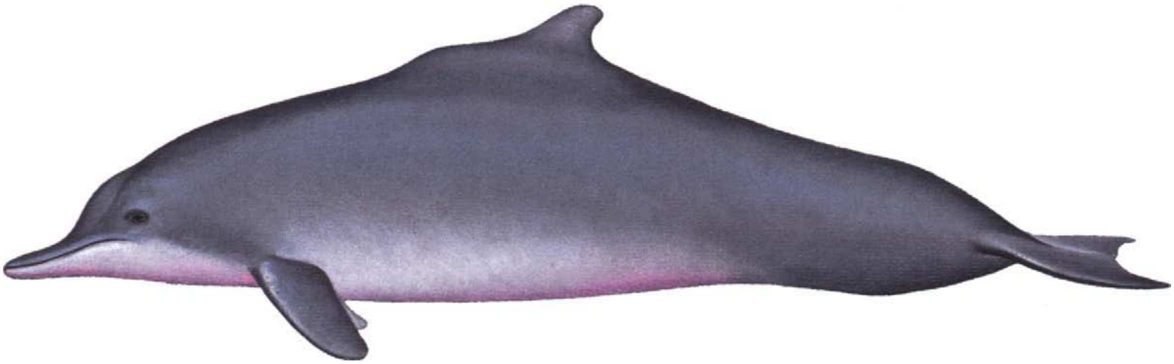
Threats and status Humpback dolphins are not known to be hunted directly anywhere in their range in significant numbers. However, they are often caught in fishing nets (such as gillnets and trawls), and also in anti-shark nets off South Africa and Australia. Because they are coastal in nature, habitat loss, vessel strikes, and pollution are additional important threats to these animals, and they are especially vulnerable to human threats. In particular, organochlorines and trace metals have been found to be very high for several populations (such as those off South Africa and Hong Kong). The species is not in any immediate danger of extinction, but certain populations are thought to have been depleted. Most of the small number of abundance estimates obtained have been in the lower hundreds of dolphins, but there appear to be at least 1,500 in the Pearl River Estuary of southern China.

IUCN status Data Deficient.

References Jefferson and Karczmarski 2001; Karczmarski et al. 2000; Ross 2002; Ross et al. 1994.

Atlantic Humpback Dolphin—*Sousa teuszii*

(Kükenthal, 1892)



Recently-used synonyms None.

Common names En.–Atlantic humpback dolphin; Sp.–*delfín jorobado del Atlantico*; Fr.–*dauphin a bosse de l'Atlantique.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. The validity of this species has been questioned in the past few years, but recent studies on skull morphology and genetics have made it clear that the species is indeed valid and separate from the Indo–Pacific humpback dolphin.

Species characteristics Atlantic humpback dolphins have a robust body; long, distinct beak (but with no crease between the beak and melon); broad flippers with rounded tips, and a moderately deepened tail stock. The dorsal fin is variable in shape, but is generally small and falcate. It emerges from a wide hump or ridge of connective tissue on the back. All animals, except for possibly very young calves, appear to possess the hump. Although this species is poorly known, it is probably sexually dimorphic, like some forms of the Indo–Pacific humpback dolphin.

Coloration is somewhat variable. Animals are typically slate gray on the sides and back, and light gray to whitish below. The coloration may appear brownish in some lighting. Some individuals have dark spots or flecks on the tail stock and near the base of the dorsal fin.

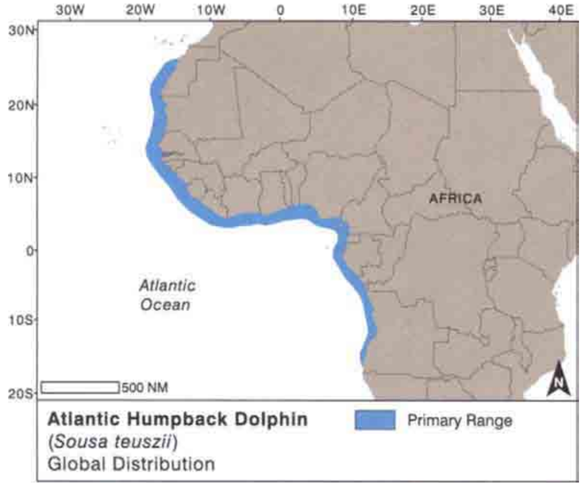
Tooth counts are 27–32 per upper tooth row, and 26–31 per lower row.

Adults are up to about 2.8 m in length (probably with males reaching greater sizes), and weigh up to 284 kg. Length at birth is thought to be about 1 m, but there are few records.

Recognizable geographic forms None.

Can be confused with The similar-looking bottlenose dolphin also inhabits the inshore range of the Atlantic humpback dolphin. The two can be distinguished by differences in beak length, dorsal fin shape (including the

A group of Atlantic humpback dolphins in the very murky waters off Mauritania. PHOTO: T. HENNINGSEN



This Atlantic humpback dolphin clearly shows the prominent dorsal hump that characterizes the species. PHOTO: T. HENNINGSEN

presence of the hump in *Sousa*), and coloration. This species is externally very similar to the form of *Sousa chinensis* that occurs in the western Indian Ocean, but there should not be any identification problems, as the two do not overlap in distribution.

Distribution Atlantic humpback dolphins occur in nearshore waters off tropical to subtropical West Africa, from Morocco south to at least southern Angola. They apparently occur as distinct populations, separated by areas of low or zero density. They are found primarily in estuarine and shallow coastal waters. Humpback dolphins may occupy lower reaches of rivers to slightly beyond the tidal influence, but there is no evidence that there are separate freshwater populations. In at least some areas, they frequent the surf zone just offshore of the breakers.

Ecology and behavior Groups of Atlantic humpback dolphins generally contain 5–7 individuals, occasionally up to 30 or 40 animals may gather in scattered subgroups. Groups generally feed very near shore, often within easy view of the beach, and sometimes in the turbid surf zone. These animals generally do not bowride, and appear not to be very aerially active. Compared to some populations of the Indo-Pacific humpback dolphin, they are generally shy and difficult to approach. Little else is known of the behavior of these animals.

Two Atlantic humpback dolphins surface just outside the surf zone. Gabon, West Africa. PHOTO: T. COLLINS

Breeding has been documented in March and April, but the reproductive season may well be more protracted. Virtually nothing else is known of the life history of the species.

Feeding and prey Atlantic humpback dolphins feed on nearshore schooling fishes such as mullet and, contrary to some descriptions, are not thought to eat vegetable matter. Off the coast of Mauritania, fishermen sometimes cooperate with Atlantic humpback and bottlenose dolphins to capture mullet with beach seines.

Threats and status Incidental catches in fishing nets are known, and some Atlantic humpback dolphins may be taken directly by local people in West Africa. Habitat destruction, vessel collisions, and environmental contamination may be additional threats. There are no statistically defensible estimates of abundance available for anywhere in the range, although there are thought to be at least several hundred in Guinea Bissau. This species has a restricted range, and it is likely that there are no more than a few thousand of these animals left. Due to the evidence of low densities in most areas of study, and significant threats from human activities, the Atlantic humpback dolphin may be threatened with extinction on a global scale.

IUCN status Data Deficient.

References Ross 2002; Ross et al. 1994; Van Waerebeek et al. 2004.

Rough-toothed Dolphin—*Steno bredanensis*

(G. Cuvier *in* Lesson, 1828)

Recently-used synonyms *Steno rostratus*.

Common names En.–rough-toothed dolphin; Sp.–*esteno* or *delfín de dientes rugosos*; Fr.–*sténo*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Hybrids with common bottlenose dolphins have been reported from captivity.

Species characteristics The rough-toothed dolphin is relatively robust, with a long, conical head and no demarcation between the gently-sloping melon and the moderately long beak. It has a somewhat reptilean appearance. This species has large flippers (seemingly oversized for the animal), which are set farther back on the body than in most other dolphin species. The dorsal fin is prominent and slightly falcate. Adult males may have a post-anal hump of connective tissue on the underside of the tail stock.

The color pattern is generally three-tone. The body is dark gray, with a prominent, narrow dorsal cape that dips slightly down onto the side below the dorsal fin. The belly, lips, and much of the lower jaw are usually white, sometimes with a pinkish cast. There may be a dark eye patch. The sides are an intermediate shade of gray. White scratches and spots, apparently mostly caused by bites of cookie-cutter sharks and probably other rough-toothed dolphins, often are present on the bodies of older individuals. Young animals are lighter in color than adults, have a muted, less-contrasting color pattern, and generally lack the white spots.

The jaws contain 19–28 stout teeth in each row with subtle, but detectable, vertical wrinkles or ridges. These ridges give rise to the species' English common name.

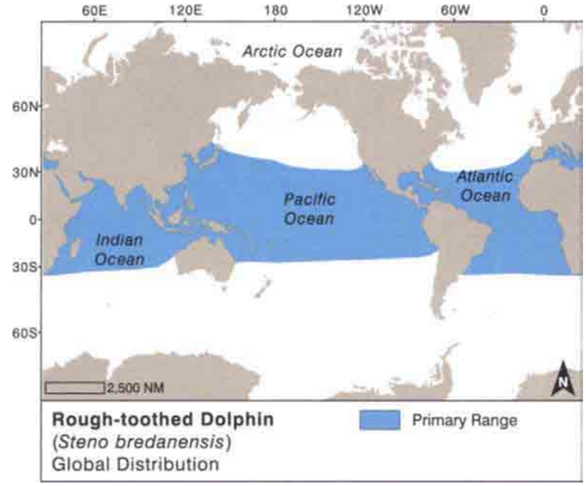
Adults are up to about 2.65 m long (with males slightly larger than females), and may occasionally reach 2.8 m. They are known to reach weights of up to 155 kg. Length at birth is unknown.

Recognizable geographic forms None.

Can be confused with Because of their unique color pattern and head shape, rough-toothed dolphins are generally easy to identify, when seen at close range. However, they may be mistaken for bottlenose dolphins, if seen at a distance. The narrow cape and cone-shaped head will be the best clues to identification of rough-toothed dolphins in such situations.

Distribution The rough-toothed dolphin is a tropical to subtropical species, which generally inhabits deep, oceanic waters of all three major oceans, rarely ranging

Underwater view of a rough-toothed dolphin, showing the unique coloration and body shape. Marquesas. PHOTO: A. GANNIER/GROUPE DE RECHERCHE SUR LES CETACES



Rough-toothed dolphins will approach vessels and bowride on occasion. When such close views are obtained, the species is easy to identify. Eastern tropical Pacific. PHOTO: P. A. OLSON

north of 40°N or south of 35°S. However, in some areas (such as off the coast of Brazil and West Africa), rough-toothed dolphins may occur in more shallow coastal waters. They are found in many semi-enclosed bodies of water (such as the Gulf of Mexico, Caribbean Sea, Red Sea, and Gulf of California), but only occasionally occur in the Mediterranean Sea.

Ecology and behavior Rough-toothed dolphins have been seen most commonly in groups of 10–20, although herds of over 100 have been reported. They may appear lethargic and slow-moving, especially in comparison to the smaller oceanic dolphins of the genera *Delphinus* and *Stenella*. At other times, they move at high speed with the chin and head above the surface, in a distinctive skimming behavior, sometimes described as "surfing." They do bowride at times and aerial behavior, including spyhops and leaps are sometimes seen. They have been seen feeding opportunistically around trawlers.

A mother and calf rough-toothed dolphin; in calves, the lower jaw starts out gray and becomes whiter with age. Hawaii. PHOTO: R. W. BAIRD

Rough-toothed dolphins are thought to be capable of very deep-diving, and dives of up to 15 min. have been recorded. In the eastern tropical Pacific, they tend to associate with floating objects and sometimes with other cetaceans (especially pilot whales and other dolphins).

Not much is known about the reproductive biology of this species. Studies in Japan suggest that males reach sexual maturity at about 14 years of age and 225 cm, and females at 10 years and 210–220 cm. Longevity may be around 36 years or more.

Feeding and prey Rough-toothed dolphins feed on cephalopods and fish, including such large fish as *mahi mahi* (also called dorado or dolphinfish). Recently, it has been suggested that these dolphins may be adapted to be specialist feeders on *mahi mahi*.

Even when little is seen of the animal, rough-toothed dolphins can be identified by the sloping forehead, with no crease between the melon and the beak. Arabian Sea. PHOTO: C. JOHNSON

Although most of the rough-toothed dolphins' identification characteristics can not be seen here, the narrow, well-defined cape is clearly visible. PHOTO: SWFSC/HICEAS

A resting group of rough-toothed dolphins, showing the characteristic sloping melon and high dorsal cape. Brazil PHOTO: L. FLACH

Rough-toothed dolphins showing the white lips and lower jaws of adults; these animals also have numerous cookie-cutter shark bites (the rounded white scars). Hawaii. PHOTO: R. W. BAIRD

A young male rough-toothed dolphin that live-stranded in Hong Kong; notice that the lower jaw and lips have not turned white yet. PHOTO: T. A. JEFFERSON

Threats and status No fisheries are known to specifically target this species, but rough-toothed dolphins are one of several species killed in direct fisheries in Japan, Sri Lanka, Indonesia, the Caribbean, Papua New Guinea, the Solomon Islands, and West Africa. They are sometimes taken as by-catch in purse seine fisheries for tuna in the eastern tropical Pacific, and in gillnet fisheries in Sri Lanka, Brazil, and the offshore North Pacific. Their offshore distribution in most areas should reduce potential problems of habitat loss and alteration. There are few estimates of abundance, except for the eastern tropical Pacific (146,000 animals) and northern Gulf of Mexico (450–850 animals). This species is generally not one of the more common species of tropical dolphins, but there is no reason to believe that it is threatened on a global scale.

IUCN status Data Deficient.

References Addink and Smeenk 2001; Jefferson 2002; Miyazaki and Perrin 1994; Pitman and Stinchcomb 2002.

Bowriding rough-toothed dolphins are easy to identify by their narrow cape and smooth transition from beak to forehead. The area of the eyes often seems to bulge out as well. Eastern tropical Pacific. PHOTO: R.L. PITMAN

Pacific White-sided Dolphin—*Lagenorhynchus obliquidens*

Gill, 1865

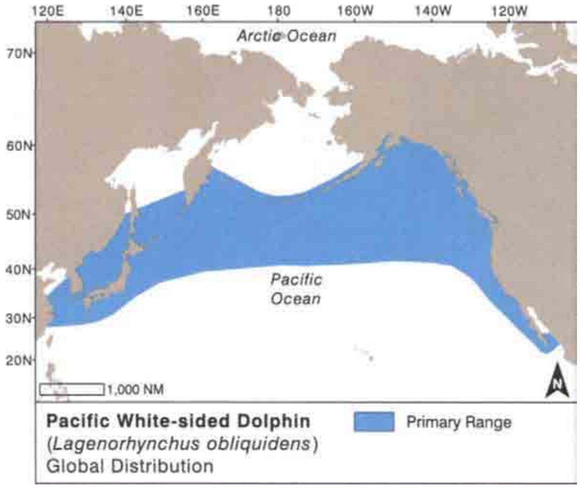
Recently-used synonyms *Lagenorhynchus ognevi.*

Common names En.–Pacific white-sided dolphin; Sp.–*delfín de costados blancos del Pacifico*; Fr.–*dauphin a flancs blancs du Pacifique*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Some biologists have suggested that the Pacific white-sided dolphin may simply be a subspecies of the dusky dolphin, but recent research does not support this idea.

The appearance of cetaceans can change with their environment. These Pacific white-sided dolphins in the southern Bering Sea, at the northern extreme of their range, appear chunkier because of a heavier fat load and have an orange tinge, probably due to diatom infestation. PHOTO: H. FEARNBACH, COURTESY NOAA FISHERIES/NMML

Species characteristics Pacific white-sided dolphins, like all members of the genus *Lagenorhynchus*, are stocky animals with very short, thick snouts. There is a shallow crease, which defines the beak from the melon. The large flippers are recurved, with slightly rounded tips. The dorsal fin, one of the most diagnostic features, is large and strongly-recurved in some individuals. In some older animals (apparently adult males), the dorsal fin becomes so hooked (lobate) that the tip may curl down to a point below the midpoint of the dorsal fin height. It remains relatively wide to the tip.



A Pacific white-sided dolphin leaps out of the water in Monterey Bay, showing the beautiful and unmistakable color pattern of the species. PHOTO: D. FRANK

The dark gray back and light gray sides are distinctly set-off from the white belly by a black border. Light gray streaks beginning on the sides of the melon above the eyes sweep back and then downwards gradually past the dorsal fin and expand into large gray flank patches. In the thoracic area they form light gray "suspender stripes." The lips and beak tip are black, while most of the lower jaw is white. The anterior part of the dorsal fin is dark gray, and the posterior portion is light gray to white. The upper surfaces of the flippers may also contain light patches. The color of young calves is muted, much lighter than in adults, and they may have an orangish tinge.

There are several uncommonly-occuring morphs. One is an animal with the regular color pattern, but with the gray and black shades replaced by an orangish rust color. There is another one with the suspender stripe above and just behind the eye greatly expanded and white in color. The third is largely white (but is not an albino), with some remnants of the normal color pattern (e.g., black beak tip, lips, and top of head, and dark gray fringing on appendages and sides). All-black individuals have also been reported. Several individuals with these unusual color morphs may be present in large schools.

Each tooth row contains 23–36 pairs of relatively fine, sharply pointed teeth.

Eastern North Pacific adults of this species reach 2.5 m in length in males and 2.4 m in females. In the western Pacific, they reach up to 2.4 m (males) and 2.3 m (females). Maximum weight is about 198 kg. Length at birth is estimated to be 92–100 cm in the central Pacific.

Recognizable geographic forms Two geographical forms have been described from the eastern North Pacific and two for the western Pacific. However, they are known to differ from each other mainly in modal length and cranial characteristics, and are generally not distinguishable in the field.

Can be confused with Among sympatric species, Pacific white-sided dolphins are most likely to be confused with both common dolphins, because all three species are found in large schools and have large light-colored flank patches. Beak length (much longer in common dolphins) and specifics of the color pattern (e.g., no suspender stripes on common dolphins) are the best keys to distinguishing them. Also, the common dolphin generally has a much more erect dorsal fin.

Distribution Pacific white-sided dolphins inhabit cool temperate waters of the North Pacific and some adjacent

This group of Pacific white-sided dolphins clearly displays all the species' distinctive characteristics. The bicolored dorsal fin will sometimes even allow identification of rolling groups at a great distance. PHOTO: B. WATTS

The Pacific white-sided dolphin in the foreground has an anomalously lighter color pattern, such that the dark areas appear rusty orange in the flesh. Monterey Bay, California. PHOTO: T. A. JEFFERSON

A form of anomalously-white Pacific white-sided dolphin, probably not an albino. Large groups may contain several such individuals. Monterey Bay, California. PHOTO: T. A. JEFFERSON

This bowriding white-sided dolphin has an anomalous color pattern in which the white stripe above the eye is greatly expanded. Such animals are seen periodically throughout the range. PHOTO: T. A. JEFFERSON

seas (Sea of Japan, Okhotsk Sea, the southern Bering Sea and southern Gulf of California). Although they are widely distributed in deep offshore waters, they also extend onto the continental shelf and very near shore in some areas. They reach their southern limits at the mouth of the Gulf of California (and occasionally venture northward in the Gulf to or beyond La Paz) and southern Japan (records from Taiwan are considered to be misidentifications). They occur in some of the inshore waters of the Pacific Northwest (Washington and British Columbia). Seasonal inshore/offshore and north/south movements have been documented. On both eastern and western sides of the Pacific, separate stocks have been documented.

Ecology and behavior Often seen in large herds of hundreds or even thousands, these highly gregarious dolphins are also commonly seen with a large variety of other marine mammal species, especially northern right whale dolphins and Risso's dolphins. Predaton by killer whales has been reported. There is often segregation of schools, according to age and sex. They are highly acrobatic and playful, commonly bowriding, and often leaping, flipping, or somersaulting. However, there have been few detailed studies of the behavior of this gregarious species of dolphin. Large herds are often observed feeding in an apparently cooperative manner on large schools of fish. Dives of over 6 minutes have been recorded.

Males in the central North Pacific reach sexual maturity at about 10 years and 170–180 cm, and females at 8–11 years of age and 175–186 cm. Calving in some areas apparently occurs during a protracted summer breeding season, which extends into fall. In the central Pacific, calving takes place in late winter to spring.

Feeding and prey Pacific white-sided dolphins feed mostly in epipelagic and mesopelagic waters on small schooling fish, such as lanternfish, anchovies, saury, horse mackerel, and hake, as well as cephalopods. There is evidence that these dolphins feed mostly on deep scattering layer (DSL) organisms, possibly using cooperative foraging techniques.

Threats and status Pacific white-sided dolphins have never been primary targets of Japanese drive fisheries, but some dolphins have been harpooned and taken in

Pacific white-sided dolphins are one of the most acrobatic of dolphin species found in the temperate Pacific. They often perform fancy leaps and breaches. PHOTO: K. WHITTAKER

These are both Pacific white-sided dolphins; the lower animal is a color pattern variant that occurs regularly in the eastern North Pacific. PHOTO: S. WEBB

drives in Japanese waters. They are taken in a number of fisheries (mainly gillnet and driftnet fisheries, but also trawls and purse seines) in the eastern North Pacific, and in the 1980s and early 1990s, several thousand per year were killed in the now-defunct squid driftnet fisheries that operated in the offshore central Pacific by Japan, Taiwan, and Korea. Estimates of total Pacific white-sided dolphin abundance range from about 930,000 to 990,000, but both of these may be overestimates (due to unaccounted-for dolphin attraction to survey vessels). The species is not considered to be threatened.

IUCN status Least Concern.

References Brownell et al. 1999; Ferrero and Walker 1996; Stacey and Baird 1991; Van Waerebeek and Würsig 2002.

Dusky Dolphin—*Lagenorhynchus obscurus*

(Gray, 1828)

Recently-used synonyms *Lagenorhynchus fitzroyi, Lagenorhynchus superciliosus*.

Common names En.–dusky dolphin; Sp.–*delfín obscuro*; Fr.–*dauphin sombre*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Some researchers used to believe that the Pacific white-sided dolphin was a subspecies of *L. obscurus*, but this is not longer considered likely. Three subspecies are recognized: *L. o. obscurus* in southern Africa, *L. o. fitzroyi* in southern South America, and an unnamed subspecies in New Zealand. Recent genetic evidence suggests that, despite some gene flow, Peruvian and Argentine animals should be considered separate stocks. Hybrids with long-beaked common dolphins and southern right whale dolphins have been reported in the wild.

From above, this bowriding dusky dolphin can easily be identified by its stubby dark beak, light face, and "suspender" stripes. Sympatric Peale's dolphins have a dark face. PHOTO: R.L. PITMAN

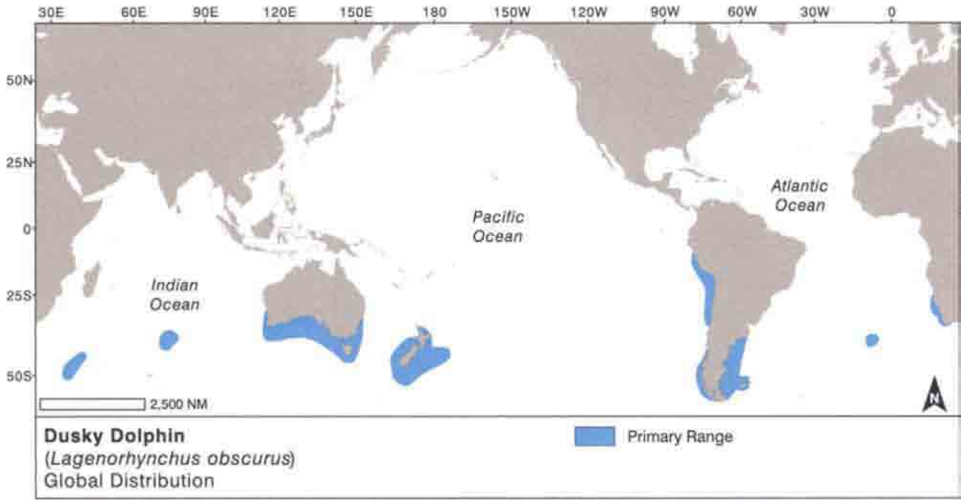
Species characteristics The dusky dolphin is a small, moderately robust species. The rostrum is short and clearly demarcated from the melon (forehead). The conspicuous dorsal fin is moderately falcate and pointed. The flippers are moderately curved on the leading edge, with bluntly rounded tips.

The body coloration is complex, and is generally countershaded, dark gray to blue black above and white below. The sides are marked with blazes and patches of pale gray. In front of the dorsal fin, they bear a broad light gray thoracic patch that encompasses the face, most of the head, and thorax, tapering towards the belly. A separate crescent-shaped flank patch reaches the top of the tail stock, just in front of the flukes. The front of this flank patch splits into two blazes, a shorter ventral and a longer dorsal one; this latter one narrows and stretches up onto the back, almost to the blowhole. The rostrum is gray-black around the tip, tapering back to darken just the lips near the gape. The eye is set in a small patch of gray-black. A variable crescent of pale gray contrasts the trailing half of the dorsal fin with the dark-colored front half, and the flippers are pale gray, but darken around the edges.

Dolphins that appear to be hybrids between dusky and southern right whale dolphins have been observed at sea off Argentina. The presumed hybrids appear to be almost exactly intermediate between dusky and right whale dolphins.

There are 27–36 small, pointed teeth on each side of each jaw.

The maximum recorded length is 2.1 m. Most adults are less than 2 m long, and there is not known to



be any significant difference in the size of males and females. Specimens from Peru appear to be larger than those from South Africa or New Zealand, but sample sizes are small. Healthy adults weigh 70–85 kg. Length at birth has been reported to be 80–100 cm.

Recognizable geographic forms Other than the apparent differences in size among dusky dolphins from different stocks, there are no known reliable differences in external appearance.

Can be confused with At sea, dusky dolphins can be distinguished from the closely-related, but larger and more robust, Peale's dolphin, primarily by careful attention to color pattern components (especially the much-darker beak of the Peale's dolphin). They may also be confused with common dolphins, which share a light anterior thoracic patch. The much longer beak of the common dolphins will be the best feature to distinguish them.

Distribution Dusky dolphins are widespread in the Southern Hemisphere. They occur in apparently disjunct populations in the waters off New Zealand (including the Chatham and Campbell islands), central and southern South America (including the Falkland Islands), and southwestern Africa. They also occur around some oceanic island groups (e.g., Tristan de Cunha, Prince Edward, Amsterdam, and St. Paul islands). This is a more-or-less coastal species and is usually found over the continental shelf and slope. They do dive over deep waters in some areas (e.g., New Zealand), but always along continental slopes. Inshore/offshore shifts in abundance have been noted for Argentina and New Zealand.

Ecology and behavior The behavior of dusky dolphins has been studied in detail in both Argentina and New Zealand. They are highly social, gregarious animals. They sometimes form impressive herds of over 1,000 individuals, but are more likely to occur in groups of 20–500. These dolphins are known to gather into large cooperative groups for feeding on schooling fish. Group foraging is thought to be coordinated through use of a series of acrobatic leaps. Some stable subgroups exist, but the overall social structure appears to be one of fluid associations. Dusky dolphins are one of the most acrobatic of all the dolphins, frequently leaping high out of the water, at times tumbling in the air. They readily approach vessels

A group of dusky dolphins underwater in New Zealand waters. The complex color pattern of this species is similar to that of the Pacific white-sided dolphin of the North Pacific, but the two do not overlap in distribution. PHOTO: S. DAWSON

When dusky dolphins are being demonstrative, they find it hard to stay in the water; the bi-colored fin is always a useful identification feature. New Zealand. PHOTO: T. PUSSER

These two dusky dolphins, leaping off southern Africa, show both the unique coloration and acrobatic behavior that are typical of the species throughout the range. PHOTO: P. OLSON

Dusky dolphins are among the most acrobatic of all dolphin species, and have been documented to perform a wide variety of aerial displays. PHOTO: S. HEINRICH

Two dusky dolphins leap beside a research vessel off Peru. The distinct color pattern of the species usually results in few identification problems. PHOTO: R. L. PITMAN

to engage in bowriding. Many species of cetaceans have been observed in association with dusky dolphins.

In Peru, calving is believed to peak in August to October (spring), while in Argentina, South Africa and New Zealand, calving appears to occur in summer months (November to February). Sexual maturity is reached at ages of about 4–6 years in females and 4–5 years in males (the lower values may reflect a density dependent response to past exploitation).

Seasonal inshore/offshore movements are known for several parts of the range, including both Argentina and New Zealand. Individuals are highly adaptable and may change their feeding strategy to conform to local conditions.

Feeding and prey Dusky dolphins take a wide variety of prey, including southern anchovy near the surface in shallower waters, as well as mid-water and benthic prey, such as squid, hake, and lanternfishes. They may also engage in nocturnal feeding, in association with the deep scattering layer. New Zealand dolphins appear to engage in feeding deeper in the water column than do those from Argentine waters.

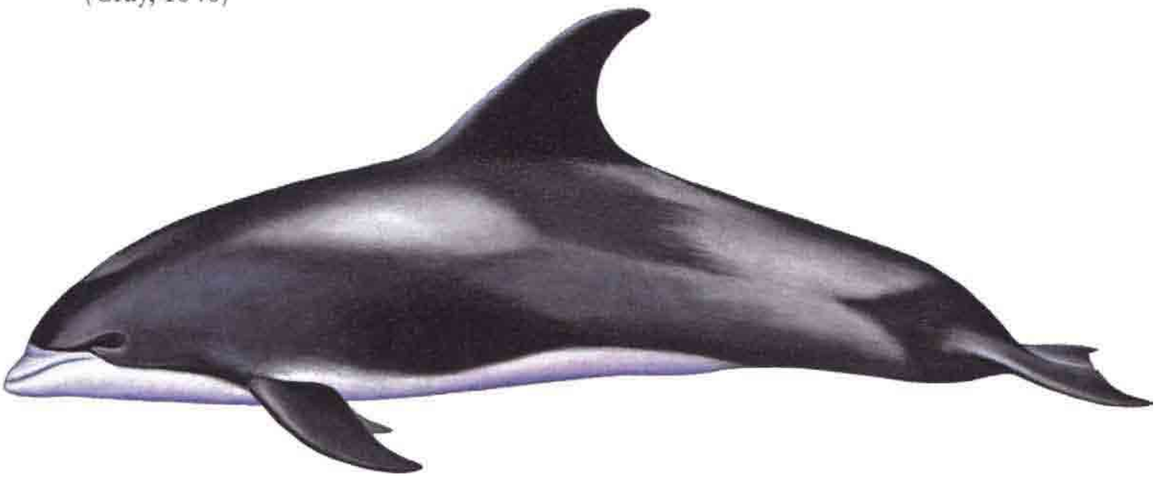
Threats and status Dusky dolphins are known to be taken directly in the multi-species small cetacean fisheries of Peru and Chile, which make use of both driftnets and harpoons for capture. Although recent catches appear to have decreased, the Peruvian catch is still thought to be unsustainable. Dusky dolphins are also killed incidentally in gillnets in New Zealand, and in mid-water trawl nets in Argentina. There are no statistically-defensible abundance estimates available for any significant portion of the range. Although the species is in no danger of extinction on a global scale, some populations are thought to have been seriously depleted by human activities (e.g., off Peru).

IUCN status Data Deficient.

References Brownell and Cipriano 1999; Cassens et al. 2003; Van Waerebeek and Würsig 2002; Würsig et al. 1997.

White-beaked Dolphin—*Lagenorhynchus albirostris*

(Gray, 1846)



Recently-used synonyms None.

Common names En.–white-beaked dolphin; Sp.–*delfín de hocico blanco*; Fr.–*dauphin avec bec blanc*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Recent genetic studies suggest that this species is not closely-related to any of the others currently placed in the genus *Lagenorhynchus*. It is likely that future work will split out the other species, leaving this one as the only member of the genus *Lagenorhynchus*.

Species characteristics White-beaked dolphins are extremely robust animals. The beak is very short and thick (usually 5–8 cm long), but is set-off from the melon by a shallow crease. The dorsal fin is very tall and only slightly falcate, with a pointed tip. The flukes and dorsal fin get proportionately larger as the animal ages. The pointed flippers are moderately broad and long (up to 19% of the total length), with a falcate trailing edge. The tail stock is not particularly deepened, tapering gradually as it approaches the flukes.

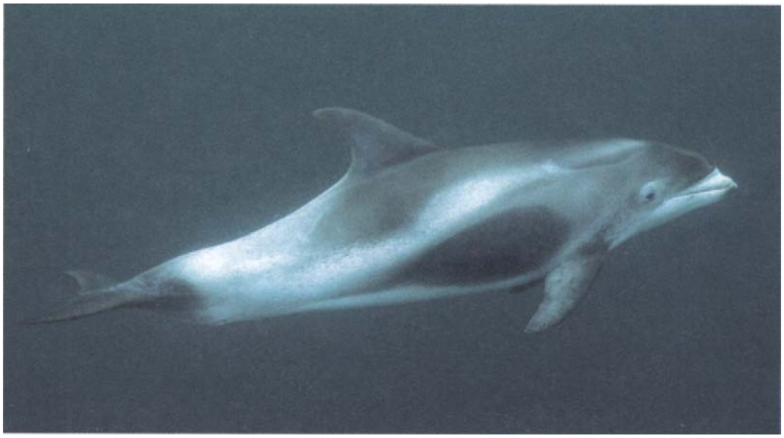
The color pattern is highly variable, but the animals are mostly black to dark gray on the upper sides and back. The beak and most of the belly are white to light gray, and (especially the beak) are often mottled, flecked, or ashy gray. The light color of the beak extends dorsally to cover the apex of the melon. Light streaks may surround the eye. An area of light gray with an indistinct border originating on the upper flank broadens to cover most of the tail stock—this is the species' most distinctive characteristic. There is generally a black thoracic patch, surrounded by lighter coloring. There is often dark or light flecking in the region between the eye and the flipper. The dorsal fin, flippers, and flukes are mostly dark.

Twenty-two to 28 sharp, but moderately large (compared to other members of the genus) teeth line each half of each jaw.

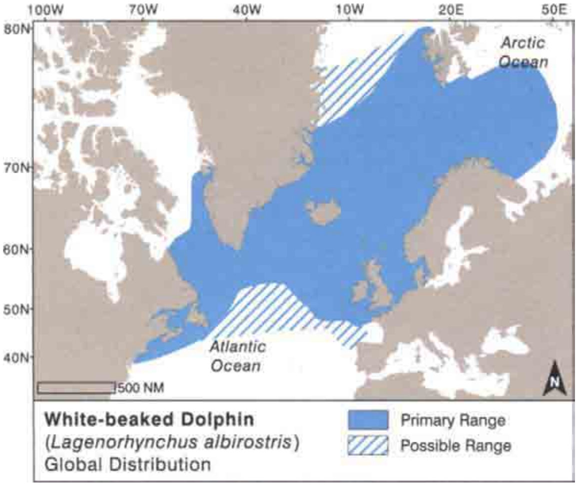
Adults are 2.4–3.1 m in length (males grow larger than females) and weigh between 180 and 350 kg. Newborns are between 1.1 and 1.2 m long, and weigh approximately 40 kg.

Recognizable geographic forms None.

Can be confused with White-beaked dolphins are most likely to be confused with Atlantic white-sided dol-



A stunning photo of a white-beaked dolphin, showing the robust body and distinctive color pattern including white tail stock and back behind the dorsal fin. Norway.
PHOTO: R. SVENSEN



White-beaked dolphins can be quite acrobatic and are known to breach and leap frequently. Iceland. PHOTO: R. W. BAIRD

phins, from which they can be distinguished by differences in coloration and beak length. Also, in the few areas where they overlap with bottlenose dolphins, care must be taken to distinguish between these two.

Distribution White-beaked dolphins inhabit cold temperate to subpolar waters of the North Atlantic, from Cape Cod and Portugal, north to central Davis Strait, southern Greenland, and Svalbard. The range includes Iceland, the UK, and most Scandanavian waters (but apparently not very far into the Baltic Sea). The species does not normally occur in the Mediterranean, but there are a few questionable records from at least the western Mediterranean. They inhabit continental shelf and offshore waters, although there is evidence suggesting that their primary habitat is in waters less than 200 m deep.

Ecology and behavior The behavior and ecology of white-beaked dolphins has received little detailed study. Groups of less than 30 white-beaked dolphins are most common, but herds of many hundreds (or even thousands) have been seen. These animals are active, often leaping and breaching, and they often approach vessels to ride bow or stern waves. However, they may be quite elusive in some areas. They sometimes associate, while feeding, with large whales (such as fin and humpback whales), and are known to form mixed groups with a number of other dolphin species (including bottlenose and Atlantic white-sided dolphins). Cooperative feeding has been observed. Little is known of group structure or association patterns, but there is some evidence of age and sex class segregation among schools. Mass strandings are relatively rare.

There appears to be a protracted calving peak in summer to early fall (May to September), but not much else is known about reproduction in this species. Sexual maturity has not been well-studied, but males appear to become mature at around 250 cm and females at around 240 cm.

A group of white-beaked dolphins moving quickly along the surface off eastern Canada. PHOTO: S. GOWANS

Feeding and prey White-beaked dolphins feed on a variety of small mesopelagic and schooling fishes (such as herring, cod, haddock, poorcod, bib, hake, and whiting), squid, and crustaceans.

Threats and status Although not a target of any commercial fisheries, some dolphins are shot

A close-up view of a white-beaked dolphin showing some of the complex color pattern details of the head. Norway. PHOTO: R. SVENSEN

A white-beaked dolphin leaps with its belly toward the camera, showing its ventral coloration. Eastern Canada. PHOTO: S. GOWANS

in Greenlandic waters, and they have been hunted opportunistically in other countries (e.g., Norway, Iceland, and Canada) as well. In addition, incidental catches in gillnets, cod traps, and trawl nets are also known from several areas of the species' range. Some dolphins may die from collisions with vessels, although there is little documentation of this. Some also die from getting entrapped in encroaching ice. The species is not considered to be threatened. Declines in abundance have occurred in some areas, such as the Gulf of Maine (however, this may have more to do with habitat shifts than changes in population size). At least 7,800 white-beaked dolphins are estimated to inhabit the North Sea and adjacent waters. There are few estimates of abundance, but it is clear that there are many tens of thousands (or even low hundreds of thousands) of these animals throughout their range.

IUCN status Least Concern.

References Kinze et al. 1997; Kinze 2002; Reeves et al. 1999.

Even in this more typical view of white-beaked dolphins, the species can be identified by its short, stubby beak and unique color pattern. PHOTO: S. GOWANS

A group of white-beaked dolphins: the over-sized dorsal fins, white dorsal area behind the fin, and conspicuous white beaks are clearly apparent here. North Atlantic. PHOTO: M. JØRGENSEN

Delphinidae

White-beaked Dolphin

Atlantic White-sided Dolphin—*Lagenorhynchus acutus*

(Gray, 1828)

Recently-used synonyms *Leucopleurus acutus*.

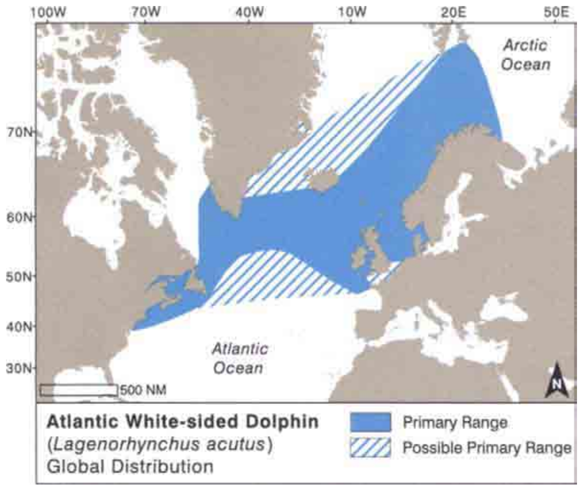
Common names En.–Atlantic white-sided dolphin; Sp.–*delfín de flancos blancos*; Fr.–*dauphin a flancs blancs de l'Atlantique*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. The Atlantic white-sided dolphin is currently placed in a multi-species genus. However, molecular analyses suggest that it is not closely-related to any of those species, and it is possible that it will be split off from them into its own genus (*Leucopleurus*) in the next few years.

Atlantic white-sided dolphins moving along just below the surface in clear water, showing the unique color pattern and short, stubby beak. PHOTO: R. W. BAIRD

Species characteristics Atlantic white-sided dolphins are robust and deep-bodied (maximum girth can be up to 60% of total length), with a tail stock that is strongly deepened into "keels" above and below. The deepening of the tail stock is more pronounced in adult males than in other age/sex classes. The beak is very short, but is somewhat defined from the rounded melon. The dorsal fin is tall (more than 12% of the total length), slightly falcate, and pointed. The flippers are moderately large and pointed at the tips, and there may be tubercles on the leading edges.

The color pattern is complex and striking. The back and upper sides, upper jaw, dorsal fin, flippers, and flukes are black or dark gray, and a thin, dark line runs backwards from the beak and meets a black patch around the eye. There is a thin eye-to-flipper stripe. The lower jaw and belly, as far as the urogenital area, are white. In between, the sides from just ahead of the eye to the base of the flukes are light gray. Along the upper margin of the gray side is a white patch from below the dorsal fin to midway along the tail stock. There is another narrow band, this one yellow to ochre in color, at the lower margin of the dark upper flank, from mid-tail stock to just in front of the flukes. Calves appear to have a muted pattern with less contrast than adults. Some individuals with unusual pigmentation patterns have been observed, most commonly, dolphins with extensive amounts of white on the body.



Two Atlantic white-sided dolphins leap beside a vessel in the North Atlantic Ocean. The color pattern of this species is beautiful and distinctive. PHOTO: COURTESY OF S. LEATHERWOOD

Each tooth row contains 30–40 pointed teeth. The teeth are small.

Adult Atlantic white-sided dolphins reach 2.8 m (males) or 2.5 m (females) in length and about 235 kg (males) and 182 kg (females) in weight. Newborns are 1.1–1.2 m.

Recognizable geographic forms None.

Can be confused with Confusion is most likely with the white-beaked dolphin, which shares a nearly identical range (however, Atlantic white-sided dolphins are more common in the southern parts of the range). The two can be distinguished most readily by size, color pattern, and subtle head shape differences. The Atlantic white-sided dolphin is smaller and more slender, and its color pattern is much more bold and striking, with more distinct flank patches. It also lacks the white tail stock of the white-beaked dolphin.

Distribution Atlantic white-sided dolphins are found in cold temperate to subpolar waters of the North Atlantic, from about 38°N (south of Cape Cod) in the west and the Brittany coast of France in the east, north to southern Greenland, Iceland, and southern Svalbard. The range includes the UK and the northern coasts of Scandanaviia, although they rarely enter the Baltic Sea. They also sometimes move quite far up the Saint Lawrence River of eastern Canada. The preferred habitat appears to be deep waters of the outer continental shelf and slope, but these dolphins are found in somewhat shallow and in oceanic waters across the North Atlantic as well. Seasonal shifts in abundance have been noted in several areas of the range.

Ecology and behavior Much of what we know of this species' biology comes from examination of several mass strandings. Herd size varies considerably, with most groups numbering less than 100 (the average in New England coastal waters is about 52). However, up to 2,000–4,000 are sometimes seen in a single school, and there may be age and sex segregation of herds. Older immature individuals are not generally found in reproductive herds of mature females and young. Little is known of long-term association patterns, but there is some evidence of some stable subgroups within large herds. They often strand in large herds. These dolphins often associate and feed with large baleen whales (fin and humpback whales), and are known to form mixed groups with pilot whales and a number of other dolphin species (including bottlenose and white-beaked dolphins).

Atlantic white-sided dolphins are lively and acrobatic, often breaching and tail-slapping. Aerial behavior is more common in larger groups. Larger animals, especially males, are avid bowriders, and also will ride the stern wakes of vessels. These animals are not known to be long divers, with the longest recorded dive of a tagged dolphin being just 4 minutes. Coordinated "ball" feeding on schools of sand lance has been observed off New England. White-sided dolphins appear to have extensive movements, and there is currently no evidence for separate populations.

Life history is rather poorly known, despite the fact that this species live-strands in large herds. Calves are born over an extended period around the summer season, with apparent peaks in June and July. Sexual maturity occurs at around 201–222 cm in females, and at larger sizes for males (different studies suggest either 230–250 cm or 215–230 cm). These correspond to ages of 6–12 years. Longevity can be at least 22 years.

Feeding and prey Atlantic white-sided dolphins feed mostly on small schooling fish (such as herring, mackerel, cod, smelt, hake, and sandlance), shrimp, and squid. They often feed in association with large whales and other species of dolphins.

Threats and status Atlantic white-sided dolphins have been hunted in drive fisheries in Norway, Newfoundland, Greenland, and the Faroe Islands. Incidental catches are known from many different areas of the species' range, and although they do get caught in gillnets, captures in mid-water trawls appear to be the most significant. Recent incidental catches in trawls off Ireland have been quite large. This species is quite abundant throughout its range, and the total numbers are estimated to be in the hundreds of thousands. There are thought to be over 52,000 Atlantic white-sided dolphins off the eastern North American shoreline, and about 96,000 off the west coast of Scotland. On a global scale, it is not considered to be threatened by human activities.

IUCN status Least Concern.

References Cipriano 2002; Palka et al. 1997; Reeves et al. 1999; Weinrich et al. 2001.

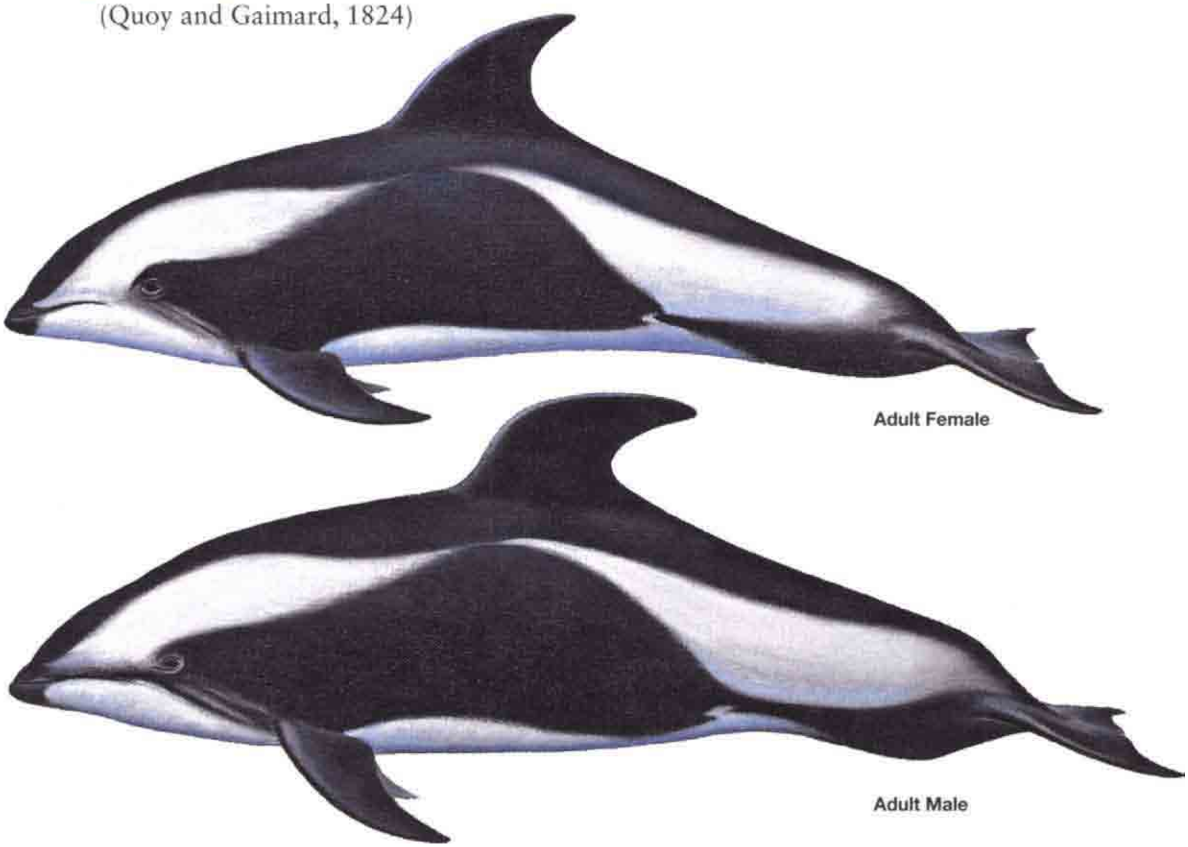
Despite not being able to see the head, these Atlantic white-sided dolphins are identifiable by the unique color pattern along the side. PHOTO: S. GOWANS

An Atlantic white-sided dolphin, apparently a juvenile, shows details of face patterning; short, stout beaks are the norm among high-latitude species of dolphins. Off eastern Canada. PHOTO: S. GOWANS

A group of Atlantic white-sided dolphins moving quickly along the surface. The short beak and head coloration are visible. PHOTO: S. GOWANS

Hourglass Dolphin—*Lagenorhynchus cruciger*

(Quoy and Gaimard, 1824)



Recently-used synonyms *Lagenorhynchus wilsoni.*

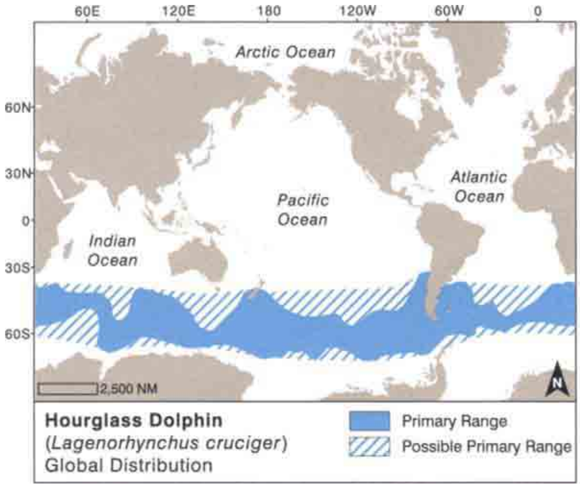
Common names En.–hourglass dolphin; Sp.–*delfín cruzado*; Fr.–*dauphin a museau court*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics Hourglass dolphins are moderately robust, with extremely short and stubby (but well-defined) beaks. The moderately tall dorsal fin is set midway along the back. The markedly hooked fins seen on some individuals probably develop at the onset of maturity. In some animals (possibly adult males), the dorsal fin also possesses a sharp backward bend about halfway up. The tail stock is generally deeply keeled in both sexes, but more so in males. The flippers are recurved, with a concave trailing edge.

Hourglass dolphins are strikingly marked; black above and white below. The black sides are broken by a bold white flank patch that covers most of the tail stock in a wedge shape, tapering as it rises towards the fin. There, it meets the vertex of a white dorsal-spinal blaze that widens above the flippers, passes above the eye to cover the sides of the face and finally converges at the gape with the white of the chest and throat. These white markings resemble an hourglass in shape and give the dolphin its common name. The rostrum, forehead, and top of the head are also black. A white, hook-shaped mark curves up to the black side below the flank patch,

An hourglass dolphin porpoises alongside a vessel, showing the distinctive figure-eight pattern of black and white. PHOTO: J. DUFFIELD



This hourglass dolphin is leaping as it rides the bow wave of a vessel, something that these animals appear very fond of doing. Drake Passage. PHOTO: R. L. PITMAN

near the genital aperture. The flippers, dorsal fin, and flukes are all black. The coloration of calves and juveniles has not been described, but based on what we know about related species, is probably somewhat muted.

Tooth counts of 26–34 (upper) and 27–35 (lower) on each side have been recorded. The teeth are rather slender and pointed.

Less than 20 specimens have been measured, so the following measurements probably do not represent the full range. The maximum lengths and weights so far recorded were 1.9 m and 94 kg (males), and 1.8 m and 88 kg (females). Length at birth is assumed to be about 1 m.

Can be confused with As the only small oceanic dolphin with a pointed dorsal fin in subantarctic and antarctic waters, the strikingly marked hourglass dolphin should not be confused with other species.

Hourglass dolphins rooster-tail alongside a vessel, giving a good view of the stocky body and unique color pattern. Drake Passage. PHOTO: S. HEINRICH

Recognizable geographic forms None.

Distribution Hourglass dolphins are distributed in a circumpolar pattern in the higher latitudes of the southern oceans. They range to the ice edges in the south, but the northern limits are not well-known (they are found to at least 45°S, although some occasionally reach 33°S). The most southerly sighting is from near 68°S, in the South Pacific. Hourglass dolphins appear to be largely oceanic, and they are mostly seen in deep offshore waters. However, some sightings have been made in waters of 200 m or less, near islands and banks. This is the only small dolphin species regularly found south of the Antarctic Convergence.

Ecology and behavior Very little is known about hourglass dolphins; in fact, this is one of the most poorly-known of all the small cetaceans. Groups tend to be small, which is unusual for a small oceanic delphinid. Although herds of up to 60 have been seen, groups of 1–8 are more common. Hourglass dolphins have been encountered with several other species of cetaceans, and are often seen with large whales (especially fin whales). These dolphins are enthusiastic bowriders, often leaping as they race towards the bow or stern. They can also move rapidly without leaping, usually when avoiding a vessel; at such times they cause a highly visible “rooster tail” spray.

Stranding records of this species are quite rare, probably at least partially related to its oceanic, high latitude range. Almost nothing is known of the life history of this dolphin species. Based on a handful of specimens, females may reach sexual maturity at around 180–185 cm, and males appear to mature by 174 cm. Calves have been observed in January and February.

A mother and calf hourglass dolphin ride the bow wave of a vessel. Even from this view, the color pattern is unmistakable. Drake Passage. PHOTO: S. HEINRICH

Feeding and prey The stomach contents of the five specimens of hourglass dolphins that have been examined contained small fish (including myctophids), squids, and crustaceans. They often feed in aggregations of seabirds and in plankton swarms.

Threats and status The only known exploitation has been several individuals taken for scientific research, one taken in a Japanese experimental drift net in the South Pacific, and three specimens incidentally killed in a gillnet operation in the South Pacific Ocean. Because of its habitat in one of the most remote marine regions known, this species is not thought to be threatened by human activities. There are estimated to be 144,000 hourglass dolphins south of the Antarctic Convergence.

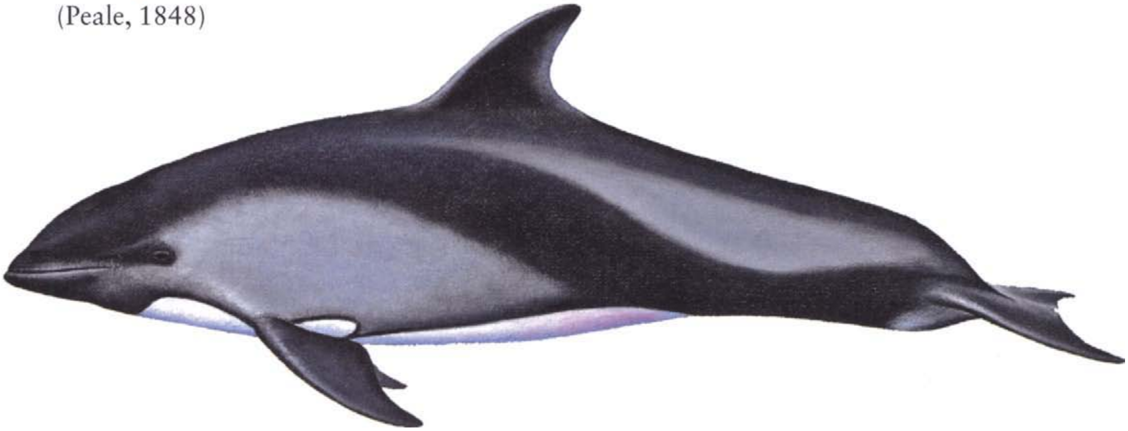
Sexual dimorphism in hourglass dolphins: the two probable adult males in the rear have heavier and more hooked fins than the female (or possibly young male) in the lead; they also have deeper bodies with well-developed post-anal keels. Drake Passage. PHOTO: R. L. PITMAN

IUCN status Least Concern.

References Brownell and Donahue 1999; Goodall 2002; Goodall et al. 1997.

Peale's Dolphin—*Lagenorhynchus australis*

(Peale, 1848)



Recently-used synonyms *Sagmatias amblodon, Sagmatias australis*.

Common names En.–Peale's dolphin; Sp.–*delfín austral*; Fr.–*dauphin de Peale*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics The general body shape is typical for dolphins of the genus *Lagenorhynchus*. Few specimens have been examined, but Peale's dolphins are fairly robust. They have a short, stubby beak, which is only moderately well-delineated from the melon. They have a tall, slightly falcate dorsal fin. The flippers are recurved and pointed.

This leaping Peale's dolphin shows the species' distinctive characters, especially the dark anterior part of the head. Southern Chile. PHOTO: S. HEINRICH

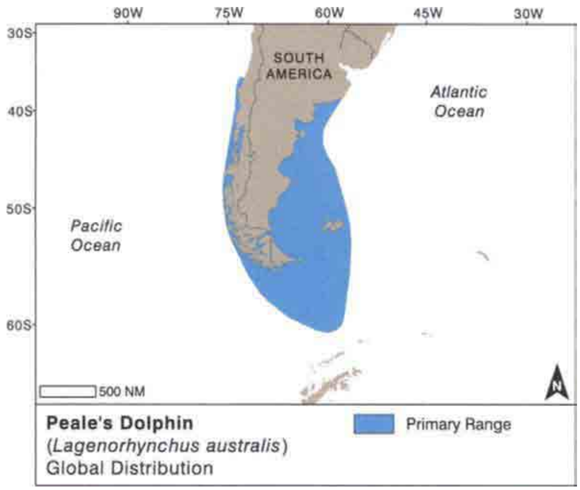
Peale's dolphins share coloration pattern components with both dusky and Pacific white-sided dolphins. Peale's dolphins are grayish-black above and white below. They have a curved flank patch of light gray with a single dorsal spinal blaze, or "suspender," fading into the black of the back near the blowhole. A large pale gray thoracic patch extends from the eye to mid-body; it is separated from the white below by a well-developed dark stripe. The stripe loops up above a small white patch under the flipper. The flippers are gray-black, and the dorsal fin is dark gray-black, with a thin crescent of light gray on the trailing margin. The most distinctive feature is that the beak tip, lips, and entire lower jaw are dark gray to black in color (unique to the genus *Lagenorhynchus*). Calves have a lighter color pattern than adults.

Tooth counts for the few examined specimens were up to 37 (upper) and 34 (lower) on each side of the jaw.

Only a few dozen specimens have been measured. The largest male recorded was 2.2 m long and the largest female was 2.1 cm. Of only five specimens weighed, the heaviest (an adult female) weighed 115 kg. Length at birth is thought to be about 1 m.

Recognizable geographic forms None.

Can be confused with Peale's dolphins are most easily confused with dusky dolphins, which are very similar in body shape and general color pattern. The face, rostrum, melon and most of the chin of Peale's dolphins are dark gray-black, as if encased in a mask. This feature, plus the well-developed black stripe below the thoracic patch, helps to distinguish Peale's dolphins from dusky dolphins. At a distance, they may be confused with hourglass dolphins, but with a better look, the two are easily distinguished.



Distribution Peale's dolphins are apparently confined to South America, from the southern tip to about the latitudes of Santiago, Chile (33°S), and northern Argentina (38°S). The distribution may extend south well into Drake Passage. They are regularly seen around the Falkland Islands. Peale's dolphins are relatively coastal animals, found in bays and inlets, around islands, and over the continental shelf. They are frequently seen close to shore (often in waters < 20 m deep off southern Chile), even shoreward of kelp beds. Occasional sightings have been made in deeper waters, up to about 300 m deep. Inshore/offshore movements have been documented in some areas of the range.

One clearly extralimital sighting of what was thought to be this species was reported from tropical waters of Palmerston Atoll. However, several other sightings of *Lagenorhynchus*-like dolphins in tropical/subtropical waters of the Indo–Pacific have since come to light. This brings up the possibility of a more tropical form of the Peale's dolphin or an undescribed species in this area.

Ecology and behavior Very little is known about the biology of this species. Peale's dolphins have been seen in small groups (5–30 are typical), but some groups of up to 100 have been observed. They often occur in the riptides at the entrances to fjords and channels, and are often seen swimming slowly in and around kelp beds, especially in the Falkland Islands. Dives are known to last up to nearly 3 minutes, with an average of about 28 seconds.

Aerial behavior, including breaching, spyhopping, and slapping the head, flukes, and flippers on the surface is not uncommon. Peale's dolphins frequently bowride, and will sprint to a ship's bow. At the bow, they often speed ahead, leap high into the air and fall back into the water on their sides, producing a large splash with a loud slapping noise. They produce a wide splash or wave when swimming near the surface. Peale's dolphins associate with other cetacean species, especially Commerson's dolphins.

Virtually nothing is known about reproduction, with the exception of a 2.1 m mature female and immature females of 1.9 and 2.0 m. Calves have been reported from spring through autumn.

Feeding and prey Little is know of food and feeding habits in this species, with less than 20 stomachs having been examined. The few stomachs that have been examined contained mostly demersal fish, octopus, and squid species that occur in shallow waters and in kelp beds. Some shrimps have also been found in stomachs.

Threats and status A few Peale's dolphins have been taken for scientific research. More substantially, Peale's dolphins have been killed for crab bait in both Chile and Argentina. At times, this exploitation was heavy

Like other members of the genus *Lagenorhynchus*, Peale's dolphins can be quite robust, as this leaping dolphin demonstrates. PHOTO: F. VIDDI

Two Peale's dolphins surface off southern Chile, where they have been studied in some detail. PHOTO: S. HEINRICH

A Peale's dolphin peers back at the photographer as it leaps away. In a view such as this, it appears as if a dark hood has been pulled over the animal's head. Falkland Islands. PHOTO: T. PUSSER

This breaching Peale's dolphin gives a good view of the ventral color pattern of the species, as well as the dark face, which is diagnostic. Note the white axillary patches, which are found in several species of dolphins. PHOTO: S. HEINRICH

Peale's dolphins are coastal animals and are often found around kelp beds in some parts of their range. Southern Chile. PHOTO: S. HEINRICH

enough to consider the species at risk of local extripation, but the mortality has apparently subsided in recent years. Some incidental catches are known in anti-predator nets in Chile, and in gillnets and trawls in Argentina. The only known estimate of abundance is of about 200 animals in southern Chile, but the species is considered to be fairly abundant, at least around the Falkland Islands.

IUCN status Data Deficient.

References Brownell et al. 1999; Goodall 2002; Goodall et al. 1997; Van Waerebeek et al. 1997.

Risso's Dolphin—*Grampus griseus*

(G. Cuvier, 1812)

Recently-used synonyms *Grampidelphis griseus.*

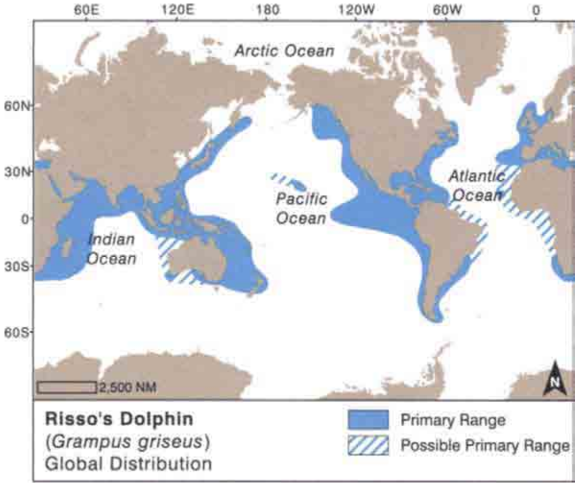
Common names En.–Risso's dolphin; Sp.–*delfín de Risso*; Fr.–*grampus or dauphin de Risso.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Hybrids with common bottlenose dolphins have been reported from captivity and in the wild.

Species characteristics Risso's dolphins have a rather unique body shape. They are robust blunt-headed animals without distinct beaks. The forehead is bulging, but with a more squarish profile than the rounded melon in some other small cetaceans. One of the most distinctive features is a vertical crease on the front of the melon. The flippers are long, pointed, and recurved. The dorsal fin is very tall and slender, somewhat falcate, and generally pointed at the tip. Risso's dolphins have mouthlines that slope upward. The tail stock is generally very shallow, especially directly in front of the flukes. This gives the animal the appearance of having most of its bulk ahead of the dorsal fin.

At sea, the best identification characteristic is the coloration and scarring. Adults range from dark gray to nearly white, but are typically covered with white scratches, spots, and blotches. Many of these are thought to result from the beaks and suckers of squid, their major prey, but others may be caused by the teeth of other Risso's dolphins. In fact, this species is the most heavily-scarred of all the dolphins. Higher latitude animals are much lighter overall. The chest has a whitish anchor-shaped patch, and there is another white patch of variable extent around the urogenital area. The appendages tend to be darker than the rest of the body. Young animals range from light gray to dark brownish-gray and are relatively unmarked. The scars and scratches are highly unique, and can be used in conjunction with dorsal fin scars, to identify individuals. In older individuals, the lips often contrast strongly with the surrounding area. Calves and juveniles are more of a brownish-gray color, and have few or no scratches and scars. Young animals also have a distinct cape that extends down over the eye, and dips slightly below the dorsal fin.

A group of Risso's dolphins surfaces in Monterey Bay, showing the typical surfacing profile and tight subgroup structure. PHOTO: T. A. JEFFERSON



The pigment pattern on the chest of this Risso's dolphin is similar to that of other "blackfish." Both (black) eyes are visible and suggests this animal may have binocular vision when looking straight down. PHOTO: B. WATTS

Although not known as especially acrobatic, Risso's dolphins are capable of some impressive leaping. PHOTO: D. FRANK

The teeth of this species are also unique; there are 2–7 pairs of stout, pointed teeth in the front of the lower jaw, and usually none (but occasionally 1–2 pairs) in the upper jaw. Some or all of the teeth may be worn-down in, or missing from, older adults.

Newborns are 1.1–1.5 m long and adults range up to at least 3.8 m long. Some evidence suggests geographic variation in body size. There appears to be little or no sexual dimorphism in the length of adults. Weights of up to 400 kg have been recorded, and the maximum may be near 500 kg.

Recognizable geographic forms None.

Can be confused with Risso's dolphins are generally easy to identify when seen at close range, as they are the only medium-size, blunt-headed cetaceans that are typically light in color. However, from a distance they may be confused with other large delphinids with a tall dorsal fin (such as bottlenose dolphins, false killer whales, and even killer whales). When visible, the light, extensively-scarred bodies and squarish heads of Risso's dolphins make them unmistakable. If the vertical crease on the forehead is observed, there can be no doubt about the identity of the specimen.

Distribution This is a widely-distributed species, inhabiting primarily deep waters of the continental slope and outer shelf (especially with steep bottom topography) from the tropics through the temperate regions in both hemispheres. They also occur in some oceanic areas, beyond the slope, such as in the eastern tropical Pacific. They are found from Newfoundland, Norway, the Kamchatka Peninsula, and Gulf of Alaska in the north to the tips of South America and South Africa, southern Australia, and southern New Zealand in the south. Their range includes many semi-enclosed bodies of water, such as the Gulf of Mexico, Red Sea, Persian Gulf, Sea of Japan, and Mediterranean Sea.

Ecology and behavior These large dolphins are often seen surfacing slowly and somewhat lethargically, although they can be energetic, sometimes breaching, spyhopping, or porpoising, and occasionally bowriding. Most herds tend to be small to moderate in size (10–100), but groups of up to 4,000 have been reported. Social organization has not been well-studied; however, it appears that young animals remain with their natal school until around puberty, adult females gather together, and males move among schools. Group composition is relatively fluid (although with some elements of stable subgroups), at least in Monterey Bay, California. Risso's dolphins commonly associate with other species of cetaceans (especially Pacific white-sided and northern right whale dolphins off the California coast), including large whales such as gray whales. Hybrids between this species and bottlenose dolphins have been recorded, both in captivity and in the wild. Dive times of up to 30 min. have been reported.

There have only been a few studies on the life history parameters of Risso's dolphins. In at least the North Atlantic, there appears to be a summer calving peak. Calving peaks appear to differ in different parts of the North Pacific—summer/fall off Japan, and fall/winter off California. Sexual maturity appears to occur at lengths of about 260–277 cm for both sexes, with some apparent regional differences. It has been suggested that the scarring may have evolved, at least partly as a mechanism to allow animals to guage the "quality" of other group members during social interactions. Longevity in this species is at least 35 years.

The most famous Risso's dolphin was probably "Pelorous Jack," who accompanied steamers and ferries into and out of Admiralty Bay in New Zealand for many years in the early part of the last century. Long-term changes in the occurrence of Risso's dolphins in some areas (e.g., off Catalina Island and in central California) have been linked to oceanographic conditions and movements of spawning squid.

Feeding and prey Risso's dolphins feed on crustaceans and cephalopods, but seem to prefer squid. Squid bites may be the cause of at least some of the scars found on the bodies of these animals. In the few areas where feeding habits have been studied, they appear to feed mainly at night.

Threats and status Occasional direct killing of Risso's dolphins has occurred. This is generally as a result of the dolphins stealing fish from longlines, or in multispecies small cetacean fisheries, such as those that occur in Sri Lanka, the Caribbean, and Indonesia. One regular hunt occurs in Japan, where about 250–500 are taken per year in a drive fishery. There are also records of incidental catches in several fisheries, in particular driftnet fisheries, but also in purse seines. Some Risso's dolphins have been captured for live display in oceanaria, although there are not many of them in oceanaria. There are no estimates of global abundance, but there are some estimates for specific areas. There are estimated to be 175,000 in the ETP, 33,000 off the western United States, 29,000 off the eastern US coast, 2,700 in the northern Gulf of Mexico, 83,000 off Japan, 950 in the Philippines, and 5,500–13,000 off Sri Lanka. The species is not considered threatened or endangered.

IUCN status Data Deficient.

References Amano 2004; Baird 2002; Baumgartner 1997; Kruse 1989; Kruse et al. 1999.

A Risso's dolphin surfaces in Monterey Bay, showing the white scarring that it is famous for. Many of these scars are probably made by the suckers and beaks of their squid prey. PHOTO: T. A. JEFFERSON

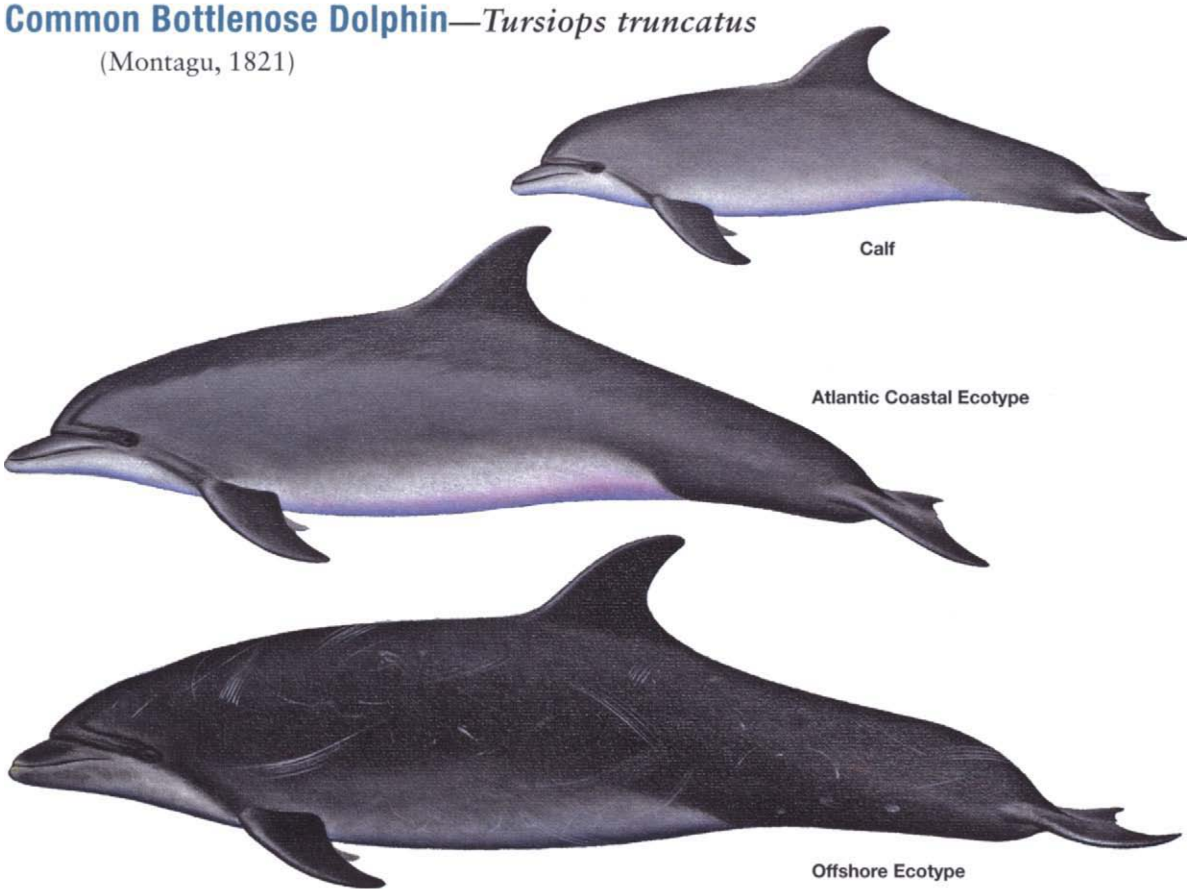
A Risso's dolphin calf surfaces beside its mother. The dorsal cape is present in calves and juveniles, but it is usually obscured in adults. PHOTO: B. WATTS

A good view of the head of a Risso's dolphin, showing the blunt head and sloping mouthline. PHOTO: M. JOHNS

Risso's dolphin is the only species to have a distinct vertical cleft on the forehead, clearly visible in this photograph. PHOTO: THE LATE S. LEATHERWOOD

Common Bottlenose Dolphin—*Tursiops truncatus*

(Montagu, 1821)



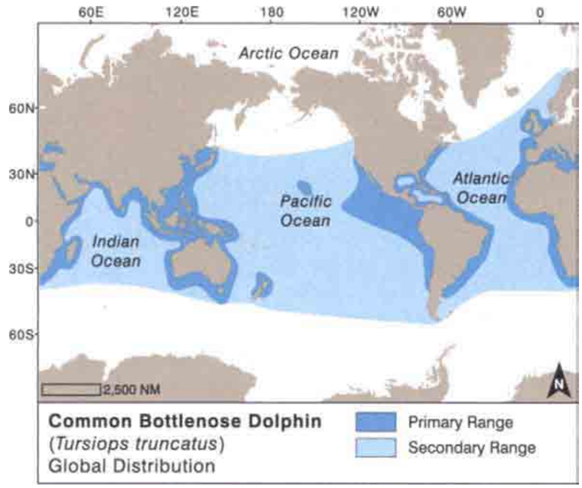
Recently-used synonyms *Tursiops gephyreus, Tursiops gillii, Tursiops nuuanu.*

Common names En.–common bottlenose dolphin; Sp.–*tursion or tonina*; Fr.–*grand dauphin*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. All bottlenose dolphins around the world were previously recognized as *T. truncatus*, but in the past few years the genus has been split into two species: *T. truncatus* and *T. aduncus* (the smaller Indo–Pacific bottlenose dolphin). Many other species of bottlenose dolphins have been described, but most of these are thought to be synonymous with *T. truncatus*. The taxonomy of bottlenose dolphins is still confused, however, due to the great extent of geographical variation, and it is very possible that additional species will be recognized in the future. For instance, more and more evidence is suggesting that coastal bottlenose dolphins in some areas of the Atlantic belong to a different species from those in offshore waters. Hybrids with several other delphinid species (rough-toothed, long-beaked common, and Risso's dolphins, and false killer and short-finned pilot whales) are known, both from captivity and in the wild.

A common bottlenose dolphin porpoises out of the water in the eastern Pacific, showing the typical body shape and coloration of the species. PHOTO: SWFSC/STAR

Species characteristics The common bottlenose dolphin is probably the most familiar of the small cetaceans because of its coastal habits, prevalence in captivity worldwide,



and frequent appearance on television and in advertising. It is a large, relatively robust dolphin, with a short to moderate-length stocky beak that is distinctly set off from the melon by a crease. It has a gently-curved mouthline that dips down from the tip of the beak, then back up, and finally down again at the gape (many people feel the mouthline resembles a smile). The dorsal fin is tall and falcate, and set near the middle of the back. The flippers are recurved and somewhat pointed at the tips. The shape of the body is generic for a dolphin, but there is extensive geographical variation in specifics of body shape, appendages, and coloration.

The color pattern is the most generalized of all the marine dolphins, and varies from light gray to nearly black on the back and sides, fading to white (sometimes with a pinkish hue) on the belly. The belly and lower sides are rarely spotted, and when they are the spots are generally small flecks. Although the back is generally dark gray, there is sometimes also a faint dorsal cape on the back, generally only visible at close range. Sometimes a faint spinal blaze may also be present. Often, there are brushings of gray on the body, especially on the face. A generalized delphinid "bridle," consisting of blowhole and eye stripes is present, but is variable in its intensity. A wide, but very faint, stripe often extends forward from the flipper and connects to the gape. A light patch on the side of the melon is often present, bordered by dark stripes from the blowhole to the apex of the melon. There may be a throat chevron and genital patch. Anomalously white individuals have been observed (in at least one case, this was an albino).

Bottlenose dolphins have 18–27 pairs of stout, pointed teeth in each jaw. They are generally smooth in contour. In older animals, many of these may be worn down or missing.

Length at birth is about 1–1.3 m. Adults range from 1.9–3.8 m, with males tending to be somewhat larger than females in at least some populations. There is wide variation in size between different populations, with the largest known specimens coming from the eastern North Atlantic, around the United Kingdom. Maximum weight is at least 650 kg, although most bottlenose dolphins are much smaller.

In coastal areas, most common bottlenose dolphins are avid bowriders, but can be difficult to identify when only viewed from directly above. The dorsal cape is straighter than in *Steno* and without the light outline; also notice *Tursiops* usually has a spinal blaze that is visible from above. Eastern tropical Pacific. PHOTO: R. L. PITMAN

Recognizable geographic forms Many different geographical forms of the common bottlenose dolphin have been described for different areas of the range. However, in most cases there is some question as to their validity (since they are often based on small or in-

A common bottlenose dolphin, showing some of the variation in the coloration. New Zealand. PHOTO: K. STOCKIN

Bottlenose dolphins are highly variable in behavior, as well as in morphology. Diverse feeding techniques, such as intentional stranding to trap fish on the beach, are known from throughout the range. North Carolina. PHOTO: T. PUSSER

A common bottlenose dolphin leaps in the Pacific, with a remora attached to its side. PHOTO: R. L. PITMAN

adequate samples). Even for those cases where their distinctness is well-recognized, it is often the case that reliable external morphological characters have not been provided and range limits are generally not known, which compromises our ability to distinguish them in the field. Hybridization may contribute to some of this confusion.

In many areas of the world, such as the western North Atlantic, eastern North Pacific, and Peru, there appear to be two "ecotypes," a coastal ecotype and an offshore ecotype. These forms have been distinguished by various morphological, ecological, and physiological features, but differences are subtle and regionally-variable. Therefore, separation into ecotype should be left to experts.

Can be confused with Because of their somewhat generic appearance, common bottlenose dolphins can be mistaken for several other species of dolphins, depending on the region. Identification of the species may be mostly a process of elimination of other potential species. They are most likely to be confused with Indo–Pacific bottlenose dolphins where the two species overlap in distribution. Overall size, head and beak shape, and subtleties of coloration are the best cues (for instance, common bottlenose dolphins are generally quite a bit larger, more strongly countershaded, and ventral spotting is rare). There can be confusion in the tropical Atlantic Ocean with young, as yet unspotted Atlantic spotted dolphins, along the east coast of South America with dolphins of the genus *Sotalia*, and in the Indo–Pacific and off West Africa with humpback dolphins. When seen from a distance, they can also be confused with Risso's or rough-toothed dolphins. Such confusion will generally only occur when the animals are not seen well; in most situations, bottlenose dolphins can be identified by their various combinations of coloration, body shape and size, head (especially beak) shape characteristics.

Distribution Common bottlenose dolphins are very widely-distributed. They are found most commonly in coastal and continental shelf waters of tropical and temperate regions of the world. They occur in most enclosed or semi-enclosed seas (e.g., the North Sea, Mediterranean Sea, Black Sea, Caribbean Sea, Gulf of Mexico, Red Sea, Persian Gulf, Sea of Japan, Gulf of California). They frequent bays, lagoons, channels, and even the mouths of rivers. Although they can also be found in very deep waters in some oceanic regions (e.g., the eastern tropical Pacific), population density appears to be higher nearshore. Except for their occurrence around the United Kingdom, northern Europe, and southern New Zealand, they generally do not range poleward of 45° in either hemisphere.

A common bottlenose dolphin with a robust body and a very short and stocky beak. Wales. PHOTO: F. UGARTE/ARC-PIC.COM

A group of common bottlenose dolphins socializing at the surface in New Zealand waters, showing their short, stubby beaks. The length and thickness of the beak is highly geographically variable in this species. PHOTO: S. DAWSON

The color pattern of the common bottlenose dolphin is largely one of countershading—dark on the back and upper parts and white on the belly. Wales. PHOTO: F. UGARTE/ARC-PIC.COM

This bowriding common bottlenose dolphin shows the subtle color pattern elements of the head of this species. When seen at such close range, in good lighting conditions, the subdued facial markings (e.g., face-to-flipper stripe, and brushings and streaks from the apex of the melon) are usually visible. Costa Rica. PHOTO:T. PUSSER

Ecology and behavior More is known of the biology of this species than of any other dolphin. Its behavior has been studied, both in captivity and in a large number of different coastal areas throughout the range. Group size is commonly less than 20, but large herds of several hundred are sometimes seen in offshore areas (such as the eastern tropical Pacific and western Indian Ocean). Bottlenose dolphins are commonly associated with other cetaceans, including both large whales and other dolphin species (mixed schools with Indo-Pacific bottlenose dolphins have been found, for instance off China and Taiwan). They have been observed to attack and kill harbor porpoises.

Based on a number of studies of nearshore populations, bottlenose dolphins seem to live in relatively fluid (fission/fusion) groupings with somewhat closed societies. Mother/calf bonds and some other associations may be strong, but other individuals may be seen from day-to-day with a variety of different associates. In many inshore areas where they are not migratory, they maintain definable, long-term multi-generational home ranges; in others, they are migratory, generally ranging further. The behavior and social systems of these animals are highly adaptable and diverse.

The bottlenose dolphin is the most common species of dolphin held in captivity. It has proven highly adaptable and is easily trained. Much of what we know of the general biology of dolphins comes from studies of bottlenose dolphins, both in captivity and in the wild. Some solitary dolphins in the wild have become "friendly" and interacted with humans for extended periods of time. Bottlenose dolphins are avid bowriders, in both inshore and offshore waters and may perform acrobatic leaps while riding. They also sometimes ride the waves produced by the heads of large whales. Bottlenose dolphins tend to be quite active (especially when feeding or socializing), often slapping the water with their flukes, leaping, and performing other aerial behaviors.

Life history has been studied in many areas, and there is wide geographic variation in reproductive param-

These bottlenose dolphins in inshore waters of southern Texas show the longer and more slender beak and more distinct coloration typical of the coastal Gulf of Mexico form. PHOTO: T. A. JEFFERSON

eters. Females mature at 5–13 years of age, and males at 9–13 years. Spring and summer or spring and fall calving peaks are known for most populations. Calves are typically suckled for 1.5–2 years, although nursing can last longer, especially for a last-born calf. Females may live to over 50 years of age and males to 40–45 years.

Feeding and prey Common bottlenose dolphins are generalist feeders, which use a wide variety of prey species, mostly fish (with a tendency towards sciaenids, scombrids, and mugilids) and squid. They sometimes eat shrimps and other crustaceans. In some areas, they apparently take the most abundant or easiest prey at the time, but in other areas they demonstrate apparent preferences. Feeding behavior is varied, mostly involving individual capture of fish, but it can range from cooperative foraging on schooling fish, to chasing fish onto mudbanks, to feeding behind shrimp trawlers.

Threats and status Common bottlenose dolphins have been hunted directly in several areas. The largest takes in recent years have been in the Black Sea, but large numbers have occasionally been taken in drive fisheries in Japan and Taiwan as well. Some animals have also been taken in small cetacean fisheries in the Caribbean, Peru, Sri Lanka, West Africa, and Indonesia. Bottlenose dolphins were deliberately hunted on the east coast of the US in the late 1800s and early 1900s. Finally, significant numbers have been taken in live-capture fisheries for display, research, and use by the military. They continue to be collected for captive display and research in some parts of the world.

Common bottlenose dolphins interact with fisheries throughout their range, and are often seen following behind and feeding from shrimp trawlers. Incidental catches are also known from throughout the species' range. Catches have occurred in gillnets, driftnets, purse seines, trawls, and on hook-and-line gear. Mortality related to recreational fishing is also being documented with increasing frequency, in some cases exceeding commercial catches. Coastal bottlenose dolphins are susceptible to habitat destruction and degradation by human activities. Vessel collisions and the effects of environmental contaminants also result in some mortality. There have been several die-offs of bottlenose dolphins in recent years, most often linked to poisoning from biotoxins of natural origin. Anthropogenic contaminants are also a serious concern, especially in that they can affect the immune and reproductive systems.

There are no estimates of overall abundance, although abundance has been estimated for some parts of the range. In the eastern tropical Pacific, there are about 243,500, in Japan 317,000, off the eastern US coast 10,000–13,000, in the northern Gulf of Mexico 35,000–45,000, off Natal, South Africa 900 (many of these may be *T. aduncus*), and in the Black Sea 7,000. There are also at least minimum estimates (based on photo-identification) for many smaller study areas. Clearly, the species is not endangered, although some populations may be threatened by human activities.

IUCN status Data Deficient.

References Curry and Smith 1997; Leatherwood and Reeves 1990; Natoli et al. 2004; Reynolds et al. 2000; Wells and Scott 1999, 2002.

Indo–Pacific Bottlenose Dolphin—*Tursiops aduncus*

(Ehrenberg, 1833)

Recently-used synonyms *Tursiops catalania.*

Common names En.–Indo–Pacific bottlenose dolphin; Sp.–*delfin mular del Oceano Indico*; Fr.–*grand dauphin de l'ocean Indien.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. The validity of this species was in doubt for many years, and until the last few years, most marine mammal biologists classified all bottlenose dolphins as *T. truncatus*. Now, the Indo–Pacific bottlenose dolphin is known to be distinct, based on concordance in genetics, osteology, and external morphology. Recent genetic studies have even suggested that dolphins currently recognized at *T. aduncus* off southern Africa might be a third species in the genus *Tursiops*. Future studies will be needed to confirm this. In the past few years, some doubt as to the specific identity of the well-studied bottlenose dolphins in Shark Bay, Australia, has also been raised.

Species characteristics Indo–Pacific bottlenose dolphins look very similar to common bottlenose dolphins, with a relatively robust body, moderate-length beak, and tall falcate dorsal fin. However, they tend to be somewhat more slender than common bottlenose dolphins, and the beak is relatively longer and more slender. Also, the melon tends to be slightly less convex. The flippers are typically dolphin-shaped—recurved with acutely rounded tips. The dorsal fin is tall and slightly falcate (it is relatively larger and more wide-based than in the common bottlenose).

Coloration (although variable) tends to be somewhat lighter and less countershaded than in most common bottlenose dolphins. The belly is generally off-white to pale gray, and tends to grade smoothly to darker gray on the lateral and dorsal surfaces. The moderate to dark-gray cape is generally more distinct, and extends back onto the tail stock. There is usually a light spinal blaze extending to below the dorsal fin (this may be quite prominent in some animals). The most distinctive feature is generally the presence of prominent black spots or flecks on the bellies of adults of this species (these are very rarely present on common bottlenose dolphins). However, not all Indo–Pacific bottlenose dolphins necessarily have ventral spotting. In particular, young animals appear to lack ventral spots. There is also often a dark ring around the eye. The delphinid "bridle," consisting of a blowhole and eye stripe is also present.

The teeth number 21–29 in each half of the upper and lower jaws. They are a bit more slender than those of common bottlenose dolphins.

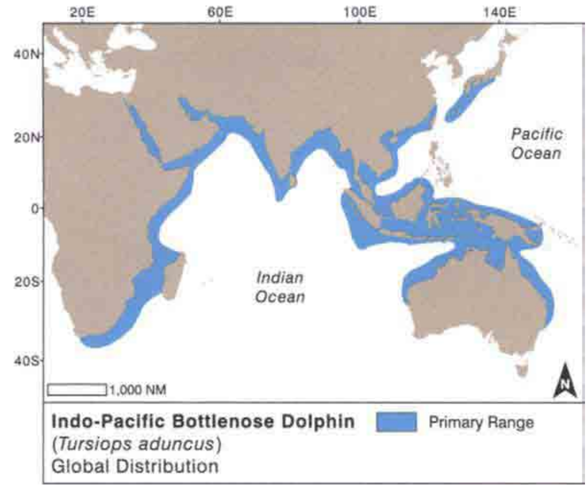
Although maximum size is geographically variable, Indo–Pacific bottlenose dolphins grow to lengths of about 2.7 m and 230 kg. Males tend to be somewhat larger than females. Length at birth is about 85–112 cm.

Recognizable geographic forms None.

This Indo–Pacific bottlenose dolphin in an oceanarium in South Africa displays the body shape and dark ventral spotting that characterize the species. PHOTO: N. B. BARROS

Delphinidae

Indo–Pacific Bottlenose Dolphin



An Indo–Pacific bottlenose dolphin surfacing in a Maldivian atoll. The spinal blaze and relatively wide-based dorsal fin are visible here. PHOTO: T. A. JEFFERSON

Can be confused with This species can be difficult to distinguish from the larger common bottlenose dolphin in sightings at sea, and the two do overlap in distribution in the Indo–Pacific. Multiple characters are required to distinguish them in areas of overlap. The best field characters to look for are overall size and robustness, the length and slenderness of the beak, extent of a spinal blaze, and the presence/absence of dark spots or flecks on the belly. The Indo–Pacific species may also have a slightly brownish tinge to its cape, when seen in bright sunlight.

Distribution Indo–Pacific bottlenose dolphins are found only in the warm temperate to tropical Indo–Pacific, from South Africa in the west to southern Japan and central Australia in the east. They are found throughout the islands and peninsulas of the Indo–Malay archipelago, and the distribution extends into the Red Sea and Persian Gulf. They occur almost exclusively over the continental shelf, mostly in very shallow coastal and inshore waters. There are also populations around some oceanic Indo–Pacific island groups (e.g., the Ryukyu and Amami Islands of southern Japan, the Maldives, and the Cocos/Keeling Islands of the southern Indian Ocean).

Ecology and behavior Indo–Pacific bottlenose dolphins have not been studied as well as their congeners, but some detailed studies have been done in South Africa, Australia, and recently in Japanese waters. These animals occur in groups ranging in size up to the low hundreds, but groups of less than 20 are much more common. In most areas, they do not appear to be avid bowriders. They sometimes occur in mixed groups with common bottlenose dolphins and other delphinid species. Off western Australia, where dolphins come into shallow beaches to be fed and touched by humans, this species' behavior has been intensively studied. There, male Indo–Pacific bottlenose dolphins often band together into "coalitions" to garner young females from the group. The social structure is characterized by a fission-fusion type of society, with great fluidity in group mem-

The long, slender beak and lighter coloration of this bowriding Indo–Pacific bottlenose dolphin differ from those of most common bottlenose dolphins. Off Mayotte. PHOTO: J. KISZKA

An Indo–Pacific bottlenose dolphin porpoises beside a research vessel in the Red Sea, showing the slender beak that characterizes the species. PHOTO: C. JOHNSON bership. The dolphins in Shark Bay have also been found to use sponges as tools, and there appears to be cultural transmission of this behavior from mother to offspring.

Although reproductive activity occurs throughout the year, breeding peaks in spring and summer months. The gestation period is about 12 months, and calves are weaned after 18–24 months of lactation. Ventral spotting develops at around the time of sexual maturity, which occurs for both sexes at around 230–235 cm in length. Individuals may be 12 years or older at the time of sexual maturity.

Sharks often prey on these animals, at least in areas where they have been well-studied, such as South Africa and eastern and western Australia.

Feeding and prey Feeding is on a large variety of schooling, demersal and reef fishes, as well as cephalopods. Most prey items are less than 20 cm in length. Off eastern Australia, dolphins feed behind trawlers, often in association with sympatric humpback dolphins.

Threats and status Some Indo–Pacific bottlenose dolphins are taken in the small cetacean fisheries of Sri Lanka and possibly in Indonesia as well. Live-captures for oceanarium display have take…æ…n place in Taiwanese and Indonesian waters in recent years, and its preference as a captive display species makes it vulnerable to depletion from such catches. Until it was outlawed in 1990, this species was involved in a large-scale drive fishery in Taiwan's Penghu Islands.

Incidental catches occur in a number of fisheries throughout the range, including gillnets and purse seines. The largest known of these includes up to 2,000 per year taken in the Taiwanese driftnet fishery operating in Indonesian waters (this fishery formerly operated in northern Australian waters). In addition, Indo–Pacific bottlenose dolphins are killed in anti-shark gillnets in South Africa and Australia. Since this is a coastal species, it is subjected to a number of other human threats—including habitat destruction/degradation, vessel collisions, and environmental contamination. Indo–Pacific bottlenose dolphins interact with fisheries throughout their range, and are often seen following behind and feeding from trawlers.

Few estimates of abundance have been made, although the species is not rare. However, some populations appear to have been depleted by human activities. There are estimated to be about 900 bottlenose dolphins off Natal, South Africa, and most of these are probably *T. aduncus* (the rest are *T. truncatus*).

IUCN status Data Deficient.

References Natoli et al. 2004; Wang et al. 1999, 2000; Wells and Scott 1999, 2002.

An Indo–Pacific bottlenose dolphin underwater in the Red Sea, showing the head shape and dark ventral spotting. PHOTO: I. VISSER

An Indo–Pacific bottlenose dolphin conveniently rolls on its side and shows the spotting on its belly that is diagnostic for this species (despite the distortion by the waves at the surface). Mozambique Channel, near Mayotte. PHOTO: J. KISZKA

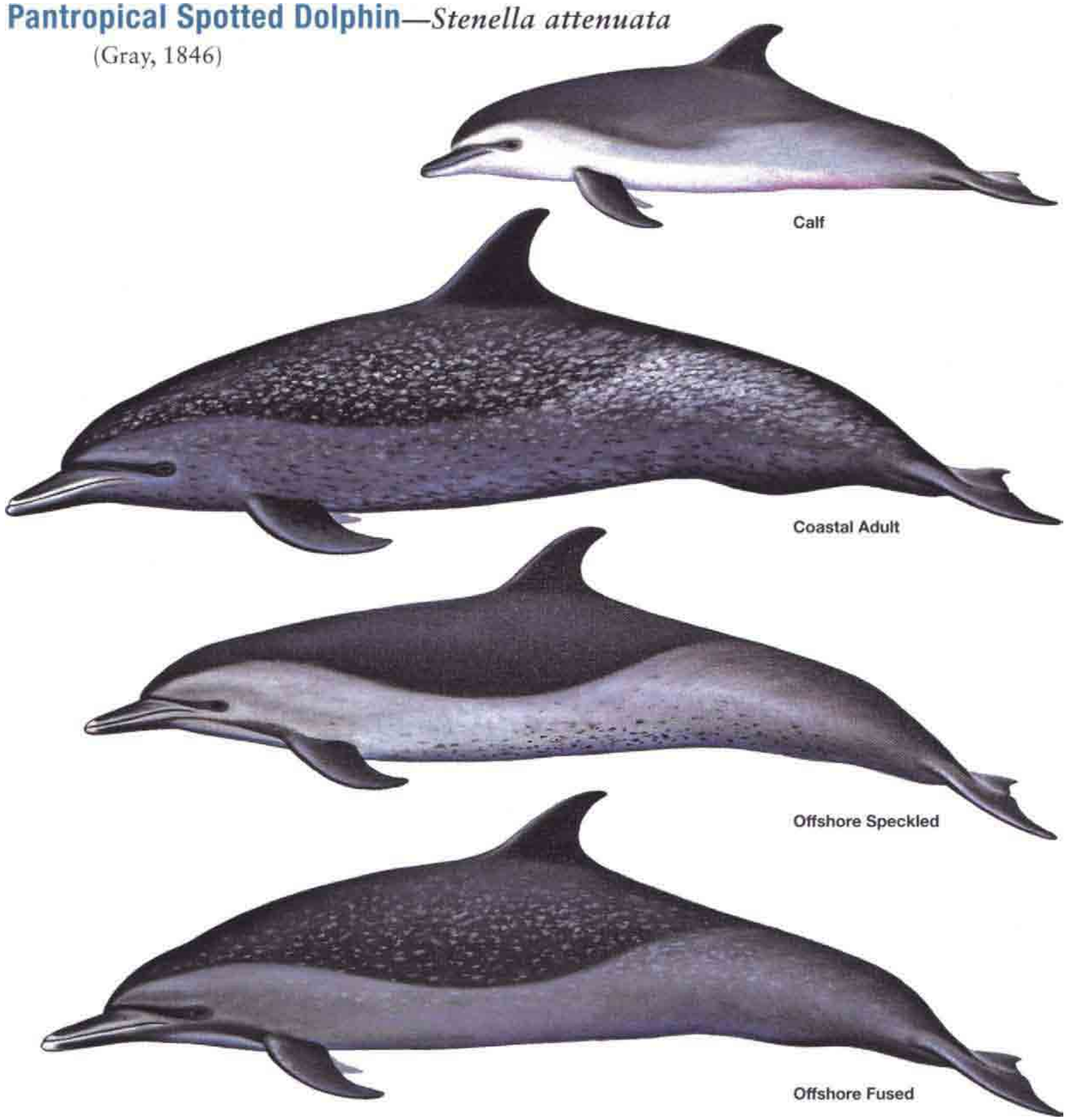
An Indo-Pacific bottlenose dolphin (upper) off the Cocos-Keeling Islands in the Indian Ocean, showing the dark ventral spotting. The lower animal is a spinner dolphin. PHOTO: K. WILLSHAW

Delphinidae

Indo–Pacific Bottlenose Dolphin

Pantropical Spotted Dolphin—*Stenella attenuata*

(Gray, 1846)

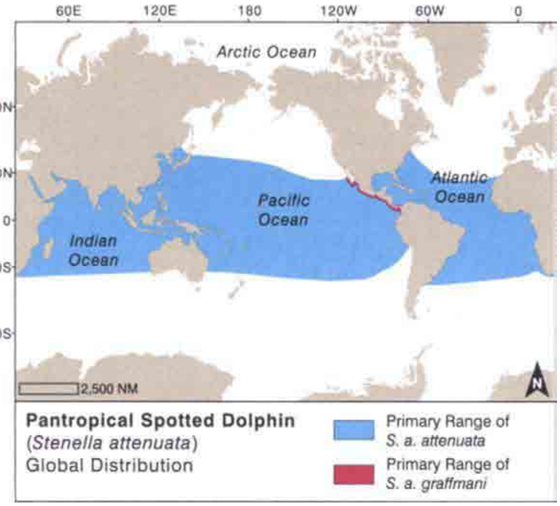


Recently-used synonyms *Stenella graffmani, Stenella dubia*.

Common names En.–pantropical spotted dolphin; Sp.–*estenela moteada* or *delfín manchado pantropical*; Fr.–*dauphin tacheté pantropical*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Two subspecies are recognized: *S. a. at`enuata* in oceanic tropical waters worldwide, and *S. a. graffmani* in the coastal waters of the eastern tropical Pacific. Recent genetic work suggests that the genus *Stenella* is actually paraphyletic, and it is likely that it will be restructured in coming years. Dolphins that appear to be hybrids between pantropical spotted and spinner dolphins have been observed off the Fernando de Noronha archpelago of Brazil.

Species characteristics Pantropical spotted dolphins (sometimes called "spotters") are generally fairly slender, streamlined animals. However, the coastal form in the eastern Pacific is moderately robust. They have a long, slender beak that is separated from the melon by a distinct crease. The dorsal fin is very narrow, falcate, and usually pointed at the tip, and the flippers are very slender and strongly recurved. There may be a small post-



anal protuberance (presumably in adult males).

The most distinctive color pattern component of this species is the dark dorsal cape, which is high above the flipper and sweeps very low on the side below the dorsal fin. Although unspotted at birth, by adulthood spotted dolphins have varying degrees of white mottling on the dark cape. The tail stock, posterior to the upsweep of the cape, is often streaked with light extensions of the ventral field. The spotting ranges from very slight (or even non-existent) in offshore animals to heavy enough to obliterate the cape in coastal dolphins. The lower sides and belly of adults are gray and the lips and beak tip tend to be brilliant white. A dark gray band encircles the eye, and continues forward to the apex of the melon as a narrow eye stripe. There also is a dark gape-to-flipper stripe. Younger animals may have extensive dark ventral spotting as well.

In each tooth row are 34–48 slender, sharply pointed teeth.

At birth, pantropical spotted dolphins are about 80–85 cm long. Adults range in length from 1.6–2.4 m (females) or 1.6–2.6 m (males), depending on the population. Maximum recorded weight is 119 kg.

Neonate—Neonates are about 1/4–1/3 of adult size; with a two-part color pattern (dark gray above, white below), with no spotting.

Two-tone—Two-tone calves are about 1/3–3/4 adult size; with a two-tone gray color pattern and no spotting.

Speckled—Speckled juveniles are at least 3/4 of adult size; the two-tone color pattern is still evident, with dark ventral spots developing.

Mottled—Mottled adults/subadults have dark ventral spotting (beginning to converge and fuse) and light dorsal spotting

Fused—The two-tone color pattern is still evident, with light dorsal spotting and the ventral spots mostly fused into a solid gray belly; the beak is variably white-tipped.

Recognizable geographic forms

***Offshore spotted dolphin* (S. a. attenuata)**—Offshore spotted dolphins are slightly smaller and more slender than the coastal form, and the beak tends to be more slender as well. Dorsal spotting is much less dense, and in some populations can be virtually nonexistent in adults. Adults range in length from 1.6 to 2.4 m long, and tend to weigh somewhat less than the coastal form.

***Coastal spotted dolphin* (S. a. graffmani)**—In coastal waters of the eastern tropical Pacific, a larger coastal form of the pantropical spotted dolphin exists. It is larger and stockier, with a thicker beak than the offshore form. Spotting tends to be much more extensive on the coastal form, and in some adults the white dorsal spots can be so dense as to completely obscure the cape. Coastal spotted dolphins range from 1.8–2.6 m long, and can weigh up to at least 119 kg.

A pantropical spotted dolphin swims in calm waters off Hawaii, showing the white beak tip that is common among larger animals of the species. The large white spots on the back are probably cookie-cutter shark scars. PHOTO: R. W. BAIRD

A pantropical spotted dolphin mother and calf ride the bow wave of a vessel. These animals are avid bowriders throughout much of their range, but they avoid vessels in some parts of the eastern tropical Pacific, where they have been harassed by tuna seiners. Off Mayotte. PHOTO: J. KISZKA

An offshore pantropical spotted dolphin accompanying a research vessel in the eastern tropical Pacific. Notice the virtual absence of white dorsal spotting. PHOTO: R. L. PITMAN

Pantropical spotted dolphins bowriding on a research vessel in the eastern tropical Pacific. The amount of white dorsal spotting varies both by geographical region and age. PHOTO: R. L. PITMAN

Eastern tropical Pacific pantropical spotted dolphins leaping beside a research vessel. The slender bodies and dark ventral spotting suggest that these are subadults. PHOTO: R. L. PITMAN

Can be confused with Pantropical spotted dolphins can be confused with several other long-beaked oceanic dolphins. Spinner dolphins, which share much of the range, can be distinguished by differences in dorsal fin shape, beak length, and color pattern. Atlantic spotted dolphins can look similar, but attention to head shape, dorsal fin shape, and color pattern details will allow correct identification. In addition to Atlantic spotted dolphins, both bottlenose and humpback dolphins can also be spotted (generally most extensively on the belly), but will be distinguishable by attention to differences in body shape and size. In fact, presence/absence of spotting is not really a very good character to use in identification of *S. attenuata*, as the species can range from heavily spotted to unspotted. The shape of the dorsal cape is a better field character.

Distribution Pantropical spotted dolphins are found in the Pacific, Atlantic, and Indian oceans. They are mostly creatures of offshore tropical zones, although they do occur close to shore in some areas where deep water approaches the coast (e.g., off the west coast of central America and Mexico, around the Hawaiian islands, off some islands in the Caribbean, off Taiwan, and in the Philippines). As their name implies, these animals are pantropical, found in all oceans between about 40°N and 40°S, although they are much more abundant in the lower latitude portions of their range. In the eastern tropical Pacific, the offshore form primarily inhabits waters with a sharp, shallow thermocline and surface water temperatures of over 25°C. They are also found in the Persian Gulf and Red Sea.

Ecology and behavior Pantropical spotted dolphins are among the most abundant dolphins in the eastern tropical Pacific (ETP) and are the primary species involved in the tuna/dolphin interaction there. In at least the Pacific and Indian oceans, spotted dolphins associate with yellowfin tuna, spinner dolphins, and other oceanic predators; the fishermen take advantage of this association to help them locate and catch tuna more efficiently. They are also among the most common species of cetaceans in portions of the Atlantic and Indian oceans.

School sizes are generally less than 100 for the coastal form, but offshore herds may number in the thousands. They may form schools with some age and sex segregation. These gregarious animals are fast swimmers, often engaging in acrobatics (like breaches and side slaps, but they do not spin), and frequently bowriding (except on the tuna fishing grounds of the ETP, where they generally have learned to avoid boats). They may swim at speeds of at least 22 km/hr, and dives of up to 3.4 minutes in length have been recorded through time/depth recorder studies.

The life history of this species has been thoroughly studied, due to the large number of specimens available through kills in the ETP tuna fishery, as well as drive fisheries of Japan. Gestation lasts about 11.5 months. Sexual maturity is reached at ages of 9–11 years in females, and 12–15 in males. The typical calving interval is 2–3 years, and age at weaning varies strongly by population. Although pantropical spotted dolphins breed year-round, there are two calving peaks in the ETP, one in spring and one in fall.

A coastal pantropical spotted dolphin (*S. a. graffmani*), which has such extensive white dorsal spotting that the cape margin has been virtually obliterated. PHOTO: SWFSC/STAR

This coastal pantropical spotted dolphin clearly shows the extensive white dorsal spotting and robust body shape that characterize that subspecies. PHOTO: SWFSC/STAR

A white pantropical spotted dolphin, possibly an albino, leaping in the eastern tropical Pacific. Such anomalously white individuals can occur in any species. PHOTO: SWFSC/STAR

Feeding and prey Offshore spotted dolphins feed largely on small epi- and mesopelagic fishes, squids, and crustaceans that associate with the deep scattering layer (DSL). In some areas, flyingfish are also important prey. The diet of the coastal form is poorly known, but is thought to consist mainly of larger and tougher fishes, perhaps mainly bottom-living species.

Threats and status The heaviest known mortality of this species has been in the ETP tuna purse seine fishery for tuna. Since the interaction was first documented in the late 1960s, millions of spotted dolphins have died in the nets (from 1959 to 1972, about three million offshore spotters were killed). Current mortality in this fishery has been greatly reduced by years of modifications to the fishing practices, fleet changes, and US and international legislation. Current concerns are focused on the potential effects of fishery-related stress, and its role in preventing recovery of the population. In addition, pantropical spotted dolphins are taken incidentally in a number of other purse seine, gillnet, and trawl fisheries throughout the range.

Large direct kills occur sporadically in the Japanese small cetacean drive and harpoon fisheries, and much smaller direct kills have occurred in the dolphin fisheries of the Caribbean, Sri Lanka, Philippines, Indonesia, St. Helena, and the Laccadive and Solomon Islands. Most of these kills have not been adequately monitored and the effects on the population are usually not known. They have been live-captured in some areas (e.g., Hawaii), and some individuals have survived for a short time in captivity.

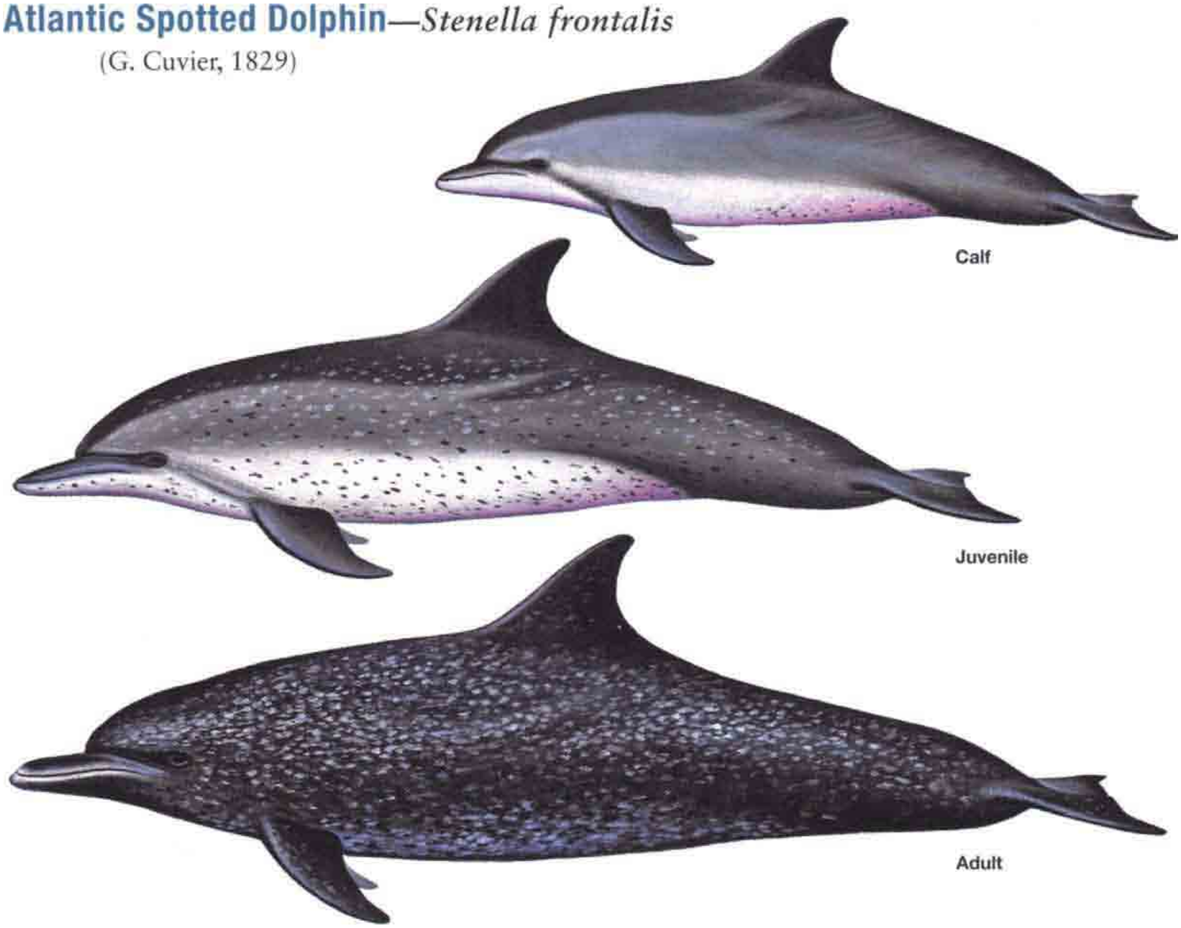
Overall, the species is very abundant, perhaps one of the most abundant dolphins in the world. In the eastern tropical Pacific, there were estimated to be 228,000 coastal spotters in 2000. The northeastern offshore spotted dolphin (the stock most affected by the ETP tuna fishery) numbered about 647,000 in 2000. This stock is not showing clear signs of recovery, despite the dramatic decline in mortality in recent years. The western/southern offshore stock (which is less affected by the fishery) numbered about 800,000. About 440,000 inhabited Japanese waters in the early 1990s. There were estimated to be over 47,000 in the northern Gulf of Mexico. Clearly, the species is in no danger on a global scale.

IUCN status Lower Risk/Conservation Dependent.

References Dizon et al. 1994; Gerrodette and Forcada 2005; Kasuya 1985; Perrin 2001, 2002; Perrin and Hohn 1994; Perrin et al. 1987.

Atlantic Spotted Dolphin—*Stenella frontalis*

(G. Cuvier, 1829)



Recently-used synonyms *Stenella plagiodon.*

Common names En.–Atlantic spotted dolphin; Sp.–*delfín pintado*; Fr.–*dauphin tacheté de l'Atlantique.*

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. There is some indication that this species may be closely related to the Indo–Pacific bottlenose dolphin. If so, then the genus-level taxonomy of these two groups needs revision. There is known to be some geographic variation in this species, and evidence for a distinct geographic form in the more temperate waters of the North Atlantic is accumulating.

Mother (upper) and calf (lower) Atlantic spotted dolphins in the Bahamas. Notice that the calf is essentially unspotted. PHOTO: D. PERRINE@/SEAPICS.COM

Species characteristics The Atlantic spotted dolphin, in many ways, resembles the Indo–Pacific bottlenose dolphin more than it does the pantropical spotted dolphin. In body shape, it is somewhat intermediate between the two, neither very robust, nor very slender. It has a moderately long, but rather stocky beak (somewhat reminiscent of that of the bottlenose dolphin). There is a distinct crease between the melon and beak. The dorsal fin is tall and falcate, and the flippers are recurved and of the typical dolphin shape.

There is much developmental variation in the color pattern. Atlantic

Atlantic Spotted Dolphin
(*Stenella frontalis*)
Global Distribution

spotted dolphins begin life with unspotted background coloration. Young animals look much like slender bottlenose dolphins, with a dark cape, light gray sides, and white belly. There is generally a distinct spinal blaze (which is variable in its development). Development of larger spots on both dorsal and ventral surfaces progresses as the animal ages; some individuals become so heavily spotted that the cape margin and spinal blaze are totally obscured. However, in some populations, adults are essentially unspotted (these are generally in offshore and/or more temperate areas). The white spots are generally larger than the small ones typical of the pantropical spotted dolphin.

There are 32–42 teeth in each upper tooth row and 30–40 in each lower row. Adults are up to 2.3 m long and 143 kg in weight. Newborn Atlantic spotted dolphins are 0.8–1.2 m long.

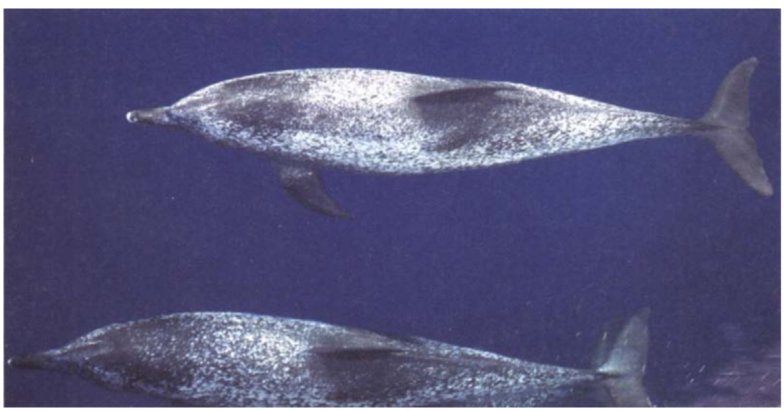
Neonate—Neonates are about 1/4–1/3 of adult size; with a two-tone color pattern (dark gray above, white below), with no spotting.

Calf—Calves are 1/3–3/4 adult size; with a two-tone color pattern, and possibly a few dark ventral spots.

Juvenile—Juveniles are at least 3/4 of adult size; the two-tone color pattern is still evident, with some dark ventral and light dorsal spots developing.

Adult—Adults have a mottled (dark ventral spotting and light dorsal spotting) to fused (same as above, with the ventral spots fusing) color pattern, often with a white-tipped beak.

Recognizable geographic forms Although two distinct geographic forms of the Atlantic spotted dolphin have been described, primarily from osteological and color pattern data, the exact ranges and extent of overlap in their external appearance are not adequately known. The larger, more heavily spotted form is mainly found over the continental shelf (the largest specimens known are from the continental shelf of North America), while a small, more lightly spotted form occurs in more oceanic areas (and around offshore islands, like the Azores).



Adult Atlantic spotted dolphins, especially in more coastal waters tend to be very heavily spotted. The spotting is less dense on the back, so that the dorsal cape and spinal blaze (adjacent to the dorsal fin in the top animal) are usually discernible. Gulf of Mexico. PHOTO: R. L. PITMAN

An offshore/temperate form of the Atlantic spotted dolphin found around the Azores. In this form, which has not yet been adequately described, the spotting appears to be less extensive and there is a distinct boundary between the light gray side and white belly. PHOTO: L. STEINER/WHALE WATCH AZORES

tlantic spotted dolphin leaping alongside a research vessel, and providing a view of the spinal blaze. Canary Islands. PHOTO: C. JOHNSON

A bowriding Atlantic spotted dolphin, showing the distinctive spinal blaze. Bahamas. PHOTO: C. MACLEOD

This Atlantic spotted dolphin has no visible spinal blaze; although unusual, the expression of the spinal blaze is a highly variable trait in this species. North Atlantic. PHOTO: C. FAIRFIELD

A close-up of the head of an adult Atlantic spotted dolphin. The beak in this species is of moderate length and thickness, like that of some bottlenose dolphins. PHOTO: T. PUSSER

Can be confused with Atlantic spotted dolphins can be most easily confused with bottlenose dolphins (although they do not overlap in distribution with the Indo–Pacific species). The differences in size and robustness are good clues, but may require a trained eye to distinguish in some at-sea sightings. Heavy spotting is generally a good characteristic for Atlantic spotted dolphins; however, some may be nearly unspotted, and some bottlenose dolphins may have spotting and blotches on the belly and sides. Pantropical spotted dolphins may also be difficult to distinguish from Atlantic spotters, but attention to body robustness, beak and dorsal fin shape, and color pattern differences will allow them to be separated.

Distribution This species is found only in the Atlantic Ocean, from southern Brazil to New England in the west, and to the coast of Africa in the east (the exact limits off West Africa are not well-known). They are not found in the Mediterranean Sea. Their tropical to warm-temperate distribution is mostly over the outer continental shelf and upper continental slope, but they also inhabit some deep oceanic waters. They occur near some oceanic island groups, such as the Azores. In the Bahamas, they spend much of their time over shallow (6–12 m) sand flats.

Ecology and behavior Small to moderate-sized groups, generally of less than 50 individuals, are char-

A group of Atlantic spotted dolphins rides the bow of a research vessel in the Gulf of Mexico. Individuals of several age classes can be seen here. PHOTO: T. A. JEFFERSON

acteristic of the Atlantic spotted dolphin. Coastal groups usually consist of 5–15 animals. These are acrobatic animals and they are known to be avid bowriders. They are mostly shallow divers (most dives apparently < 10 m), but dives of 40–60 m and up to 6 minutes have been recorded. Dolphins in the Bahamas have been observed to capture fish hiding in the soft, sandy bottom by sticking their beaks into the sand.

Atlantic spotted dolphins in the clear, warm waters off the Bahamas allow people to swim with them, and this population has become a major tourist draw. People come from around the world to interact with these dolphins in their natural habitat. Studies there show that Atlantic spotted dolphins have a fluid group structure, like that of bottlenose and other small dolphins. Groups are often segregated by age and sex. They may interact (sometimes aggressively) with bottlenose dolphins. Sharks are known predators.

There is not much known of the species' life history, but more tropical populations would be expected to have a protracted breeding season. Age at sexual maturity is thought to occur somewhere between 8 and 15

A group of virtually-unspotted Atlantic spotted dolphins off the coast of Brazil. These animals demonstrate how extreme the variation in spotting can be in this species. PHOTO: S. PACHECO DE SOUZA

years in females (when females are in the mottled color phase). The calving interval ranges from 1–5 years, and averages about 3 years. Nursing of calves can last for up to 5 years. Longevity is not well-known.

Feeding and prey A wide variety of epi- and mesopelagic fishes and squids, as well as benthic invertebrates, are taken by this species. There are known to be some regional differences in the diet.

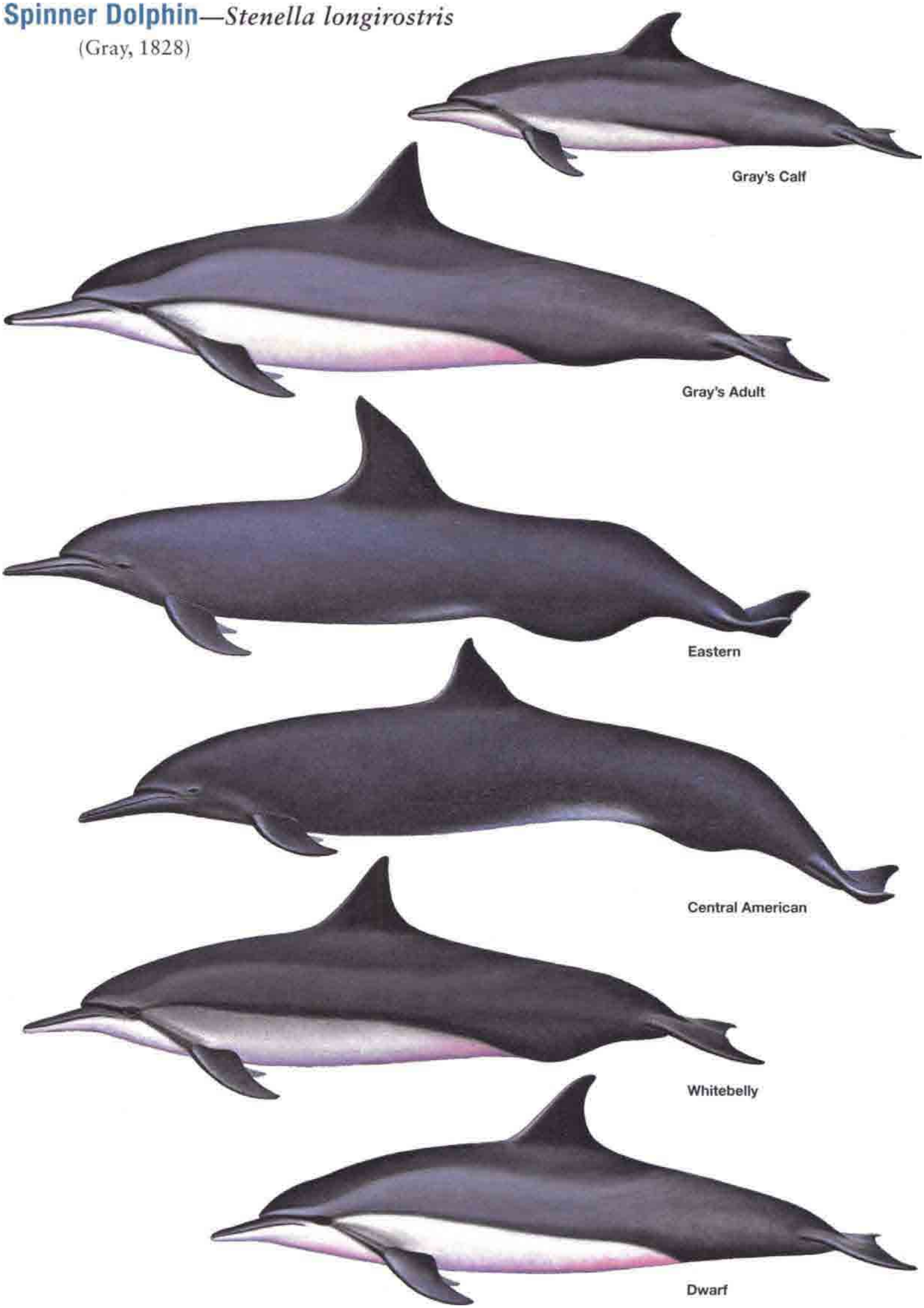
Threats and status Overall, this species is not known to suffer greatly at the hands of humans. Incidental catches in fisheries are known for several areas of the range (Brazil, the Caribbean, off the east coast of the United States, and Mauritania). No direct killing is known, other than occasional catches in the Caribbean dolphin fisheries, and maybe also off West Africa. The only abundance estimate available is for the northern Gulf of Mexico, about 3,200 animals. The species is not in any danger on a global scale.

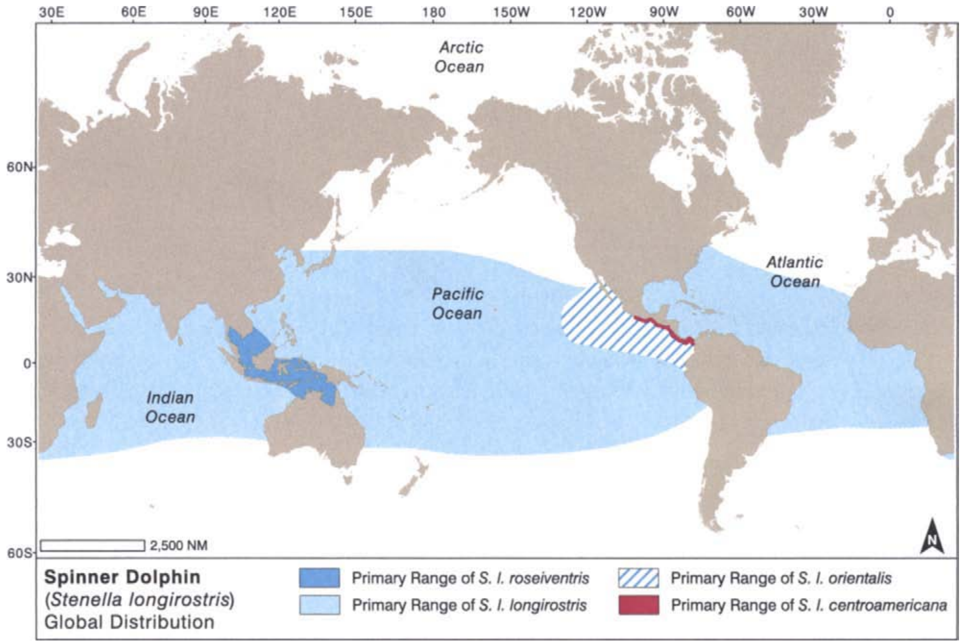
IUCN status Data Deficient.

References Adams and Rosel 2006; Perrin 2002a,b; Perrin et al. 1987, 1994.

Spinner Dolphin—*Stenella longirostris*

(Gray, 1828)





Recently-used synonyms *Stenella roseiventris, Stenella microps.*

Common names En.–spinner dolphin; Sp.–*estenela giradora* or *delfín girador*; Fr.–*dauphin longirostre*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Four subspecies are currently recognized: *S. l. longirostris* in oceanic tropical waters worldwide, *S. l. orientalis* in the offshore eastern tropical Pacific, *S. l. centroamericana* in the coastal eastern tropical Pacific, and *S. l. roseiventris* in Southeast Asia and northern Australia. Recent genetic work suggests that the genus *Stenella* is actually paraphyletic, and it is likely that it will be restructured in coming years. Dolphins that appear to be hybrids between this species (and pantropical spotted and Clymene dolphins) have been observed off the Fernando de Noronha archipelago of Brazil.

Species characteristics The spinner dolphin is a slender species, with an extremely long, thin beak. Also, the head is very slender at the apex of the melon. The flippers are slender and recurved. The dorsal fin usually ranges from slightly falcate to erect and triangular. In adult males of some populations, however, the dorsal fin can be so canted forward that it looks as if it were stuck on backwards. Also, the tail stock may become very deepened, with an enlarged post-anal hump (sometimes called a keel) of connective tissue, and the tips of the flukes may curl upwards somewhat. These three features are correlated in their development in adult males.

Spinners generally have dark eye-to-flipper stripes and dark lips and beak tips. Individuals of most spinner dolphin populations have a tripartite (three-part) color pattern (dark gray cape, light gray sides, and white belly) and only minor differences in appearance of males and females. This includes Gray's spinner dolphins (*S. l. longirostris*) and dwarf spinners (*S. l. roseiventris*). In these animals, the upper beak is dark, and most of the lower jaw is white; the beak tip tends to be dark. In the eastern tropical Pacific (ETP), three other forms with very different color patterns are found (see Recognizable Geographic Forms below). Geographical variation in spinner dolphins has not been well described for most areas outside the eastern Pacific.

In spinner dolphins, there are 40–62 pairs of very fine, pointed teeth in each jaw, with some differences between subspecies. This is more than in any other cetacean species, except the franciscana and some long-beaked common dolphins.

Two spinner dolphins seen from underwater in the South Pacific. These are Gray's spinner dolphins, the pantropically-distributed subspecies. Tahiti. PHOTO: A. GANNIER/GROUPE DE RECHERCHE SUR LES CETACES

A Gray's spinner dolphin porpoises beside a research vessel in the Maldives, showing the tripartite color pattern that distinguishes this subspecies. PHOTO: R. L. PITMAN

A leaping Gray's spinner dolphin off the Cocos/Keeling Islands. The tripartite coloration of the subspecies is visible. PHOTO: K. WILLSHAW

A Gray's spinner dolphin porpoises in the Gulf of Mexico, showing the three-part color pattern that is typical of the species in most areas of the Atlantic Ocean. PHOTO: R. L. PITMAN

A Gray's spinner dolphin lifts its head out of the water to take a look around in the Comoros archipelago, off southeastern Africa. PHOTO: J. KISZKA

Newborn spinner dolphins are about 75–80 cm long; adults reach 2.0 m (females) and 2.35 m (males). There is much geographical variation; for instance dwarf spinners reach maximum lengths of only about 1.58 m. Spinners are known to reach weights of at least 82 kg (although dwarf spinners can be mature at 25 kg). Males appear to be somewhat larger than females in all forms.

Neonate—About 1/2 of adult length; color pattern muted, often with fetal folds and folded flukes and dorsal fins.

Calf—Calves are generally less than 3/4 adult size; head relatively large; with a muted color pattern.

Subadult—Length generally greater than 3/4 adult size; body more slender than that of adults.

Adult female—Shows the typical color pattern for their respective geographical form (see below); dorsal fin more erect than in subadults.

Adult male—Adult males show the typical color pattern for their respective geographical form; they have more erect or canted dorsal fins, more deepened tail stocks, and enlarged post-anal humps (the differences may be slight [Gray's/dwarf] or moderate [whitebelly], and reach great extremes in eastern and central American spinners).

Recognizable geographic forms

Gray's spinner dolphin **(S. l. longirostris)**—This is the typical form of spinner dolphin found in most areas of the world (with the exception of some waters of tropical Asia and the eastern tropical Pacific). They have the tripartite color pattern described above, with a falcate to triangular dorsal fin, small to non-existent post-anal hump, and relatively small dorsal fin and flippers. Tooth counts are generally in the range of 40–60 per row. Adult females are about 1.39–2.04 m long, and males are 1.60–2.08 m.

Eastern spinner dolphin **(S. l. orientalis)**—Eastern spinner dolphins are found only in the waters of the eastern tropical Pacific Ocean, mostly offshore. They have a monotone steel gray color pattern, with white only as patches around the genital area and axillae. They have exaggerated sexual dimorphism, with males possessing strongly canted dorsal fins, medium to large post-anal humps, and upturned fluke tips. The beak is relatively long. Eastern spinners are relatively small, with adult females being 1.52–1.93 m (mean = 1.71 m) and adult males 1.60–1.99 m in length (mean = 1.76 m).

Central American spinner dolphin **(S. l. centroamericana)**—Central American spinner dolphins, previously called Costa Rican spinners, are poorly known.

An eastern spinner dolphin in the eastern tropical Pacific. This subspecies is characterized by a monotone gray color pattern, and exaggerated sexual dimorphism. PHOTO: R. L. PITMAN

The adult male eastern spinner dolphin has a postanal keel of connective tissue and a dorsal fin that is so canted forward, it can look like it is stuck on backwards. PHOTO: R. L. PITMAN

The Central American spinner dolphin is very similar to the eastern subspecies, but tends to be even more slender. It is also a more coastal form. PHOTO: R. L. PITMAN

Eastern or Central American spinner dolphins porpoising in a group in waters of the eastern tropical Pacific. PHOTO: SWFSC/STAR

This subspecies is found only in coastal waters of the eastern tropical Pacific. They have a monotone color pattern similar to that of the eastern spinner, although apparently lacking the white ventral patches. There is pronounced sexual dimorphism, with adult males possessing strongly canted dorsal fins, large post-anal humps, and upturned fluke tips. Central American spinners are the largest subspecies, with adult females being 1.75–2.11 m and adult males reaching over 2.16 m in length. The beak is even longer than in eastern spinners.

Whitebelly spinner dolphin—A third type of spinner dolphin in the eastern tropical Pacific, called the whitebelly spinner, appears to be an intergrade between *S. l. longirostris* and *S. l. orientalis*. They occur in large schools in more offshore regions of the ETP. Whitebelly spinners are more robust, with a two-part color pattern and less exaggerated sexual dimorphism than the other forms in the ETP. Adult females are 1.57–1.98 m in length (mean = 1.76 m), and adult males 1.60–2.35 m (mean = 1.80 m).

***Dwarf spinner dolphin* (S. l. roseiventris)**—There is a dwarf form of the spinner dolphin, which is found in waters of Southeast Asia and northern Australia. It has a tripartite color pattern, similar to that of Gray's spinner dolphin. There is an erect to falcate dorsal fin, which is proportionately large (9.5–13% of total length). The flippers are also relatively large. Sexual dimorphism is reduced, and tooth counts are much lower than in the other forms (about 41–52 teeeth per row). Dwarf spinners (as the name implies) are much smaller than others of the species, with adult females ranging from 1.38–1.45 m and adult males 1.29–1.58 m (only $^{2}/_{3}$–$^{3}/_{4}$ the length of other spinner subspecies).

Can be confused with From a distance, other long-beaked oceanic dolphins can look like spinner dolphins. Spinners are most likely to be confused with Clymene dolphins in the Atlantic, but careful attention to color pattern differences and head and body shape differences will allow them to be distinguished. In any ocean, they may be confused with pantropical spotted, striped and common dolphins (especially the long-beaked species, *D. capensis*). Although the general body shape is very similar, careful attention to relative beak length, dorsal fin shape, and color patterns should allow for accurate identifications.

Distribution The range of the spinner dolphin is pantropical and nearly identical to that of the pantropical spotted dolphin, encompassing oceanic tropical and subtropical zones in both hemispheres. Limits are near

A dwarf spinner dolphin from waters of the southern South China Sea. These animals are much smaller than other subspecies of spinner dolphins, and have relatively large appendages. PHOTO: T. AQUINO

Where Gray's spinner dolphins overlap geographically with eastern spinner dolphins in the eastern tropical Pacific, they interbreed freely and intermediate forms (referred to as whitebelly spinners) such as this are common. PHOTO: R. L. PITMAN

40°N and 40°S. Spinner dolphins are found in the Red Sea and Persian Gulf, but not the Mediterranean Sea. Unlike pantropical spotted dolphins, spinners often rest in shallow, coastal waters and may spend their days in sandy-bottomed bays of oceanic islands and coral atolls. However, much of their range is oceanic, especially in the eastern tropical Pacific. The dwarf spinner occurs almost exclusively in shallow waters in southeast Asia and northern Australia, and apparently feeds over shallow reefs (it is at least partially sympatric with Gray's spinner dolphin).

Ecology and behavior The spinner dolphin is named for its habit of leaping from the water and spinning up to seven times on its long axis, before falling back to the water. This behavior may be repeated many times in "bouts." This is one of the most aerial of all dolphins and they often perform breaches, side-slaps, fluke-slaps, flipper-slaps, and spins (on the long axis). In most areas they are active bowriders (the main exception is the ETP, where these dolphins have been harassed by fishermen, who encircle them to catch tuna swimming below). Herd sizes range from less than 50 up to several thousand. Associations with spotted dolphins are common in the ETP, and they occasionally associate with several other marine mammal species. They may dive to 600 m or deeper in pursuit of prey, although most feeding is probably done in shallower waters. In the ETP, at least, they range over vast distances of open ocean in search of suitable patches of prey.

The behavior of Hawaiian spinner dolphins has been quite well studied. Moderate-sized groups of dolphins move into shallow sandy bays to rest in the daytime and then move offshore in the late afternoon/evening for nighttime feeding (mostly near dusk and dawn) in nearby continental slope and oceanic waters. Dolphins are highly aerial during the ascent from rest to foraging and often engage in "zig-zag" swimming (characterized by a great deal of stereotyped aerial behavior), thought to test the readiness of the school to move offshore. Societies are characterized by a fission-fusion system, in which group associations are very fluid. Similar behavior patterns have been noted at other island groups in the Atlantic and Indian oceans. Interestingly, at Midway Atoll (< 2,000 km away from Hawaii), spinners have a very different social structure, with stable groups of long-term associates.

Life history has been studied much more extensively than for most other dolphin species, largely due to the specimens available from the tuna fishery. Gestation lasts 10 months, nursing lasts 1–2 years, and the calving interval is about 3 years. Sexual maturity is attained at ages of about 4–7 for females and about 7–10 for males. Breeding is diffusely seasonal, and calving peaks in different populations range from late spring to fall. The different subspecies have evolved various degrees of male/male competition for females (probably ranging

Spinner dolphins sometimes have a wide black band at the boundary between the gray lateral field coloration and the white belly—this is very common in some populations (such as those around the Marquesas Islands) and rare in others. PHOTO: R. L. PITMAN

from overt competition to sperm competition). As a result, the mating system apparently ranges from more polygynous in the eastern (and probably central American) spinner to more polygynandrous in whitebelly spinners.

Feeding and prey Most spinner dolphins feed predominantly at night, on small (<20 cm) midwater fish of many different families (including myctophids), squids, and sergestid shrimps, and rest during much of the day. Their association with spotted dolphins and yellowfin tuna results in their entanglement in tuna purse seines in the ETP. Dwarf spinner dolphins are exceptional, however; they presumably feed during daylight hours on small, reef-associated organisms (benthic reef fishes and invertebrates).

Spinner dolphins are named for their habit of spinning up to seven rotations on the long axis while in the air—no other dolphin species spins so frequently or vigorously. Mayotte. PHOTO: J. KISZKA

Threats and status This is the second-most important species of dolphin involved in the ETP tuna purse seine fishery (after the pantropical spotted dolphin). The eastern spinner dolphin population is estimated to have been reduced to less than one-third of its original size by the tuna fishery kill. Although current mortality is greatly reduced, the population is not recovering at its expected potential, and fishery-related stress may be at least partially responsible for this. Other incidental kills occur throughout the range in a number of different fisheries, including driftnets, purse seines, and trawls. Dwarf spinners are caught incidentally in shrimp trawls in the Gulf of Thailand.

In some cases, human use of by-caught dolphins has led to directed fisheries. Direct kills occur in several areas, including the Caribbean, Sri Lanka, the Philippines, Indonesia, and occasionally Japan. They may also be taken in West Africa. Their habit of resting in coastal waters leads to problems of harassment by dolphin-watching boats in a number of areas. Some have been captured for public display, but they generally do not do well in captivity.

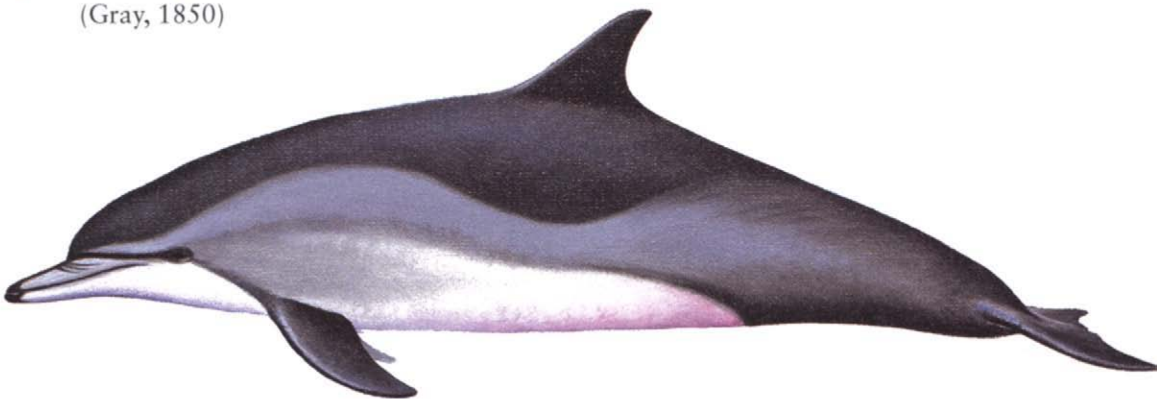
The spinner dolphin is one of the most abundant dolphins in the world. There were about 800,000 whitebelly spinners in the ETP in 2000. The eastern spinner dolphin (the spinner stock most heavily impacted by the ETP tuna fishery) numbered about 450,000 in 2000, and despite large reductions in the kill, does not appear to be showing evidence of recovery. There are estimated to be over 11,000 in the northern Gulf of Mexico. There are no abundance estimates for the dwarf subspecies, but its limited range and significant incidental kills may have resulted in conservation problems. So, while the species may not be in danger of extinction overall, some populations and subspecies clearly are threatened by human activities.

IUCN status Lower Risk/Conservation Dependent.

References Norris et al. 1994; Perrin 1990, 1998, 2002; Perrin and Gilpatrick 1994; Perrin et al. 1999.

Clymene Dolphin—*Stenella clymene*

(Gray, 1850)



Recently-used synonyms None.

Common names En.–Clymene dolphin; Sp.–*delfín Clymene*; Fr.–*dauphin de Clyméné*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Recent genetic work suggests that the genus *Stenella* is actually paraphyletic, and it is likely that it will be restructured in coming years. Although first described in 1846, the authorship of the scientific name is more correctly attributed to Gray (1850). Presumed hybrids between Clymene and spinner dolphins have been observed at sea off the Fernando de Noronha archipelago of Brazil.

Species characteristics The Clymene dolphin is externally similar to the spinner dolphin, but is smaller and more robust, with a much shorter and stockier beak. There is a distinct crease between the beak and melon. The dorsal fin is erect, but slightly falcate. Despite these external similarities with the spinner dolphin, skull morphology indicates that the Clymene dolphin may actually be more closely related to the striped dolphin. The flippers are smoothly recurved, typical of those of other species in the genus.

A three-part color pattern, with a dark gray cape, light gray sides, and white belly, is characteristic of this species. The cape dips in two places: above the eye, and below the dorsal fin. The beak is mostly light gray, but the lips and beak tip are black. There is also a dark stripe on the top of the beak, from the tip to the apex of the melon, and often a dark "moustache" marking on the middle of the top of the beak. The eye is also surrounded by black, and a dark gray stripe runs from the eye to the flipper. There may also be an indistinct dark band running diagonally along the side, from the anus forward.

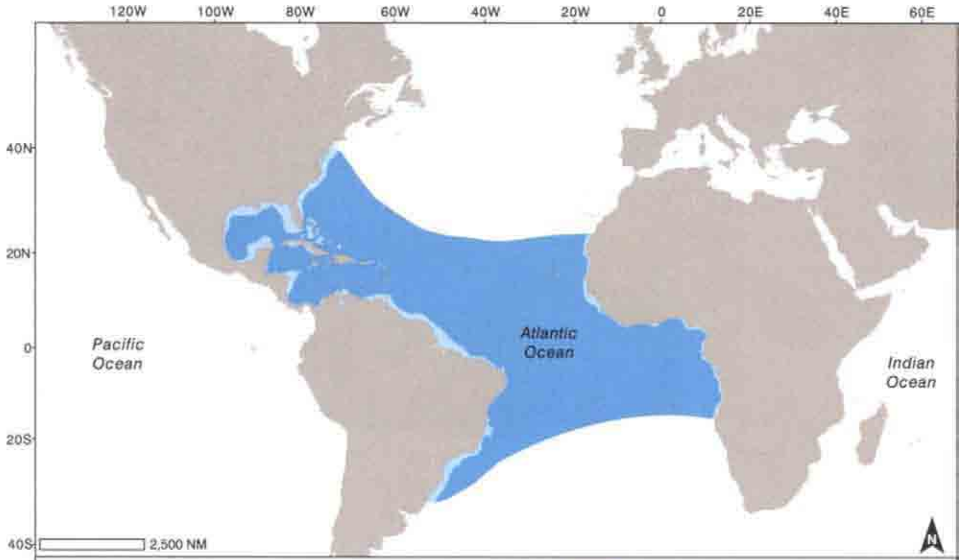
Two Clymene dolphins in the North Atlantic Ocean, showing the unique characteristics of the species. PHOTO: C. FAIRFIELD

Tooth counts are much lower than in spinners: 39–52 teeth per row. The teeth are slender and pointed.

Clymene dolphins are the smallest dolphins in the genus. They are known to reach at least 1.97 m (males) and 1.90 m (females) in length and sexual maturity appears to be reached by about 1.7–1.8 m (however, this is based on a very small sample). Newborn length is unknown, but is less than 1.2 m. This species reaches weights of at least 80 kg.

Recognizable geographic forms None.

Can be confused with Clymene dolphins are most easily confused with spinner dolphins, but are more



Clymene Dolphin
(*Stenella clymene*)
Global Distribution

robust, with shorter, stubbier beaks. Also, the color pattern is slightly different; the two dips in the cape and the dark "moustache" marking on top of the beak will allow Clymene dolphins to be distinguished. The body shape of Clymene dolphins also closely resembles that of the short-beaked common dolphin, as does the color pattern in a superficial way. Common dolphins can best be distinguished by their hourglass pattern, cape that forms a V below the dorsal fin, chin-to-flipper stripe, and absence of a "moustache." The striped dolphin also has a similar body shape, but the color pattern is very different, and a decent look should make it easy to distingiuish these two species.

Distribution The Clymene dolphin is found only in the tropical and subtropical Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico. This species has a notable warm-water preference, although there are records as far north as New Jersey on the US east coast and as far south as southern Brazil. The limits on the West African coast are not well-known, but extend from at least Angola north to Mauritania. The Clymene dolphin is not known to enter the Mediterranean Sea. This is a deep-water, oceanic species, not often seen near shore (unless deep water approaches the coast).

Ecology and behavior Very little is known of the Clymene dolphin's natural history. This is partly due to the long-standing confusion between this and other similar long-beaked tropical delphinids, as well as the species' somewhat-restricted offshore habitat. Schools tend to be smaller than those of spinner dolphins, generally less than 200 animals. In the Gulf of Mexico, most schools are less than about 60–80 individuals. Schools often appear to be segregated by age and sex. They have been reported to associate with common dolphins off West Africa, and with spinner dolphins in the Caribbean.

These quick and agile dolphins are aerially active. They have been reported to spin up to 3–4 revolutions on the long axis, but the spins are less elaborate and

A Clymene dolphin from the Gulf of Mexico. The color pattern is very similar to Gray's spinner dolphin, but the body is shorter and stouter, with a much shorter beak. It generally has a three-part color pattern, but shows lots of individual variation, as evident here. PHOTO: R. L. PITMAN acrobatic than those of the spinner dolphin. Clymene dolphins are avid bowriders, and have been seen playing with seaweed while riding the bow wave of a research vessel.

Because so few specimens have been examined, almost nothing is known of the life history of this species. Both sexes appear to reach sexual maturity by the time they are about 180 cm in length.

Three Clymene dolphins leap alongside a research vessel in the Gulf of Mexico, showing the species' diagnostic characters. In many ways, they appear almost intermediate between spinner and striped dolphins. PHOTO: T. PUSSER

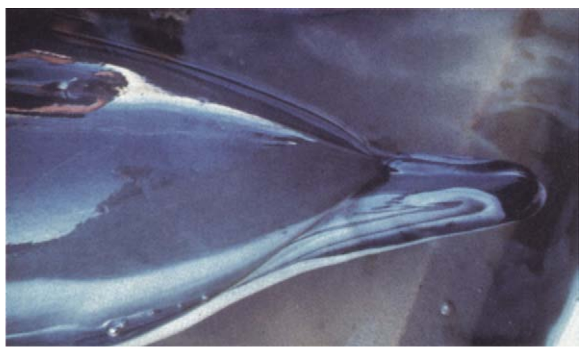
Feeding and prey Very few stomachs have been examined, and even fewer observations of feeding behavior reported in the literature. Clymene dolphins apparently feed on small fish (including myctophids) and squid at moderate depths, presumably mainly at night.

Bowriding Clymene dolphins can be identified by the black-tipped beak with a wide, dark stripe on the mid-line of the rostrum, and diagnostic "moustache" marking on top of the beak. Gulf of Mexico. PHOTO: T. PUSSER

Threats and status Although they are known to be taken by harpoon occasionally in dolphin fisheries in the Caribbean, and incidental captures in fishing nets do occur throughout much of the range, the Clymene dolphin is not known to suffer any heavy exploitation at present. The only possible exception may be off the coast of West Africa, where this species is possibly one of several taken in large numbers in tuna purse seines in the Gulf of Guinea. The extent of that problem has been well hidden by fisheries officials, but it must be assumed that incidental kills are significant. Abundance has been estimated for the northern Gulf of Mexico, where about 12,000 are thought to occur.

IUCN status Data Deficient.

References Jefferson 2002; Jefferson and Curry 2003; Perrin et al. 1981; Perrin and Mead 1994.



This Clymene dolphin that live-stranded in Texas shows very clearly the moustache marking and beak stripes that are diagnostic of the species. PHOTO: TMMSN

Delphinidae

Clymene Dolphin

Striped Dolphin—*Stenella coeruleoalba*

(Meyen, 1833)

Recently-used synonyms *Stenella styx, Stenella euphrosyne*.

Common names En.–striped dolphin; Sp.–*estenela listada* or *delfín listado*; Fr.–*dauphin bleu et blanc*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Recent genetic work suggests that the genus *Stenella* is actually paraphyletic, and it is likely that it will be restructured in coming years.

Species characteristics The striped dolphin has the basic body shape typical of the *Stenella/Delphinus* group, although it is somewhat more robust (especially in the thoracic region) than spinner and pantropical spotted dolphins. The beak is moderate in length, with a distinct crease between the melon and beak. The dorsal fin is tall and slightly falcate, and the flippers are recurved and pointed (typical dolphin shape). The flukes are not notably different from those of others in the genus (with slender blades and acutely rounded tips).

The striped dolphin's color pattern is stunning: a white or pinkish belly and dark gray dorsal cape (although it may appear bluish-gray) are separated by a light gray thorax. A light gray spinal blaze (highly variable in extent and intensity) extends from the thoracic area into the cape, to just under the dorsal fin. The mostly-black beak sends back a dark stripe (the basis for the species' common name), which encircles the eye and then widens and runs back to the anus. There is an eye-to-flipper stripe and usually a short accessory stripe between the other two. The appendages are dark gray to black.

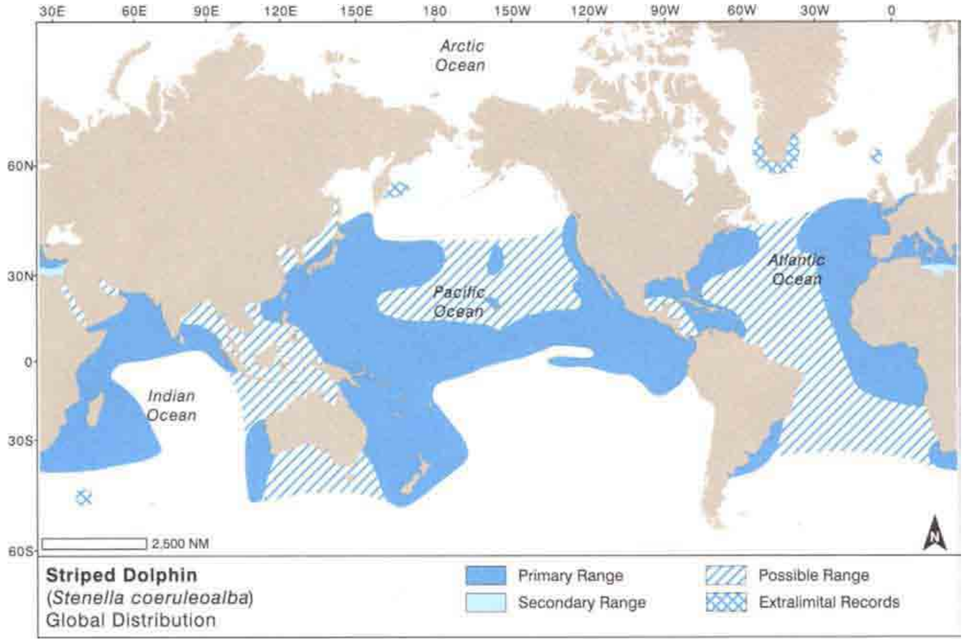
The striped dolphin's mouth contains 40–55 slender, pointed teeth in each tooth row.

Adult striped dolphins are up to 2.56 m long; males grow slightly larger than females. Newborns are about 93–100 cm in length. Maximum known weight is about 156 kg. There is geographical variation in the size of adults from different populations (for instance, dolphins from the southwestern Mediterranean are about 5–8 cm shorter than those from the northeastern Atlantic).

Recognizable geographic forms While significant geographic variation in osteological and body length characteristics has been documented, it is not currently possible to reliably recognize different geographical forms of this species in the field.

Can be confused with Although the body shape is similar to that of other species in the *Stenella/Delphinus* group, striped dolphins are generally easy to distinguish

A striped dolphin porpoises in the eastern tropical Pacific, showing the distinct side stripes of the species. PHOTO: SWFSC/STAR



by their unique color pattern. They are most likely to be confused with common dolphins (*Delphinus* spp.), but a good look at the color pattern should clear-up any problems. Fraser's dolphins also have an eye-to-anus stripe, and therefore may cause some confusion, but are much more robust, with much smaller appendages. When the color pattern is not visible, there may be some confusion with other species of the genus *Stenella*. However, observation of details of the color pattern will allow resolution.

Distribution This is a widely-distributed species, found in the Atlantic, Pacific, and Indian oceans, as well as many adjacent seas. Although also primarily a warm water species, the range of the striped dolphin extends higher into temperate regions than do those of any other species in the genus (spotted and spinner/Clymene dolphins). For instance, this is the only species of the genus that routinely reaches northern European waters. Limits are about 50°N and 40°S, although there are extralimital records from the Kamchatka Peninsula, southern Greenland, the Faroe Islands, and the Prince Edward Islands. Striped dolphins also are generally restricted to oceanic regions and are seen close to shore only where deep water approaches the coast. In some areas (e.g., the eastern tropical Pacific), they are mostly associated with convergence zones and regions of upwelling. There is a well-known and well-studied population in the Mediterranean Sea. Off the west coast of North America, they occur far offshore, in waters influenced by the warm, northward-flowing Davidson Current.

In the Maldives, two striped dolphins porpoise alongside a research vessel, giving a good look at some of the variation in coloration. PHOTO: T. A. JEFFERSON

Ecology and behavior Striped dolphins are fast swimmers, and appear to be more easily "spooked" than other tropical dolphins. This and their color pattern have prompted fishermen in the eastern tropical Pacific to call them "streakers." They are well-known in the ETP for their habit of running from vessels in low "splashy" leaps, at high speeds. They are very acrobatic, performing frequent breaches and other aerial maneuvers (including a behavior called roto-tailing, in which the dolphin whips its tail in a circle as it performs a high arcing leap out of the water). They often ride bow waves, except in the eastern tropical Pacific, where they tend to run from vessels.

Although most striped dolphin herds number between a few dozen and 500 individuals, these dolphins sometimes assemble into herds of thousands. At least off Japan, there appears to be some age/sex segregation of such herds, with individuals moving among juvenile, adult, and mixed schools. They are thought to be capable of diving to depths of 200–700 m to obtain prey.

Off Japan, where the biology of this species has been best studied, there are two calving peaks: one in summer, another in winter. Sexual maturity occurs at ages of 7–15 years for males, and 5–13 for females, generally when specimens are about 2.1–2.2 m long. Density-dependent changes in life history parameters have been documented for some areas. Gestation lasts an estimated 12–13 months. The breeding system is thought to be polygynous. Striped dolphins are estimated to live for as long as 58 years.

A striped dolphin porpoises out of the water on a calm day in the Ligurian Sea, off the Italian Mediterranean coast. PHOTO: T. PUSSER

A striped dolphin, showing the dark lateral stripes and spinal blaze that typify the species throughout its range. PHOTO: R. L. PITMAN

Feeding and prey The diet of this species consists primarily of a wide variety of small, midwater and pelagic or benthopelagic fish, especially lanternfish and cod, and squids. Striped dolphins apparently feed in pelagic to benthopelagic zones, to depths as deep as 200–700m, in continental slope or oceanic regions.

Threats and status Striped dolphins are the main delphinid species involved in small cetacean harpoon and drive fisheries in Japanese waters. Catch levels vary widely, but in some years were over 20,000, although the takes were generally much lower (< 1,000 per year) in recent years. Despite the recent reductions, the populations (more than one may be involved) are thought to be seriously depleted. This species has also been directly captured in smaller numbers in the Caribbean, Sri Lanka, and occasionally in the Mediterranean.

Incidental catches occur throughout the range in various types of fishing gear, especially purse seines and driftnets. This species was formerly caught in large numbers in pelagic driftnets in the Mediterranean and in the North Pacific, and there are catches in pelagic trawls and driftnets in western Europe. A massive die-off in the Mediterranean Sea from 1990–

As in most dolphin species, some populations of striped dolphins readily ride the bow waves of ships, while others completely avoid vessel traffic; the reasons for this are not completely known. North Atlantic. PHOTO: C. FAIRFIELD

A young striped dolphin leaps beside a research vessel. The body of this species can range from quite robust to somewhat slender. Mediterranean Sea. PHOTO: C. JOHNSON

There is a great deal of geographical and individual variation in the color pattern of the striped dolphin, but the side stripe and spinal blaze usually make it easily identifiable, when seen well. PHOTO: T. PUSSER

An eastern tropical Pacific striped dolphin performing a characteristic leap in which the tail is thrown high in the air. PHOTO: C. OEDEKOVEN/SWFSC/CSCAPE

1992 is thought to have been at least partly related to lowered immunity to disease (morbillivirus) from environmental contaminants (especially organochlorines like PCBs).

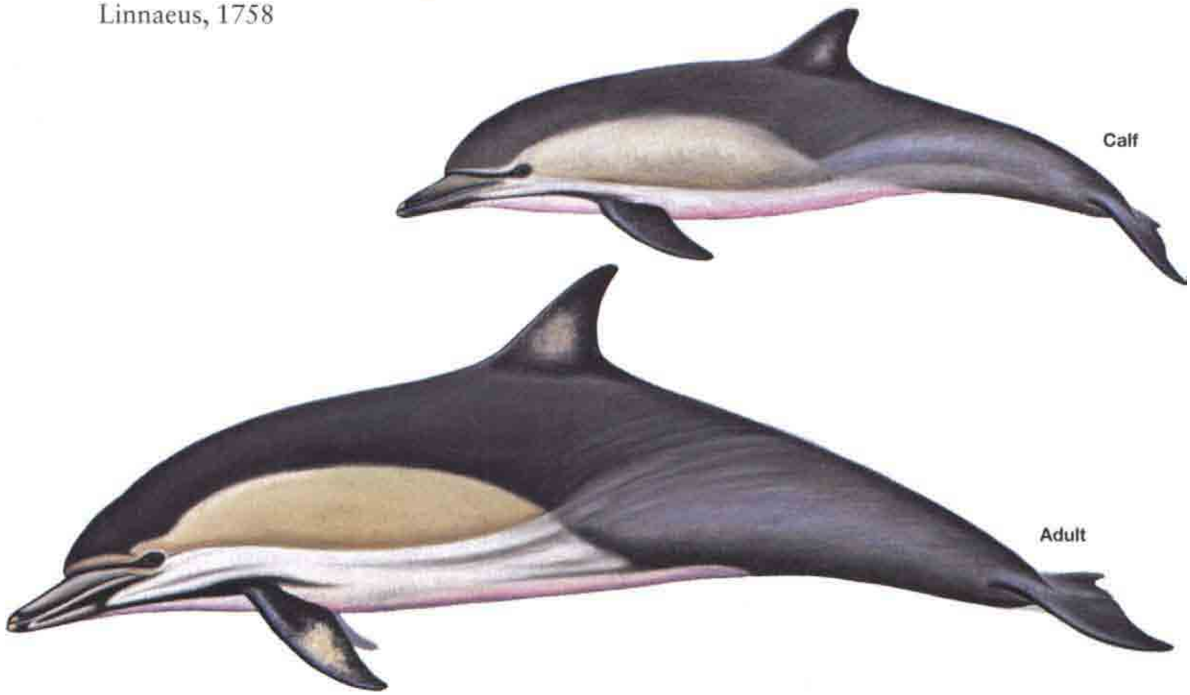
In the 1980s, there were an estimated 820,000 striped dolphins around Japan; however, this number is probably reduced now. Off the west coast of North America, there are about 20,000. In the ETP, there are estimated to be around one million striped dolphins. Estimates in the western North Atlantic are about 62,000, and in the Gulf of Mexico about 4,400. There were about 225,000 in the Mediterranean in the mid-1990s (after the mass die-off of 1990–1992). Clearly, this is not an endangered species, but due to the potential impacts of various human activities, the status of certain populations is very much a matter of concern.

IUCN status Lower Risk/Conservation Dependent.

References Archer 2002; Archer and Perrin 1999; Calzada et al. 1997; Miyazaki 1984; Perrin et al. 1994.

Short-beaked Common Dolphin—*Delphinus delphis*

Linnaeus, 1758



Recently-used synonyms None.

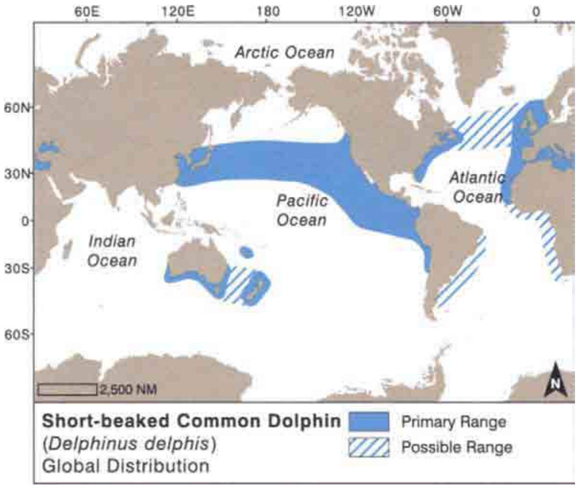
Common names En.–short-beaked common dolphin; Sp.–*delfín común de rostro corto*; Fr.–*dauphin commun a petit bec*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Until 1994, all common dolphins were classified as a single species: *D. delphis*. However, it is now known that at least two species exist within the genus: the short-beaked (*D. delphis*) and long-beaked (*D. capensis*) common dolphins. There is a distinct short-beaked form in the Black Sea, the taxonomic status of which has not been adequately clarified (however, it is currently thought to be a subspecies: *D. delphis ponticus*).

Species characteristics Common dolphins have only recently been split into two species, and it may sometimes be difficult to distinguish the two species at sea. Short-beaked common dolphins have tall, slightly falcate dorsal fins, with pointed tips. The short-beaked species is somewhat more robust than the long-beaked species, with a shorter (but still moderately long) beak, and a more rounded, bulging melon. There is a deep crease between the melon and beak. The flippers are the typical shape for dolphins: slender, recurved, and pointed at the tips. In some individuals (presumably mostly adult males), there is a prominent post-anal hump of connective tissue—forming a ventral "keel."

Short-beaked common dolphins are strikingly marked, with a dark brownish-gray back, white belly, and tan to ochre thoracic patch. This thoracic patch dips below the dorsal fin and combines with an area of streaked light gray on the tail stock to produce the common dolphins' most characteristic feature: an hourglass pattern on the side. In short-beaked common dolphins, the thoracic patch is relatively light, contrasting strongly with the dark cape. The flipper-to-anus stripe (generally

A common dolphin off Angola. This animal was part of a group that seemed to share characteristics of both short-beaked and long-beaked common dolphins. PHOTO: C. WEIR



well-developed in the long-beaked species) is weakly developed or absent. The flippers and dorsal fin can range from completely dark to almost entirely white, but most often have a small light patch in the center. The chin-to-flipper stripe does not closely approach the gape, and it narrows anterior to the eye. The lips are black, and there is a dark, distinct stripe running from the apex of the melon to encircle the eye. The upper surface of the beak is generally light gray, with a black tip, and a dark line that runs from the tip to the apex of the melon. A light blowhole stripe runs from the apex to the blowhole. The color pattern is highly variable.

There is an uncommonly-occuring color morph (dark morph) that has been identified from most areas of the range of the species, in which the large light-colored thoracic patch appears not to develop (or to develop incompletely). This results in a dark gray lateral area, and gives the individual an appearance somewhat like that of a bottlenose or spinner dolphin. Otherwise, the color pattern appears normal. Anomalously all-white and all-black individuals have also been observed.

There are 41–57 pairs of small, sharp, pointed teeth in each jaw.

At birth, short-beaked common dolphins are about 80–90 cm long. Adult short-beaked common dolphins in the eastern Pacific are 1.6–2.2 m (females) or 1.7–2.3 m (males), with occasional specimens to 2.35 m. Those in the northeast Atlantic appear to get much larger, up to about 2.50 m. Some specimens may reach up to nearly 2.70 m. Short-beaked common dolphins may weigh up to 200 kg.

Calf— $^1/3$ to $^1/2$ adult size, color pattern muted and borders faint, light areas often with an ochre tinge, dorsal fin falcate.

Subadult— Nearly adult size, color pattern more developed, but not as bold as in adults, dorsal fin falcate.

Adult female— Full size, color pattern generally bold, often with light patches on the dorsal fin and flippers, dorsal fin relatively erect.

Adult male— Large size, color pattern generally bold, often with light patches on the dorsal fin and flippers, dorsal fin generally erect, and post-anal hump usually present.

Recognizable geographic forms While there is certainly extensive geographical variation in the coloration and external appearance of short-beaked common dolphins (for instance, a long-beaked form in New Zealand and southern Australia), in most cases the variation has not yet been described and compared adequately for distinct geographic forms to be reliably recognized in practice. Only the following forms can be reliably recognized:

A short-beaked common dolphin providing a good view of the figure-eight shaped pattern on the sides, which characterizes dolphins of the genus *Delphinus*. PHOTO: R. L. PITMAN

Standard form common dolphin (D. d. ssp.)— Found in many areas of the Pacific and Atlantic oceans, including the Mediterranean Sea. There is great geographical variation in total length, with the maximum approaching 2.70 m. Tooth counts are generally greater than in the Black Sea form, reaching up to 57 teeth in each tooth row. Coloration is highly variable among populations.

Black Sea common dolphin (D. d. ponticus)— Found only in the Black Sea, this is a dwarf form. Total length averages 1.62 m for males and 1.58 m for females, with the maximum known only 2.19 m. Tooth counts are low, and range from 41–52 teeth per row. There are slight color pattern differences, with the dark lateral band generally more prominent than in other short-beaked common dolphins.

Can be confused with Where they are sympatric (e.g., at least southern California, the west coast of Mexico, southern Japan, Korea, Peru and northern Chile, eastern South America, West Africa, and possibly southern Africa), the two species of common dolphins may be difficult to distinguish, especially in sightings at sea. The short-beaked species has a shorter beak, more steeply-rising melon, more robust body, a more contrasting color pattern, a narrower chin-to-flipper stripe, and a greater tendency to have white patches in the fins. In addition, the Clymene dolphin may cause confusion in the Atlantic Ocean, but that species has a moustache and a rounded (as opposed to V-shaped) margin to the cape.

Distribution The short-beaked common dolphin is an oceanic species that is widely distributed in tropical to cool temperate waters of the Atlantic and Pacific oceans. However, they apparently do not occur in the Gulf of Mexico, and records of their occurrence in the Caribbean are questionable. Also, there are no confirmed records for the Indian Ocean, and it is doubtful that the species occurs there (with the possible exception of the areas around southeast Africa and southwest Australia). The short-beaked common dolphin occurs from nearshore waters to thousands of kilometers offshore, although separate populations apparently occur in some enclosed seas, such as the Mediterranean and Black seas. In most areas, this species appears to have a strong preference for upwelling-modified waters and areas with steep sea-bottoms (such as seamounts and escarpments).

Ecology and behavior Large, boisterous groups of common dolphins are often seen whipping the ocean's surface into a froth as they move along at high speed. Herds range in size from about ten to over 10,000. Schools are often segregated by age and sex. Associations with other marine mammal species (especially pilot whales) are not uncommon. They have been observed in the vicinity of schools of long-beaked common dolphins, but the two species do not appear to intermix often. Schools in the eastern tropical Pacific are sometimes associated with yellowfin tuna (although not nearly as often as are spotted and spinner dolphins), and have thus been impacted by the purse seine fishery there.

Active and energetic bowriders (except in prime tuna fishing zones of the ETP), short-beaked common dolphins may be very familiar to most seagoers in low latitudes. They also ride the "bow waves" of large whales at times. They are often aerially-active, performing various breaches and leaps. Individuals are also highly vocal; sometimes their squeals can be heard above the surface

A short-beaked common dolphin in the North Atlantic Ocean, showing most of the species' external diagnostic characters. PHOTO: R. L. PITMAN

This group of eastern Pacific short-beaked common dolphins exhibits some of the individual variation in coloration that is common in the species. PHOTO: R. L. PITMAN

The color pattern of this young short-beaked common dolphin, as in most dolphins, is more muted than on the adults. Eastern North Pacific. PHOTO: NOAA FISHERIES/SWFSC

as they bowride. Foraging dives as deep as 200 m have been recorded.

Short-beaked common dolphins have reported calving intervals of 1–3 years, and the reported age at sexual maturity varies greatly among populations (3–12 years for males and 2–7 years for females). Some of this variation may result from real differences, at least partly attributable to density-dependent responses to different histories of exploitation. Gestation apparently lasts 10–11

An anomalous form of the short-beaked common dolphin, in which the cape extends down over the side to obscure the light thoracic patch. Although considered anomalous, this morph is seen not infrequently in both Atlantic and Pacific oceans. PHOTO: C. OEDEKOVEN/SWFSC/CSCAPE

Many short-beaked common dolphins have extensive white patches in the middle of the dorsal fin and on the flippers. Although not unique to this species, these patches appear to be more common in this than in other dolphin species. PHOTO: R. L. PITMAN

An eastern Pacific short-beaked common dolphin. Note the dark stripe from the eye to the apex of the melon, and dark lip patch. PHOTO: C. OEDEKOVEN/SWFSC/CSCAPE.

months. In the Black Sea, peak calving occurs in summer months (June to August). Longevity is at least 25 years.

Feeding and prey The prey of common dolphins consists largely of small schooling fishes and squid. In some areas (e.g., southern California), common dolphins feed mostly at night on creatures associated with the deep scattering layer (DSL), which migrates toward the surface in the dark. In other areas, they feed mainly on epipelagic schooling fish. Squids may form a more important part of the prey species of the short-beaked common dolphin than it does for the long-beaked species.

Threats and status Short-beaked common dolphins are taken in many fisheries worldwide. Huge direct catches formerly occurred in countries bordering the Black Sea. Common dolphin stocks there have declined and the fishery has not operated since 1983. Some direct mortality still occurs off Japan and in the Mediterranean. However, the recent common dolphin decline in the Mediterranean Sea appears to have been primarily caused by prey depletion and poor habitat quality.

The eastern tropical Pacific tuna fishery incidentally takes common dolphins from several stocks, and some of these may have been depleted by past levels of mortality. There are also incidental catches in various fisheries, in particular gillnets and pelagic trawls, throughout the range.

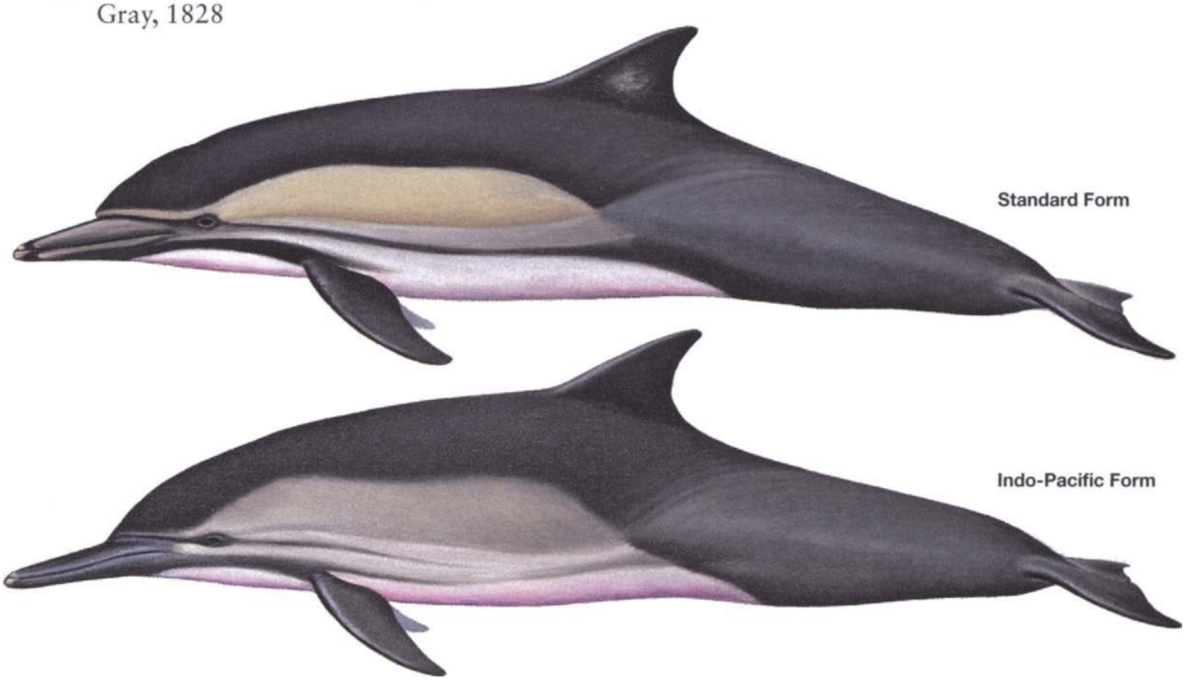
Globally, this is a very abundant species, with many available estimates for the various areas where it occurs: about 370,000 (western US coast), 3,000,000 (eastern tropical Pacific), 30,000 (eastern US coast), 96,000 (Black Sea/Turkish Straits System), 61,000 (eastern Atlantic continental shelf), 14,700 (Alboran Sea), and 75,000 (Celtic Sea shelf). Therefore, while certain populations are in danger (such as the one in the Mediterranean Sea), overall the species is abundant and not threatened with extinction by human activities.

IUCN status Endangered (Mediterranean population), Least Concern (all others).

References Dizon et al. 1994; Evans 1994; Ferrero and Walker 1995; Heyning and Perrin 1994; Perrin 2002; Perrin et al. 1995; Stockin et al. 2005.

Long-beaked Common Dolphin—*Delphinus capensis*

Gray, 1828



Recently-used synonyms *Delphinus bairdii, Delphinus tropicalis*.

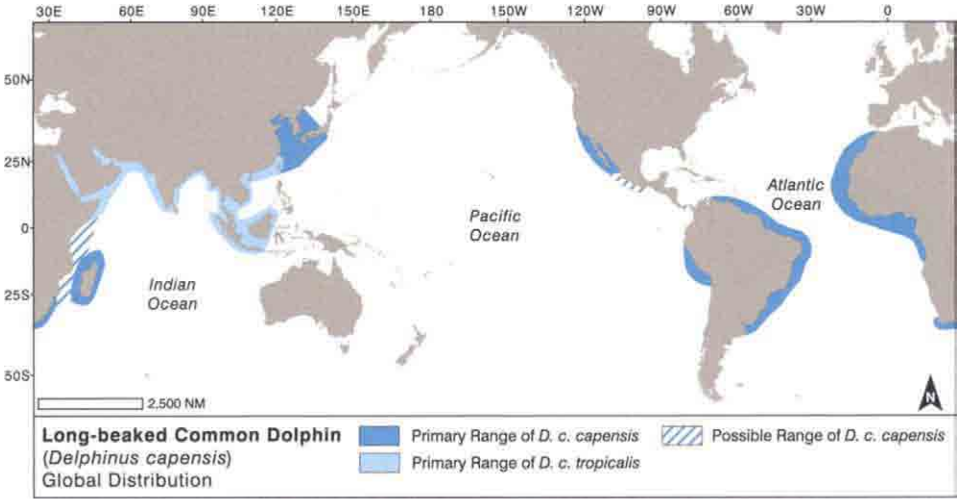
Common names En.–long-beaked common dolphin; Sp.–*delfín común de rostro largo*; Fr.–*dauphin commun a long bec*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Some researchers consider the geographic form in the Indo–Pacific with an exceptionally long beak to be a separate species, *D. tropicalis*. However, a recent morphometric study has suggested that it is probably a subspecies of *D. capensis*. If the latter view is correct (and most current data seem to support it), there would be two subspecies, *D. c. capensis* in the Atlantic and Pacific oceans, and *D. c. tropicalis* in the Indo–Pacfic. Hybrids with common bottlenose dolphins in captivity and dusky dolphins in the wild have been reported.

Species characteristics Because of the recent discovery that common dolphins in the eastern Pacific represent two species (rather than only one, as was commonly thought), much of the older biological information available for dolphins of the genus *Delphinus* cannot be reliably applied to one or the other species.

Long-beaked common dolphins have the same basic body morphology as the short-beaked species, but tend to be more slender. They have tall, slightly falcate dorsal fins, and flippers that are recurved and pointed at the tips. Besides having longer beaks than short-beaked common dolphins (up to at least 9.7% of total length), long-beaked common dolphins have a somewhat more

Typical appearance of the long-beaked common dolphin—this pair is leaping in the eastern Pacific. PHOTO: R. L. PITMAN



flat appearance to the melon, which rises from the rostrum at a relatively low angle. There is a deep crease between the melon and beak. In some individuals (mostly adult males), there may be a prominent post-anal hump of connective tissue—forming a ventral "keel."

Long-beaked common dolphins are characterized by an hourglass pattern on the side, forming a V below the dorsal fin. In this species, the coloration generally appears somewhat muted, compared to the short-beaked species. The thoracic patch is relatively dark, contrasting less with the cape, and often the border between them is smeared. The flipper-to-anus stripe is generally moderately to strongly developed. The chin-to-flipper stripe fuses with the lip patch at or just anterior to the gape, and remains relatively wide ahead of the eye. The eye patch is imbedded in the flipper-to-anus stripe. Light patches on the dorsal fin and flippers are only occasionally present, and are small or faint when they are.

This species has higher tooth counts than any other species of delphinid, although there is strong overlap with several other species. There are 47–67 sharp, pointed teeth in each tooth row.

Most measured adults have been 2.02–2.54 m (males) and 1.93–2.22 m (females) long, although they may reach lengths of over 2.60 m. Weights of at least 235 kg are attained.

Recognizable geographic forms

Three long-beaked common dolphins leap alongside a research vessel off the coast of Baja California, Mexico. Notice the fusing of the dark facial stripes into a dark face "mask." PHOTO: T. A. JEFFERSON

Standard long beaked common dolphin (D. c. capensis)—The nominal subspecies occurs in coastal areas of the Pacific and Atlantic oceans. It is slightly shorter than the other, with adult females of 1.93–2.22 m and males of 2.02–2.54 m. The beak is relatively shorter (ranging from about 6.9–7.6% of the total length). Tooth counts are significantly lower—47–60 teeth in each upper tooth row, and 48–57 in the lower row. There are reports of tooth counts up to 62, however.

Indo-Pacific common dolphin (D. c. tropicalis)—The *tropicalis* form of common dolphin apparently only occurs in the Indian and far western Pacific oceans. This subspecies is apparently slightly longer than the nominal one, reaching lengths of at least 2.60 m. The beak is exceedingly nar-

Indo-Pacific common dolphins (*D. c. tropicalis*) leap at the bow of a vessel in the Arabian Sea area. This subspecies can be recognized by its exceedingly long beak and very high tooth counts. PHOTO: R. BALDWIN

A close-up of the head of a stranded Indo-Pacific common dolphin from Vietnam. The coloration appears to be particularly geographically-variable in the *tropicalis* subspecies. PHOTO: DAO TAN HO

row and long, the few data available suggesting it makes up about 9.4–9.7% of total length. There are significantly higher tooth counts than in the nominal subspecies—54–67 (upper) and 52–64 (lower) teeth per row.

Can be confused with The two species of common dolphins may be difficult to distinguish, especially in sightings at sea. The long-beaked species has a longer beak, less steeply-rising melon, more slender body, a more muted color pattern, a wider chin-to-flipper stripe (which often merges with the lip patch, making much of the lower jaw dark), and a reduced tendency to have white patches on the fins. Also, the spinner dolphin may easily be confused with this species, especially with the *tropicalis* subspecies in the Indo–Pacific. The body shape of the two species is nearly identical, but close attention to color patterning (especially the shape of the cape and facial stripes) should allow distinction.

Distribution Long-beaked common dolphins inhabit more nearshore and tropical waters than the short-beaked species, generally occurring within 180 km of the coast. The *capensis* subspecies appears to occur in discrete areas, and populations are known from the east coast of South America, West Africa, southern Africa, southern Japan and Korea (and possibly northern China), central California to southern Mexico, and Peru and Chile. The *tropicalis* subspecies ranges around the rim of the Indo–Pacific, from at least the Red Sea/Somalia (including the Persian Gulf, and possibly further south along the east African coast) to Taiwan and southern/central China.

Ecology and behavior The long-beaked common dolphin is highly gregarious. Herds of less than a dozen to several thousand are formed. Not much is known of the composition of schools, but it is suspected that there is some degree of age and sex segregation, as is known for other species of *Delphinus* and *Stenella*. They sometimes associate with other species of cetaceans.

In this long-beaked common dolphin from the central Gulf of California, Mexico, the vent-to-eye stripe is blackened-in, so that the eye patch is embedded in black. The face appears quite dark and the pale thoracic patch is much reduced compared to that of the short-beaked species. PHOTO: R. L. PITMAN

Long-beaked common dolphins are swift and agile creatures, often porpoising out of the water, while moving at high speed in great splashing herds. These dolphins are capable and willing bowriders, and often exhibit a great deal of aerial activity, including breaches and various types of acrobatic leaps. They are highly vocal and can sometimes be heard whistling from above the water's surface.

One or the other species of common dolphin tends to predominate in the stranding record for southern California for a particular period of time. In the years following the 1982/83 El Niño event, the long-beaked form was most common. This species occurs in some inshore waters, such as the Persian Gulf, Red Sea, Gulf of Thailand, and Gulf of California. In South African waters of Natal, they are associated with the annual "sardine run," which they follow north and inshore.

There is little information on the life history of populations of this species. What little data are available generally come from areas where the two species of *Delphinus* are sympatric and may thus be mixed with

Part of a herd of long-beaked common dolphins swimming off the coast of South Africa. Geographic variation in coloration is extensive in this species. PHOTO: D. PERRINE@/SEAPICS.COM

This long-beaked common dolphin shows the posteriorly-widening chin-to-flipper stripe and dark face that are typical of the species in the eastern North Pacific. However, in the western Pacific and other oceans, these features are generally not so evident, or may even be largely absent. PHOTO: R. L. PITMAN

data from *D. delphis* populations (e.g., off West Africa and southern California). Sexual maturity probably occurs at lengths of around 2.0 m. Because this species is generally more tropical than its congener, it is thought that its reproduction may show less evidence of seasonality. Hybrids between this species and *T. truncatus* have occurred in captivity.

Feeding and prey A wide variety of small schooling fishes (e.g., pilchards, sardines, anchovies, and hake) and squids are taken as prey. In at least the northern Gulf of California, apparently cooperative feeding techniques are sometimes used to herd fish schools. It is thought that most feeding is done in relatively shallow waters.

Threats and status This species is commonly taken in gillnets off southern California. Long-beaked common dolphins are only occasionally involved in the eastern tropical Pacific tuna fishery. They are sometimes taken in drive fisheries off Japan, and there is concern about the growing problems of direct kills off Peru. There has been a large direct kill off northern Venzuela, but its current status is not known. In the Indian Ocean and Chinese waters, long-beaked common dolphins are among many species of small cetaceans taken in gillnets, trawls, and purse seines. Some dolphins of this species have been live-captured for display, but they do not do as well in captivity as the more coastal bottlenose dolphins.

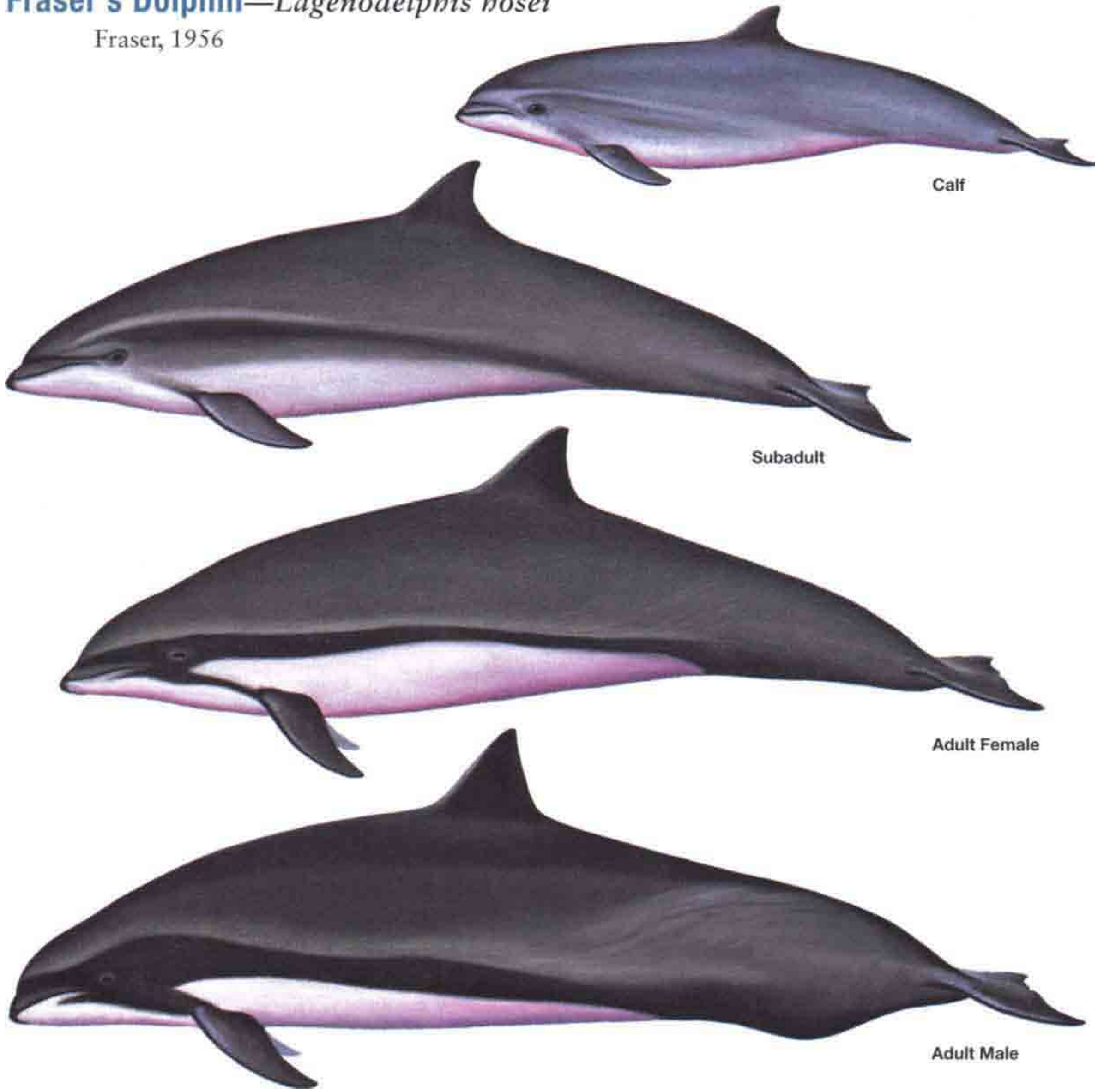
While not as numerous as the short-beaked species, overall, the species is relatively abundant and not in any danger of extinction on a global scale. There are few estimates of abundance, however. The stock that occurs off the US west coast numbers about 43,000 and there are thought to be about 15,000–20,000 long-beaked common dolphins off South Africa.

IUCN status Least Concern.

References Evans 1994; Heyning and Perrin 1994; Jefferson and Van Waerebeek 2002; Perrin 2002.

Fraser's Dolphin—*Lagenodelphis hosei*

Fraser, 1956



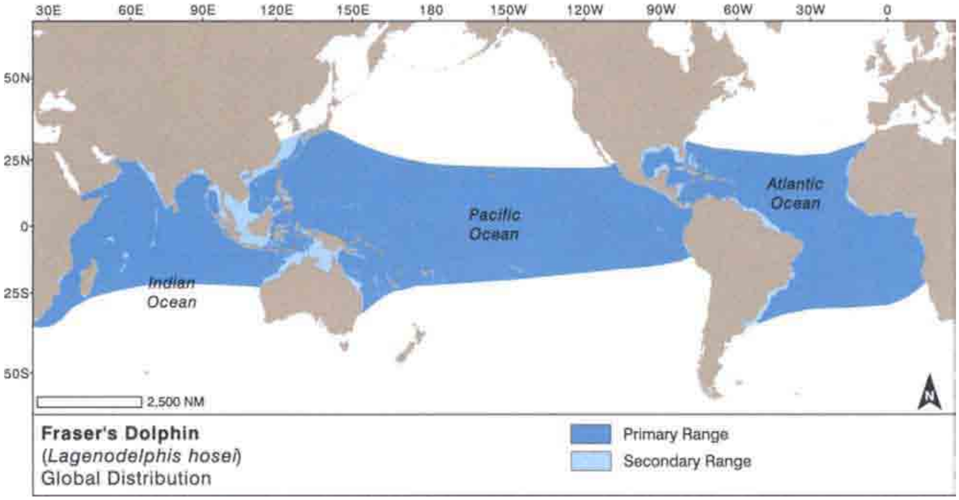
Recently-used synonyms None.

Common names En.–Fraser's dolphin; Sp.–*delfín de Fraser*; Fr.–*dauphin de Fraser*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. For almost two decades after its discovery in 1956, this species was known only from skeletal material, until it was "rediscovered" in the early 1970s.

Species characteristics This is a very distinctive dolphin, with an extremely stocky body and very small appendages. The short dorsal fin (< 9.5% of total length) is triangular or only slightly falcate, and tends to be more erect in adult males. The small flippers are pointed at the tips, and the flukes are concave on the trailing edge. There is a very short (< 3% of total length) and stubby, but well-defined, beak. Adult males often have a large post-anal hump or keel, composed of connective tissue.

The color pattern can be striking; the most distinctive feature (when present) is a dark band of varying thickness, running from the face to the anus (in some regions, the band is indistinct). This band is scarcely apparent on young animals, and appears to widen and darken with age in some animals, especially adult males. There is also a flipper stripe that starts at midlength along the lower jaw (in some animals the lateral stripe is so wide that it merges with the flipper stripe, creating a dark face mask, sometimes informally called a "bandit mask").



Otherwise, the back is dark brownish-gray, the lower sides are cream-colored, and the belly is white or pink. Young animals may have particularly pinkish bellies. The tip of the beak and lips are dark, and there is a dark stripe from the tip of the upper jaw to the apex of the melon.

There are 38–44 pairs of teeth in each jaw. Maximum size is at least 2.7 m (males) and 2.6 m (females). They may reach weights of over 210 kg. Newborns are estimated to be 1.0–1.1 m long.

Calf— 1/3 to 1/2 adult body size, color pattern muted and lateral stripe faint or absent, dorsal fin falcate, and post-anal hump not present.

Subadult— Close to adult body size, color pattern not strongly contrasting and lateral stripe faint or absent, dorsal fin falcate, and post-anal hump not present or only slightly developed.

Adult female— Full body size, color pattern with lateral stripe faint to moderate, "bandit mask" may be present, dorsal fin falcate, and post-anal hump not present or only slightly developed.

Adult male— Large body size, color pattern strongly contrasting with lateral stripe moderate to dark and broad, "bandit mask" generally present, dorsal fin erect and triangular, and post-anal hump moderate to large and well developed.

Recognizable geographic forms Although there is some evidence that Fraser's dolphins in the Atlantic are larger, with a more weakly-developed eye-to-anus stripe than those in the Pacific or Indian oceans, distinct geographic forms have not been adequately described for reliable identification.

Part of a large group of Fraser's dolphins leaps at the bow of a research vessel in the Maldives, showing the short beak, tiny appendages, and robust body of the species. When seen at such close range, there is no mistaking them. Outside the eastern Pacific Ocean, only adult male Fraser's dolphins appear to show the very dark, wide lateral stripe. PHOTO: T. A. JEFFERSON

Can be confused with When seen well, the unique body shape of Fraser's dolphin should rule out confusion with most other species, but striped dolphins, which also have an eye-to-anus stripe, can be confused with Fraser's at a distance. Identification should be assisted by the fact that this is the only small, tropical species of oceanic dolphin with a short, well-defined beak.

Distribution Fraser's dolphin has a pantropical distribution, largely between 30°N and 30°S in all three

This adult male Fraser's dolphin was killed in a fishery in the Philippines. The dark side and flipper stripes merge in this individual to form what is often informally called a "bandit mask." PHOTO: W. F. PERRIN

A young Fraser's dolphin calf leaps alongside its mother at the bow of vessel in the Maldives. Although much smaller and more slender, the basic species characters are visible even on the calf. PHOTO: T. A. JEFFERSON

Fraser's dolphins are the most robust of the smaller tropical dolphins. Their short beaks and small appendages make them appear rather fat and stocky. Maldives. PHOTO: T. A. JEFFERSON

A Fraser's dolphin surfaces in the Indian Ocean. It can be identified as an adult male by the very dark and wide lateral stripe, bandit mask, and erect dorsal fin. PHOTO: J. KISZKA

major oceans. It is an oceanic species that prefers deep offshore waters, but it can be seen near shore in some areas where deep water approaches the coast (such as the Philippines, Taiwan, and some islands of the Caribbean and the Indo–Malay archipelago). Strandings outside the tropics (such as those in France and Uruguay) are generally considered to be extralimital, and are usually associated with anomalously warm water temperatures.

Ecology and behavior Fraser's dolphins remain somewhat mysterious—there is still little known of the ecology of this oceanic species. Herds tend to be large, consisting of hundreds or even thousands of dolphins, often mixed with other species, especially melon-headed whales in the eastern tropical Pacific, Japan, and the Philippines; as well as pilot whales, and Risso's, spotted and spinner dolphins in the Philippines. Little is known of their social structure, but they do strand *en masse* on occasion.

These are active animals, generally seen moving along in dense schools at great speeds, and often whipping the sea surface into a froth with their low-angle leaps. Fast-moving herds create a great deal of white water. In some areas, they are considered shy and difficult to approach; in others they are more approachable. They do not generally bowride in the eastern tropical Pacific, but appear to do so in most other areas. In the Philippine Sulu Sea, this species is most likely to bowride on slow-moving vessels.

Not much is known of the life history of the Fraser's dolphin. In Japan, the only place where life history has been studied in detail, sexual maturity is reached at 7–10 years and 220–230 cm for males, and at 5–8 years and 210–220 cm in females. Calving peaks in spring and autumn have been documented in Japan, and in South Africa calving appears to peak in summer. Longevity is at least 18 years.

Feeding and prey Fraser's dolphins appear to feed on midwater fish (especially myctophids), squid, and crustaceans. Physiological studies indicate that Fraser's are capable of quite deep diving (and it is thought that they do most of their feeding deep in the water column—in waters up to 600 m deep), but they have been observed to feed near the surface as well.

The lateral stripe in Fraser's dolphin is geographically variable with respect to its prevalence within groups, and with regard to its extent and intensity on individual animals. In the eastern Pacific, a heavy dark stripe can be found among animals of both sexes and all age classes, except perhaps the very youngest animals. Eastern tropical Pacific. PHOTO: R. L. PITMAN

Fraser's dolphins occur in large groups (often hundreds), and characteristically churn up lots of whitewater when they travel fast—the latter is possibly related to their rather un-hydrodynamic body form. PHOTO: R. L. PITMAN

Threats and status Direct killing of Fraser's dolphins has been documented in Japan, the Lesser Antilles, Sri Lanka, Indonesia and the Philippines. Incidental catches in purse seines (ETP and the Philippines), gillnets and driftnets (South Africa, Japan, the Philippines, and Sri Lanka), and trap nets (Japan) are also known. Their range in tropical, oceanic waters probably subjects them to less problems of habitat degradation than for most other dolphins.

This species does not appear to be particularly abundant anywhere (with the possible exception of some areas in the Philippines), although there is no serious concern about its global conservation status. There are estimated to be about 289,000 Fraser's dolphins in the eastern tropical Pacific. Only a few hundred may be present in the northern Gulf of Mexico.

IUCN status Data Deficient.

References Dolar 2002; Jefferson and Leatherwood 1994; Jefferson et al. 1997; Perrin et al. 1994.

Northern Right Whale Dolphin—*Lissodelphis borealis*
(Peale, 1848)

Recently-used synonyms None.

Common names En.–northern right whale dolphin; Sp.–*delfín liso del norte*; Fr.–*dauphin a dos lisse boreal* or *dauphin aptere boréal*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

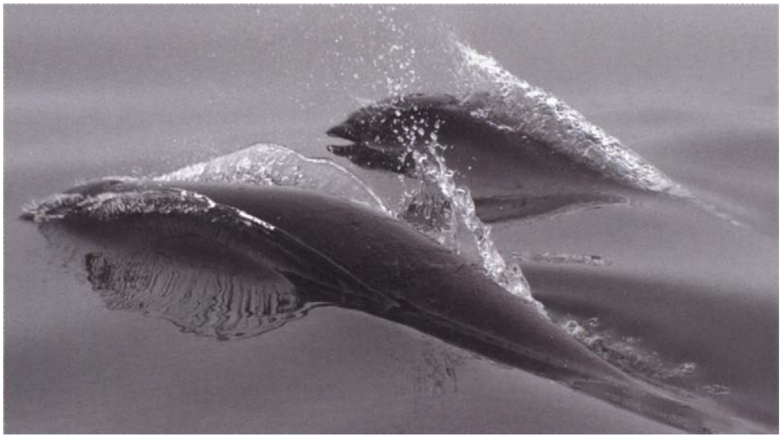
Species characteristics The northern right whale dolphin (along with its Southern Hemisphere relative) is the slenderest of all small cetaceans. The body is slim and torpedo-shaped, and the tail stock is extremely shallow (top to bottom). At close range, northern right whale dolphins are unmistakable; they are the only small cetaceans in their range with no dorsal fin. The flukes and flippers are small, narrow, and delicate-looking. The beak is short, but well-defined, and is relatively broad at its base.

Northern right whale dolphins are primarily black, with a distinctly-bordered white band from the throat to the fluke notch that widens to cover the entire area between the flippers, and a white patch just behind the tip of the lower jaw. The trailing edges of the flukes have a crescent-shaped patch of light gray edging above and white below. Young animals have muted color patterns of dark creamy gray to light gray.

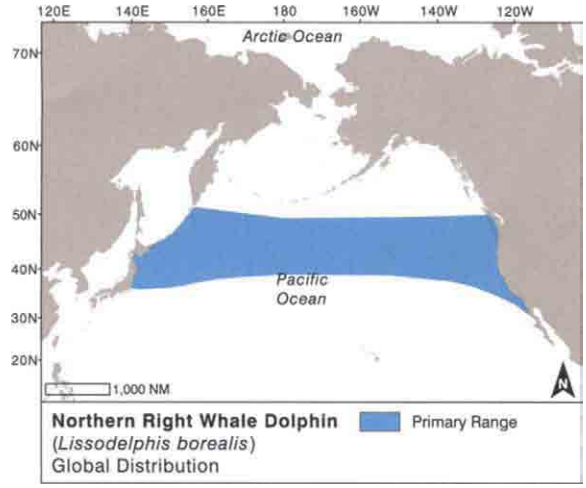
There is an uncommonly-occuring color morph (often called the "swirled" form) in which animals have a more extensive white field, which reaches onto the lower sides and often includes the lower sides of the face. In the thoracic area, this white field extends above the levels of the flippers and generally includes a white swirl at the base of the upper surface of the flippers.

The mouth contains 37–54 pairs of sharp slender teeth in each jaw.

Typical appearance of a group of northern right whale dolphins moving along at speed, porpoising out of the water with low-angle leaps. PHOTO: R. PAGEN/SWFSC



Northern right whale dolphins can be very unobtrusive swimmers, at slower speeds than this they look like ripples on the water in the distance. Monterey Bay, California. PHOTO: M. JOHNS



Measured adults have been up to 2.3 m (females) and 3.1 m (males). Length at birth is about 1 m. Maximum known weight is 115 kg.

Recognizable geographic forms None.

Can be confused with The slender, finless body should allow easy separation from all other sympatric North Pacific small cetaceans. However, porpoising California sea lions may cause some confusion at a distance.

Distribution The northern right whale dolphin is an oceanic species, inhabiting cool and warm temperate regions of the North Pacific only, between about 30°N and 50°N. Although it generally does not penetrate as far north as the Bering Sea, there are some northern (probably extralimital) records from along the Aleutian Islands and in the Gulf of Alaska. Also, it is generally not thought to enter the Sea of Japan or Okhotsk Sea, and it is seen nearshore only where submarine canyons or other features bring deep water close to the coast. It forms an anti-tropical species pair with the southern right whale dolphin. The habitat of this species is deeper waters from the outer continental shelf to the oceanic regions.

A northern right whale dolphin with an anomalous color pattern that has been called the "swirled" pattern. These animals have more extensive white ventral coloration and the white extends up onto the upper side of the flippers in a swirled pattern, thus the name. PHOTO: D. DOOLITTLE

A northern right whale dolphin riding the bow wave of a vessel in Monterey Bay. This animal displays the very slender body shape that is typical of the species. PHOTO: T. A. JEFFERSON

Ecology and behavior Most schools number between 100 and 200 individuals, but groups of up to 3,000 have been seen. Some herds are very tightly packed. Groups of northern right whale dolphins mixed with other marine mammals, especially Pacific white-sided dolphins (with which they share a nearly identical range) and Risso's dolphins, are not uncommon.

Northern right whale dolphins are fast swimmers, sometimes creating a great surface disturbance with their low-angle leaps and belly flops. When moving more slowly, these animals may cruise along and barely break the surface to breathe. They bowride, especially when accompanied by other species of dolphins. Aerial displays are not uncommon, and they breach and perform side-slaps at times.

In the central North Pacific, life history has been well-studied, based on a large sample of specimens killed in the North Pacific squid driftnet fisheries. There appears to be a calving peak in late summer (July and August), and females generally have a 2 year calving interval. Gestation lasts about 12 months. Both sexes become sexually mature at about 10 years of age, when males are about 215 cm, and females 200–201 cm. They can live to be at least 42 years of age. Reproduction in other areas of the range is very poorly-known.

A northern right whale dolphin calf alongside its mother. Newborns in this species have a muted color pattern, with the black replaced by brownish-gray. PHOTO: C. OEDEKOVEN/SWFSC

Two northern right whale dolphins porpoise near a research vessel off the west coast of North America, showing the sleek, finless back. PHOTO: M. RICHLEN/SWFSC

A northern right whale dolphin with an anomalous "swirled" color pattern—more extensive white ventral coloration, even extending in a swirl pattern onto the top of the flippers. Monterey Bay, California. PHOTO: T. PUSSER

A close-up of the head of a northern right whale dolphin that was caught in a driftnet in the northern North Pacific. The white spot at the tip of the lower jaw and the many slender teeth are visible. PHOTO: M. W. NEWCOMER

Feeding and prey Although market squid and lanternfish are the major prey items for northern right whale dolphins off southern California, a variety of other species are taken by this species throughout the range. These include various species of cephalopods, hake, sauries, and several species of surface and midwater fishes.

Threats and status Northern right whale dolphins have never been hunted extensively in a major fishery, although they have sometimes been taken in Japan's small cetacean fisheries. Incidental catches have occurred in Japanese and Russian purse seines, Japanese salmon driftnets, and American shark and swordfish driftnets. However, the largest takes in recent years were in the North Pacific squid driftnet fishery, which was operated by vessels from Japan, Taiwan, and Korea. Nets from this fishery took many thousands of northern right whale dolphins annually in the central North Pacific, until they were shut down by international law in the early 1990s. There is some evidence to suggest that the large kills in the latter case may have caused serious depletion of the population. There are thought to be about 68,000 of these animals in the North Pacific, and slightly over 20,000 of these animals occur in US west coast waters of California, Oregon, and Washington. Now that the squid driftnet fishery is closed-down, this species is no longer thought to be threatened.

IUCN status Least Concern.

References Ferrero and Walker 1993; Jefferson and Newcomer 1993; Jefferson et al. 1994; Lipsky 2002.

Southern Right Whale Dolphin—*Lissodelphis peronii*

(Lacépede, 1804)

Recently-used synonyms None.

Common names En.–southern right whale dolphin; Sp.–*delfín liso austral*; Fr.–*dauphin aptere austral*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Hybrids with dusky dolphins have been reported in the wild.

Species characteristics Southern right whale dolphins, along with their Northern Hemisphere counterparts, are the most slender of all cetaceans (although this species appears to be a bit more robust than the Northern Hemisphere species). The body shape is very similar to the northern right whale dolphin (very slender and torpedo-shaped), with a short, well-demarcated beak (which is quite wide at the base), small recurved flippers, extremely shallow (top to bottom) tail stock, small flukes with a concave trailing edge, and no hint of a dorsal fin or ridge.

Southern right whale dolphins are strikingly black and white. The white coloration of the ventral area extends well up the sides, the sharp line demarcating black above and white below runs from the tail stock forward, dips down to the flipper insertion, and then sweeps back up to cross the melon between the blowhole and beak crease. The flippers are mostly white, but the trailing edge has a black band. The flukes are white below, and above are dark gray, fading to white on the leading edge.

Anomalous all-black southern right whale dolphins have been observed, as have dolphins thought to be hybrids between this species and the dusky dolphin. The presumed hybrids have been observed in Argentina, and they appear to be almost exactly intermediate between dusky and right whale dolphins.

The mouth is lined with 44–49 sharp, pointed teeth in each row.

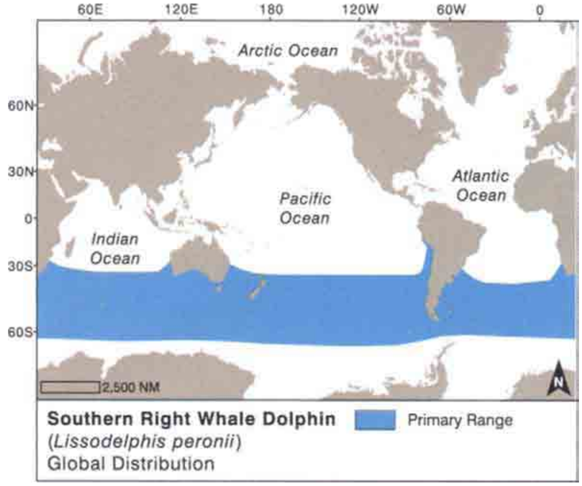
These dolphins reach lengths of at least 3.0 m and weights of 116 kg. Length at birth is very poorly-known, but is probably about 1 m.

The elegant and unmistakable southern right whale dolphin. This animal appears to have *Xenobalanus* barnacles on its right flipper. Off southern Chile. PHOTO: R. L. PITMAN

The typical appearance of a group of porpoising southern right whale dolphins. The middle animal is probably an older juvenile. Western Australia. PHOTO: L. MORSE

Recognizable geographic forms None.

Can be confused with The unique body shape, coloration, and complete absence of a dorsal fin of



An anomalously black southern right whale dolphin. Such animals have been seen at various places in the species' range. Southwest of Australia. PHOTO: P. A. OLSON

A fast-moving group of southern right whale dolphins. These animals often move in tight groups such as this. PHOTO: T. PUSSER

A New Zealand southern right whale dolphin, showing the slender, finless body and black and white color pattern. PHOTO: R. ABEL, COURTESY S. LEATHERWOOD

this species should make it difficult to confuse with any other marine mammal species. Only porpoising groups of sea lions or fur seals would likely cause confusion, and that would only be at a distance.

Distribution Southern right whale dolphins are found only in cool temperate to subantarctic waters of the Southern Hemisphere, mostly between about 30°S and 65°S. The southern limit appears generally to be bounded by the Antarctic Convergence. The range extends furthest north along the west coast of continents, due to the cold counterclockwise currents of the Southern Hemisphere. The northernmost record is at 12°S, in central Peru. This is an oceanic species, coming close to shore only in deepwater coastal areas.

Ecology and behavior This is one of the most poorly-known of all the dolphins. Large, active schools are characteristic of the southern right whale dolphin. Some estimates of group size range to over 1,000 animals. Associations with other marine mammal species are common, especially with dusky dolphins and long-finned pilot whales. Like their northern cousins, dolphins of this species are active, energetic swimmers, often coming out of the water in clean low-angle leaps, as they move at high speed. Swimming speeds of up to 22 km/hr have been reported, and dives of up to 6.4 min. have been recorded. Fluke-slaps and other aerial displays are not uncommon. Southern right whale dolphins bowride occasionally.

Virtually nothing is known of this species' reproductive biology.

Feeding and prey A variety of fish and squid have been reported as prey; lanternfish (myctophids) are especially common in southern right whale dolphin stomachs. They are probably capable of diving to depths in excess of 200 m in pursuit of prey.

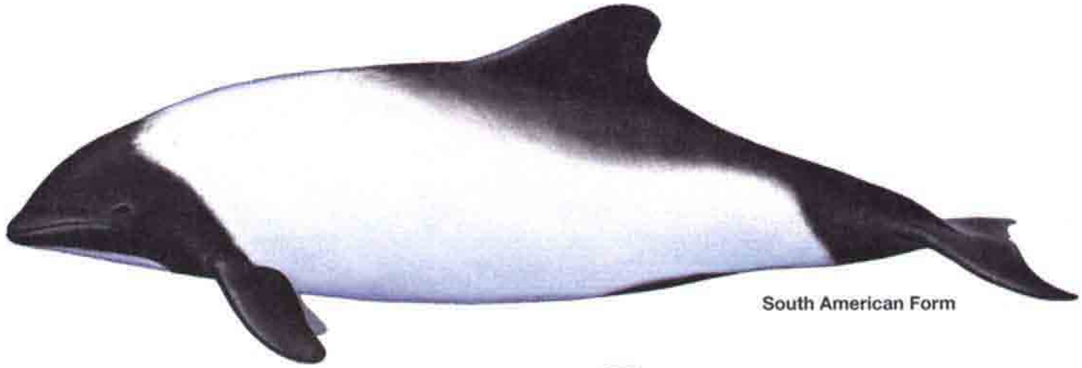
Threats and status Southern right whale dolphins have been taken directly in recent years in Peru and Chile for crab bait and for human consumption. Bycatches have been reported in small numbers in some areas. The only incidental catch of any magnitude that is known is in the swordfish gillnet fishery off Chile. There are no estimates of abundance for the southern right whale dolphin, and virtually nothing is known of the status of any population of the species.

IUCN status Data Deficient.

References Jefferson et al. 1994; Lipsky 2002; Newcomer et al. 1996.

Commerson's Dolphin—*Cephalorhynchus commersonii*

(Lacépède, 1804)



Recently-used synonyms None.

Common names En.–Commerson's dolphin; Sp.–*tonina overa*; Fr.–*dauphin de Commerson*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. Two subspecies are recognized: *C. c. commersonii* in southern South America, and an as-yet unnamed subspecies in the Kerguelen Islands. The Kerguelen subspecies was apparently founded by a few individuals as recently as 10,000 years ago.

Species characteristics The robust Commerson's dolphin is similar in body shape to porpoises (phocoenids), as are other species of the genus. The head is blunt, with only the slightest hint of a beak, and a relatively straight mouthline. The dorsal fin is small (compared to the other species in the genus) and rounded, rising at a shallow angle from the back, and leaning slightly towards the tail. The flippers and flukes have rounded tips.

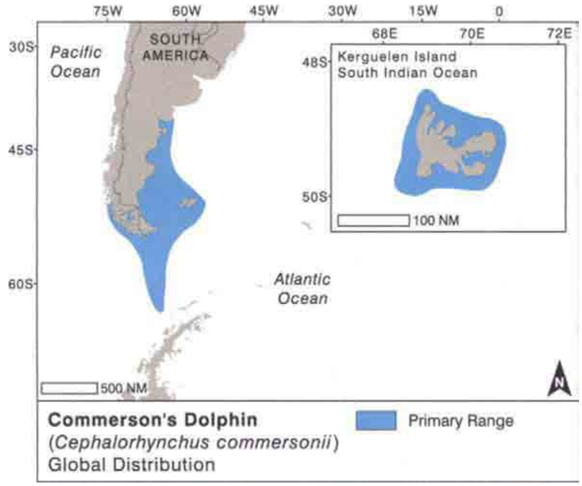
The coloration is strikingly contrasted dark and light. There is a light band that completely encircles the body dorsally from just behind the blowhole to in front of the dorsal fin, and ventrally from behind the flippers to behind the genital area. There is a large white patch on the throat, and a black oval to heart-shaped patch around the genitals that tends to vary in shape between males and females (females generally have the heart-shaped patch pointing forward, males pointing backward). The rest of the animal is dark gray or black, including the top of the head, flippers, dorsal fin, and flukes. Newborn animals and calves have a muted pattern of mostly gray tones (instead of black and white), as do many small cetaceans. In calves, the borders between the dark and light regions of the body are less distinct than in adults.

Twenty-eight to 35 small, pointed teeth line each tooth row.

Length at birth ranges from 65–75 cm. Commerson's dolphin adults can reach sizes of up 1.8 m and 86 kg. Females are slightly larger than males in this species.

Recognizable geographic forms

South American subspecies (C. c. commersonii)—South American Commerson's dolphin adults are smaller than the Kerguelen subspecies, reaching only 1.5 m and 66 kg. The body of adults is black and white, with the border between them generally very distinct.



***Kerguelen Islands subspecies* (C. c. subsp.)–** Commerson's dolphins from the Kerguelen Islands are larger than their South American counterparts. These animals reach nearly 1.8 m in length and weights of 86 kg. The dark areas of the body tend to be a dark gray, rather than black. The light band that encircles the body is mostly light gray, but the ventral portion is white. The border between light and dark is generally less distinct than in adult *C. c. commersonii*.

Can be confused with The only other black and white small cetacean likely to be confused with this species is the spectacled porpoise, but the dorsal fin shape and color pattern differences should make these two easily discernible. In some areas, Commerson's dolphins may also be confused with Chilean dolphins, which have a similarly-rounded dorsal fin, but are mostly dark gray (with no distinct black and white patterns on the dorsal surface).

Distribution There are at least two disjunct populations of Commerson's dolphins, those off South America (Chile and Argentina) and the Falkland Islands, and those off the Kerguelen Islands (about 8,500 km away). Recently, a record of a sighting of a single individual south of Capetown, in South African waters, was reported, although this should undoubtedly be considered extralimital. There are also unsubstantiated reports of this species at South Georgia, but these have been rejected by some recent workers. Commerson's dolphins occur in relatively shallow, coastal waters. They sometimes move very close to shore, even inside the breakers.

Ecology and behavior Small groups of less than 10 individuals are the norm for this species, although they do sometimes aggregate into groups of over 100. These are quick, active animals. They are known to engage in various types of leaps and other aerial maneuvers. They frequently ride bow waves, breakers, and oceanic swells. Commerson's dolphins often swim upside down, and spin on their long axes while darting around. Several individuals have been brought into captivity in the last few decades, and the species seems to do relatively well in captivity.

The breeding season is in the southern spring and summer, between October and March. Gestation lasts slightly less than a year. Sexual maturity occurs between 5 and 9 years. Not much else is known of their reproductive biology. Longevity is at least 18 years.

Feeding and prey South American Commerson's dolphins appear to be opportunistic, feeding primarily near the bottom. Feeding there is on a diverse diet of various species of fish, cephalopods, crustaceans, and benthic invertebrates. In the Kerguelen Islands, they have a more restricted diet, mostly consisting of fish.

A Commerson's dolphin off the Kerguelen Islands. These dolphins are a separate subspecies, with somewhat larger body size, and a more grayish and less contrasting color pattern. PHOTO: D. HATCH, COURTESY OF F. TODD

Commerson's dolphins swimming near kelp beds, one of their favored habitats. Falkland Islands. PHOTO: T. PUSSER

A Commerson's dolphin slow surfacing, showing the rounded dorsal fin and distinctive black and white color pattern. PHOTO: M. INIGUEZ

If all cetaceans were as strikingly patterned as these Commerson's dolphins, we wouldn't need field guides. Argentina. PHOTO: M. INIGUEZ

Commerson's dolphin mother and calf surfacing in Argentine waters. Calves have a muted color pattern of dark and light gray instead of black and white. PHOTO: M. INIGUEZ

A Commerson's dolphin leaps from the water in Argentina. The color pattern makes it unmistakable. PHOTO: M. INIGUEZ

Threats and status Commerson's dolphins have been hunted for food and crab bait in the southern parts of their range. In addition, this species is caught incidentally in several fisheries, primarily those using gillnets. Despite these threats, the species still appears to be reasonably numerous, and is not thought to be in danger of global extinction. There are few estimates of abundance for this species, but they are reportedly quite common in the Strait of Magellan. An estimated 3,200 individuals are thought to occur there. The Kerguelen population is restricted in range, and is therefore probably small and vulnerable to human impacts.

IUCN status Data Deficient.

References Dawson 2002; Goodall 1994; Pichler et al. 2001; Robineau 1984, 1986.

Heaviside's Dolphin—*Cephalorhynchus heavisidii*

(Gray, 1828)

Recently-used synonyms None.

Common names En.–Heaviside's or Haviside's dolphin; Sp.–*delfín de Heaviside*; Fr.–*dauphin de Heaviside*. This species was named after Captain Haviside, but due to an error, it was thought that it was named after another person, Captain Heaviside. Thus, the common name should actually be Haviside's dolphin, but due to convention and habit, Heaviside's is still more commonly used.

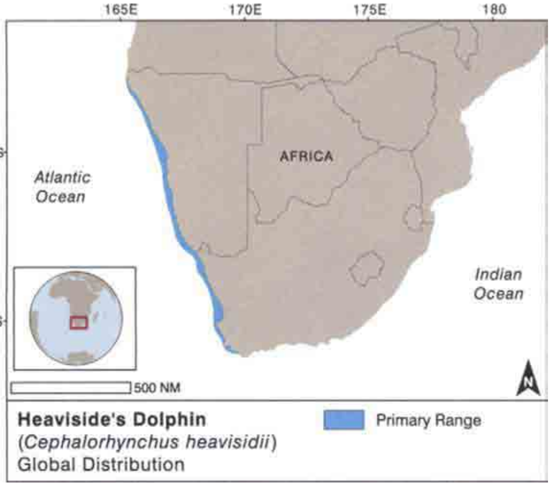
Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics Heaviside's dolphin is one of the most poorly-known of all dolphins. The shape of the body is similar to that in other *Cephalorhynchus* dolphins: stocky, with a short blunt snout, and blunt-tipped flippers. The dorsal fin is basically triangular (very different from the rounded fins of the other genus members), but it is significantly taller than in most porpoises. The trailing edge of the dorsal fin often has a slight outward bulge. The flukes are similar in size and shape to those of other dolphins.

The body is predominantly various shades of gray, with a dark cape, which starts at the blowhole, remains extremely narrow in the thoracic region and then widens to dip low on the sides below the dorsal fin. Most of the thoracic region is light gray. The area around the eye and much of the face is often a darker shade of gray. There is a white ventral patch that begins just behind the flippers, and splits into three arms behind the umbilicus. The middle arm encloses the urogenital area and the side arms extend only to below the midline (this is reminiscent of the pattern in killer whales). There is also a

One of the smallest of all cetaceans, Heaviside's dolphin has a narrow cape that dips down deeply below the dorsal fin. South Africa. PHOTO: T. PUSSER

A leaping Heaviside's dolphin shows the ventral color pattern that is somewhat reminiscent of that of the killer whale—a possible case of mimicry. South Africa. PHOTO: T. PUSSER




Two Heaviside's dolphins ride the bow wave of a vessel off South Africa. PHOTO: COURTESY S. LEATHERWOOD

white diamond-shaped patch between the anterior insertions of the flippers, and separate white spots in the axillae. Several predominantly-white individuals have been seen.

Heaviside's dolphins have 22–28 small, sharp teeth in each tooth row.

Adults of this species are up to at least 1.7 m in length, and up to at least 75 kg in weight. Newborn size is unknown, but is likely to be 80–85 cm.

Recognizable geographic forms None.

Can be confused with The only other small cetaceans within this species' range are larger dolphins (e.g., dusky, common, and southern right whale dolphins). Their larger size, different color patterns, and falcate dorsal fins (or absence of a fin in the southern right whale dolphin) should make them easy to distinguish from Heaviside's dolphins.

Distribution This species of dolphin is restricted to southwest Africa (Namibia and South Africa), with records from about 17°S to the southern tip of Africa. It is commonly seen along the west coast of South Africa in the Capetown region. As is true of the other species in the genus, it is a coastal animal that inhabits mostly shallow waters < 100 m deep.

Ecology and behavior Very little is known of the biology of this species. They are seen mostly in small groups of less than 10, with pairs and trios being most common. Heaviside's dolphins are generally active and sometimes boisterous; they are known to ride bow waves. The animals are quick and agile, often zooming around vessels


A Heaviside's dolphin leaps off southwestern Africa. These animals are fast swimmers and can be quite acrobatic. PHOTO: T. PUSSER


Heaviside's dolphin has a uniquely shaped, triangular dorsal fin and is usually found within sight of land off southwestern Africa. PHOTO: T. PUSSER

and repeatedly leaping out of the water. Preliminary studies of genetic structure suggest that there might be a single population of this species, but further studies are needed to confirm if this is really true.

Essentially nothing is known of the reproductive biology of Heaviside's dolphin. Some calves are born in the southern summer (November to January).

Feeding and prey The main diet of Heaviside's dolphin consists of demersal fish, such as hake. Some other pelagic schooling fishes and cephalopods (including octopus) are also taken.

Typical surfacing profile of Heaviside's dolphin, showing the triangular dorsal fin and uniquely-shaped cape. Capetown, South Africa. PHOTO: L. MORSE

Threats and status In general, Heaviside's dolphin appears to be facing fewer threats than the other members of its genus. Some animals are known to be taken incidentally in fisheries, such as in beach seines, purse seines, trawls, and gillnets—the latter are of particular concern. Some animals are apparently illegally taken (shot or harpooned) for human consumption as well. The major concern has to do with the limited range of the population, and its vunerable coastal habitat. Although there are no estimates of abundance, the species does not appear to be particularly rare.

IUCN status Data Deficient.

References Best and Abernethy 1994; Dawson 2002; Pichler et al. 2001; Van Vuuren et al. 2002.

Hector's Dolphin—*Cephalorhynchus hectori*

(van Beneden, 1881)

Recently-used synonyms *Cephalorhynchus albifrons.*

Common names En.–Hector's dolphin; Sp.–*delfín de Hector*; Fr.–*dauphin d'Hector*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae. There are two subspecies recognized, *C. hectori hectori* along the South Island of New Zealand, and *C. hectori maui* along the west coast of the North Island.

Species characteristics The typical robust *Cephalorhynchus* body shape is evident in this species. The head is blunt, with only the slightest hint of a beak. The dorsal fin is low (although relatively broad) and rounded (some people say it reminds them of Mickey Mouse ears), with the leading edge rising at a shallow angle from the back. The flippers are rounded and paddle-shaped, with blunt tips. The flukes are unremarkable.

The predominant color of Hector's dolphin is light gray. The dorsal fin, flukes, flippers, area around the blowhole, and much of the face are dark gray to black. A dark "collar" extends from the area above the eyes to behind the blowhole. Ventrally, the animals are largely white. The lower part of the head, starting just behind the black lower jaw tip is white, as is the area from just behind the flippers to the urogenital area. Arms of white from this patch also extend part way up the sides. The white ventral patches can be invaded by black between the flippers, or can be completely separated by a continuous black area. There are also small white axillary and dark gray urogenital patches (the latter are smaller and not apparent in some females).

The mouths of Hector's dolphins contain 24–31 fine, pointed teeth in each row.

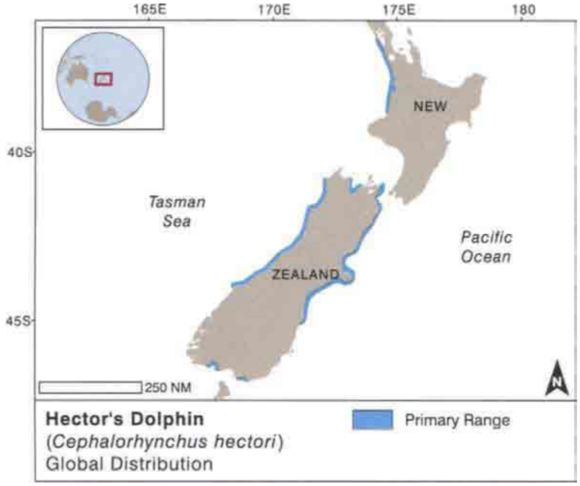
Hector's dolphin adults reach lengths of 1.63 m (females) and 1.46 m (males)—females are somewhat larger than males. Newborns are about 60–70 cm long. Weights of up to 57 kg have been reported.

The exquisite color patterning of Hector's dolphin can only be fully appreciated at close range in good light. PHOTO: S DAWSON

Recognizable geographic forms

South Island Hector's dolphin (C. hectori hectori)—The nominal form of the species occurs in three populations around the South Island of New Zealand. It is slightly shorter than the North Island subspecies, with adults reaching 1.53 m (females) and 1.44 m (males). There is a dark, heart-shaped patch around the penile opening of males.

North Island Hector's dolphin, sometimes called Maui's dolphin (C. hectori maui)—This genetically-separate form of Hector's dolphin occurs only off the North Island. It is



slightly longer than the South Island subspecies, with adults reaching 1.63 m (females) and 1.46 m (males). Also, the dark, heart-shaped patch around the penile opening of males is either reduced or absent. Other external differences have not yet been described.

Can be confused with Other dolphins (common, dusky, bottlenose, southern right whale, etc.) are found around New Zealand, but should be easy to distinguish from the small Hector's dolphin, largely on the basis of dorsal fin shape. These other species all have pointed fins, as opposed to the round ones of Hector's. Hector's dolphin is also significantly smaller than other species of dolphins in New Zealand. Coloration in the Hector's dolphin is also unique.

Distribution The Hector's dolphin is endemic to New Zealand giving it one of the most restricted distributions of any cetacean. The animals are found in shallow coastal waters, almost always within about 8 km of shore and < 75 m deep. Dolphins are strongly concentrated in shallow, turbid waters close to shore in summer months, and are more widely dispersed in winter. They are most common off the South Island and the west coast of the North Island. There are three genetically-separate populations in the South Island, and the single, small North Island population has recently been named as a separate subspecies (*C. h. maui*).

Ecology and behavior The habits and biology of Hector's dolphin have been well-studied in the last couple of decades, and this is undoubtedly the best-known species of the genus. Hector's dolphins live in groups of 2–8 individuals. Larger aggregations of up to 50 can be seen at times. These are generally the result of several smaller groups coalescing, but they usually do not last long. Hector's dolphins are active, sometimes acrobatic animals, on occasion leaping out of water quite energetically. They are known to engage in bowriding activity. Photo-identification studies have demonstrated that at least some individuals are resident in small areas (about 30 km of coastline) year-round. No two sightings of an individual have been more than 106 km apart. The social organization is rather fluid, and long-term associations between individuals are rare. The sounds produced by this species are mostly high-frequency, narrow-band pulses, very similar to those made by the true porpoises (phocoenids).

Life history has been better-studied than for the other species in the genus. The mating and calving season is in the southern spring through summer. Gestation lasts 10–11 months. Sexual maturity is reached at ages between 5 and 9 years, and adult females give birth every 2–4 years. They can live to be at least 20 years of age.

Feeding and prey Hector's dolphins engage in opportunistic feeding on several species of small fish and squid. The diet is more varied on the east coast of the South Island (8 species make up 80% of the diet) than on the west coast (only 4 species make up 80%).

Threats and status Recent surveys show that the South Island Hector's dolphin populations collectively number about 7,300 individuals, including about 900–1,100 animals at Banks Peninsula. The North Island population is estimated to number no more than about 100 animals, and both numbers and range have apparently been declining rapidly over the past 30 years. Hector's dolphin faces serious pressures from human activities. Like its congeners, gillnets are the major concern (with trawl fisheries also causing some mortality), but unlike the other species, the main problem in some areas is recreational gillnet fishing. Up to 57 individuals per year were known to have been caught in a small part of the range in the mid-1980s. That number has been reduced through legislation and the creation of two marine mammal sanctuaries (including the Banks Peninsula Marine Mammal Sanctuary). Despite these laudable efforts, the

An underwater view of a Hector's dolphin. Virtually all of the species' distinctive characteristics can be seen here. PHOTO: T. PUSSER

Two Hector's dolphins porpoising beside a vessel, showing nicely the distinctive color pattern of this species. PHOTO: B. SABERTON

A Hector's dolphin surfaces beside a boat. The dorsal fin in this species is often said to resemble a "Mickey Mouse" ear. PHOTO: B. SABERTON

A dorsal view of two bowriding Hector's dolphins. These animals are not too shy to bowride. PHOTO: B. SABERTON

Hector's dolphins are quite aerially active, and can be highly acrobatic at times. PHOTO: I. VISSER

Hector's dolphins can be quite acrobatic at times. This leaping individual shows all of the species' diagnostic characters, including the "Mickey Mouse" dorsal fin, stout body, blunt head, and unique color pattern. PHOTO: S. DAWSON

species is still facing serious problems and most populations are still thought to be in decline. The nominal subspecies is listed as Endangered, with the North Island subspecies considered to be Critically Endangered.

IUCN status Endangered (*C. hectori hectori*); Critically Endangered (*C. hectori maui*).

References Baker et al. 2002; Dawson 2002; Dawson et al., 2004; Pichler et al. 1998, 2001; Slooten and Dawson 1994.

Chilean Dolphin—*Cephalorhynchus eutropia*

(Gray, 1846)

Recently-used synonyms *Cephalorhynchus albiventris.*

Common names En.–Chilean dolphin; Sp.–*delfín chileno*; Fr.–*dauphin noir du Chili*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Delphinidae.

Species characteristics This little-known dolphin is robust, with a short, poorly-defined beak, like other members of the genus. The head is slightly more pointed than in other *Cephalorhynchus* dolphins. The dorsal fin is moderately low, wide-based, and rounded. It is somewhat larger than in the Commerson's dolphin, and leans slightly backwards. The flippers are paddle-shaped, with rounded tips, much like those of other members of the genus. The flukes are not unlike those of most other dolphin species.

The color of the Chilean dolphin is mostly medium gray, with a darker gray band extending from the blowhole to above the eye. There is often darker gray on the sides of the face, and in a wide band from around the eye to the flipper. On the belly are large white patches from behind the flippers to the urogenital area, and from ahead of the flippers to the beak tip. These patches are separated by a dark gray band between the flippers. There are also small white patches in the axillae, and thin gray patches around the urogenital area (the latter are sexually- and individually-variable).

Chilean dolphins have 29-34 small pointed teeth in each row.

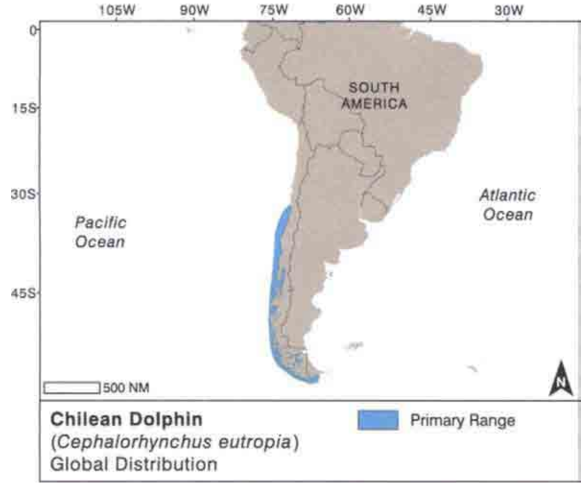
Adults of this species reach at least 1.7 m (size at sexual maturity has not been sufficiently documented). Length at birth is unknown, but is probably somewhat less than 1 m. Chilean dolphins reach weights of at least 63 kg.

Recognizable geographic forms None.

Can be confused with Chilean dolphins can be confused with Commerson's dolphins in the small area where they overlap, around the southern tip of South America. The large white areas on South American Commerson's dolphins will be the best clue. Burmeister's porpoises may also be confused with this species in some cases. Here, dorsal fin shape will be the best character to distinguish them (rounded in Chilean dolphins, and concave, slender, and almost banana-shaped in Burmeister's porpoises).

Distribution This dolphin is found only along the Chilean coast, from about 30°S to Cape Horn, at the southern tip of South America. As is true of other mem-

The Chilean dolphin is a small, coastal species with a distinctly rounded dorsal fin. These animals can be quite acrobatic at times. PHOTO: S. HEINRICH




A leaping Chilean dolphin in Chilean waters—probably a juvenile or subadult. PHOTO: F. VIDDI

bers of the genus, it is found in shallow coastal waters, and sometimes enters estuaries and rivers. In southern Chile it is found mostly within about 500 m from shore in waters < 20 m deep. It occurs in the inshore channels and fjords of the west coast of Tierra del Fuego, such as the Strait of Magellan and Beagle Channel.

Ecology and behavior Until recently, there have been very few sightings of these animals by researchers, and this is the least-known member of the *Cephalorhynchus* genus. Groups tend to be small, between 2 and 15 members, but much larger aggregations have been recorded. They have been observed to form mixed groups with Peale's dolphins on several occasions. Although active, they tend to be shy and somewhat difficult to approach (possibly as a result of having been hunted), and generally appear to avoid boats. They only occasionally ride bow waves. Their movements appear to be quite limited, with most dolphins being resident to a small area. Individuals, which have been identified by markings on the back and dorsal fin, concentrate their activites in discrete bays and channels.

Most sightings of young Chilean dolphins have been from October to April. Sexual maturity may be reached at 5–9 years. Little else is known of their reproductive biology, and longevity is not known.

Feeding and prey Chilean dolphins feed on shallow-water fishes (like sardines and anchovies), cephalopods, and crustaceans. They have also been seen to eat young released salmon. Green algae have been found in stomachs, but this may have been ingested incidentally.


A female Chilean dolphin shows its ventral color patterning, which has an interesting resemblance to that of the killer whale. PHOTO: S. HEINRICH

Threats and status Chilean dolphins have been hunted for many years for food and crab bait. Up to 1,300–1,500 per year were harpooned in the late 1970s and early 1980s. Such activities are now illegal, but enforcement is difficult. Gillnet catches also affect the species, which is thought to number in the high hundreds or low thousands. Aquaculture farms for salmon and mussels may also result in some threats to Chilean dolphins, at least

Two Chilean dolphins at the surface. Notice the very short beak and rounded dorsal fin. PHOTO: S. HEINRICH

Chilean dolphins are not necessarily shy of boats, and will closely approach vessels at times. PHOTO: F. VIDDI

A Chilean dolphin skims along the surface, showing the species' distinctive color pattern in good lighting. PHOTO: F. VIDDI

Typical surfacing profile of the Chilean dolphin. This is a mother (left) and calf (right). PHOTO: S. HEINRICH

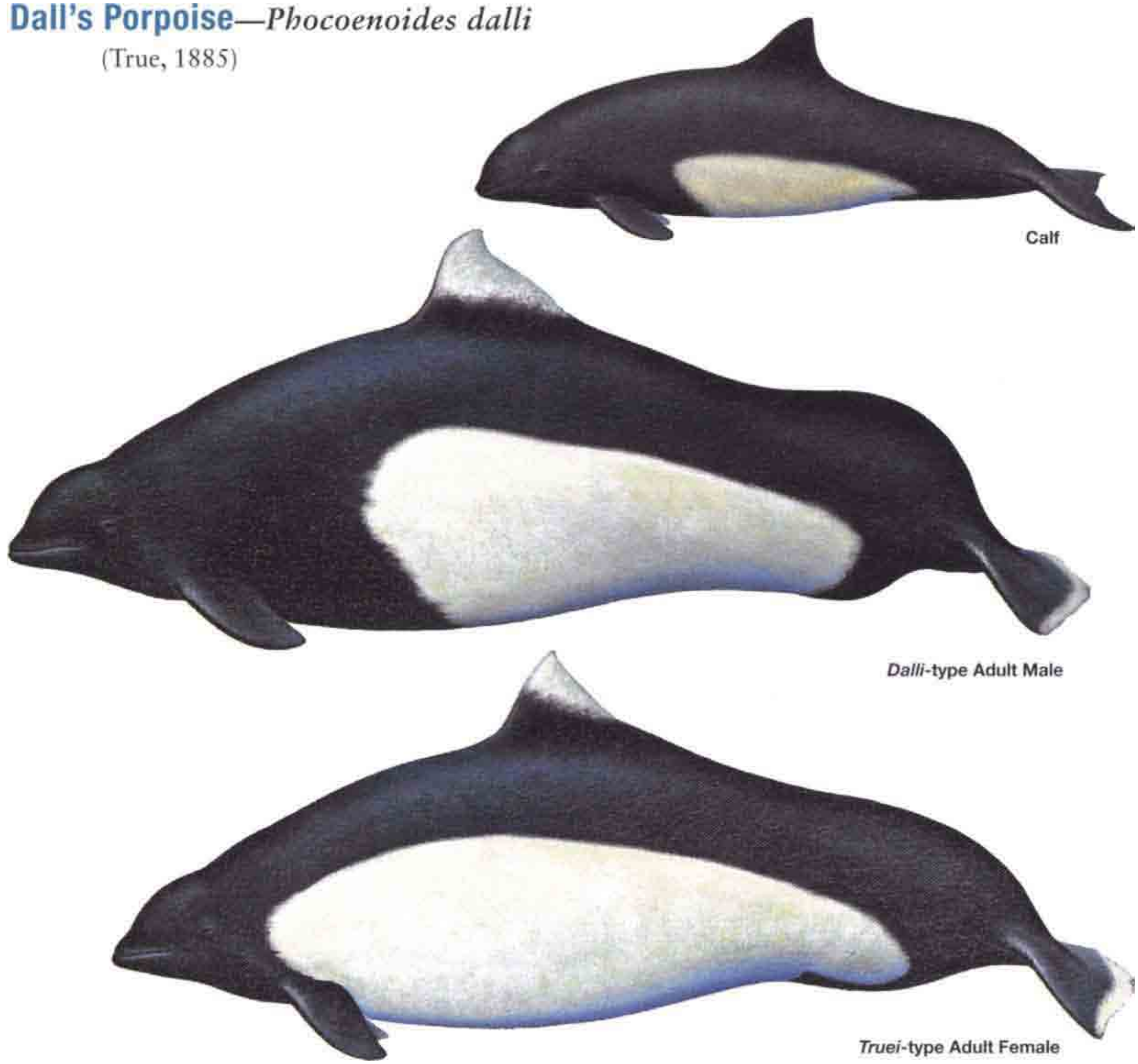
partly by restricting their movements and eliminating available habitat. The only reliable abundance estimate available is of 59 dolphins for an area of southern Chile. Although, the status of virtually all populations is unknown, some are almost certainly threatened with extirpation.

IUCN status Data Deficient.

References Dawson 2002; Goodall 1994; Goodall et al. 1988; Pichler et al. 2001.

Dall's Porpoise—*Phocoenoides dalli*

(True, 1885)



Recently-used synonyms *Phocoenoides truei*.

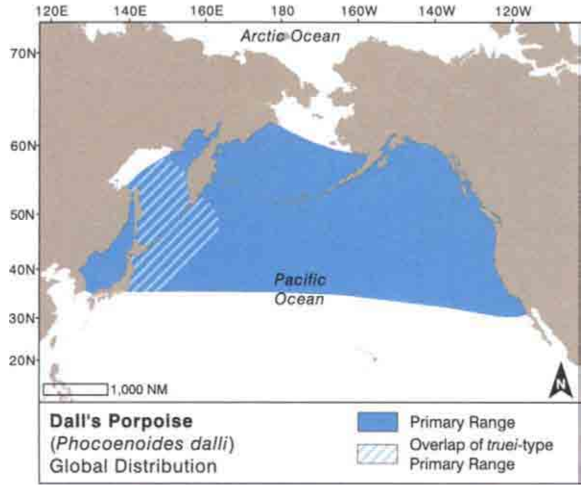
Common names En.—Dall's porpoise; Sp.—*marsopa de Dall*; Fr.—*marsouin de Dall*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae. Although, there has been some controversy, most marine mammal biologists consider that the two major color forms represent separate subspecies: *P. d. dalli* in the northern North Pacific, and *P. d. truei* in the northwestern North Pacific.

In the waters of the Northeast Pacific, hybrids between Dall's and harbor porpoises are relatively common, and these animals usually result from a Dall's mother and a harbor porpoise father. The hybrids appear to be intermediate between the two species in most aspects of morphology and behavior. Such hybrids may occur in other areas as well.

Species characteristics Dall's porpoises are robust animals, with a wide-based triangular dorsal fin (with a falcate tip), and small flippers placed quite near the head. The flukes and dorsal fin may be canted forward in some individuals (see below). The small head has a short beak, with no demarcation from the melon. From above, the head appears nearly triangular.

Dall's porpoises are strikingly marked, with a black body and bright white lateral patches that are continuous ventrally, although young animals have muted color patterns of dark and light gray instead of black and white. The flank patch extends up the sides about midway, from the urogenital area forward to around the level of the dorsal fin, or even to around the area of the flipper insertions. Some individuals may have flecks of black on the white flank patch (occasionally quite extensive). In addition, there is white to light gray "frosting" on the upper portion of the dorsal fin and the trailing edges of the flukes. There



are two commonly-occurring color types, *dalli*-type (with a smaller flank patch) and *truei*-type (which has a larger flank patch). Some individuals may have a small area of white to gray flecking on the ventral part of the tail stock, just ahead of the fluke insertion.

All-white (possibly albino) and all-black (melanistic) individuals have been observed in various places throughout the range. Rarely, porpoises intermediate between the *dalli*- and *truei*-types occur as well.

Dall's porpoise has the smallest teeth of any cetacean. There are 23–28 tiny spade-shaped teeth in each tooth row. They look rather like grains of rice.

Newborn Dall's porpoises are about 1 m long. Adults are about 1.7–2.2 m (females) or 1.8–2.4 m (males), with significant variation among different populations. The Sea of Japan population animals are the largest, and body length appears to decrease as one moves from west to east across the North Pacific. Maximum weight is about 200 kg.

Neonate—About 1/2 adult length; head relatively large; slate gray in color, with no frosting on the flukes or dorsal fin; flank patch light to moderate gray.

Juvenile—About 2/3–3/4 adult length; color pattern has developed to dark and light gray; light gray frosting beginning to develop on dorsal fin and flukes.

Subadult/Adult female—3/4 to full adult size; color pattern basically black and white, with prominent light gray to white frosting.

Adult male—Adult size; color pattern highly contrasting black and white, with extensive frosting; dorsal fin strongly canted; moderate to large post-anal hump; peduncle deepened; flukes generally have convex trailing edge; head often appears exceedingly small.

Recognizable geographic forms The exact taxonomic status of the two morphotypes of Dall's porpoise has long been a source of controversy. Recent studies support the concept that, although they are largely reproductively and genetically distinct, they are not separate species. They are currently considered to be subspecies:

Dalli-*type Dall's porpoise* (P. d. dalli)—The nominal subspecies occurs in several populations throughout the entire range in the North Pacific, Sea of Japan and Bering and Okhotsk seas. The white flank patch extends forward only to the level of midpoint of the dorsal fin (Sea of Japan population) or the level of the leading edge of the dorsal fin (other populations). Adult females of different populations in the western Pacific average 1.76–1.96 m and males 1.81–2.05 m. Maximum total length is about 2.39 m (for Sea of Japan/Okhotsk Sea specimens).

Truei-*type Dall's porpoise* (P. d. truei)—The single population of the *truei*-type is found only in the west-

Porpoises do not porpoise (although dolphins do); this is as close as a Dall's porpoise will normally come to leaping out of the water. Bering Sea, Alaska. PHOTO: R. L. PITMAN

A Dall's porpoise mother and calf killed in a western North Pacific driftnet. The coloration of calves is muted in shades of gray, and the "frosting" on the dorsal fin and flukes doesn't develop until later in life. PHOTO: T. A. JEFFERSON

Phocoenidae

Dall's Porpoise

A Dall's porpoise slow rolls at the surface on a calm day in Monterey Bay. The porpoise is moving left to right, and the extremely canted dorsal fin identifies this as an adult male. PHOTO: T. A. JEFFERSON

A Dall's porpoise "rooster-tailing" in Southeast Alaskan waters. This behavior is so unique to this species that experienced observers can often identify the species from a great distance, simply by the distinctive splashes. PHOTO: T. A. JEFFERSON

Two Dall's porpoises ride the bow wave of a research vessel in the eastern Pacific. When viewed at close range like this, nearly all of the species' diagnostic characters are visible and there is no problem in identifying them. PHOTO: C. OEDEKOVEN/ SWFSC/CSCAPE

ern part of the range, in the Okhotsk Sea, and along the Pacific coast of Japan, occasionally reaching as far north as the western Kamchatka Peninsula and western Aleutian Islands. In this form, the white flank patch extends much further forward than in the *dalli*-type—to about the level of the insertion of the flipper. Adult females average 1.89 m and males 2.02 m. Maximum total length is only about 2.20 m, significantly shorter than in the other subspecies.

Can be confused with Dall's porpoises are likely to be confused only with harbor porpoises, and even then, only if seen at a great distance. When seen well, the differences in color pattern and dorsal fin shape will be readily apparent. Highly experienced biologists may be able to discern the two species based on their surfacing behavior, with Dall's porpoises lifting their tail stocks higher above the surface and rolling more "squarely." On the other hand, inexperienced observers sometimes mistake them for "baby killer whales".

Distribution Dall's porpoises are found only in the North Pacific Ocean and adjacent Bering, Okhotsk, and Japan seas. They inhabit deep waters of the warm temperate through subarctic zones, between about 30°N and 62°N. They may occasionally occur as far south as about 28°N off the coast of Baja California, during unusually cold-water periods. They occur far offshore in oceanic zones, as well as very nearshore where deep water approaches the coast. They are even commonly seen in the inshore waters of Washington, British Columbia, and Alaska. There is apparently a single *truei*-type population that migrates between the Pacific coast of Japan and the Okhotsk Sea; *dalli*-types predominate in all other areas of the range.

Ecology and behavior This may be the fastest swimmer of all small cetaceans, at least for short bursts. When swimming rapidly, Dall's slice along the surface, producing a characteristic V-shaped "roostertail" of spray. At other times, the animals move slowly and roll at the surface with a distinctive squarish profile, creating little or no disturbance (i.e., "slow rolling"). They are avid bowriders, moving back and forth with jerky movements, and often coming from seemingly nowhere to appear at the bow of a fast-moving vessel. They tend to lose interest in vessels that are moving at only slow to moderate speeds. Breaching, porpoising, and other kinds of aerial behavior are extremely rare in this species.

Dall's porpoises are found mostly in small groups of 2–12. Although aggregations of up to several thousand have been reported, these are extremely rare. Groups appear to be fluid, often forming and breaking up for feeding and playing.

The International Whaling Commission currently recognizes eight stocks of this species, based on pollutant loads, parasite faunas, and distribution patterns of cow/calf pairs. Other than color type (*dalli*-type or *truei*-type), the stocks cannot be reliably distinguished by appearance at sea.

Most Dall's porpoise calves are born in late spring and summer, and there is great geographic variation in age and length at sexual maturity among populations. Maturity occurs at lengths of 1.72–1.87 m and ages of 4–7 years for females, and 1.75–1.96 m and 3.5–8 years for males. Gestation lasts 10–12 months and lactation is thought to last less than one year. This species regularly interbreeds and hybridizes with harbor porpoises in the waters of the Northeast Pacific.

Feeding and prey Dall's porpoises are apparently opportunistic feeders, taking a wide range of surface and midwater fish and squid, especially soft-bodied species like lanternfish (myctophids) and gonatid squid. Occasional krill, decapods, and shrimps found in stomachs are not considered normal prey.

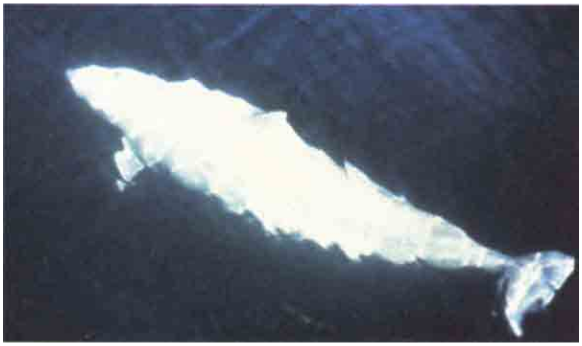
Threats and status Dall's porpoise is one of the primary species taken directly by Japanese fishermen for human consumption. Porpoises are harpooned as they ride the bow waves of catcher boats, and in the past few decades the annual catch has been as high as 40,853 (1988). In addition, Dall's porpoises have been taken incidentally in large numbers in several North Pacific driftnet fisheries, although several of these fisheries are now defunct. This was the primary species taken as marine mammal bycatch in the Japanese mothership and land-based salmon driftnet fisheries that operated in the North Pacific from the 1950s through 1990. Smaller incidental catches occur in several fisheries using gillnets and trawls in Russian, and US and Canadian west coast waters. Environmental contaminants are also thought to be a threat, and high levels of organochlorines may reduce testosterone levels in males and reduce calf survival, thereby influencing reproduction and survival. Dall's porpoises are common in many parts of the North Pacific and the density is high in many areas. The total abundance of the species is probably over 1.2 million individuals, and there are estimated to be about 104,000 along the Pacific coast of Japan, 554,000 in the Okhotsk Sea, 83,000 in Alaska, and 100,000 along the west coast of the US.

IUCN status Lower Risk/Conservation Dependent.

References Escorza-Trevino et al. 2004; Ferrero and Walker 1999; Houck and Jefferson 1999; Jefferson 1988, 2002.

Three color morphs of Dall's porpoise. The *dalli*-type (top) is the typical pattern in most of the range, the black-type (middle) is seen rarely throughout, and the *truei*-type (bottom) is generally only found in the western North Pacific. PHOTO: T. C. NEWBY, COURTESY S. LEATHERWOOD

Adult male Dall's porpoises have canted flukes, in which the trailing edge is convex. The white frosting is found on most adults and larger subadults. PHOTO: M. W. NEWCOMER



Species identification of color pattern variants is not always straightforward—an anomalously-white (probably an albino) Dall's porpoise. South of Kushiro, Japan. PHOTO: G. JOYCE, COURTESY S. LEATHERWOOD

Harbor Porpoise—*Phocoena phocoena*

(Linnaeus, 1758)

Recently-used synonyms *Phocoena communis, Phocoena vomerina, Phocoena relicta.*

Common names En.—harbor porpoise; Sp.—*marsopa común*; Fr.—*marsouin commun*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae. Four subspecies are recognized: *P. p. phocoena* in the North Atlantic, *P. p. vomerina* in the eastern North Pacific, *P. p. relicta* in the Black Sea, and an unnamed subspecies in the western North Pacific.

In the waters of the Northeast Pacific, hybrids between harbor and Dall's porpoises are relatively common, and these animals usually result from a Dall's mother and a harbor porpoise father. The hybrids appear to be intermediate between the two species in most aspects of morphology and behavior. Such hybrids may occur in other areas as well.

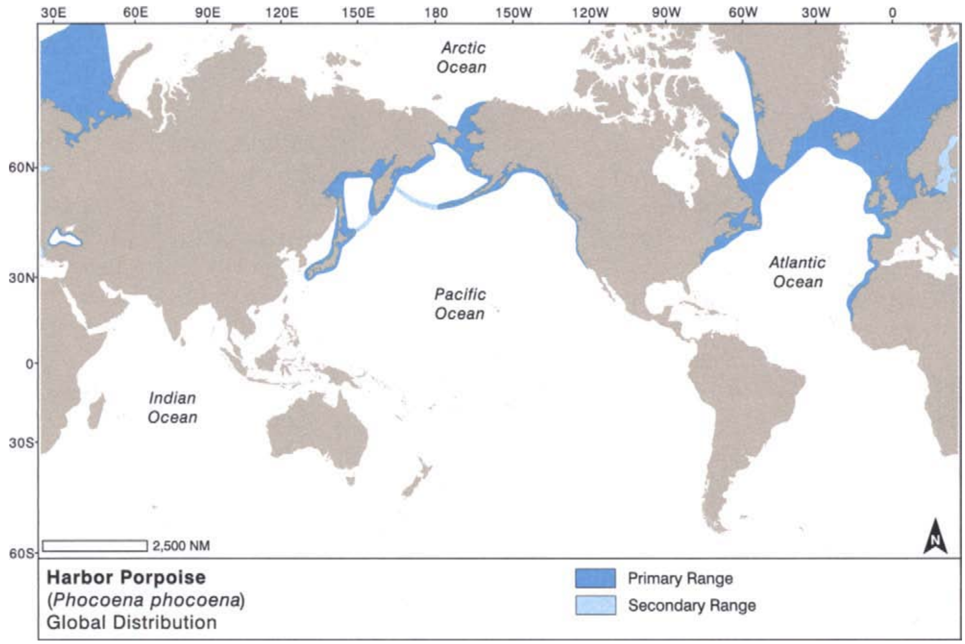
A harbor porpoise surfaces on a very calm day off the west coast of North America.
PHOTO: D. BUTCHER, COURTESY S. LEATHERWOOD

Species characteristics The harbor porpoise is a relatively stocky animal, with a blunt, short-beaked head. The body can be quite rotund, due to a large allocation of body mass to blubber (up to 37%, by weight, in calves). Placed about midway along the back is a short, wide-based, triangular dorsal fin, generally with small bumps (often called denticles or tubercles) on the leading edge. The flippers are small and somewhat rounded at the tips. The flukes have a concave trailing edge, and are divided by a prominent median notch; the tips are rounded. The straight mouthline slopes upward towards the eye.

The color pattern is relatively simple. Countershading is apparent in the harbor porpoise's color pattern; the animals are generally medium to dark gray on the back and white on the belly. The sides are intermediate, with the border area often splotched with various shades of gray. The flippers and lips are dark, and there is a dark gray gape-to-flipper stripe, which is variable in width. The throat often has a series of dark streaks that extend from the lip patch back to the area between the flippers. While the color pattern is variable, there does not seem to be any consistent difference between the sexes or among populations.

Nineteen to 28 small, spatulate, blunt teeth line each tooth row.

Maximum known length for various populations in the North Atlantic ranges from about 1.46–1.89 m, and for males about 1.32–1.78 m. Most adult harbor porpoises are less than 1.8 m long; maximum length is about 2.0 m. Females grow somewhat larger than males. Weights range from 45–70 kg for adults. Newborns are 70–90 cm long, depending on population.



Recognizable geographic forms There is significant geographic variation in various external features, and the Black Sea population of harbor porpoises (now considered a separate subspecies, *P. p. relicta*) is apparently genetically distinct from its nearest neighbors in the eastern North Atlantic (and those that occur occasionally in the Mediterranean Sea). The Black Sea porpoise appears to represent a dwarf form, not reaching lengths greater than about 1.50 m. However, for the most part, reliably-recognizable geographic forms have not been documented in this species.

Can be confused with Harbor porpoises, if seen clearly, should not be confused with any of the various species of dolphins that share their range. The only other porpoise that overlaps in the North Pacific, Dall's porpoise, can be confused with this species when backlit fins are seen at a distance. However, the black and white color pattern and slight difference in dorsal fin shape of Dall's porpoise will be unmistakable when seen well. Also, the behavior of the two species tends to be different, with Dall's either roostertailing or bringing the tail stock higher out of the water when rolling. No other porpoises occur in the North Atlantic, and there should be little problem with identification there.

Distribution Harbor porpoises are found in cool temperate to subpolar waters of the Northern Hemisphere. They are usually found in shallow waters, most often near shore, although they occasionally travel over deeper off-

A typical view of two harbor porpoises moving slowly in Monterey Bay. The low, broad-based dorsal fin and bland color pattern are visible. PHOTO: T. A. JEFFERSON shore waters. Their preferred habitats are characterized by a diversity of water depths, substrate types, and prey resources. In the North Pacific, they range from central California and northern Honshu, Japan, to the southern Beaufort and Chukchi seas. In the North Atlantic, they are found from the southeastern United States to southern Baffin Island (they apparently do not enter Hudson Bay) in the west, and Senegal, West Africa, to Novaya Zemlya in the east. They also occur around southeast and western Greenland, Iceland, and the Faroe Islands. There is also a single stranding record from the Azores. There is a population (or possibly two) in the Black Sea and the Sea of Azov, but they do not regularly occur throughout most of the Mediterranean, except in the northern Aegean Sea. This is the only cetacean species regularly found in the Baltic Sea. Major populations in the North Pacific and North Atlantic are isolated from each another, and many provisional stocks have been recognized.

Ecology and behavior Most harbor porpoise groups are small, generally consisting of less than five or six individuals. They do, at times, aggregate into large, loose groups of 50 to several hundred animals, mostly for feeding or migration.

An atypical view of a harbor porpoise surfacing alongside a vessel. In the vast majority of cases, these animals do not lift their heads above the surface. PHOTO: P. BERGGREN

Harbor porpoises generally are not very showy at the surface—fortunately their dorsal color pattern and dorsal fin shape allow them to be distinguished from the Dall's porpoise, which overlaps in the North Pacific. Monterey Bay, California. PHOTO: T. A. JEFFERSON

Behavior tends to be inconspicuous, compared to most dolphins and porpoises. Harbor porpoises almost never approach boats to ride bow waves, and often actively avoid vessels. When moving slowly they tend to surface in a slow gentle roll. However, when moving fast, they may surface in a behavior often called "pop-splashing" (which looks somewhat different from the "roostertailing" of Dall's porpoises). Breaches and other leaps are rarely seen, although they do exhibit aerial behavior on occasion. Harbor porpoises sometimes lie nearly motionless at the surface for brief periods between submergences, although it is not known why they do this. They are capable of diving to at least 220 m, and for over 5 min. (although most dives last about 1 min.).

Reproductive biology has been quite well studied in some parts of the range. Sexual maturity is generally reached at 3–4 years of age (at lengths ranging from about 1.2–1.5 m), with some geographic and density–dependent variation. Most calves are born from late spring through midsummer (April to August). Gestation lasts 10–11`months and calves are weaned by 1 year of age. Harbor porpoises have some of the largest testes known among any mammal (relative to body size), and the mating system is thought to be promiscuous, involving sperm competition.

In the North Atlantic Ocean (including the Black and Azov seas), fourteen populations are recognized, and in the North Pacific, at least 10 different stocks occur. Harbor porpoises regularly interbreed and hybridize with Dall's porpoises in the waters of Greater Puget Sound. These are very short-lived animals. Most harbor porpoises do not live much beyond 10 years, but some do reach at least 24 years.

Feeding and prey Harbor porpoises eat a wide variety of fish and cephalopods, and the main prey items appear to vary regionally. Small, non-spiny schooling fish (such as herring and mackerel) are the most common prey in many areas, and many prey species are benthic or demersal.

Threats and status The harbor porpoise faces many threats at the hands of humans. The species has been hunted in many areas of its range, and the major kills have been in the Bay of Fundy, Danish Baltic Sea, Black Sea, and Greenland. Today, the most significant threat in most areas is incidental catches in fishing nets, primarily various types of gillnets. Kills of over 1,000 per year have been documented for the Gulf of Maine, West Greenland, North Sea, and Celtic Shelf, but smaller kills occur in many other areas (probably in virtually every part of the species' range). In addition to gillnets, har-

A hybrid between a harbor and Dall's porpoise in the inshore waters of Greater Puget Sound. Such hybrids have been found to occur regularly in these waters, where both parent species are common. PHOTO: J. DURBAN

Harbor porpoise are often caught in herring weirs off the eastern coast of Canada. Although sometimes killed by the fishermen, many of these animals have been released alive, and scientists have learned much from them. PHOTO: J. Y. WANG

bor porpoises are also taken in some areas in trawls, Japanese set nets, herring weirs, pound nets, and cod traps. Finally, other types of threats include vessel traffic, noise, and depletion of prey by overfishing. The effects of environmental contaminants may also pose a threat, especially in heavily-industrialized areas. Detrimental effects of exposure to environmental contaminants have been documented. Globally, the species is not rare, nor in any immediate danger of extinction (although certain populations, such as that in the Black Sea, may very well be). Abundance has been estimated for selected portions of the species' range: 73,000 along the US west coast, 89,000 in Alaskan waters, 89,000 in the Gulf of Maine/ Bay of Fundy, 27,000 in the Gulf of St. Lawrence, 28,000 in Iceland, 11,000 in Norway, 36,000 in the Kattegat and vicinity, 600 in the Baltic Sea, 268,000 in the North Sea area, 36,000 in Ireland and the western UK, and between 3,000 and 10,000 in the Black Sea/Sea of Azov. Abundance in the western North Pacific is not known, but is probably lower than for the other ocean basins. Taken together, these numbers suggest the global abundance of the harbor porpoise is probably greater than 675,000 individuals.

IUCN status Vulnerable.

References Bjorge and Tolley 2002; Koschinski 2002; Nachtigall et al. 1995; Read 1999; Read et al. 1997.

A harbor porpoise swims in a herring weir in the Bay of Fundy, Canada. The robust body, blunt head, and generally countershaded color pattern are visible. PHOTO: J. Y. WANG

Spectacled Porpoise—*Phocoena dioptrica*

Lahille, 1912

Adult Female

Adult Male

Recently-used synonyms *Australophocaena dioptrica*, *Phocoena obtusata*.

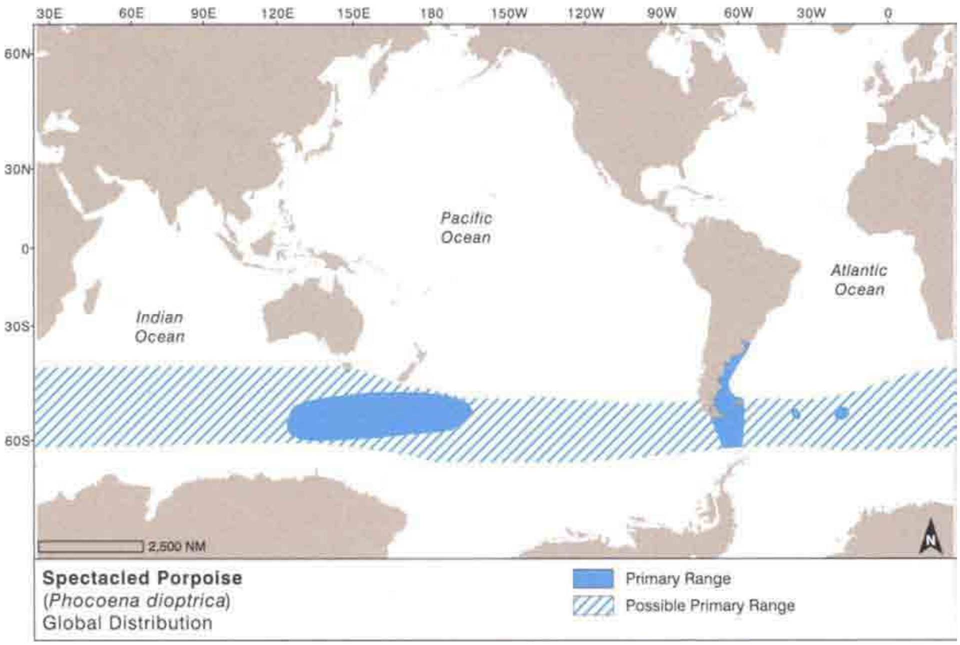
Common names En.—spectacled porpoise; Sp.—*marsopa de anteojos*; Fr.—*marsouin de Lahille*. This species was briefly considered to be in its own genus, *Australophocaena*, but due to findings of recent genetic and morphometric studies, it is now again placed in the genus *Phocoena*.

A young spectacled porpoise that was live-stranded in southern Australia swims in its tank, providing an unusual view. PHOTO: C. KEMPER

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae.

Species characteristics The spectacled porpoises' overall body shape is typically porpoise-like, robust with a blunt head, showing only a hint of a beak. The dorsal fin is moderate-sized to large and rounded, with a convex trailing edge (which is uncommon in small cetaceans). In adult males, the dorsal fin becomes oval-shaped and extremely large—so much so as to look disproportionate to the body. The leading and trailing edges are both convex. The flippers are small, with rounded tips.

The two-tone color pattern of spectacled porpoises is very distinctive. Above a line that runs down the side at the level of the eye, they are dark gray to black (except that the line sweeps upward at the tail stock, just before the flukes). Below this line, they are white, with the exception of black lips and a dark gape-to-flipper stripe (the latter is apparently not present on all adults). There is a black patch, surrounded by a fine white line (the "spectacle") around the eye. There is a faint blowhole stripe extending to the apex of the melon. The flukes are gray above and white below; the flippers are variably colored, either all dark or grayish-white with gray edges. A pale saddle on the back around the dorsal fin has recently been confirmed on sightings of live animals at sea



(this probably fades extremely rapidly after death). Young animals have muted gray color patterns, and adult males appear to be darker on the back than females.

Inside the mouth are 17–23 (upper) or 17–20 (lower) spade-shaped teeth in each row.

Although few specimens have been measured, adult male spectacled porpoises reach lengths of at least 2.24 m (length at puberty is unknown) and adult females are up to about 2.04 m. They can reach weights of at least 115 kg. Newborns are probably about 1 m.

Calf—Much smaller than adults (about 1/2 size); with a muted color pattern of light and dark gray.

Juvenile—Slightly smaller than adult size (2/3 to 3/4), with a relatively small dorsal fin.

Adult female—Adult size (up to 2.1 m); dorsal fin with relatively shallow leading edge and < 12 cm tall.

Adult male—Adult size (up to 2.3 m); dorsal fin with steeper leading edge and extremely large (up to 25 cm tall).

Recognizable geographic forms None.

Can be confused with The spectacled porpoise is not likely to be confused with other species when seen well. But at a distance, there can be some confusion with Commerson's dolphin and Burmeister's porpoise, which both share portions of its range. These three species can best be distinguished by careful attention to dorsal fin shape and color pattern differences. Adult male spectacled porpoises, with their absurdly-large dorsal fins, should be easy to identify. The dorsal saddle of the spectacled porpoise, although faint and difficult to see, will provide a good diagnostic character, when observed.

Distribution Previously known primarily from the southern coast of eastern South America, from Uruguay to Tierra del Fuego, this species is apparently also found offshore in the Southern Hemisphere. There are records from the Falkland Islands, South Georgia, Kerguelen Islands, Heard Island, Macquarie Island, the Aukland

An exceptionally clear view of a spectacled porpoise near a research vessel in the southern ocean. The white flippers and gray upper flukes are clearly seen. Notice the faint light saddle patch, which may only be apparent in good lighting. Southeast of Tasmania. PHOTO: P. A. OLSON

An adult male spectacled porpoise in subantarctic waters, easily identifiable as such by the massive dorsal fin. PHOTO: K. SEKIGUCHI

In the distance, even if an adult male is not present, the small size of the spectacled porpoise and its peculiar dorsal fin (convex on both leading and trailing edges) will allow for identification. Closer up, the pale saddle becomes evident, along with the black-above and white-below color pattern. PHOTO: C. OLAVARRA

Three spectacled porpoises surface slowly in subantarctic waters south of Australia. The furthest animal is an adult male, based on the large dorsal fin. The other two are a cow/calf pair. PHOTO: K. SEKIGUCHI

Even a fleeting look at the uniquely-shaped dorsal fin of the spectacled porpoise is unmistakable in the Southern Ocean. The faint saddle patch is evident here as well. Southeast of Tasmania. PHOTO: P. A. OLSON

Two spectacled porpoises that live-stranded at South Georgia, showing the species' diagnostic characters. PHOTO: P. S. LURCOCK

Islands, and Tasmania. Although rarely seen at sea (there are only a few dozen live sightings), this information suggests that the spectacled porpoise may be circumpolar in the subantarctic zone (with water temperatures of at least 1-10°C). Sightings have occurred in oceanic waters and around oceanic islands, as well as in some rivers and channels, but the at-sea ecology of these animals is very poorly-known. The southernmost sighting available is from 64°34'S.

Ecology and behavior This is one of the world's most poorly-known cetaceans. In the few known sightings, group sizes were small, mostly singles, pairs, or trios, with groups ranging up to five individuals (average about 2). Cow/calf pairs generally are accomplanied by a single adult male. These animals are very inconspicuous when surfacing slowly and do not generally ride bow waves. They are capable of fast swimming, and they do approach vessels on occasion. There is virtually nothing known about potential migrations or seasonal movements.

From the small amount of information, births appear to occur in the southern spring to summer. Essentially nothing else is known of this species' behavior and biology.

Feeding and prey Only four stomachs have been examined, and the contents included anchovies, stomatopods, and a small amount of algae (the latter probably ingested incidentally).

Threats and status Not much is known about the status of this species. However, like all phocoenids, spectacled porpoises are caught in gillnets. At least one record of a capture in a midwater trawl is also known. In the past, this species was apparently harpooned by Tierra del Fuegan natives, as well as fishermen and whalers. There are no estimates of abundance available for this species.

IUCN status Data Deficient.

References Brownell and Clapham 1999; Goodall 2002; Goodall and Schiavini 1995; Rosel et al. 1995; Sekiguchi et al. 2006.

Burmeister's Porpoise—*Phocoena spinipinnis*

Burmeister, 1865

Recently-used synonyms None.

Common names En.—Burmeister's porpoise; Sp.—*marsopa espinosa*; Fr.—*marsouin de Burmeister*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae.

Species characteristics The unique dorsal fin of Burmeister's porpoise rises at a very shallow angle from behind the midpoint of the back, and the trailing edge is straight to convex. Additionally, there are tubercles along the leading edge of the fin (this characteristic gave the species its scientific name). Other than this, the species has a rather typical phocoenid body form, with a blunt, nearly beakless head and broad-based flippers with rounded tips.

Coloration is charcoal to dark gray, with a light gray to whitish abdominal field, including light streaks on the chin and belly. Burmeister's porpoises have well-defined dark eye patches, dark lips, and dark chin-to-flipper stripes (defined by lighter areas above and below). These flipper stripes are individually-variable and asymmetrical; they are narrower and extend further forward on the right side.

Teeth number 10–23 in each upper tooth row and 14–23 in each lower row. As in other phocoenids, the teeth are spatulate.

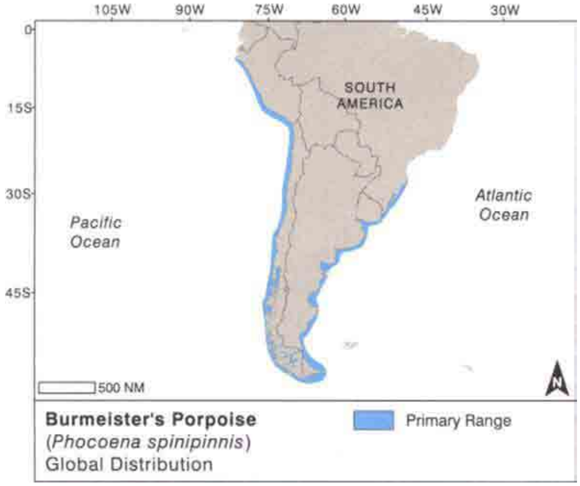
Most adults are up to 1.85 m in length, although animals from Uruguay up to 2.0 m have been recorded. Males are larger than females. Newborns are 0.8–0.9 m. Maximum weight is about 85 kg.

Recognizable geographic forms None.

The muted color patterns on the belly of a Burmeister's porpoise are probably never visible on a live animal at sea. Peru. PHOTO: R. L. PITMAN

A Burmeister's porpoise caught in Peruvian waters. The typical phocoenid body shape and distinctive dorsal fin are visible. PHOTO: R. L. PITMAN

Can be confused with From a distance, Burmeister's porpoises can be confused with South American fur seals and South American sea lions, which often stick their fins in the air (these can look like Burmeister's porpoise dorsal fins). They can also be confused with Chilean dolphins off the west coast of South America. Dorsal fin shape will be the best clue to distinguish these two species of small cetaceans. Differences in coloration, dorsal fin shape, and swimming style should allow Burmeister's porpoises to be distinguished easily from Commerson's dolphins and spectacled porpoises, and head and dorsal fin shape will be the best characteristic to allow distinction from franciscana.



Distribution Burmeister's porpoises are distributed in shallow, coastal waters of South America, from southern Brazil (about 28°48'S), south to Cape Horn in Tierra del Fuego, and thence north to northern Peru (to about 5°01'S). It is unclear whether the distribution is continuous between the Atlantic and Pacific oceans. They occur in the inshore bays, channels, and fjords of Tierra del Fuego and southern Chile, and have even been seen upstream in some rivers. Although most sightings are within view of shore, Burmeister's porpoises have been observed up to 50 km from the coast.

Ecology and behavior Very little is known about the natural history of this species. Most sightings are of less than six individuals, but aggregations of up to 70 have been reported. Behavior of the Burmeister's porpoise is generally inconspicuous; they surface with little surface disturbance. They may swim quickly away from approaching vessels, and are not known to ride bow waves.

There appears to be a protracted summer calving peak; most births in Peru apparently occur in late summer to fall. Pregnancy lasts 11–12 months. In Peru, males reach sexual maturity at about 1.60 m and females at about 1.55 m in length.

Recent genetic studies have indicated that porpoises in Peru form separate populations from those in southern Chile and in Argentina. The possibility of multiple populations in Peruvian waters is also considered likely.

Feeding and prey Feeding is on demersal and pelagic fish species, such as anchovies and hake, as well as squid and shrimps.

Threats and status Burmeister's porpoises are taken incidentally in fishing nets, especially gillnets throughout their range. In southern Chile, porpoises may be killed directly by harpooning. Most of these kills are not known to be large (although monitoring, in most cases, is sparse). However, in Peru, up to 2,000 porpoises per year are taken, both incidentally and directly, and in addition to being used as shark bait, the meat may be used for human consumption. In addition, to these more immediate threats, it is likely that environmental contaminants are having detrimental impacts on at least some Burmeister's porpoise populations. There are no estimates of abundance or trends for this species, but at least the stock in Peruvian waters is likely threatened by the high levels of capture there.

A close-up of the dorsal fin of a Burmeister's porpoise captured in Peruvian waters. Notice the tubercles on the leading edge of the dorsal fin, a useful identification character, although not distinctive to this species. PHOTO: R. L. PITMAN

The peculiar back-swept dorsal fin of a Burmeister's porpoise, showing the raised tubercles, the function of which are unknown. Southern Chile. PHOTO: S. HENIRICH

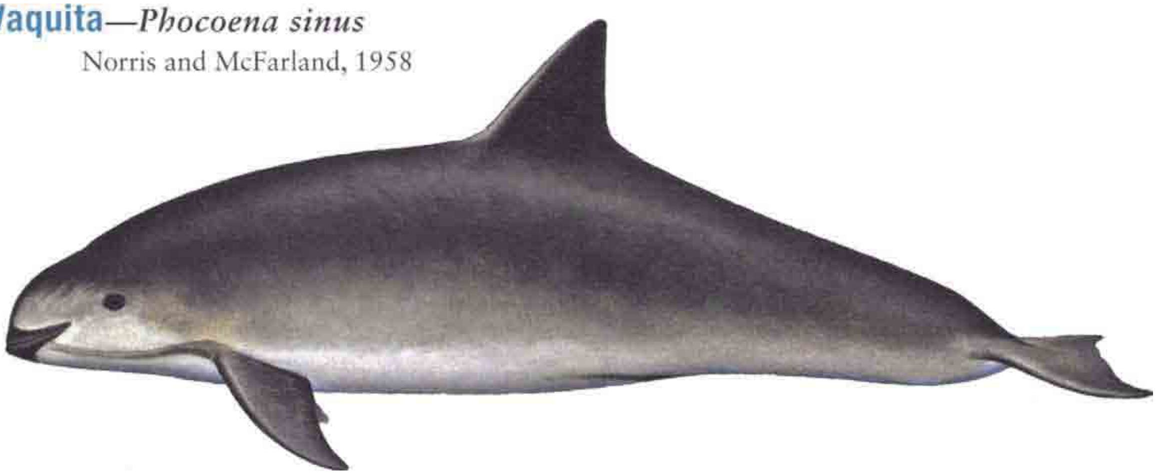
An exceptional view of a slow-surfacing Burmeister's porpoise in southern Chilean waters, showing the unique dorsal fin shape. PHOTO: S. HEINRICH

IUCN status Data Deficient.

References Brownell and Clapham 1999; Goodall et al. 1995; Reyes 2002; Rosa et al. 2005.

Vaquita—*Phocoena sinus*

Norris and McFarland, 1958



Recently-used synonyms None.

Common names En.—vaquita or Gulf of California (harbor) porpoise; Sp.—*vaquita marina*; Fr.—*marsouin du golfe de Californie* or *vaquita*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae.

Species characteristics The vaquita is among the smallest of all marine cetaceans. Although morphologically it shares much in common with other phocoenids, it has a taller, more falcate dorsal fin and larger flippers. The dorsal fin is more like that of a dolphin, than a porpoise. Like other porpoises, however, it is stocky, with a blunt beakless head.

Vaquitas have unique color patterns. There are distinct black to dark gray lip patches and eye rings; otherwise the body is light brownish-gray with a whitish belly. There is a chin-to-flipper stripe. Calves tend to be somewhat darker than adults.

A photo of several vaquitas killed in totoaba gillnets near El Golfo de Santa Clara in the northern Gulf of California. The animal in front is a 70-cm female calf, and others are adult males (back) and females (middle), each around 135 cm in length. PHOTO: A. ROBLES, COURTESY OF L. ROJAS-BRACHO

In the small number of specimens examined to date, there have been 16–22 pairs of teeth in the upper jaw and 17–20 pairs in the lower jaw.

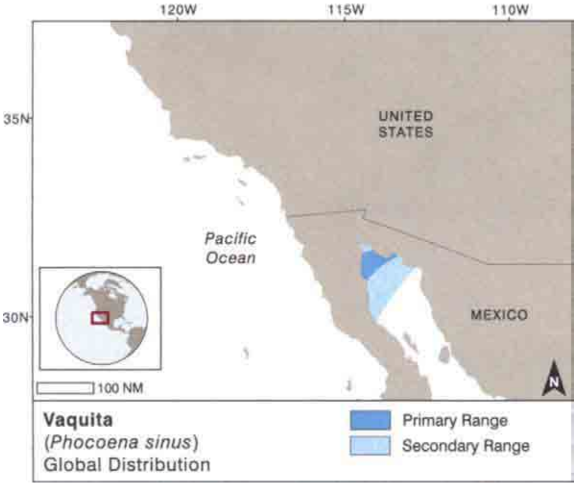
Currently known maximum length is 1.5 m (females) and 1.45 m (males), but very few specimens have been examined. Females are larger than males, as is true in several species of the porpoise family.

Recognizable geographic forms None.

Can be confused with When seen at a distance, the tall dorsal fin of the vaquita must be carefully distinguished from those of bottlenose and long-beaked common dolphins, both of which are common in the vaquita's range. However, the small group size, unique body shape (e.g., no prominent beak), and different behavior will generally allow the vaquita to be easily distinguished.

Distribution The restricted distribution of the vaquita appears to be defined by relatively murky, shallow (< 40 m deep) waters in the northern quarter of the Gulf of California (with a core area of ca. 2,000 km^2, centered at Rocas Consag). This is near the estuary of the Colorado River. However, there are some suggestions that the range traditionally may have extended further south in the Gulf as well. The animals are most commonly seen in the western portion of the upper Gulf, between San Felipe Bay and Rocas Consag.

Ecology and behavior Very little is known of the biology of the vaquita. As is generally true for porpoises, they occur in small groups, most often of about two, although groups of up to 8–10 have been sighted. Sometimes, large numbers of such groups loosely aggregate in a very small area (only several hundred square



meters). They are cryptic and relatively inconspicuous in their behavior, and they do not ride bow waves. Aerial behavior is rare.

Life history parameters appear to be similar to those of other, better-studied species of porpoises. Females reach sexual maturity sometime between 3 and 6 years of age, and males are assumed to be similar. Calving appears to be seasonal, and most calves are apparently born in the spring (i.e., around March). Gestation is about 10–11 months, and females appear to calve about every other year. The maximum known longevity is 21 years.

Feeding and prey Only 34 stomachs have been examined, and the contents indicated opportunistic feeding on a wide array of demersal and benthic fishes, squids, and crustaceans.

Threats and status The vaquita used to be considered the second-most endangered species of cetacean in the world (the first being the baiji). However, with the apparent extinction of the baiji, the vaquita now takes over the dubious distinction of being the most endangered. The only proven (and without a doubt, the main) threat is incidental catches in fisheries, especially various types of gillnets. Estimated mortality from gillnet fishing is at least 39 (and maybe as many as 84) vaquitas per year, which is certainly unsustainable. There are also a number of other potential threats, including habitat changes associated with reduction in freshwater flow to the Gulf, inbreeding depression, and environmental contamination.

The most recent estimate of total abundance for the vaquita was 567 individuals (in 1997). The population has probably been declining since the 1940s, and may be dropping by as much as 15%/year. It is in danger of extinction in the next decade. Conservation of the vaquita is being attempted through the creation of a biosphere reserve and more recently a wildlife refuge that includes waters outside the reserve in the upper Gulf of California, as well as the establishment of an international committee (CIRVA) convened by the Mexican government to recommend protection measures. However, implementation has been slow, and the effectiveness of these measures is still very much in doubt. Despite all this, the habitat of the species appears relatively healthy, and there is still a glimmer of hope for the vaquita.

IUCN status Critically Endangered.

References Brownell 1983; Rojas-Bracho and Jaramillo-Legorreta 2002; Rojas-Bracho et al. 2006; Silber and Norris 1991; Vidal et al. 1999.

More vaquitas have died in gillnets in the last few decades than currently exist on the planet. If decisive action is not taken soon, our smallest cetacean may not be around much longer. PHOTO: A. ROBLES, COURTESY OF L. ROJAS

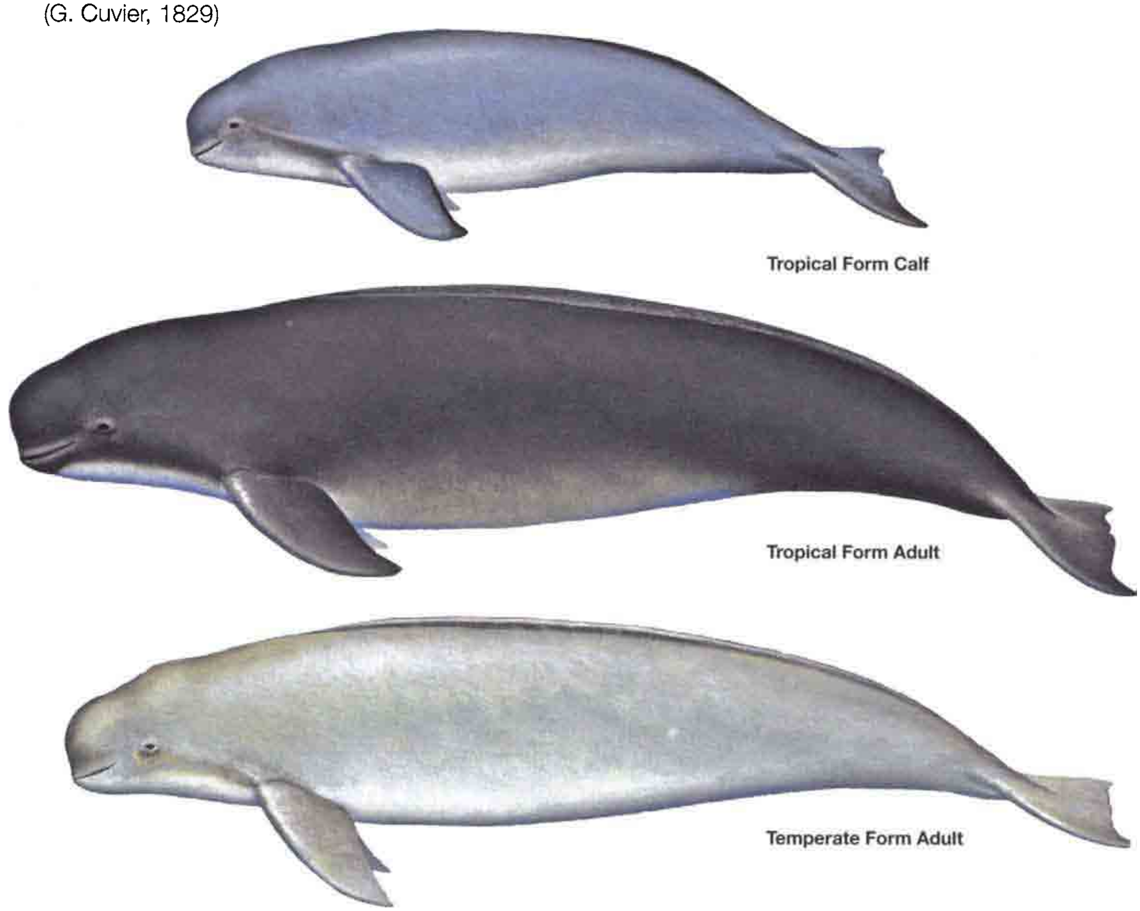
A mother and calf observed near Rocas Consag in the 1980s. This is a typical view of the vaquita, and the care must be taken to distinguish the tall falcate dorsal fin from those of bottlenose dolphins, which occur in the same area. PHOTO: M. W. NEWCOMER

A vaquita mother and calf surface near Rocas Consag. Notice the lower dorsal fin and slightly darker color of the calf. PHOTO: M. W. NEWCOMER

One of the only known photograph showing the head of a living vaquita at sea. The dark lip patch and dark eye ring are visible in this photo. PHOTO: G. YBARRA, COURTESY OF L. ROJAS-BRACHO

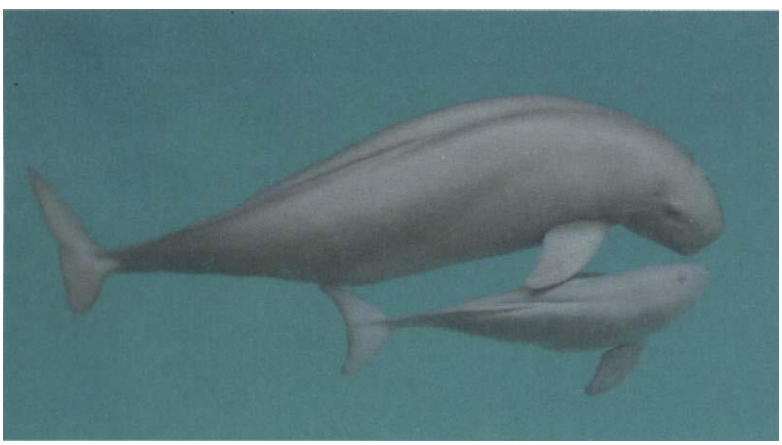
Finless Porpoise—*Neophocaena phocaenoides*

(G. Cuvier, 1829)



Recently-used synonyms *Neomeris (Meomeris) asiaeorientalis, Neophocaena sunameri.*

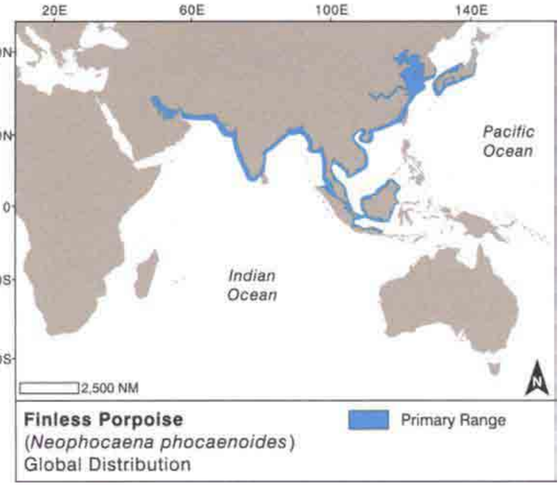
Common names En.—finless porpoise; Sp.—*marsopa lisa o sin aleta*; Fr.—*marsouin aptere*.



These captive finless porpoises are from the Yangtze River and are clearly of the narrow-ridge form; the calf was the first ever born in captivity. PHOTO: COURTESY OF WUHAN INSTITUTE OF HYDROBIOLOGY

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Phocoenidae. Three subspecies are currently recognized: *N. p. phocaenoides* in the Indian Ocean and South China Sea, *N. p. asiaeorientalis* in the Yangtze River, and *N. p. sunameri* from the Taiwan Strait north to northern China and Japan. There is mounting evidence that the two major forms—i.e., the wide-ridge type (*phocaenoides* subspecies) and narrow-ridge type (including *asiaeorientalis* and *sunameri* subspecies)—may actually represent separate species.

Species characteristics As the name implies, finless porpoises have no dorsal fin, and this is their most distinctive characteristic. In some ways, they resemble small, slender beluga whales. The head is beakless; the rounded forehead rises steeply from the snout tip. The body shape, in general, is more slender



than in other porpoises. The bodies of at least some finless porpoises are soft and mushy, and the neck is very flexible. Instead of a dorsal fin, the finless porpoise has an area of small bumps or tubercles on its back, running from just forward of mid-back to the tail stock. This dorsal ridge ranges in width from 0.2 to 12.0 cm. There are narrow-ridge forms in Japan, Korea, and northern China (including the Yangtze River) and wide-ridge forms throughout the remainder of the species' range. The trailing edge of the flukes is concave and the flippers are large, ending in rounded tips. Regional differences in body size and morphology have been documented, with separate stocks recognized based mainly on skull morphology.

The common name that was used in the past, "finless black porpoise," apparently resulted from descriptions of dead animals, after post-mortem darkening. In most areas, finless porpoises are gray in color, often with lighter areas on the throat and around the genitals. The wide-ridge form is light gray at birth, and darkens to dark gray or nearly black as adults. The narrow-ridge form has the reverse pattern: young are dark gray, and lighten as they age. In at least Japan and northern China, the adults are a light creamy gray.

Tooth counts range from 15–22 in each tooth row. The teeth are small and slender.

Adults of this species can reach 2.27 m in length, although animals from most populations are much smaller, rarely exceeding 2.0 m (males tend to be slightly larger than females). Finless porpoises are about 75–85 cm at birth.

Recognizable geographic forms

***Tropical finless porpoise* (N. p. phocaenoides)—**This subspecies occurs in the southern portion of the range, from the Taiwan Strait, south and west to the Persian Gulf. It is characterized by a low and wide dorsal ridge (3.5–12.0 cm wide), lined with 10–25 rows of tubercles. Adults reach lengths of about 171 cm and are dark gray in color, with light areas around the throat. Young animals are much lighter in color.

***Yangtze finless porpoise* (N. p. asiaeorientalis)—**This subspecies occurs throughout the Yangtze River system (and possibly into the estuary). It has a narrow dorsal ridge (0.2–0.8 cm), which originates anterior to mid-length. The ridge rarely exceeds 1.5 cm high and has 1–5 rows of tubercles. Adults reach up to 177 cm, and are uniform dark gray.

***Temperate finless porpoise* (N. p. sunameri)—**This subspecies occurs in temperate waters of northern China

A wide-ridge finless porpoise surfaces in southeast Asia. The wide- and narrow-ridge forms appear to be distinct and may be separated into two species in the near future. Cambodia. PHOTO: I. BEASELY

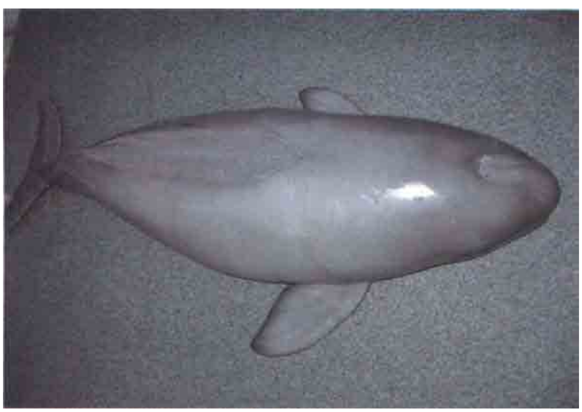
Three wide-ridge (*phocaenoides*-type) finless porpoises surface in the waters of southern Hong Kong. The dark coloration and wide dorsal ridges are visible here. PHOTO: T. A. JEFFERSON

Phocoenidae

Finless Porpoise

A Japanese finless porpoise. Notice the very light coloration of this adult animal, which is typical for porpoises around Japan. PHOTO: G. ABEL

The head of a newborn finless porpoise from Hong Kong waters. The very slender body, light coloration, and whitish areas around the mouth are typical for neonates in this area. PHOTO: S. K. HUNG



A *phocaenoides*-type finless porpoise stranded in Hong Kong, showing the pattern of the wide dorsal ridge covered with tubercles. This is a juvenile, and adults in this area have much darker gray coloration. PHOTO: S. K. HUNG

(from the Taiwan Strait north), Korea and Japan. The dorsal ridge is narrow (0.2–1.2 cm) and high (1.2–5.5 cm), with 1–10 rows of tubercles. It is the largest of the subspecies, with adults ranging up to 2.27 m long. Coloration of adults is light gray to cream, with newborns much darker (nearly black).

Can be confused with The smooth back of the finless porpoise should make it easy to distinguish from other cetacean species, such as humpback, bottlenose, and Irrawaddy dolphins, baiji, and South Asian river dolphins, which share parts of its range. Finless porpoises are actually most likely to be confused with dugongs, where the two species overlap in tropical and subtropical waters. The double-nostrils on the snout tip, and very different mouth shape should serve to distinguish dugongs.

Distribution The finless porpoise occurs in tropical to warm temperate shallow waters of the Indo–Pacific region. It mostly is found in coastal waters, including shallow bays, mangrove swamps, estuaries, and some large rivers. However, it does occur quite far from shore (up to 240 km) in some areas with shallow water < 200 m deep. The range extends from central Japan and northern China, south and west along the northern rim of the Indian Ocean to the Persian Gulf, including a few estuaries and rivers in the Asian subcontinent. One of the best-known populations (and the only known wholly-freshwater one) is found in the Yangtze River of China, where it ranges up to 1,600 km upstream from the mouth, to near the headwaters in the Three Gorges area.

Ecology and behavior Finless porpoises are generally found as singles, pairs, or in groups of up to 20. However, groups of up to about 50 have been reported in Chinese coastal waters. When such large groups are seen, they are generally opportunistic aggregations of smaller subgroups gathering to take advantage of a productive food source.

Like other porpoises, their behavior tends to be not as energetic and showy as that of dolphins. However, contrary to what their body shape might suggest, they are fast and agile swimmers, often making high-speed sharp turns and rolling on their long axes while chasing down prey. They do not ride bow waves, and in some areas appear to be shy of boats. Mothers have been reported to carry calves on the tubercle area on their backs, but this behavior has not been confirmed. In the Yangtze River, finless porpoises are known to leap from the water and perform "tail stands." However, in other areas, aerial behavior appears to be quite rare. When startled by a powered vessel, they may create splashes as they move quickly away from the boat. Most dives are relatively short, and the longest recorded dive time is only about 4 minutes. In Hong Kong waters, groups of finless porpoises spend about 60% of their time at or near the surface.

Reproduction has been studied in Japanese and Chinese waters. Sexual maturity of both sexes occurs at 3–6 years of age, and 132–150 cm in length. Calving occurs at different times of the year in different regions (most often either spring/summer or winter). These animals appear to live somewhat longer than other species of porpoises, with most populations having a maximum known longevity of 18–25 years. A specimen from the population in southern China was found to have lived to 33 years.

Two finless porpoises taken in fishing nets in the same area of Fujian Province, central China. The animal in front is of the *phocaenoides*-type, with a wide dorsal ridge. The animal behind is of the *asiaeorientalis*-type, with a narrow dorsal ridge. PHOTO: COURTESY OF THE LATE S. LEATHERWOOD

Feeding and prey Small fishes, squids, and crustaceans form the diet of finless porpoises. Some animals have also ingested some plant material, probably incidentally. Common prey species are fishes of the families Apogonidae, Carangidae, Clupeidae, Sparidae, and Engraulidae; cephalopods of the families Loligonidae, Sepiidae, and Octopodidae; and panaeid shrimps.

Threats and status Finless porpoises are not known to be directly killed in large numbers anywhere, but they are often incidentally killed in fishing gear throughout their range. Gillnets appear to represent a particularly serious threat in nearly all areas of the range. However, they are also taken in trawls, rolling hook longlines, beach seines, set nets, stow nets, and traps in certain areas. Significant numbers have also been live-captured in Japan, China, and the Gulf of Thailand. This coastal species also suffers from serious problems of habitat loss and degradation, vessel strikes, and environmental contamination. The Yangtze River population, a unique subspecies, is apparently declining in numbers (although it is not in the serious condition that the baiji is in). Estimates of finless porpoise abundance have only been made for a few areas: Bangladesh (1,400), Hong Kong and surrounding waters (>220), China's Yangtze River (<2,000), and Japanese waters (5,000–10,000). Clearly, the species is not in immediate danger of extinction, and global abundance is probably in the high tens or low hundreds of thousands. However, certain populations (e.g., those in the Yangtze River and the Inland Sea of Japan) are seriously threatened by human activities.

Two finless porpoises surfacing in the Yangtze River of China. The animal on the left shows the narrow dorsal ridge, and the one on the right demonstrates a rare example of aerial behavior. PHOTO: T. PUSSER

IUCN status Endangered (Yangtze River population), Data Deficient (all other populations).

References Amano 2002; Jefferson and Hung 2004; Kasuya 1999; Parsons and Wang 1998; Reeves et al. 1997.

South Asian River Dolphin—*Platanista gangetica*

(Roxburgh, 1801)

Recently-used synonyms *Platanista indi, Platanista minor.*

Common names Ganges subspecies: En.—susu, shushuk, or Ganges River dolphin; Sp.—*platanista del Ganges*; Fr.—*plataniste du Gange*. Indus subspecies: En.—bhulan or Indus River dolphin; Sp.—*platanista del Indus*; Fr.—*plataniste de l'Indus*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Platanistidae. Until recently, most marine mammal biologists classified the Ganges and Indus River dolphins as separate species (*Platanista gangetica* and *P. minor*). However, due to the lack of adequate systematic studies, a more taxonomically-conservative view is now favored, with the two forms recognized as subspecies (*P. g. gangetica* in the Ganges/Brahmaputra region, and *P. g. minor* in the Indus). This view is still controversial, and only future studies will reveal the true relationship of these two forms.

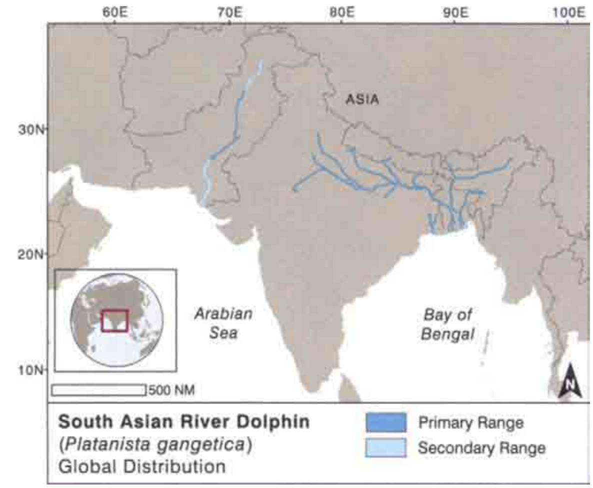
Two bhulans leap out of the water along a riverbank in the Indus River of Pakistan. The animal in front is leaping towards the camera, showing the characteristic ridge on the melon.
PHOTO: G. BRAULIK

Species characteristics The Ganges and Indus river dolphins are very unusual-looking animals. The body is supple and stocky, with a flexible neck, often characterized by a constriction or crease. The long beak is distinct from the steep forehead, but there is no crease between them. The beak is like a pair of forceps, is laterally compressed, and widens at the tip; it tends to be proportionately longer in females than in males. It curves upward and to one side in long-beaked animals. The blowhole, unlike that of most cetaceans, is a slit that runs along the long axis of the animal's body. There is a distinct, but shallow, longitudinal ridge on the melon, ahead of the blowhole. The melon becomes less rounded as animals approach adulthood. The eyes are extremely small slits or pinholes and are located just above the distinctly-upturned corners of the mouth. The external ear is actually larger than the eye, and is located above it (this is unique for odontocetes). The dorsal fin is a low and wide-based triangle about $^2/3$ of the way to the flukes, which are concave along the rear margin. The broad flippers are squared-off at their distal ends, and usually have flat trailing edges, but they are sometimes scalloped. The outlines of the bones of the flipper are visible, which is unusual for cetaceans.

South Asian river dolphins have a relatively simple color pattern (which is consistent with their nearly-blind state). The animals are light brown or brownish-gray, often with a slightly lighter ventral surface. They become increasingly blotchy as they get older. Young animals may have a pinkish cast to the belly.

The 26–39 upper teeth and 26–35 lower teeth are curved. They are sharply pointed in young individuals. The anterior teeth are longer and extend outside of the closed mouth, especially in larger individuals. The teeth may become peg–like from dentine accumulation and wear in older animals. Tooth wear is generally minimal in younger animals.

Female South Asian River dolphin adults are up to 2.6 m and males 2.2 m in length. They can reach weights



of at least 85 kg. Newborns are apparently between 70 and 90 cm long.

Recognizable geographic forms The relationship between Ganges and Indus River dolphins has been controversial, with many authors suggesting that they should be considered separate species. Although the river basins they occur in have been largely separate for millions of years, recent genetic studies found apparently low diversity and little evidence for species-level difference. They are currently considered to be separate subspecies:

***Ganges River dolphin* (*P. g. gangetica*)—**The Ganges River dolphin occurs in the Ganges and Brahmaputra river systems of India, Bangladesh and Nepal (and possibly Bhutan). Female susu adults are up to 2.6 m and males 2.2 m in length. They can reach weights of at least 85 kg.

***Indus River dolphin* (*P. g. minor*)—**The Indus River dolphin is found only in the Indus river system of Pakistan. Bhulans are considered to reach slightly smaller sizes than the maximums of 2.6 m (females) and 2.2 m (males) for susus. However, it is unclear if these differences are real, or simply artifacts of limited sample sizes. No other external differences are known between animals from the two river systems.

Can be confused with Susus can be confused with several other small cetaceans that are found in overlapping areas of the Sundarbans mangrove forest and near the mouths of the Hughly, Karnaphuli and Sangu rivers. They might be confused with Irrawaddy dolphins, finless porpoises, bottlenose dolphins, or Indo-Pacific humpback dolphins. The prominent dorsal fins of bottlenose and humpback dolphins, complete lack of a dorsal fin in finless porpoises, and absence of a beak in Irrawaddy dolphins should make all these species easily distinguishable. Also, adult bottlenose and humpback dolphins are much larger than South Asian river dolphins. Bhulans do not presently overlap in distribution with any other cetacean species.

Distribution The extensive range of the susu includes the Ganges, Brahmaputra–Megna, and Karnaphuli–Sangu river systems and many of their tributaries in India, Bangladesh and Nepal (there is some suggestion that it may possibly extend into Bhutan in the wet season as well, although this has not been confirmed). Susus live not only in the main river channels, but also in seasonal tributaries and appended lakes during the flood season. Though formerly much more widely distributed in the Indus and some of its tributaries, the bhulan's range is now restricted to the middle and lower Indus River. It is centered between Taunsa and Sukkur barrages.

Ecology and behavior As is true for most of the river dolphins, susus and bhulans generally live in small groups of less than 10 individuals, and are most often seen alone or in pairs. Bhulans have occasionally been reported in loose aggregations of up to 30 individuals, defined by common use of clumped resources. Other than the mother/calf bond, affiliations between individuals are thought to be ephemeral. These are active animals, but they do not often engage in leaps. At least in captivity, these dolphins appear to spend much of their time swimming on their sides, and they constantly emit echolocation clicks. This might be related to the fact that they spend time in relatively shallow, turbid waters; however, some of the pools they occur in may be > 30 m in depth. South Asian river dolphins are nearly blind, and can probably only detect light levels, and perhaps direction.

Almost nothing is known of the reproductive biology of this species, except that males reach sexual maturity at about 170 cm and females at slightly longer body lengths. Calving apparently can occur at any time of the year, but for the susu, there may be peaks in

This young bhulan in the Indus River of Pakistan demonstrates the bizarre head and body shape of the species.
PHOTO: G. PILLERI, COURTESY OF S. LEATHERWOOD

The exceptionally-long beak of this Ganges susu suggests that it is probably an adult female. PHOTO: R. K. SINHA

A typical view of a Ganges susu, showing the long beak and low dorsal fin. PHOTO: R. K. SINHA

The long, almost-reptilian beak of the susu is not likely to be mistaken for that of any other cetacean in its range, but one must be careful to distinguish them from crocodilian species that share parts of their range. India. PHOTO: R. K. SINHA

A close-up of the head of a young Indus bhulan. Note the forceps-like beak with long teeth, tiny eye, and external ear (indicated by pen). PHOTO: COURTESY S. LEATHERWOOD

A susu surfaces in the Ganges river system of India, bringing its long, slender beak out of the water. PHOTO: J. GOOLD

December to January and March to May. Newborn bhulans have been observed mainly in April and May. Calves are weaned within about one year of birth.

Feeding and prey Susus and bhulans feed on several species of fish and invertebrates (prawns and possibly clams). They apparently do much of their feeding on or near the bottom.

Threats and status South Asian river dolphins have been subjected to direct killing in both the Indus and Ganges/Brahmaputra systems. In addition to use of their meat as human and livetock feed, the oil of susus is used as a fish attractant and for medicinal purposes. Like almost all small cetaceans, they suffer from entanglement in various types of fishing nets, and they are sometimes also killed by vessel strikes. The damaging effects of environmental contaminants, while not sufficiently understood, are probably important threats to these dolphins. Perhaps the most important problem, and one that affects this species to a much greater degree than other riverine cetaceans, is the placement of dams and barrages across rivers in this species' range. These structures artificially fragment populations and reduce available habitat by altering riverine ecology.

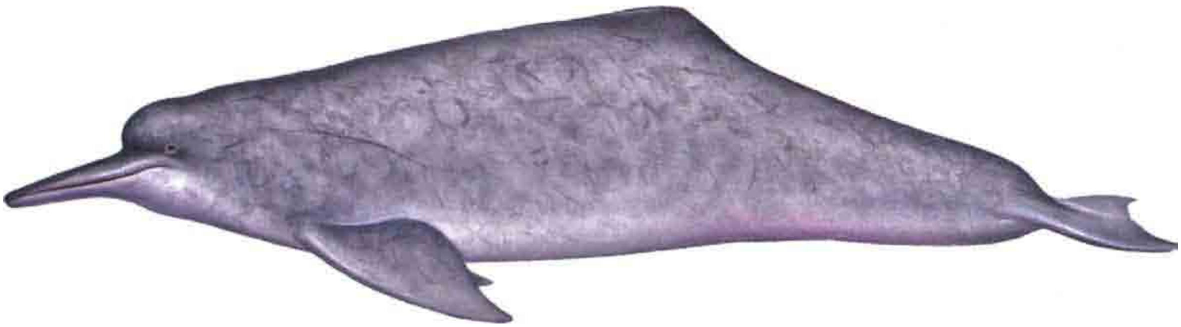
The susu has a moderately large range that spans several countries and is apparently not in immediate danger of extinction, probably numbering at least in the low thousands. There are thought to be from 965 to 1,200 bhulans in Pakistan. The bhulan's range is extremely restricted and declining, and the overall population is fragmented into five subpopulations by barrages, making it one of the most endangered types of cetaceans in the world.

IUCN status Endangered.

References Braulik 2006; Leatherwood and Reeves 1994; Reeves and Brownell 1989; Reeves and Chaudhry 1998; Smith 2002.

Boto—*Inia geoffrensis*

(Blainville, 1817)



Recently-used synonyms *Inia boliviensis*

Common names En.—Amazon River dolphin or boto; Sp.—*bufeo*; Fr.—*inia*. (Note—boto is the Portuguese name used in Brazil, and although it is not used by locals in Spanish-speaking parts of the range, it has been adopted as the English common name.)

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Iniidae. Three subspecies are currently recognized: *I. g. geoffrensis* in the Amazon River system of Brazil, Peru, and Ecuador, *I. g. boliviensis* in Bolivia, and *I. g. humboldtiana* in the Orinoco basin of Venezuela and Colombia. The validity of these subspecies is questionable, however, and no reliable differences in morphology are known. Recent molecular genetic studies suggest that only the Bolivian dolphins are separate, and those in the remainder of the Amazon and Orinoco systems may not be separate subspecies.

Species characteristics The boto, or Amazon River dolphin, is probably the best-studied and most well-known of the river dolphins. These animals are moderately robust, but extremely flexible (e.g., unfused cervical vertebrae allow great movement of the neck). They have long beaks with a series of bristles, and steep bulbous foreheads, which are capable of changing shape by muscular action. More than any other species of cetecean, botos have visible "cheeks". There is no true dorsal fin, but only a dorsal ridge about 2/3 of the way back from the beak tip that is low and wide-based. The flippers are large and triangular, with blunt tips, and the flukes are broad and triangular, with a concave trailing edge. The eyes are small, but not as small as those of the susu or bhulan.

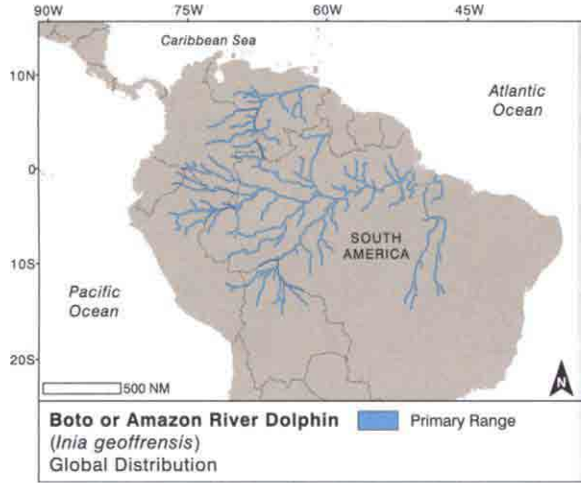
Botos are gray to white/pink above and light below; some individuals are totally pink. In general, young animals are mostly uniform dark gray; they become progressively more pinkish with age (especially in males). The extreme color is so unusual that the boto is often called the pink dolphin. The pink color is thought to result from flushing of blood to the body surface on animals that have lost most of their pigmentation—and is probably not the result of red pigments. Albino botos have been documented.

The mouth is lined with 23–35 stout teeth in each row. This is essentially the only species of cetacean with differentiated teeth; those at the front of the jaw are typically conical, but those near the rear are flanged on the inside (for crushing of hard-bodied prey).

Botos are the largest of the river dolphins. Adult size ranges to 2.3 m (females) or 2.8 m (males). Males can reach maximum weights of 207 kg, about 35% more than females. At birth, botos are about 80 cm long.

Calf/juvenile—1/3 to 3/4 adult length; body color uniformly gray, scarring light to absent.

Two captive botos in unusually clear water. In their natural habitat the water would essentially never be this clear. PHOTO: D. K. CALDWELL, COURTESY S. LEATHERWOOD



Adult female— Adult size (1.6–2.25 m), body grayish-pink, with light to moderate scarring.

Adult male— Large size (2.0–2.5 m), body color mostly pink with dark blotches, moderate to heavy scarring (especially on the trailing edges of the flippers and flukes, which are often ragged), and "cobblestoning" of the skin is common.

Recognizable geographic forms Morphological differences have been proposed for the three subspecies, but the validity of these distinctions are highly questionable. At this point, the three subspecies can only be distinguished based on their locality of origin.

Botos are unmistakable, as the only species that they overlap with (the tucuxi) has a more typical dolphin-like appearance. By comparison, the boto looks primitive. Peruvian Amazon. PHOTO: T. HENNINGSEN

An adult boto, captured from the Amazon river system. Note the bulbous melon, large paddle-shaped flippers, and heavily corrugated body. PHOTO: D. K. CALDWELL, COURTESY S. LEATHERWOOD

Can be confused with The only other dolphin that inhabits the range of the boto is the tucuxi (*Sotalia*). This latter species is much smaller, has a true dorsal fin, and more spritely, dolphin-like movements, making confusion unlikely.

Distribution Botos are endemic to the Amazon and Orinoco drainage basins of South America. Their distribution extends to the upper reaches (impassible falls or rapids) of these rivers and their tributaries in Colombia, Ecuador, Peru, and Bolivia, as well as the lower reaches in Brazil and Venezuela, a total area of about 7 million km^2. They are found widely, not only in the main river channels, but also in smaller tributaries, lakes, and (seasonally) the flooded forest. Botos are especially common at the confluences of river channels, and entrances to lakes. The animals that inhabit the upper Madeira and Beni/Mamore rivers of Bolivia are isolated from those in the Amazon/Orinoco basins.

Ecology and behavior Botos are not highly social. Loose aggregations of up to 12–15 botos have been observed, generally at river bends and confluences, for purposes of mating and feeding. However, most botos are seen singly or in small groups of 2–3 (most pairs are mother and calf).

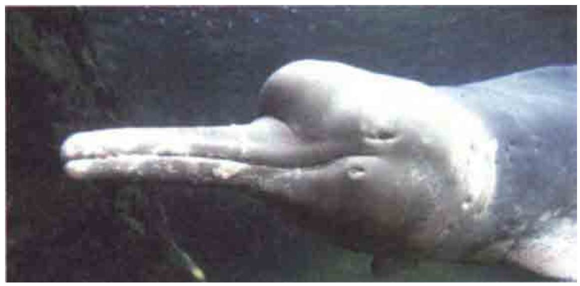
Botos generally move slowly (typically about 1.5–3.2 km/hr), although they are capable of short bursts of up to 22 km/hr. They typically surface at a shallow angle, showing the melon, tip of rostrum, and the dorsal ridge simulteneously. However, they do perform high, arching rolls as well. Their responses to humans can range from shyness to curiosity, although they do not ride vessel bow waves. Aerial behavior is rare, and they generally do not lift the flukes out of the water before a dive. Botos swim into the flooded forest in the high-water season, and can often be heard searching for prey among the roots and trunks of partially-submerged trees. Mark/recapture studies have shown that some individuals are resident in specific areas year-round.

Reproduction is diffusely seasonal, apparently in each area peaking during the season of maximum flooding (which varies among areas). In Brazil, most births apparently occur in May to July. Females mature sexually at about 5 years of age and 1.6–1.75 m in length, and males do so much later (about 2.0 m in length). Gestation lasts about 11 months and lactation over one year.

A large boto in the Peruvian Amazon, upriver from Iquitos. The "lumpy" body, low dorsal ridge, and dorsal scarring are visible. PHOTO: T. A. JEFFERSON

An Amazon River dolphin spy-hops, showing the small eyes, very long narrow beak, bulbous forehead, and pinkish color pattern that easily distinguish this species from the only other cetacean that is broadly sympatric with it (the tucuxi). PHOTO: D. WALKER

Two botos moving towards the flooded forest in the Peruvian Amazon. These animals left the river channel, and disappeared into the trees, probably to feed among the roots. PHOTO: T. A. JEFFERSON



Like all river dolphins, botos have long beaks, which are useful for rooting around among the bases of trees and other vegetation for fish attempting to hide in the flooded forest. Brazil. PHOTO: T. PUSSER

Feeding and prey These animals feed on a large variety of fishes (over 43 species!), generally near the bottom. Some of their prey have hard outer shells, and dolphins have been observed breaking up their larger prey before swallowing them. They sometimes feed in a coordinated manner, occasionally with other species (such as *Sotalia*).

The boto is the only species of cetacean with heterodont teeth (the rear teeth have flanges that allow them to crush prey).

Threats and status The boto is unquestionably the species of river dolphin in least danger of extinction. It is still widespread and relatively numerous in many portions of its range, with some of the highest densities known for any species of cetacean. Threats include incidental catches in fishing gear, prey depletion, damming of rivers (although this is, at present, much less of a problem than for the susu and bhulan), and environmental pollution from organochlorines and heavy metals. Botos have received much protection from persecution by local people due to their prominent involvement in the folklore and culture of the Amazon; they are often seen as reincarnated humans and are attributed supernatural mischeivous powers. Unfortunately, these beliefs seem to be disappearing. There are thought to be about 13,000 botos in the central Amazon of Brazil (Mamiraua floodplain system), and about 350 each in two small areas of the upper Amazon of Brazil, Peru, and Colombia. Although, abundance has only been estimated in a few areas and accuracy of many of these estimates is questionable, it is likely that there are well over 20,000 botos throughout their range. Thus, while certain populations may be threatened, the species is in no immediate danger of extinction.

IUCN status Vulnerable.

References Best and da Silva 1989, 1993; da Silva 2002; Martin et al. 2004; Reeves et al. 1999.

Baiji—*Lipotes vexillifer*

(Miller, 1918)

Recently-used synonyms None.

Common names En.—baiji or Yangtze River dolphin; Sp.—*platanista del Yangtze*; Fr.—*dauphin fluviatile de Chine*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Lipotidae. Recent molecular studies suggest the baiji may have a common ancestor with the boto and fanciscana, but not with the South Asian river dolphin. It is a relict species.

Species characteristics Outside of China, very little was known of the baiji's biology until the last few decades. Baiji have a fairly typical river dolphin appearance. These animals are moderately robust, with long, slightly-upturned beaks, rounded melons, and broad rounded flippers. The dorsal fin is fairly prominent, but low and triangular, with a wide base—it is set about 2/3 of the way back from the beak tip. The eyes are small and set higher on the face, compared to those of oceanic dolphins. Although their vision is apparently poor, the eyes are functional. The blowhole is a longitudinal oval.

Baiji have very simple, countershaded color patterns. They are predominantly gray to bluish-gray above and white to ashy-white on the ventral surface. There are light patches and brushings on the side of the face and the side of the tail stock.

Each tooth row of the baiji's mouth contains 31–36 conical teeth.

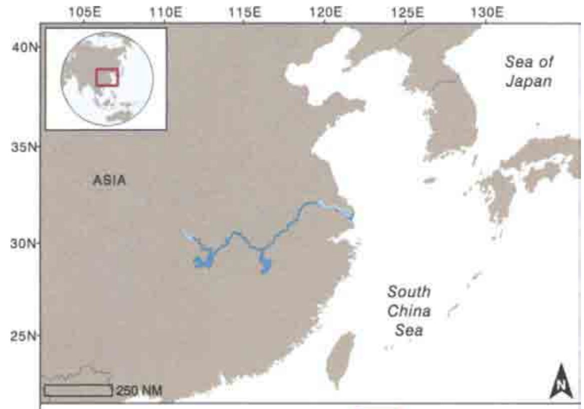
Male baiji reach sizes of 2.30 m and 157 kg, and females reach 2.59 m and over 167 kg. In addition to females being somewhat larger than males, there are some other, minor differences in external morphology. Apparently, newborn Yangtze River dolphins are about 92 cm in length.

A captive baiji swims in the clear waters of its tank in China. The waters of its natural habitat are in fact, very murky. PHOTO: WANG DING

Recognizable geographic forms None.

Can be confused with The only other small cetacean in the baiji's range is the Yangtze finless porpoise, which can be readily distinguished by its much darker coloration and absence of a beak and dorsal fin.

Distribution The baiji is found only in the middle and lower reaches of the mainstream Yangtze River in China (a length of about 1,400 km). The historical range was much broader, including waters of the Yangtze estuary, and several large lakes that dolphins entered during the flood season. Baiji may still enter some of these lakes,



Baiji or Yangtze River Dolphin
(Lipotes vexillifer)
Global Distribution

but apparently only during periods of intense flooding. They tend to congregate near confluences and sand bars with large eddies.

Ecology and behavior Groups of two to six baijis are most commonly seen, but aggregations of up to 16 animals sometimes form. Mixed groups with finless porpoises are now quite common (in recent surveys, about 63% of sightings). The porpoises appear to behave aggressively towards baiji on some occasions, although this may be unusual. Baiji groups in recent surveys have consisted of about 57% adults, 26% juveniles, and 17% calves.

These dolphins are generally shy of boats, and their surfacings are shallow, often exposing only the top of the head, dorsal fin, and a small part of the back. They generally breathe with little surface disturbance, and most submersions are 10–30 sec. long, with occasional longer dives (the longest ones recorded were slightly under 3.5 minutes). Baiji movements include both short- and long-distance (200+ km) meanderings.

Breeding occurs mainly in the first half of the year; the peak calving season appears to be February to April. Males reach sexual maturity at ages of about 4 years, and females do so at about 6 years. The oldest known individual was 30 years old. It is assumed that there is only a single population.

Feeding and prey Baiji are apparently opportunistic feeders. A large variety of freshwater fish species make up the diet of the baiji, the only limitation probably being size.

Threats and status For the past several decades, the baiji has been widely acknowledged to be the most critically-endangered cetacean in the world. In fact, sightings in the new millennium have become exceedingly rare. Although protected by Chinese law (it is a "Protected Species of the First Order"), and direct killing is considered virtually non-existent, other threats are rampant. The main threat is mortality from non-selective fishing gear, such as rollings hooks (a type of snagging "longline"), dynamite, and electric fishing (the latter is now considered the main threat, accounting for about 40% of baiji mortalities). Habitat deterioration/destruction is another major factor, as the Yangtze River has been dramatically modified to meet the needs of the huge surrounding human population (by some assessments, nearly 10% of the world's total). Other conservation issues include pollution, vessel collisions, and prey depletion. The genetic and demographic consequences of extremely low population size, although often overlooked, are another class of problems. The threats are only becoming more serious, and it now appears likely that the baiji has become the first species of cetacean to

A dead baiji, which was killed by rolling hook fishing gear, lies along the banks of the Yangtze River. The low, extremely wide-based dorsal ridge and "cheeks" are distinctive to this species. This animal appears to be emaciated. PHOTO: ZHOU KAIYA, COURTESY S. LEATHERWOOD

Qi Qi, for many years the only baiji in captivity, swimming in his tank at the Institute of Hydrobiology in Wuhan, China. Note the "cheeks" and small eyes. PHOTO: T. A. JEFFERSON

be exterminated by human activities. For the past several years, Chinese officials have been attempting to remove animals from the river, and place them into a "semi-natural reserve." However, a 3,500-km survey by an international team of experts, which covered nearly all of the species' known range over a 6-week period in late 2006, failed to observe a single dolphin. It is therefore likely that the species may already be extinct.

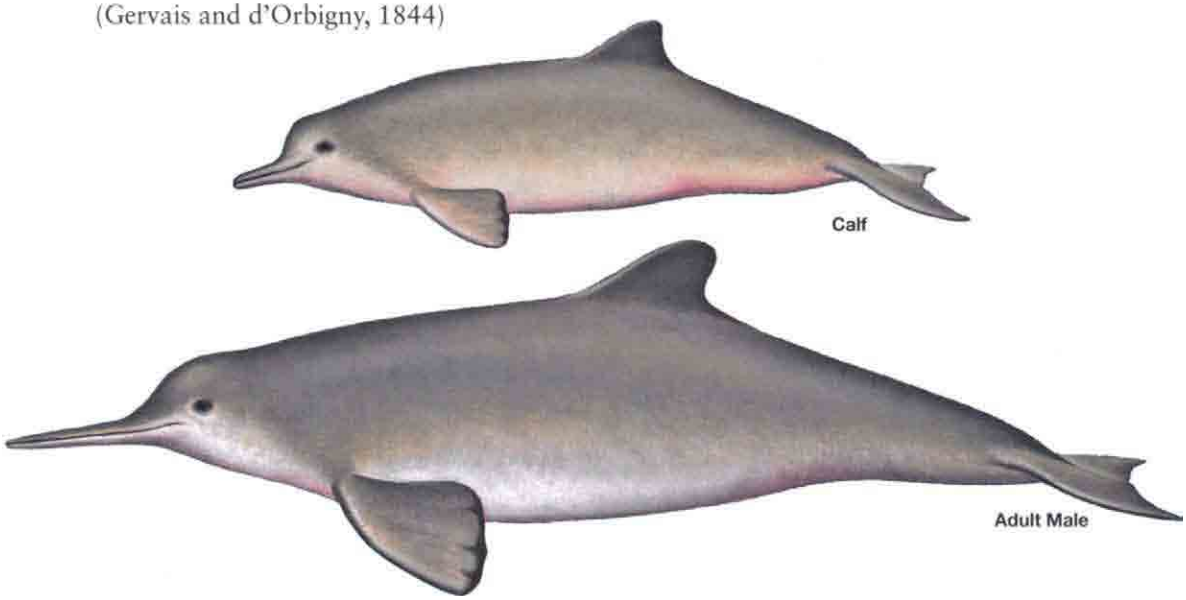
IUCN status Critically Endangered.

References Chen 1989; Leatherwood and Reeves 1994; Turvey et al., 2007; Zhang et al., 2003; Zhou 2002; Zhou et al. 1998.

Qi Qi lived in captivity for 22 years and died in 2002. Now apparently extinct, the baiji lived only in the Yangtze River of China. Wuhan, China. PHOTO: WANG DING

Franciscana—*Pontoporia blainvillei*

(Gervais and d'Orbigny, 1844)



Recently-used synonyms *Stenodelphis blainvillei.*

Common names En.—franciscana or La Plata river dolphin; Sp.—*franciscana*; Fr.—*dauphin de La Plata*.

Taxonomic information Order Cetacea, Suborder Odontoceti, Family Pontoporiidae.

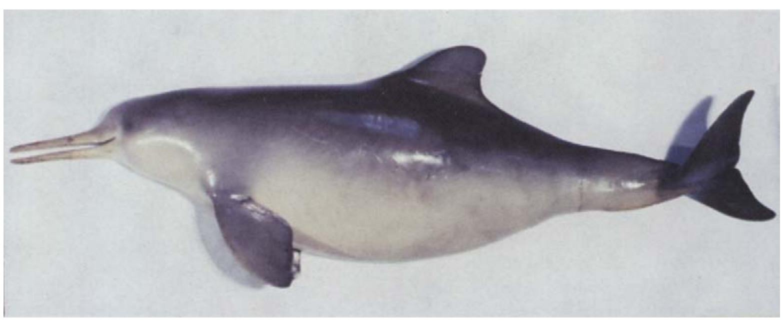
Species characteristics Although not a true freshwater dolphin, this primarily marine species nonetheless shares many features in common with the true "river dolphins." The franciscana's beak is extremely long and narrow, relatively the longest of any living species of cetacean (about 12–15% of total length in adults). The beak grows to be longer in adult females (17–22 cm) than in males (15–19 cm). Although in calves, the beak is much shorter and stouter than it is in older individuals. The forehead is steep and rounded. The dorsal fin is low to moderately tall, with a rounded tip. It is triangular, or sometimes slightly falcate. The flippers are broad spatulate, sometimes with an undulating trailing edge. In many animals (especially younger ones), there are visible ridges along the surface, corresponding to the finger bones. Newborns have proportionately larger flippers, dorsal fins, and flukes.

Franciscanas have a relatively simple, countershaded color pattern. They are brownish to dark gray above, and lighter brown (or even yellowish) to light gray below and on the lower flanks. The back is darker than the belly and sides, and a faint dorsal cape may sometimes be visible.

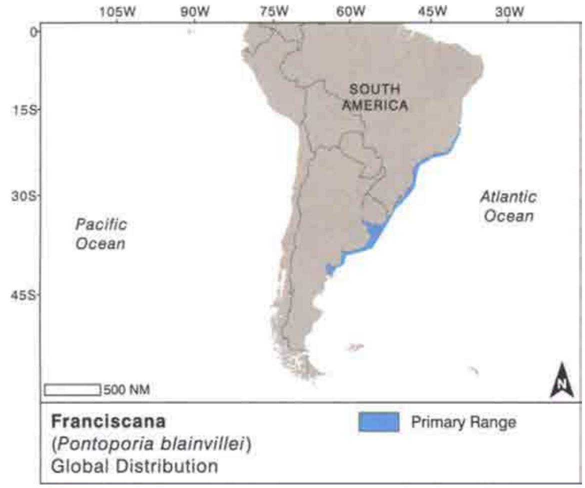
The long beak is lined with 50–62 fine pointed teeth per row, more than in nearly any other species of cetacean.

Franciscana females grow larger than males, with males reaching up to 1.63 m, and females 1.77 m in length. Asymptotic length ranges from 1.30–1.62 m for females and 1.13–1.36 m for males from different populations. Maximum recorded weight is about 53 kg. At birth, franciscanas measure about 71–80 cm, with an average of about 73 cm in length and 6.1 kg in weight.

Recognizable geographic forms Morphological studies have suggested the existence of at least two "forms" of franciscana, a smaller northern and a larger southern one (those in the far north may be intermediate in size). Other than length, there are no known obvious external morphological differences between them (although this may be due to lack of sufficient data). So,



A dead franciscana, showing the species' distinctive body shape and exceedingly long beak. PHOTO: R. BASTIDA



Four franciscanas killed by fishing gear. The animal in front is probably an adult female, and the one on the right is a young calf. PHOTO: COURTESY OF THE LATE S. LEATHERWOOD

although the franciscana is clearly divided into three genetically-distinct populations (currently managed as four separate stocks or "Franciscana Management Areas"), it is not currently possible to reliably distinguish distinct geographic forms. There is also evidence of geographic variation in coloration, but this remains unconfirmed.

Can be confused with If not seen well, franciscanas may be confused with marine dolphins of the genus *Sotalia*, but can be identified by their very long beaks and more rounded dorsal fins, broad flippers, and small eyes. Young franciscanas, with relatively short beaks, will cause the most confusion. Burmeister's porpoises overlap in distribution as well, but will be distinguishable by their lack of a prominent beak and oddly-shaped dorsal fin. Bottlenose dolphins should be easy to distinguish, based on their much larger size and tall, falcate dorsal fins.

A mother and calf franciscana swim in nearshore waters of southern Brazil. This photo shows the low-surfacing profile characteristic of the species. PHOTO: M. J. CREMER

Distribution Franciscanas are found only along the east coast of South America (Brazil, Uruguay, and Argentina), from Golfo San Matias, central Argentina (42°35'S), to Espirito Santo, southeastern Brazil (18°25'S). They are primarily shallow-water, coastal animals, generally ranging no farther offshore than the 30 m isobath. Some sightings in water beyond 50 m deep and 55 km offshore have been recorded, but the density is very low in such areas. They may also be found in some estuaries, and they sporadically enter the estuary of the La Plata River. Much of the franciscana's habitat is characterized by turbid waters.

Ecology and behavior Although there has been increased research interest in recent years, there is still little known about franciscana behavior. This is due to two factors: the difficulty of observing them in nature (they are somewhat cryptic), and the paucity of research effort. They are found singly or in small groups of up to 15 indi-

The franciscana is a very small, pale gray dolphin with a low rounded dorsal fin. It has an exceedingly long beak that it brings up out of the water sometimes when it surfaces (see animal at left). PHOTO: M. J. CREMER

A live-stranded franciscana swims in its tank, giving a good dorsal view. Note the very long, forceps-like beak. PHOTO: R. BASTIDA

A young franciscana swims in captivity, showing the large paddle-shaped flippers and characteristic head shape. PHOTO: M. INIGUEZ

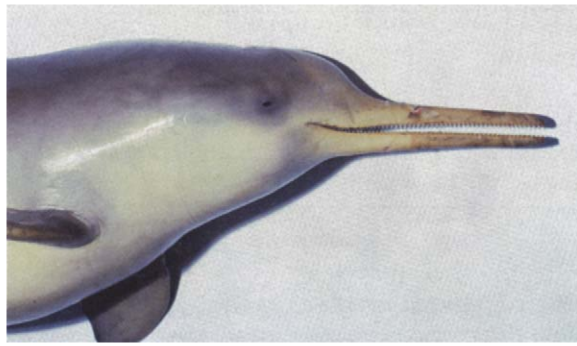
viduals. In general, they appear to avoid vessels, and do not ride bow waves. They are not considered to be aerially active, and the average swimming speed is about 4.7 km/h. Mean dive duration is about 22 sec. Cooperative feeding behavior has been observed in Argentina.

Although sometimes described as a "river dolphin," the franciscana is not truly a freshwater species. Franciscanas do not migrate, although seasonal inshore/offshore movements have been documented in some areas. Predation by both large sharks and killer whales has been documented.

Peak calving for this species occurs from October to December for most stocks, but in the Rio de Janiero area (northernmost stock) breeding occurs throughout the year. Until recently, there has not been much research on the life history of this species. Reproductive parameters have only been estimated for some of the stocks. For these, sexual maturity in females occurs at ages between 2 and 5 years, and for males between 3 and 4 years. Gestation lasts about 11 months. The relatively small testes of this species suggest that sperm competition is not a factor in their mating system. Although most individuals appear to live to less than 10 years, longevity is up to at least 15 years for males, and 21 years for females.

Feeding and prey Franciscanas feed on several species of shallow-water fish (e.g., sciaenids, engraulids, gadids, and carangids), cephalopods, and crustaceans. They feed mostly near the bottom, and appear to be opportunistic, with at least 58 fish species, 6 cephalopod species, and 6 crustacean species known from the diet. Shrimps are commonly eaten by juveniles, which then switch to a more piscivorous diet after one year.

Threats and status The main problem facing the species is incidental mortality in gillnet fisheries, which



The long, delicate-looking beak of a franciscana is among the longest of all the marine mammals. Argentina. PHOTO: R. BASTIDA

numbers at least 2,500 animals per year, and affects all 4 management stocks. Other threats include various forms of habitat degradation and pollution. Total abundance of the species is not known, but has been estimated for the two southern stocks. In 1996, there were an estimated 42,000 animals in southern Brazil and Uruguay, and 40,200 in Argentina. While the overall abundance of the species would seem to be high, in most areas the gillnet mortality alone is thought to be unsustainable. Therefore, the franciscana is potentially vulnerable to extinction.

IUCN status Vulnerable (southern Brazil/Uruguay stock), Data Deficient (all others).

References Bordino et al. 1999; Brownell 1989; Crespo 2002; Lazaro et al. 2004; Pinedo et al. 1989; Trimble and Praderi 2006.

Steller Sea Lion

California & Japanese Sea Lions

Galapagos Sea Lion

South American Sea Lion

Australian Sea Lion

New Zealand Sea Lion

Northern Fur Seal

Guadalupe Fur Seal

Juan Fernandez Fur Seal

Galapagos Fur Seal

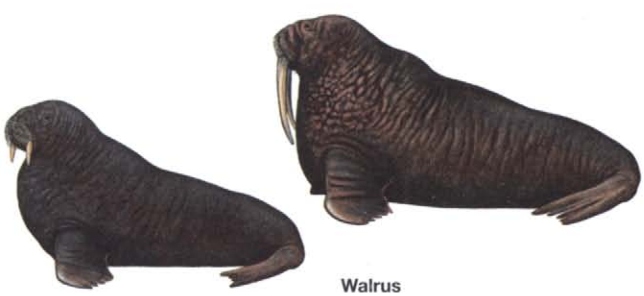
South American Fur Seal

New Zealand Fur Seal

Subantarctic Fur Seal

Antarctic Fur Seal

South African & Australian Fur Seals



Walrus

5. Pinnipeds

True Seals *Phocidae*

Steller Sea Lion—*Eumetopias jubatus*

(Schreber, 1776)

Recently-used synonyms None.

Common names En.–Steller, Steller's, or northern sea lion; Sp.–*lobo marino de Steller*; Fr.–*lion de mer de Steller*.

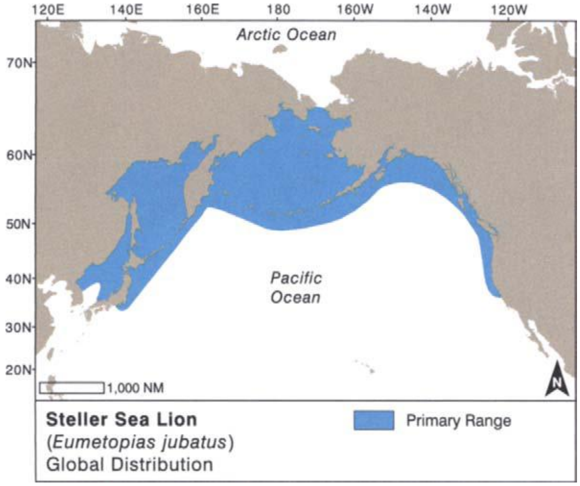
Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Steller sea lions are the largest otariid and the fourth largest pinniped. Both sexes are robust and powerfully built at all ages. They are sexually dimorphic, with adult males weighing three times as much as females, and grow 20–25% longer. In addition to being larger, males have a mane of longer guard hairs extending from the back of the head to the shoulders and all around the neck. Breeding bulls are also very thick and wide in the neck and shoulder area. There is a sagittal crest on the skull that imparts a small to moderate forehead to adult and subadult males. Adult females and juveniles have no crest and have only a minor forehead dip in front of the eyes and appear to be almost flat from the crown to the tip of the nose. Males also have larger canines that are both longer and thicker than those of females.

Steller sea lions have a massive, wide head. The muzzle is thick, wide, long, and blunt on the end. The eyes are widely-spaced apart, and set well back from the end of the muzzle and, like the ear pinnae, appear small when compared with the size of the head. The vibrissae are pale, conspicuous, and long.

Both the fore- and hindflippers are long and broad. The foreflippers have sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface, and the palms of both foreflippers are covered with a hairless

Steller sea lions at Año Nuevo Island, California in the 1960's. Notice the great width of the bull across the chest. PHOTO: T. C. POULTER/COURTESY OF THE MARINE MAMMAL CENTER



black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept back look. Digits 2–4 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin.

Coloration in adults is pale yellow to light tan above, darkening around the insertion of the flippers to brown and shading to rust below. Unlike most pinnipeds, when wet, adult Stellers are paler, appearing light grayish-tan. Juveniles are darker than adults and are dark tan to light brown. Pups are born with a thick blackish-brown lanugo that is molted by about 6 months of age. Scars from bites and healed wounds are darker than the background color.

The maximum length of adult males is about 3.3 m and average weight is 1000 kg. The maximum length for adult females is about 2.5 m and average weight is 273 kg. Pups are born at an average of about 1 m and 18–22 kg.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{5}/_{5}$. There is a wide diastema (gap) between the 4th and 5th post-canines.

Recognizable geographic forms None.

Can be confused with Steller sea lions are readily separated from northern and Guadalupe fur seals that occur within their range by their massive size, large blocky head and muzzle, and pale color. California sea lions are the most likely species to be confused with Steller sea lions. Careful attention to head and muzzle size and shape, overall coloration, and length and width of fore- and hindflippers permits separation. Smaller Steller sea lions in the size range of large California sea lions, look like they are more muscular and powerfully built than the Californias, which look more rounded and streamlined. Also, smaller Stellers have little or no sagittal crest development and a nearly flat-topped head whereas comparably-sized adult and subadult California sea lion males have a moderate to large sagittal crest and more pronounced forehead. Steller sea lion eyes also seem smaller and set farther apart, due to the proportionately larger head and wider muzzle.

Distribution Steller sea lions are found from central California (formerly southern California), north to the Aleutian Islands, and west along the Aleutian chain to Kamchatka, and from there south along the Kuril Islands to northern Japan, the Sea of Japan, and Korea. Stellers also occur in the Sea of Okhotsk. From the Aleutians they range north across the Bering Sea to the Bering Strait. Throughout their range they are usually found from the coast to the outer continental shelf and slope.

Adult male and female Steller sea lions. Note the degree of sexual dimorphism, and the mane, enlarged shoulders, chest, and neck of the bull. The female in the right foreground is wet. Rogue River Reef, Oregon. PHOTO: R. L. PITMAN

A vocalizing Steller sea lion bull with wet and soiled pelage. Brat Chirpoyev, Kuril Islands, Russia. PHOTO: J. WAITE

Adult Steller sea lions including a large adult male with a mane of long guard hairs. PHOTO: M. JØRGENSEN

Adult female Steller sea lions lack the enlargement of the front of the body of adult males. PHOTO: C. KURLE/NMFS/NMML

A wet Steller sea lion pup in lanugo coat. Brat Chirpoyev, Kuril Islands, Russia. PHOTO: J. WAITE

Ecology and behavior Steller sea lions are polygynous, and breed in the late spring and summer. Adult males arrive at the rookeries before females and those that are nine years or older, claim territories, which they aggressively and vociferously defend. Stellers have deep voices and produce powerful low-frequency rolling roars and can be heard for long distances over the noise of wind and waves. Roaring males often bob their head up and down while vocalizing. This is in contrast to the side to side head wave of California sea lion males when they produce their characteristic repetitive bark.

Pups are born from May through July, and females stay continuously ashore with their newborns for the first week to ten days after giving birth. Following this period of attendance, females make foraging excursions, primarily at night for periods of 18–25 hours, followed by time ashore to nurse their pup. Females come into estrus and mate about two weeks after giving birth. Weaning often takes place before the next breeding season, but it is not unusual to see females nursing yearlings, older juveniles, or multiple offspring.

Steller sea lions can leave haulouts in large groups. Sightings at sea are most often of groups of 1–12 animals. They aggregate in areas of prey abundance, including near fishing vessels, where they will feed on netted fish and discarded by-catch. They are not considered migratory, and juveniles and subadults make most long distance trips. Adults usually forage and live near their natal colonies and return to these sites to breed. The area used by adult females for foraging in winter is considerably larger than the area used in the summer. Diving is generally to depths of 200 m or less and dive duration is usually two minutes or less, with both parameters varying by season and age of the animal. Adult females tend to dive deeper in winter than summer. Diving ability of pups and juveniles increases with age, and they routinely dive to depths of around 140 m for periods of two minutes as yearlings. The diving of adult males has not been studied. Predators include killer whales and sharks.

Feeding and prey Steller sea lions feed on many varieties of fish and invertebrates. Much of the information on diet comes from animals living in Alaska, where they feed on walleye pollock, Pacific cod, Atka mackerel, herring, sand lance, several varieties of flatfish, salmon and rockfish, and invertebrates such as squid, octopus, bivalves and gastropods. Adult females with young pups feed extensively at night, switching to foraging at any time after the breeding season. Adult males are known to occasionally kill and consume young northern fur seals.

A group of Steller sea lions with many juveniles, subadults, and small adult males. Olyutorsky Cape, Russia. PHOTO: J. WAITE

A group of Steller sea lions traveling at sea near shore. Kekurny Cape, Russia. PHOTO: J. WAITE

Steller sea lions hauled-out on sea ice in the Karaginsky Gulf, Russia. PHOTO: M. CAMERON/NMFS

Steller sea lions are as pale, or paler than the lightest California sea lions. Monterey Bay, California. PHOTO: S. N. G. HOWELL

Threats and status Steller sea lions have been important to the native people living near them for millenia. Native Alaskans currently take between 150–300 a year for food and other uses. The worldwide population of Steller sea lions declined by 64% during the period from 1960 to 1989, and is currently estimated to be approximately 100,000 animals. The decline has been most dramatic in the large populations from the Gulf of Alaska (-54%), west throughout the Aleutian Island chain (-81%), to the moderately-sized Russian population (-74%). During the same period, the moderately-sized southeastern Alaska population increased (+70%). The reasons for these changes and the overall decline are unclear, but are the subject of intensive ongoing investigations. Factors hypothesized include: the direct and indirect effects of large-scale commercial fisheries on key prey species, long-term ecosystem shifts, and changes in behavior by a primary predator, the killer whale, or a combination of these factors.

IUCN status Endangered.

References Loughlin 2002; Loughlin et al. 1987; Raum-Suryan et al. 2002; Schusterman 1981; Sease and York 2003; Trites and Donnelly 2003.

The much larger, male Steller sea lion is pale colored and has long vibrissae, a large muzzle, and very long hindflippers when compared to the smaller California sea lion in the foreground. Rogue River Reef, Oregon. PHOTO: R. L. PITMAN

California Sea Lion—*Zalophus californianus*

(Lesson, 1828)

Recently-used synonyms *Zalophus californianus californianus.*

Common names En.–California sea lion; Sp.–*lobo marino de California*; Fr.–*lion de mer de Califonie.*

Taxonomic information Order Carnivora, Family Otariidae. Currently the California, Galapagos and Japanese sea lions are considered to be three separate species. Until recently most authors classified them as subspecies of *Z. californianus*.

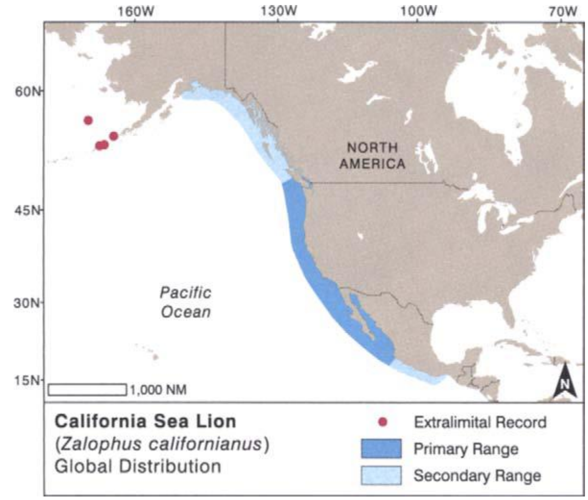
Species characteristics The California sea lion is the well-known performing "seal" of zoos, circuses, and oceanaria. It is a sexually dimorphic species, with males reaching three to four times the weight of adult females and 1.2 times their length. Males become very robust in the neck, chest, and shoulders. As males become sexually mature the sagittal crest enlarges. The crest first appears as a bump on the crown, then grows to become a large prominent ridge, often steep in the front, that creates a tall forehead. The canine teeth of adult males are larger and thicker than those of females.

The distinctive pale topped sagittal crest of the adult male California sea lion is unmistakable. Also note the pale muzzle and face around the eyes, and dark body. PHOTO: P. COLLA/OCEANLIGHT

Adult and subadult male California sea lions bark in often long, repeated sequences. The bark is loud, moderate in pitch, and often delivered while the head is waved from side to side. Females and juveniles do not produce the repetitive bark. Juveniles and subadults of both sexes growl, and when alarmed produce a loud shriek-like bark that is high pitched. The growl of adults is low-frequency and roar-like, and can be explosive, when the animal is angered or startled.

Both sexes have a long and somewhat narrow muzzle that tapers to a blunt nose. In profile, the face of younger animals is dog-like. Adult females and juveniles do not have a sagittal crest, and in profile have a flat head that smoothly transitions into the muzzle with a slight drop. In contrast to adult males, adult females have a long, relatively thin neck and a wide body behind the foreflippers.

The foreflippers have a sparse short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface, and the



palms of both foreflippers are covered with a hairless black leathery skin. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper; the rest of the dorsal surface and the entire sole is covered in black, leathery, hairless skin.

The coloration of California sea lions is variable. When dry, the coat of most adult males is dark brown, and when wet they appear blackish. Males begin to darken as subadults, and complete this change when they reach physical maturity. However, some males do not darken completely or even extensively, and remain various shades of tan to light brown on the sides, belly, and rear quarters. Adult females are tan above, and various shades of tan to light brown below. They are usually the same color on the underside of the neck as on the back, and somewhat darker, on the rest of the ventrum and around the base of the flippers. Adult and large subadult males are light-colored on the muzzle, around and above the eyes, on the ear pinnae, and on the sagittal crest. Coloration of juveniles and young subadult males is similar to adult females. Pups are born with a thick brownish-black lanugo that is generally molted by the end of the first month. The succeeding light brown juvenile coat is shed 4–5 months later, and is replaced by adult coloration. California sea lions appear duller and grayer as they get close to the time of the annual molt.

Male California sea lions reach lengths of 2.4 m, and weights of more than 390 kg. Females only reach 2 m, and weigh an average of 110 kg. Newborn pups are about 80 cm long and 6–9 kg.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{5}/5$ (~79%), PC $^{6}/5$ (~21%).

Recognizable geographic forms None.

Can be confused with California sea lions share their range with three other otariids: Steller sea lions, and northern and Guadalupe fur seals. Juvenile, subadult, and smaller adult female Steller sea lions fall within the size range of California sea lions. Careful attention to head and muzzle size and shape, overall coloration, and length and width of fore- and hindflippers permits differentiation. Smaller Steller sea lions in the size range of large California sea lions will look like they are more muscular and powerfully built than similar-sized California sea lions, which look more rounded and streamlined. Also, smaller Steller sea lions have no sagittal crest development and a nearly flat-topped head, whereas comparably-sized adult and subadult California sea lion males have a moderate to large sagittal crest and more pronounced forehead. Steller sea lion eyes appear smaller and set farther apart, due to the proportionately larger head and wider muzzle.

Both northern and Guadalupe fur seals have thick

California sea lions are sexually dimorphic. The adult male is an uncommonly pale variation. San Miguel Island, California. PHOTO: M. WEBBER

Typical blackish adult male California sea lion at San Miguel Island, California. Note the tall pale colored saggital crest, and pale muzzle and face. PHOTO: M. WEBBER

A grayish-brown adult male California sea lion at San Miguel Island, California, with tall, pale-colored saggital crest, and pale muzzle, face, and back of the neck. PHOTO: M. WEBBER

Adult and subadult male California sea lions. The adult is an uncommon dark, tan color. The subadult is just beginning to develop a sagittal crest, lighten in his face, and darken in body color. San Francisco, California. PHOTO: B. KEENER

pelage and look shaggier than the more sleek California sea lions. Males of both fur seals are dark in color, often with light tips to the long hairs that impart a grayish cast to the dark color. Adult females, juveniles and subadults are multicolored with dark gray or brown dorsal, tan to buff ventral coloration, and a pale band across the chest. Both fur seals have a more pointed face and proportionately longer ears that stand out farther from the head when they are in the water or otherwise wet. Adults of both fur seals have conspicuous, long, pale vibrissae.

Northern fur seals have a very short pointed muzzle, very long hindflippers with long cartilaginous extensions all of equal length and width. The fur on the dorsal surface of the foreflippers stops abruptly at the wrist line, or bend point, and the top of the flippers has a smooth "clean shaven look." This is in contrast to the California sea lion, which has fur on the top of the flipper extending in a "V" beyond the wrist.

Guadalupe fur seals have a long, pointed muzzle. The somewhat bulbous nose contributes to an upturned silhouette of the muzzle. The hindflippers are longer than those on California sea lions, but lack the extreme length of northern fur seal hindflippers. The foreflippers have short hair extending in a "V" beyond the wrist line on the dorsal surface.

Distribution The California sea lion occurs in the eastern North Pacific from the Tres Marias Islands north of Puerto Vallarta, Mexico, north throughout the Gulf of California, and around the end of the Baja California Peninsula north to the Gulf of Alaska. Vagrants have been reported from the Bering Sea in the north to Acapulco in the south. Most rookeries are south of Point Conception, Southern California. Many islands free of predators and sources of human disturbance throughout their range are used as haulouts. The California sea lion population is currently expanding, and is extending its breeding range northward. Females, which were only very rarely found north of Point Conception in the early 1980s, are now routinely found in northern California, where former breeding sites have been reoccupied. They are now occasionally found in Alaska, in the northern part of the species' range.

California sea lions are usually found in waters over the continental shelf and slope, however, they occupy several landfalls far offshore in deep oceanic areas, such as Guadalupe Island and Alijos Rocks off Baja California. Large numbers of adult and subadult males and juveniles undertake a post-breeding season migration north from the major rookeries in Southern and Baja California and winter from central California to Washington State. Smaller numbers of animals migrate to British Columbia and Southeast Alaska, making it to the northern Gulf of Alaska coast. California sea lions occupy the Gulf of California year round. Those residing there do not appear to make long migrations. Throughout their range, California sea lions frequent coastal areas including bays, harbors, and river mouths, and regularly haul-out on buoys, jetties, boat docks, and even on anchored boats. They traditionally haul-out on certain coastal headlands and under cliffs that limit access and approach by terrestrial predators.

Ecology and behavior Pupping and breeding take place from May through July. Males are highly polygynous and hold territories both on land and in shallow water near shore for periods up to 45 days. Females stay ashore with their newborn pups for about 7 days before they depart for the first of many foraging trips that usually last 2–3 days and are followed by attendance of the pup at the rookery for 1–2 days. Most pups are weaned at 10 months, but long before this, they start making foraging trips to sea with their mothers. Some pups continue to receive care as yearlings, and even as 2-year-olds. Estrus occurs around 27 days after giving birth. California sea lion females often gather in "milling groups," where they roll in the surf and sand, mounting each other and even nearby bulls. Often the females from the milling group disperse after one or more of them copulates with a bull.

The diving pattern of lactating adult females is consistent with a number of other otariid species. The deepest dive recorded to date was to approximately 274 m and the longest dive lasted just under 10 minutes. Typical feeding dives are shallower than 80 m, and last less than three minutes. Lactating adult females are active for most of the time they are at sea and feeding bouts occur during the day and at night, with peaks of activity at dawn and dusk. Feeding dives occur in bouts suggesting sea lions are frequently exploiting patches of prey. They are not known for deep or long dives.

California sea lions will "porpoise," or leap clear of the water when traveling rapidly at sea. Large, "porpoising" groups of sea lions can resemble a heard of dolphins. Juveniles and subadults may perform acrobatic and high vertical leaps, and individuals of all ages surf breaking waves and sometimes ride in the stern wakes of vessels. They are often seen at sea, rafting at the surface, alone or in groups. Animals in rafts frequently raise one or more of their flippers high out of the water, sometimes suggesting a tall slender shark fin at the surface. California sea lions will also float and sleep at the surface, far offshore in rafts of kelp. They are known to travel with several dolphin species and are thought to use dolphins to help them locate food. They will also swim alongside large cetaceans, such as blue and humpback whales and ride their bow waves.

California sea lions haul-out and travel at sea with Steller sea lions, where the two species co-occur. They will also haul-out near Guadalupe and northern fur seals

Adult female California sea lion. Note the gracile features when compared to similar-size males. The muzzle, head, neck and shoulder areas are proportionately thinner than on males. San Miguel Island, California. PHOTO: M. WEBBER

Adult female California sea lion nursing an unmolted pup. Notice the abdomen is considerably darker than the rest of the body from soiling and due to the normal color pattern. San Miguel Island, California. PHOTO: M. WEBBER

A female and older, molted dependant pup California sea lion. East San Benitos Island, Baja California. PHOTO: R.WALTON

This group of subadult California sea lions shows varying degrees of development of the sagittal crest and darkening of the pelage. San Benitos Islands, Mexico. PHOTO: M. WEBBER

California sea lions frequently sleep at the surface with one or more flippers, not overlapping, in the air. PHOTO: P. COLLA/OCEANLIGHT

and elephant seals, and in a few locations, harbor seals. Predators of California sea lions include killer whales, sharks, coyotes and feral dogs, and, until they were extirpated from the California Channel Islands, bald eagles were known to take young pups.

Feeding and prey California sea lions are opportunistic and feed on a wide variety of prey, often taking what is abundant locally or seasonally in the areas they occupy. Principal prey taken in the Pacific includes: Pacific whiting, market squid, red octopus, jack and Pacific mackerel, blacksmith, juveniles of various species of rockfish, herring, northern anchovy, and salmon. Sea lions in the Gulf of California have northern anchovy, Pacific whiting, and rockfish as prey in common with animals in the Pacific, and also take various species of midshipmen, myctophids, and bass, as well as sardines, cutlassfish, alopus, and cusk eels. Because of their boldness and taste for commercially-important fish species, such as salmon and rockfish that are easily taken from fishing lines, they are considered a nuisance by many sport and commercial fishermen. California sea lions will also ascend rivers following spawning runs of anadromous fish, and take advantage of man-made structures, such as canal locks and fish ladders that concentrate prey.

Threats and status California sea lions are abundant and the population is growing. They were historically important to native people living in coastal areas and on islands. Numerous kitchen middens in Southern California and on the Channel Islands that contain large numbers of California sea lion and other pinniped bones, attesting to the importance of marine mammals in subsistence cultures prior to the arrival of Europeans. In the 19th and early 20th centuries, California sea lions were periodically harvested intensively for a variety of products, and hunted for bounties to such an extent that the population may have been reduced to as few as 1,500 by the end of this period. Protection that began in the mid-20th century and solidified with the Marine Mammal Protection Act of 1972 in the United States (and under similar measures in Mexico) provided the impetus for recovery of the population, which now numbers an estimated 211,000 to 241,000 animals in the US and Mexico.

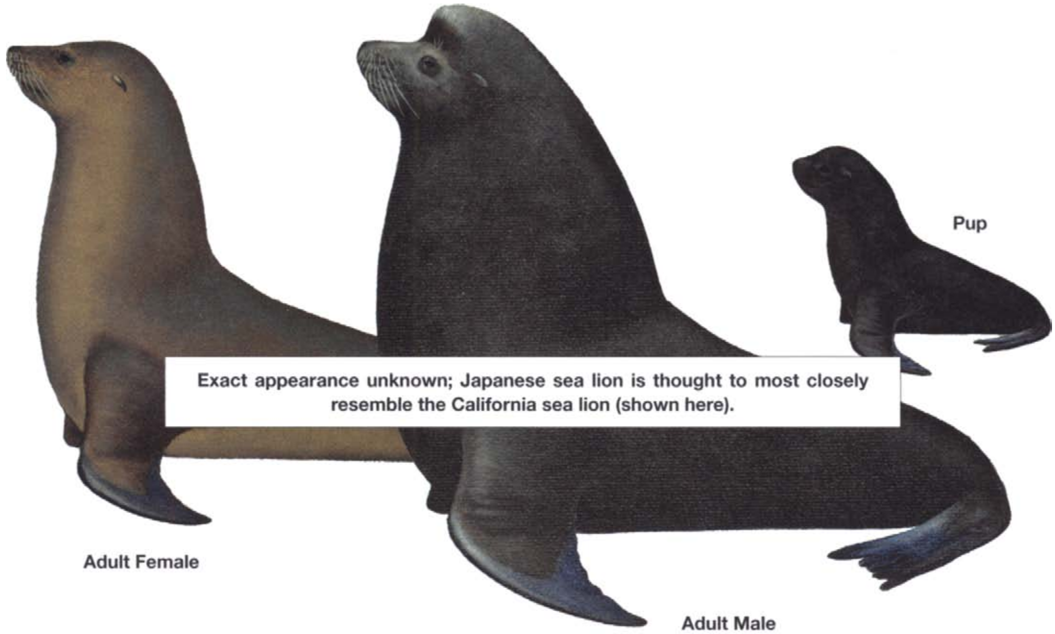
California sea lion mortality occurs in conflicts with fisheries, by poaching, and through entanglement in marine debris. Sea lions also accumulate pollutants through the food chain, and large amounts of DDT and PCBs discharged in the past continue to accumulate in coastal marine food chains, as evidenced in part by the burdens many marine mammals carry in their tissues and organs. Large amounts of agricultural and urban runoff and waste continue to be discharged into coastal marine habitats annually from numerous sources, and this pollution is having as-yet poorly-known effects on sea lion immune systems and overall health. California sea lions also die from periodic outbreaks of planktonic organisms that cause paralytic shellfish poisoning. Prey availability is greatly reduced during El Niño events, and large numbers of pups born during these periods die of starvation, as do weaker animals from all age classes.

IUCN status Least Concern.

References Aurioles and Zavala 1994; Bearzi 2006; Heath 2002; Le Boeuf et al. 1983; Lowry 1991; Odell 1981; Peterson and Bartholomew 1967.

Japanese Sea Lion—*Zalophus japonicus*

(Peters, 1866)



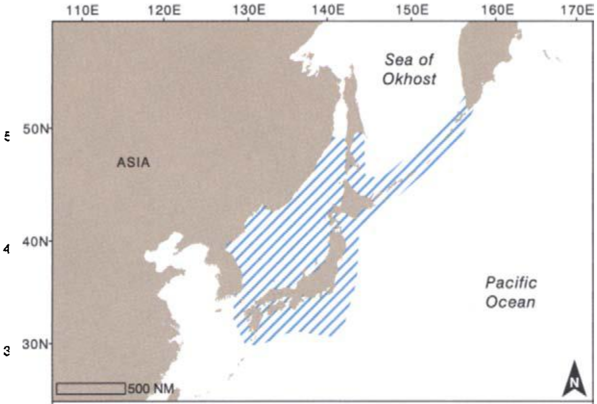
Recently-used synonyms *Zalophus californianus japonicus.*

Common names En.–Japanese sea lion; Sp.–*lobo marino de Japan*; Fr.–*lion de mer de Japan*.

Taxonomic information Order Carnivora, Family Otariidae. Currently the Japanese, California, and Galapagos sea lions are considered to be three separate species. Until recently most authors classified them as subspecies of *Z. californianus*.

Species characteristics The Japanese sea lion is considered by many authors to be extinct. It was long considered a subspecies of the California sea lion. Very little information exists on the appearance of this animal. In an account from otter and seal hunters working in the western Pacific in the early 20th century, the "black sea

There are very few photos of Japanese sea lions, such as this group at an unknown location on a rocky reef. The group includes several large, dark adult males with thick necks and pale faces and muzzles. At least one animal appears to have a sagittal crest, as seen on adult male California sea lions. There are also a number of smaller animals, several of which are partly or wholly pale. PHOTO: SHIMANE PREFECTURAL GOVERNMENT (NAKAWATSE ALBUM), WITH THE ASSISTANCE AND COURTESY OF T. SUYAMA AND T. YAMADA



Japanese Sea Lion (*Zalophus japonicus*) Global Distribution — Probable Former Primary Range

lion" was said to have been present in addition to Steller sea lions. This common name may usefully point-out that some animals, presumably adult males, as is the case for many adult male California sea lions, were black. An account from the text of a mid-19th century work, gave a description of the animal as "straw colored with a darker throat and chest in the female."

A Japanese zoologist interviewed in the 1950s gave the lengths of adult males as 2.5 m and adult females as 1.4 m, and reported a four-month-old pup as being 65 cm long and 9 kg. A review in the late 1950s listed eight specimens as existing in museums, with none of these in Japan. A study in 2004 examined 12 skulls and found them to be significantly longer than the skulls of adult male California sea lions. The difference was large enough, that only the largest California sea lion skull reached the length of the shortest Japanese sea lion skull. Japanese sea lion skulls were also larger in a number of other measurements, including having a significantly taller sagittal crest. This strongly suggests that adult male Japanese sea lions were larger than California sea lions. Only one adult female Japanese sea lion skull was examined in this study, so it was not possible to draw conclusions about females. Only a single photograph was found for use in the preparation of this account.

People traveling in the former range of this species should be vigilant, and record detailed notes of any otariid sightings that cannot be readily identified as Steller sea lions or northern fur seals. For field identification purposes, Japanese sea lion features should be presumed to be similar to those of California sea lion.

Recognizable geographic forms None.

Can be confused with Japanese sea lions shared their range with Steller sea lions and northern fur seals. Assuming that Japanese sea lions were similar to California sea lions, refer to the "Can be confused with" section for California sea lions.

Distribution Japanese sea lions were found from the southern end of Japan, along both coasts, and throughout the Sea of Japan to southern Sakhalin Island. They were also found throughout the Kuril Island Archipelago to southernmost Kamchatka.

Ecology and behavior Very little information is available on these animals, although they were assumed to be similar to the California sea lion. They were said to be good divers, although studies on diving were never conducted.

Feeding and prey It is said that Japanese sea lions fed on fishes, but no other information is available.

Threats and status The Japanese sea lion is probably extinct. A comprehensive survey has not yet been undertaken to determine if the species might still exist, or to search for specimens, accounts, data, and photographs in Japan, South and North Korea, and Russia. The last population estimates available were of 100 animals on Takeshima Island and a total population of 300 in the late 1950s. Estimates are that 30,000 to 50,000 animals may have been present in the mid-19th century and that the population was decimated by hunting. The species probably became extinct in the late 1950s, although the remote possibility of a remnant colony surviving in poorly-studied Korean waters still exists.

IUCN status Extinct.

References Brunner 2004; Heath 2002; Nakamura 1997; Nishiwaki and Nagasaki 1960; Nishiwaki 1973; Odell 1981.

Galapagos Sea Lion—*Zalophus wollebaeki*

Sivertsen, 1953

Recently-used synonyms *Zalophus californianus wollebaeki.*

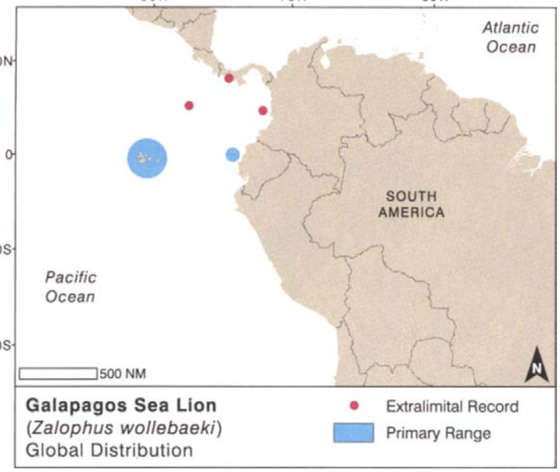
Common names En.–Galapagos sea lion; Sp.–*lobo marino de Galapagos* ; Fr.–*lion de mer de Galapagos*.

Taxonomic information Order Carnivora, Family Otariidae. Currently the Galapagos, California, and Japanese sea lions are considered to be three separate species. Until recently most authors classified them as subspecies of *Z. californianus*.

Species characteristics Galapagos sea lions are similar in appearance to California sea lions, but differ in size, behavior, and skull morphology. Galapagos sea lions are sexually dimorphic, with males growing larger than females and having several significant secondary sexual characteristics. The degree of sexual dimorphism appears to be less than in California sea lions, although few weights and measurements are available for adults.

Adult males are robust in the neck, chest, and shoulders and are proportionately much smaller in the abdomen. As males mature sexually the enlarging sagittal crest becomes evident as a bump on the crown. The crest grows until the male reaches physical maturity, at which time it forms a prominent ridge above and behind the eyes, and creates a steep forehead. Galapagos sea lion males are said to lack the pale pelage coloration on top of the sagittal crest common in California sea lions, although this feature appears to be present in at least one published photograph. Also, the skull of adult male Galapagos sea lions has a 20–25% smaller sagittal crest, a shorter muzzle, is about 10% shorter overall and

Adult female Galapagos sea lions with an unmolted pup in the foreground. Notice the pale tan color, thin necks and low, rounded heads without evidence of a sagittal crest. PHOTO: G. MEYER



is narrower than the skull of male California sea lions. As in all otariids, the canine teeth of adult males are larger and thicker than those of females.

Adult and subadult male Galapagos sea lions bark in often long repeated sequences. The bark is loud, rapidly repeated, and distinctive. Females and juveniles do not produce the repetitive bark. Juveniles, subadults and adults of both sexes will also growl.

Adult females and juveniles do not have a sagittal crest. When viewed in profile, juveniles have a nearly flat head with little or no forehead. Adult females have a slight forehead formed by a gentle slope from the crown to the muzzle. In contrast to adult males, adult females have a long relatively thin neck and a wide torso.

Both sexes have a long and somewhat narrow muzzle that tapers to a slightly pointed nose. In profile, the face of younger animals is dog-like. The foreflippers have a sparse short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern and does not reach the rounded tip. The rest of the dorsal surface, and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posterioraly, giving the flipper a swept back look. Digits 2–4 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin.

The color of Galapagos sea lions is highly variable. When dry, the coat of adult males ranges from grayish and golden brown to the common dark brown, and most bulls appear blackish or very dark when wet. Darkening begins when males are subadults and is generally complete when a bull reaches physical maturity. Adult males can have light gray coloration on their backs. Adult females, juveniles and young subadult males are pale colored above, and can be many shades of tan to light brown. There are often light colored areas on the muzzle, and around and above the eyes in both sexes. The sparse short fur covering a portion of the tops of the flippers can be the same color or darker than the color of the body. Pups are born with a longer brownish-black lanugo coat that fades to pale brown by three to five months. Pups go through their first molt at around five months and emerge with the pelage of adult females and juveniles.

A dry adult male Galapagos sea lion with a moderate sagittal crest, pale muzzle, and paler-colored body. PHOTO: G. MEYER

A wet adult male Galapagos sea lion with a moderate sagittal crest. PHOTO: G. MEYER

There is little information on the lengths and weights attained by Galapagos sea lions, but they are said to be somewhat smaller than California sea lions. Adult males are estimated to weigh up to 250 kg. Four adult females caring for pups weighed from 50 to 100 kg. Pups of both sexes are born at approximately six kilograms and weaned at approximately 25 kg.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$, but PC $^{5}/_{5}$ occurs in approximately 25% of animals.

Adult female and dependant juvenile Galapagos sea lion. Note the pale tan color of both animals. Isla Española (Hood). PHOTO: M. ELLIS/FOOTLOOSE FORAYS

Recognizable geographic forms None.

Can be confused with Galapagos sea lions share the Archipelago with Galapagos fur seals. As vagrants, they may show up in the range of South American sea lions and South American fur seals, and there is a record of the former from the Galapagos.

Galapagos and South American fur seals have thick pelage and look shaggier, especially when wet, than Galapagos sea lions. Both fur seals are dark gray to brown and darker than similar-sized sea lions, with the exception of a fully-grown male Galapagos sea lion. Both fur seals have a more pointed muzzle and proportionately larger eyes and longer ears that stand out farther from the head when they are wet. Adults of both fur seals have long pale conspicuous vibrissae. Galapagos fur seals are the smallest otariids, reaching only 1.5 and 1.2 meters for males and females, respectively, and are stockier with a shorter neck and body than Galapagos sea lions.

South American sea lions have large blocky heads with a short, thick, blunt-ended muzzle. Adult male South American sea lions have huge fore quarters with a thick mane and a very large lower jaw.

Adult female, dependant juvenile, and newborn pup in lanugo coat Galapagos sea lions. PHOTO: M. ELLIS/FOOTLOOSE FORAYS

Distribution Galapagos sea lions are found throughout the Archipelago on all the major islands and on many smaller islands and rocks. A colony was established in 1986 at Isla de la Plata, just offshore of mainland Ecuador, and vagrants can be seen from the Ecuadorian coast north to Isla Gorgona in Colombia. There is also a record from Isla del Coco approximately 500 km southwest of Costa Rica although it might have been a misidentification of California sea lion. Additionally, fishermen in Costa Rica occasionally report seeing sea lions which could be either California, Galapagos, or both species.

Ecology and behavior Galapagos sea lions are non-migratory. They are unafraid of humans when ashore and will investigate and climb on backpacks and other things people leave lying around. Haulout sites can be on steep rocky shorelines, ledges and offshore stacks, but rookeries are mostly on gently sloping, sandy and rocky beaches. To avoid overheating, sea lions will use shade from vegetation, rocks, and cliffs, and wade into tidal and drainage pools or move into the ocean, as needed during the heat of the day.

Pupping and breeding take place across an extended period from May through January. Because of the protracted breeding season, non-migratory nature of this species, and the extended care females provide to the pups, there are dependent pups on the rookeries year-round. Females usually wean pups in 11–12 months, but some continue to suckle yearlings along with newborn pups. Pups are attended continuously for 6–7 days, after which the female goes to sea to feed and begins a cycle of daily, diurnal foraging trips that last an average of

A juvenile Galapagos sea lion. PHOTO: G. MEYER

Subadult male Galapagos sea lion beginning to develop a sagittal crest and darken in color. PHOTO: M. ELLIS/FOOTLOOSE FORAYS

12 hours. Pups will enter the water and begin to develop swimming skills 1–2 weeks after birth. Females return at night to nurse their pup, departing again the next morning. Females and pups recognize each other and reunite based on calls and scent. Galapagos sea lion females feed during the day, in contrast to Galapagos fur seals, which primarily feed at night. In addition to foraging niche separation, female sea lions reduce their thermoregulatory challenges by being at sea during the heat of the day.

Galapagos sea lions are polygynous; males hold territories both on land and in shallow water near shore that they vociferously and aggressively defend. Male tenure on territories usually lasts from 10 days to 3 months, and most copulations occur in the water. Adult males have been observed to mob Galapagos sharks that approach rookeries.

Diving has been studied in four females. The maximum depth of dive recorded was 186 m and duration of 6 minutes. Average depth of dive was approximately 37–38 m and duration of less than 2 minutes. At sea they will raft at the surface and rest on their sides with one or more flippers held vertically in the air.

Feeding and prey Very little information exists on Galapagos sea lion prey. The remains of small sardines have been observed in vomit found on beaches. Galapagos sea lions have been seen smashing octopus on the surface of the water, presumably to stun or break them up to facilitate swallowing. Foraging dives by lactating females occur predominantly during the day, and are only to relatively shallow depths. This usually precludes Galapagos sea lions from foraging on vertically-migrating species, such as myctophids, midshipmen, and other deeper living prey routinely taken by California sea lions. However, during El Niño events prey includes green-eyes and myctophids, suggesting a change in foraging strategy during periods of environmental flux.

Threats and status The majority of the Galapagos sea lion population lives in the Archipelago, which is an Ecuadorian National Park surrounded by a marine resources reserve. Tourism occurs on a large scale but is strictly controlled to protect wildlife.

The population fluctuates between 20,000 and 50,000 animals. Die-offs and cessation of reproduction during El Niño events, when marine productivity collapses, have caused episodes of population decline. Irruptions of a sea lion poxvirus have occurred during El Niño events, adding to the stress on individuals from starvation. Feral and uncontrolled dogs have been reported to kill sea lion pups, and could transmit diseases to the population. Shark predation is evident from animals seen with injuries and scars from attacks, and killer whales are presumed to be another predator.

IUCN status Vulnerable.

References Heath 2002; Kooyman and Trillmich 1986; Odell 1981; Orr 1967; Trillmich 1986; Trillmich and Dellinger 1991.

South American Sea Lion—*Otaria flavescens*

(Shaw, 1800)

Recently-used synonyms *Otaria byronia.*

Common names En.–South American sea lion, or southern sea lion; Sp.–*lobo común*; Fr.–*lion de mer d'Amerique du sud*.

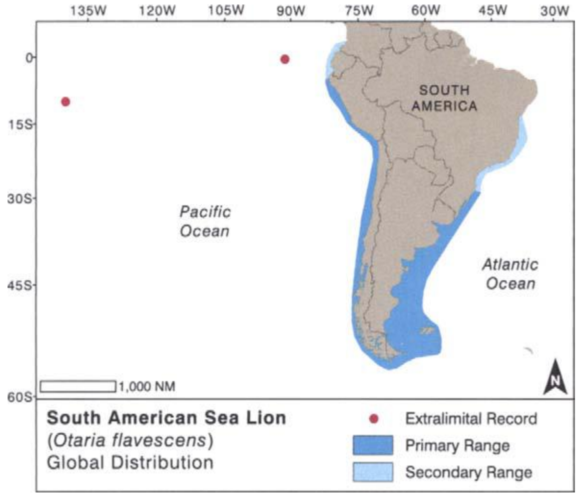
Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics South American sea lions are stocky, heavy-bodied otariids that are strongly sexually dimorphic. In both sexes the muzzle is wide, short, and blunt. The nose is large and slightly upturned in females, and even more so in adult males. The lower jaw is wide and deep in both sexes. In adult males it juts forward, and is also accentuated by the longer hair of the mane on the chin. The ear pinnae are small and lie close to the side of the head; they are inconspicuous, particularly in adult males.

Adult males are unmistakable. They have a mane of long, coarse, erectile guard hairs, extending from forehead and chin to shoulders and mid-chest. The neck, head, jaws, and canine teeth are much larger than those of females. The large head and lower jaw, great bulk of the neck and shoulders, and thick mane make the front of the body appear disproportionately large and wide, despite the fact that the hindquarters are also large.

Adult females and subadults of both sexes do not have a mane. Their pelage is predominantly yellowish-gold to tan. They are not all uniformly colored, but can be patterned with areas of slightly different hues. Most males darken with age, becoming brownish-orange, although the mane and under parts frequently remain lighter. Males can have a darker face, giving them a slightly masked appearance. Some males remain the pale color of females and subadults throughout their lives.

Adult male, female, and pup South American sea lions. The enlargement of the male's chest and neck is striking. Peninsula Valdez, Argentina. PHOTO: G. MUELLER



Pups are born black above and paler below. Pups undergo their first molt approximately one month after birth, becoming dark brown. This color fades during the rest of the first year to a pale tan to light brown, with paler areas in the face.

The foreflippers have a sparse short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept back look. Digits 2–4 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin.

Adult males reach 2.6 m in length and weights of 300 to 350 kg; females reach 2 m and 144 kg. At birth, pups are 11–15 kg and 75–85 cm long.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{6}/5$.

Recognizable geographic forms None.

Can be confused with South American sea lions share most of their range with South American fur seals. Wandering South American sea lions have been recorded at the Galapagos and could occur within the range of Juan Fernandez fur seals, or vice versa. Also, Antarctic and Subantarctic fur seals occur as vagrants on the coast of South America.

South American sea lions are heavy-bodied animals with proportionately large heads and flippers, and are stockier and more muscular looking than similar size fur seals of any species. All fur seals have longer fur over the entire body and look shaggy when wet. The muzzle of fur seals is thinner and tapers to a pointed end, and the proportionately large eyes and long ear pinnae are more conspicuous. Fur seals are browns and grays, and darker than most South American sea lions of similar size, and have proportionately smaller flippers.

Galapagos sea lions are smaller overall and slimmer in build, with a much smaller head, proportionately longer and narrower muzzle, smaller lower jaw, and a smaller nose that is not turned up at the end. Coloration in smaller animals is similar, but bulls of each species are unmistakable in color and secondary sexual characteristics.

Distribution South American sea lions are widely-distributed, occurring more or less continuously from north-

South American sea lions are sexually dimorphic. Peninsula Valdes, Argentina. PHOTO: G. MUELLER

Adult female South American sea lion and pup in lanugo. Peninsula Valdez, Argentina. PHOTO: M. STOKKOM

The wet pelage, laid down against the body, emphasizes the greatly enlarged neck, shoulders, and chest of this adult male. Peninsula Valdez, Argentina. PHOTO: G. MUELLER

A not fully-grown South American sea lion male has a short mane but lacks the greatly enlarged forequarters of larger bulls. Beagle Channel, Argentina. PHOTO: M. JØRGENSEN

ern Peru south to Cape Horn, and north up the east coast of the continent to southern Brazil, including the Falkland Islands. They are primarily a coastal species, found in waters over the continental shelf and slope, occurring less frequently in deeper waters. South American sea lions venture into fresh water, around tidewater glaciers, and up rivers. Vagrants have been found as far north as 13°S, near Bahia, Brazil, and in the Galapagos Archipelago.

Ecology and behavior South American sea lions are considered non-migratory, although some may wander long distances away from rookeries during the non-breeding season, and southerly locations such as the Falkland Islands are largely abandoned during the winter. However, most rookeries are continuously occupied by at least some animals, and the species has been described as sedentary.

South American sea lions are a highly polygynous species, with various strategies employed by males during the breeding season that are driven by substrate and terrain at the rookery, and thermoregulatory requirements imposed by weather conditions at the site. Adult males tend to establish territories through vocalizing, posturing, and fighting, when rookeries provide shade, have tidal pools that can be used for cooling, or funnel interior areas through narrow beaches between rocks or ledges to the sea. At more homogeneous locations with long shorelines, male strategy changes to focus on identifying, defending, and controlling individual cows in estrus, wherever they are found. Bulls actively and aggressively work to keep these cows close by grabbing, dragging, and throwing them back inland, away from the shoreline.

The start of the breeding season varies somewhat by location and latitude, with pups being born slightly earlier at more southern rookeries. At most sites, both sexes arrive in mid-December with peak numbers of males ashore just after mid-January and peak numbers of females ashore from mid- to late January. Females give birth 2–3 days after arrival, and pups are born from mid-December to early February with a peak in mid-January, coinciding with the timing of peak numbers of females ashore. Estrus occurs 6 days after parturition, and females make their first foraging trip 2–3 days later. From this point on, a cycle of foraging and pup attendance starts and lasts until pups are weaned at 8–10 months old. As is the case for many sea lions, it is not unusual for females to continue to care for yearlings. Pups gather in large pods on the rookeries while waiting for their mothers to return from 1–4 day long foraging trips. Females usually stay ashore for 2 days between trips.

An adult male South American sea lion. Notice the large head and thick muzzle with very large lower jaw, and the thick mane. Beagle Channel, Argentina. PHOTO: M. STOKKOM

At sea, South American sea lions are commonly seen rafting alone or in groups. They have been reported in association with feeding cetaceans and seabirds. The mean depth of lactating female foraging dives is about 61 m and the mean duration is just over 3 minutes. The maximum depth recorded for a dive is 175 m and duration 7.7 minutes. Two tagged adult males foraged on the con-

Young pup South American sea lion in the lanugo or birth coat. Peninsula Valdez, Argentina. PHOTO: G. MUELLER

Juvenile South American sea lions have large heads and blunt muzzles. New Island, Falkland Islands. PHOTO: M. WEBBER

Juvenile South American sea lions. Note the thick and wide muzzle, and tan color. PHOTO: M. JØRGENSEN

tinental shelf prior to the onset of breeding, making 5–6 day trips that covered an average of 600 km before they returned to land to haul-out. Lactating females routinely dive between 19–62 m, on dives lasting 2–7 minutes. The maximum depth of dive for the species is 250 m.

Predators include killer whales, sharks and leopard seals, and possibly the puma. At Peninsula Valdez, Argentina, killer whales are known to surf in on waves, partially beaching themselves while grabbing young sea lions off the shoreline. Vampire bats are known to drink blood from the skin of the flippers of sleeping animals.

Feeding and prey South American sea lions are opportunistic feeders, taking a wide variety of prey that varies by location. Their diet includes many species of benthic and pelagic fishes. Important prey species include South Pacific hake, herring, elephantfish, Peruvian anchovy, grenadier, South American pilchard, cusk-eels, and butterfish. Invertebrates taken include lobster krill, squid, octopus, jellyfish, and marine snails.

A small percentage of adult male South American sea lions regularly prey on South American fur seals. When adult male sea lions hunt for fur seals, they hunt alone and focus their attacks on pups and juveniles. About 17% of attacks are successful, but success varies widely between individual males. Subadult males also attack fur seals, but tend to abduct fur seals to serve as female sea lion substitutes, herding them and attempting to mate with them, usually killing them in the process. Female and juvenile sea lions have not been recorded to hunt fur seals. Sea lions have been observed killing young southern elephant seals in the Falkland Islands. They are also known to take several species of penguins, but the importance of penguins in the diet is unknown.

Threats and status The total population is estimated to be 200,000 to 300,000. South American sea lions were hunted by native people for thousands of years, and were taken by Europeans as early as the 16th century for food, oil and hides. Large commercial harvests, in several countries, drastically reduced sea lion numbers in the last several hundred years. Most populations are currently recovering from past harvests. Sea lions are taken incidentally or killed intentionally in a number of fisheries and fish farming operations throughout their range. Intensive trawl fishing in the coastal waters of southern South America has been implicated in the severe decline of sea lions in the Falkland Islands, where the population has fallen from 30,000 in the 1960s to approximately 15,000 in the 1980s, and possibly to as low as 3,000 in the 1990s.

A dramatic image of a male South American sea lion attacking a young southern elephant seal. Sea Lion Island, Falkland Islands. PHOTO: M. JØRGENSEN

IUCN status Least Concern.

References Campagna 1985; Campagna and Le Bouef 1988; Campagna et al. 2001; Cappozzo 2002; Rosas et al. 1993; Vaz-Ferreira 1981.

Australian Sea Lion—*Neophoca cinerea*

(Peron, 1816)

Recently-used synonyms None.

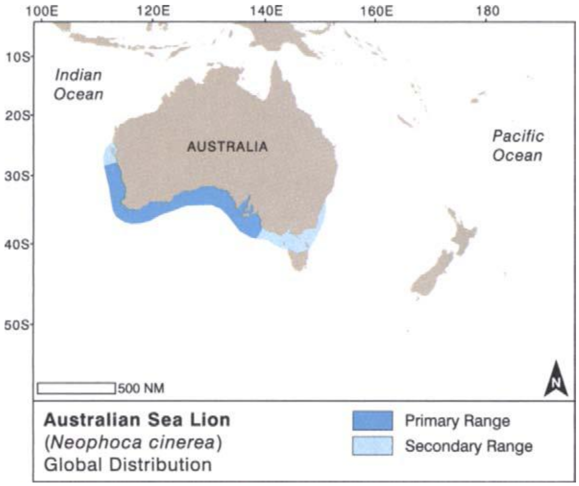
Common names En.–Australian sea lion; Sp.–*l'otarie d'Australie*; Fr.–*lion de mer d'Australie*.

Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Australian sea lions are sexually dimorphic, with adult males reaching 1.25 times the length and 2.5–3.5 times the weight of adult females. The head is proportionately wide and long in both sexes, and is very large in adult males. The muzzle tapers to a blunt, somewhat rounded end. The eyes are widely set apart. There is a slight forehead that is more prominent in adult males due to an enlarged, but posteriorly-positioned, sagittal crest that elevates the crown. The ear pinnae are short and lie close to the head. Mystacial vibrissae are moderate in length, the longest ones reaching 18 cm. Two vibrissae are located above and behind each eye. In adult males, the neck and shoulders are greatly enlarged, and the canine teeth are thicker at the base and up to 2.5 times longer than those of adult females.

The foreflippers have a sparse short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–4 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the

Adult male and female Australian sea lions showing difference in adult size and coloration. Note the pale crown of the male. PHOTO: I. CHARRIER



Adult male Australian sea lion. Note the wide muzzle and dark face, and pale crown, nape, and upper back. PHOTO: I. CHARRIER

Fully grown adult male Australian sea lion. Note the slightly rounded end of the thick muzzle. PHOTO: I. CHARRIER

A young adult male Australian sea lion with face beginning to darken and crown and neck beginning to lighten. PHOTO: T. HASSE

dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin.

Pups are dark chocolate brown to charcoal in color at birth and lighten to smoky gray. The crown is paler and there is a dark mask across the face. The postnatal molt starts when pups are 8–10 weeks old and is completed in several weeks. Pups molt to the juvenile pelage, which is like that of the adult females. Adult females and juveniles are fawn to silvery gray above and tan to pale yellow on the underside of the neck, chest, and abdomen. The underside of the abdomen can be darker in some animals. The demarcation between light and dark zones is high on the neck and dips down at the insertion of the foreflippers, remaining low on the sides between the fore- and hindflippers. The coloration of the face is variable, with the light coloration of the underside of the neck rising up to include the mystacial area and side of the face, frequently encircling the eyes, and reaching the ears. The foreflippers are often darker above. Some animals are darker overall and have little discernible contrast between coloration above and below.

Subadult males are colored like females, but darken as they mature, showing dark spots on the chest as the transition begins. The first evidence of this appears as dark spotting on the chest and darkening of the muzzle. Adult males have a mane of somewhat longer and coarser guard hairs from the crown to the shoulders. Their pelage is dark brown, with a whitish-creamy crown and nape of variable extent that gradually transitions to the darker body pelage on the back and sides of the upper neck. A scattering of light colored hairs sometimes reaching the underside of the neck. This area of pale coloration accentuates the darker "mask" across the face, which extends from ear to ear and covers the sides of the face, muzzle, lower jaw, and throat. Younger bulls are incompletely marked and can have a whitish ring around the eyes.

Very little information on sizes of adult males is available, and some values in the literature may be overestimates. Adult males reach lengths of at least 2.5 m and weights of 200 to at least 300 kg. Females are 1.3 to just over 1.8 m and weigh from 61–105 kg. At birth, pups are approximately 60–70 cm long and weigh 6.4–7.9 kg.

The dental formula is I $^3/2$, C $^1/1$, PC $^5/5$, and occasionally PC $^6/5$.

Recognizable geographic forms None.

Can be confused with New Zealand fur seals live within the range of Australian sea lions. The range of

Australian fur seals is adjacent to the range of this species. Wandering Subantarctic fur seals periodically show up as vagrants in mainland Australia and Tasmania. All of the fur seal species have a tapering pointed muzzle and more conspicuous ear pinnae. There are also differences in the size and shape of the toes on the hind flippers between Australian sea lions and all fur seals. In addition to these features, Australian sea lions can be differentiated from all southern fur seals based on differences in pelage color patterns, especially the paler coloration of juveniles and adult females. Australian sea lions lack the dense underfur and long guard hairs of fur seals making them appear more sleek. The Australian sea lion's shorter pelage (exclusive of the mane on adult males) looks shorter and less dense than the more luxuriant pelage of dry fur seals, or the shaggy look of fur seals when they are wet.

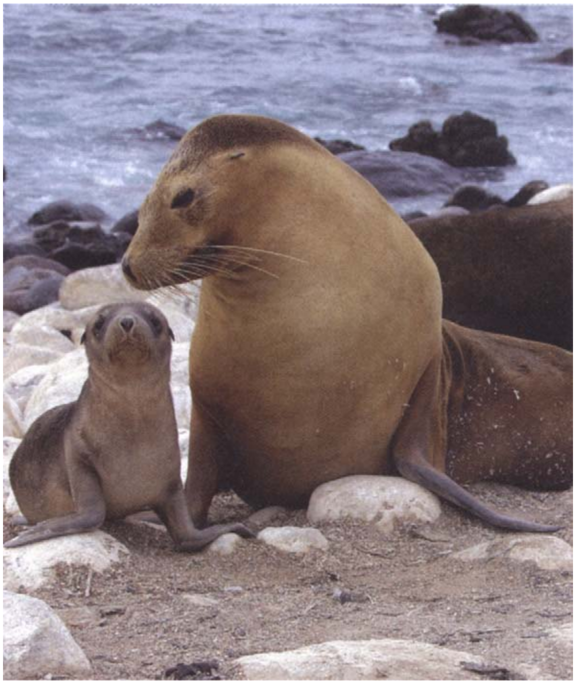
Distribution Australian sea lions occur in southern and southwestern Australia from just east of Kangaroo Island west to Houtman Albrolhos in Western Australia. Vagrants have come ashore in eastern Australia as far north as central New South Wales. Australian sea lions breed on at least 51 islands and at several mainland sites. Five sites account for about 50% of the annual pup production. At sea, Australian sea lions spend nearly all of their time in waters over the continental shelf.

Ecology and behavior Australian sea lions are unusual among pinnipeds in having a supra-annual pupping interval, with females producing pups every 17–18 months. Pups can be born at all times of the year, with females at a given site being loosely synchronous, and pupping over an approximately 5-month period. Neighboring sites are frequently on entirely different breeding schedules. Males are sequentially polygynous, establishing territories around individual females, herding them in an effort to keep them from departing until the onset of estrus, 7–10 days after they give birth, when they mate. This pattern is repeated until the male is compelled to go to sea and forage, after which he returns and repeats the strategy. Males defend their territories with guttural clicking, growling and barking vocalizations, posturing, and by fighting with rivals.

Pups are continuously attended for the first 9–10 days after birth. Over the next 5 months females make foraging trips that average 2 days, followed by pup attendance periods that average 1 1/4 days. Females suckle their pups for 15–18 months, usually weaning them a month before giving birth again. Some females care for their offspring for up to two years, and can be seen with a juvenile and a new pup. Adult female Australian sea lions behave aggressively toward pups that are not their own, as do adult males to all pups. Adult males will bite pups and throw them high in the air. Pups can be trampled when males are fighting or moving rapidly to confront

Adult female and young pup Australian sea lion. PHOTO: I. CHARRIER

Large adult female Australian sea lion with a newborn pup. The rusty orange color on the pale ventral surface of the female is soiling from the afterbirth, feces, and dirt from being hauled-out ashore. PHOTO: T. HASSE



An adult female Australian sea lion with a soiled darkened coat with her molted pup. PHOTO: B. PAGE

A young female Australian sea lion. PHOTO: T. HASSE

A group of juvenile Australian sea lions. PHOTO: B. SABERTON

Molting juvenile Australian sea lion. PHOTO: B. SABERTON

rivals and control females, and this can be a significant source of pup mortality. Pups will play at the shoreline and in tide pools while their mothers are away, and following their postnatal molt, they will actively swim on their own.

Adult female Australian sea lions are benthic, diurnal foragers. They routinely transit to foraging locations by swimming along the bottom. Mean depth of dives for a series of lactating females ranged from 41.5–83.1 m and maximum depth of dives ranged from 60–105 m. Mean duration of dives ranged from 2.2–4.1 minutes, and the longest dive recorded lasted 8.3 minutes. Australian sea lions are fast, powerful swimmers and will porpoise when moving rapidly at the surface.

These sea lions are considered non-migratory, and probably spend most of their lives near their natal colony. The greatest distance traveled by a tagged animal is approximately 250 km. Predators include great white sharks and presumably killer whales.

Feeding and prey Relatively little information exists on the diet of Australian sea lions. They are thought to concentrate their efforts on shallow-water benthic prey, but take a wide variety of fishes, such as rays, small sharks, Australian salmon, and whiting. Other prey includes squid, cuttlefish, small crabs, and occasionally penguins, flying seabirds, and small sea turtles. Fishermen complain of sea lions robbing lobster traps and fishing nets. Large prey items may be taken to the surface and shaken apart into portions that are easier to swallow.

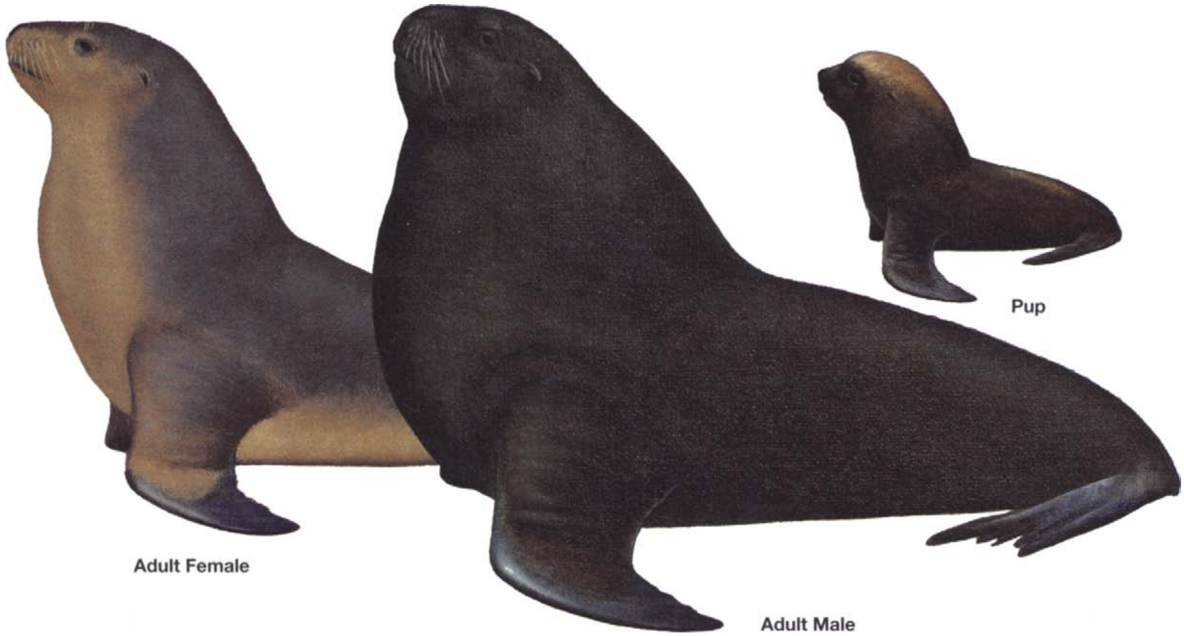
Threats and status The total population of Australian sea lions was estimated at 9,900–12,500 in 1999 and was considered to be stable. This species is protected. A substantial sea lion viewing industry has developed, and is regulated at sea lion colonies in parks to minimize disturbance during the breeding season. Extensive disturbance can cause Australian sea lions to abandon colony sites.

Traditionally, Australian aborigines and early colonists took sea lions for food and other products. Harvests by sealers in the 17th and 18th centuries reduced the population and extirpated them from areas around Bass Strait and Tasmania. Although now protected, the population has not rebounded fully or reoccupied all of its former range. Conflicts and interactions with fisheries exist and some sea lions are shot as a result, while others are entangled in fishing gear, although the extent of the problem is not fully understood.

IUCN status Least Concern.

References Dennis and Shaughnessy 1996; Gales et al. 1994; Ling 1992; Ling 2002; Walker and Ling 1981.

New Zealand Sea Lion—*Phocarctos hookeri* (Gray, 1844)



Recently-used synonyms *Neophoca hookeri.*

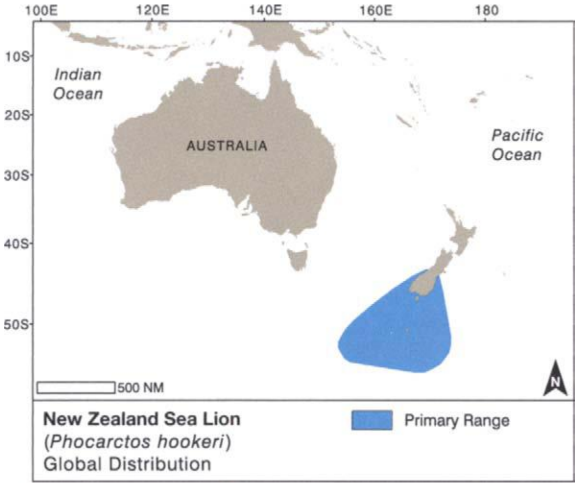
Common names En.– New Zealand or Hooker's sea lion; Sp.– *l'otarie de Nouvelle-Zélande*; Fr.–*lion de mer de Nouvelle-Zélande.*

Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics New Zealand sea lions are large, heavy-bodied and sexually dimorphic. Adult males are 1.2–1.5 times longer and 3–4 times heavier than adult females. The head is large and blocky with a short, wide muzzle that is blunt to rounded on the end in both sexes. The ear pinnae are small and inconspicuous. The vibrissae are short to moderate in length, reaching as far back as the pinnae on some animals.

The head of adult males looks foreshortened as the neck widens rapidly behind the position of the ears, obscuring much of its length. Bulls have a strong sagittal crest well behind the eyes, creating a domed appearance to the crown and a downward slope to the end of the short muzzle with little or no discernable forehead. Depending on posture and viewing angle, the silhouette of the head in many males appears slightly convex from the crown to the end of the muzzle. Bulls have greatly enlarged, wide, thick, rounded necks, increasing in size from the nape and throat to the shoulders. The large neck is covered in a mane of longer coarser guard hairs. The hindquarters are not as enlarged as the neck, but are heavy and powerfully-built. Females and subadults have a flat-topped head with a slight downward slope to the end of the short muzzle. Their stocky body lacks the enlarged neck and longer guard hairs of the mane.

Adult male, female, and pup New Zealand sea lions showing the extent of sexual dimorphism. PHOTO: A. AUGE



Pups are born in a thick, long, lanugo and are dark brown with a lighter crown, nape, and mystacial area, and have a pale stripe on the top of the muzzle, originating on the crown. Female pups are lighter than male pups. Pups begin to molt their birth coat at 2 months and at the end of the molt look like females. Adult females and juveniles of both sexes are buff to creamy or silvery gray above and light tan to pale yellow below. The diffuse demarcation between light and dark is high on the neck usually rising over the insertion of the foreflippers, and is lower on the sides of the abdomen. There is considerable but subtle variation in the coloration of the head and muzzle. The light coloration often extends above the ears, above the eyes, and down the sides of the muzzle. The crown and top of the muzzle are usually darker. The area around the insertion of the foreflippers and the tops of the flippers is often darker grayish to light brown. In some adult females there may be little discernible contrast between coloration above and below, especially when they are faded just before they molt.

Males darken as they mature, and pass through a sequence of color phases before becoming fully dark blackish-brown as adults. From age 1–3 years they look like females, although some are light rusty brown. At 4 years they become darker brown above, but remain pale yellow to light brown, below. They also begin to show increased bulk in the neck and shoulders and signs of a mane at this age. At 5–6 years their coloration and body shape is that of the adult male and they are blackish-brown over the entire body. Physical maturity is reached in the 7^{th} year. Some older males have white hairs in the mane, giving them a subtle grizzled appearance. From age 2, New Zealand sea lions go through an annual molt that lasts approximately 2 months and can occur anytime between December and June. One-year-olds experience only a partial molt.

The foreflippers have a sparse short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept back look. Digits 2–4 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers. The hindflippers also have cartilaginous rods that extend the length of each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The first and fifth toes are longer than the three middle toes, and the first toe, or hallux, is longer and wider than the fifth toe. The hindflippers have short hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin.

Adult males are 2.3–2.7 m long and may weigh from 320–450 kg, although these values might be high in

A brown adult male New Zealand sea lion showing the enlarged neck, chest, and shoulders of bulls. PHOTO: A. AUGE

A black adult male New Zealand sea lion. Notice the thick, wide, and blunt-ended muzzle. PHOTO: L. MEYNIER

Pale-colored New Zealand sea lion bull. The huge neck and mane make the head look small. PHOTO: A. AUGE the light of recent information that males are probably shorter than previously reported. Adult females are 1.8–2 m long and weigh 90–165 kg. Newborns are approximately 70–100 cm long and weigh 7–8 kg.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

Recognizable geographic forms None.

Can be confused with Three fur seals: New Zealand, Antarctic, and subantarctic are known to occur in or near the present range of the New Zealand sea lion. New Zealand sea lions can be differentiated from all fur seals, based on a combination of features including coloration, fur characteristics, head and muzzle shape, short ear pinnae, and size and shape of the outer toes on the hindflippers.

Distribution The primary habitat of New Zealand sea lions is several subantarctic islands south of New Zealand, and their surrounding waters. The principal breeding colonies accounting for 95% of annual births are in the Auckland Islands, with smaller numbers breeding at Campbell Island and the Snares Islands. New Zealand sea lions regularly occur in small numbers at Stewart Island and on the southeast coast of the South Island of New Zealand, and there are occasional births. However, most of these animals are males ranging from 2–11 years old. Wandering New Zealand sea lions also reach Macquarie Island. Historically, New Zealand sea lions had a more extensive range that appears to have included most of New Zealand.

Ecology and behavior The breeding season for New Zealand sea lions begins in November when adult males return and establish themselves on territories through displays, vocalizing, and fighting. Adult females arrive in early December and give birth shortly after returning to the rookery. Males may have as many as 25 females within their territories. The bulls are frequently challenged by newly arriving males and neighbors, and turnover of males is a regular occurrence. Many territorial bulls depart in mid-January with the end of the pupping period.

The onset of estrus occurs 7–10 days after a female gives birth. Prior to this she continuously attends her newborn pup. Following mating, females begin a phase of short foraging trips, each trip followed by a period of attending their pups, typical of many otariids. Foraging trips average 1.7 days and are followed by 1.2 days of pup attendance and feeding ashore. Also typical of many otariids, pups gather into groups known as créches while their mothers are feeding. Females and pups recognize each other through vocalizations and scent, and a small percentage of females will allow additional pups to nurse along with their own pup, which is unusual behavior for a pinniped. Pups are weaned at approximately 10 months.

A large, pale, lightly countershaded New Zealand sea lion female with a young pup. Note the round plastic tag on the foreflipper of the adult. PHOTO: F RIET

Two adult female New Zealand sea lions. Females of this species are only lightly countershaded. PHOTO: L. MEYNIER

New Zealand sea lion females with older molted pups (two with plastic tags on their foreflippers), and one unmolted pup still in its lanugo coat. PHOTO: F RIET

Adult males are a significant source of mortality to pups, occasionally killing them outright, including incidents of cannibalism. Pups are also trampled and killed by adult males challenging other males during territorial disputes.

New Zealand sea lions do not appear to be migratory, although they disperse widely over their range during the non-breeding season. Some animals can be found at major rookeries and haulouts year-round. At sea they are active divers that forage on benthic prey. Mean dives are to 123 m and mean duration is 3.9 minutes. Maximum dive depths are over 500 m and dives have been recorded

The gray fur is replacing the rusty-brown fur on this molting New Zealand sea lion. PHOTO: M. JØRGENSEN

A subadult male New Zealand sea lion that is darkening and has a mane that is just starting to develop. PHOTO: L. MEYNIER

New Zealand sea lions will sometimes move into shoreline forests as these yearlings have done. PHOTO: A. AUGE

to last as long as 11.3 minutes. Predators include sharks, leopard seals and presumably killer whales.

Feeding and prey New Zealand sea lions take a wide variety of vertebrate and invertebrate prey. Frequently-taken species include: opalfish, octopus, munida, hoki, oblique-banded rattail fish, salps, squid and crustaceans. Prey is taken in both benthic and pelagic habitats. Antarctic, Subantarctic, and New Zealand fur seals are taken as prey by adult male sea lions. Penguins and sea lion pups are also occasionally taken.

Threats and status New Zealand sea lions once were more abundant, with a more extensive range that included the North and South islands of New Zealand. The Maori people of New Zealand traditionally hunted sea lions, as did Europeans upon their arrival. Commercial sealing in the early 19th century decimated the population in the Auckland Islands, but sealing continued until the mid-20th century, when it was halted. The population has yet to fully recover from this period of overexploitation.

At the present time, New Zealand sea lions have a highly restricted distribution, a small population that numbers approximately 12,500 animals, and most of their breeding is concentrated in one island group. This combination makes them vulnerable to disease outbreaks, environmental change, and human activities.

Commercial fisheries around the main sea lion population in the Auckland Islands have resulted in sea lion mortalities through drowning. The New Zealand government has responded with a variety of management actions that are aimed at documenting, reducing, and limiting the annual incidental take of sea lions. Tourism at mainland sites and remote subantarctic islands can cause disruption to haul-out patterns and breeding activities, and is regulated.

An epizootic outbreak in the Auckland Islands in 1998 led to more than 50% pup mortality, and also claimed the lives of many animals from other age classes. The source of the suspected bacterial agent and cause of the outbreak and subsequent mortality are unknown, but may have been triggered by El Niño-related food shortages stressing the population.

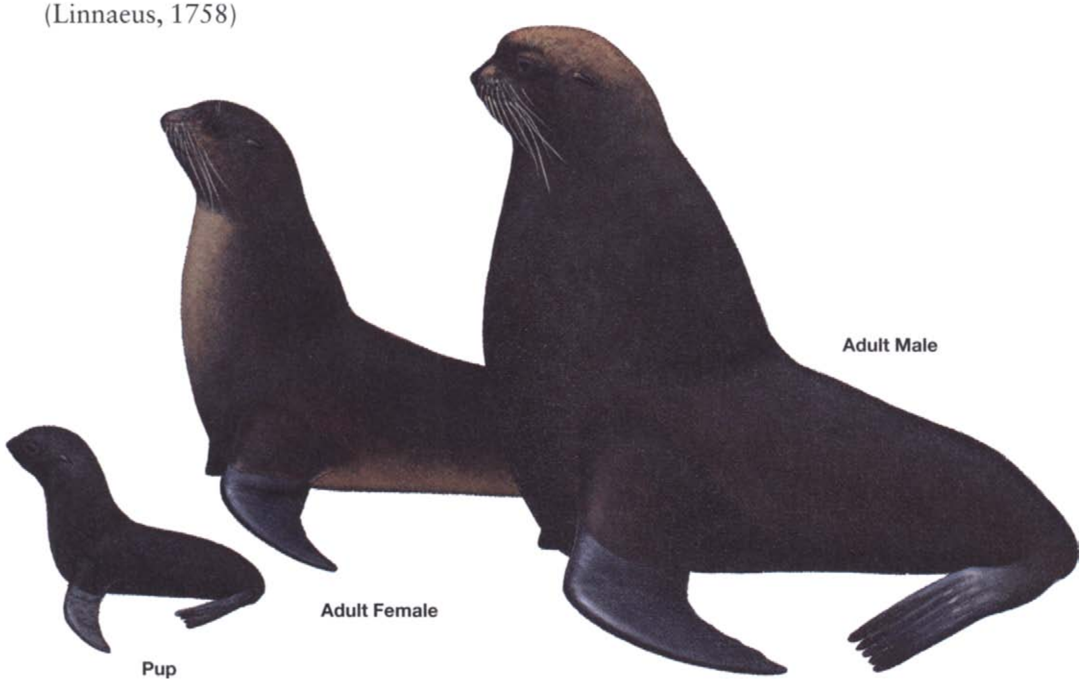
A group of New Zealand sea lion pups. The pale bridge of the nose, top of the head, and nape, are markings unique to pups of this species. PHOTO: K. WESTERSKOV/NATURAL IMAGES

IUCN status Vulnerable.

References Cawthorn 1985; Costa and Gales 2000; Gales and Fletcher 1999; Gales 2002; Walker and Ling 1981.

Northern Fur Seal—*Callorhinus ursinus*

(Linnaeus, 1758)



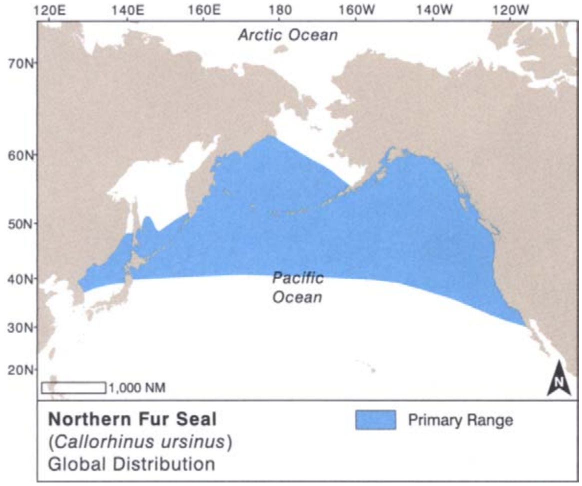
Recently-used synonyms None.

Common names En.–northern fur seal; Sp.–*lobo fino del norte*; Fr.–*otarie des Pribilofs*.

Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Northern fur seals show extreme sexual dimorphism. Adult males are 30–40% longer and more than 4.5 times heavier than adult females. The head appears foreshortened in both sexes because of the very short down-curved muzzle and small nose, which extends slightly beyond the mouth in females and more so in males. The pelage is thick and luxuriant, with a dense, cream-colored underfur. The underfur is obscured by the longer guard hairs, although it is partially-visible when the animals are wet. Features of both fore- and hindflippers are unique and diagnostic of the species. Fur is absent on the top of the foreflippers and there is an abrupt "clean shaven line" across the wrist where the fur ends. The hindflippers are proportionately the longest of any otariid because of extremely long, cartilaginous extensions on all of the toes. There are small claws on digits 2–4, well back from the flap-like end of each digit. The ear pinnae are long and conspicuous (naked of dark fur at the tips) in older animals. The mystacial vibrissae can be very long, and regularly extend beyond the ears. Adults older than 6–7 years have all pale vibrissae, juveniles and subadults have a

A bull with a large group of females and pups. Adult female color variation in this photograph is primarily due to staining from time spent on the rookery. Pribilof Islands, Alaska. PHOTO: C. FOWLER/NMFS



An unmolted northern fur seal pup. The hindflippers will enlarge and increase in relative size as the animals ages. San Miguel Island, California. PHOTO: M. WEBBER

mixture of pale and black vibrissae, including some that have dark bases and pale ends, and pups and yearlings have all-black vibrissae. The eyes are proportionately large and conspicuous, especially on females, subadults, and juveniles.

Adult males are stocky in build, and have an enlarged neck that is thick and wide. A mane of coarse longer guard hairs extends from the top of the head to the shoulders and covers the nape, neck, chest, and upper back. While the skull of adult males is large and robust for their overall size, the head appears short because of the combination of a short muzzle, and the back of the head behind the ear pinnae being obscured by the enlarged neck. Adult males have an abrupt forehead formed by the elevation of the crown from development of the sagittal crest, and thicker fur of the mane on the top of the head. The canine teeth are much longer and have a diameter greater in adult males than in adult females, and this relationship holds to a lesser extent for all age classes.

Adult females, subadults and juveniles, are moderate in build. It is difficult to distinguish the sexes until about 4 or 5 years old. The body is modest in size and the neck, chest, and shoulders are sized in proportion with the torso. Adult females and subadults have more complex and variable coloration than adult males. They are dark silver-gray to charcoal above. The flanks, chest, sides, and underside of the neck (often forming a chevron pattern in this area) are cream to tan with rusty tones. There are variable cream to rust-colored areas on the sides and top of the muzzle, chin, and as a "brush stroke" running backwards under the eye. In contrast, adult males are medium gray to black, or reddish to dark brown all over. The mane can have variable amounts of silver-gray or yellowish tinting on the guard hairs. Pups are blackish-brown at birth, with variable oval areas of buff on the sides, in the axillary area, and on the chin and sides of the muzzle. After 3–4 months, pups molt to the color of adult females and subadults.

Males can be as large as 2.1 m and 270 kg. Females can be up to 1.5 m and around 50 kg. Newborns weigh 5.4–6 kg, and are 60–65 cm long.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

Adult male, female, and pup northern fur seals. The fur stops abruptly at the wrist line of the foreflipper in this species. Also notice the very short, pointed muzzle and the enlarged neck, chest, and shoulders, of the male. PHOTO: C. FOWLER/NMFS

Recognizable geographic forms

None.

Can be confused with Northern fur seals can be confused with two other otariid species in their range: the Guadalupe fur seal, and California sea lion. Coloration of Guadalupe and northern fur seals is similar. Guadalupe fur seals have fur on the dorsum of the foreflipper beyond the wrist, proportionately shorter hindflippers, and a long tapering muzzle with a bulbous nose that makes the muzzle seem slightly-upturned on the end.

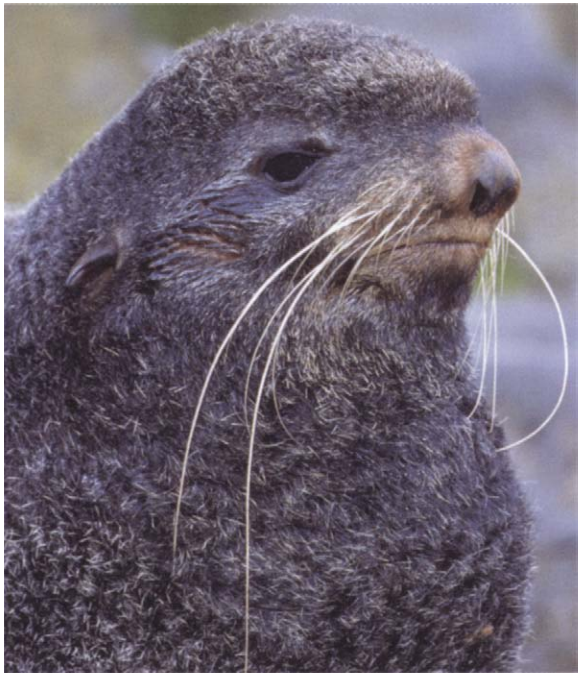
At sea, Guadalupe fur seals will rest in a posture characteristic of fur seals of the genus *Arctocephalus* with the head down and both hindflippers held in the air and apart forming a Y-shape. Northern fur seals will use this position infrequently. Both North Pacific fur seal species routinely rest in a "jug handle" position with the palm of one foreflipper draped over the soles of the hindflippers, which are rotated forward to meet the foreflipper.

Northern fur seals can be readily separated from California sea lions based on differences in thickness, length, and coloration of pelage, the lack of fur on the top of the foreflippers beyond the wrist, much longer hindflippers with longer digits, very short pointed muzzle, and longer prominent ear pinnae.

Dark adult male California sea lions have a conspicuous sagittal crest and lack a mane. California sea lion bulls lack the light tipped hairs on their neck. The loud repetitive bark of male California sea lions is distinctive and different from all northern fur seal vocalizations.

Distribution Northern fur seals are a widely-distributed pelagic species in the waters of the North Pacific Ocean and the adjacent Bering Sea, Sea of Okhotsk, and Sea of Japan. They range from Northern Baja California, Mexico, north and offshore across the North Pacific to northern Honshu, Japan. The southern limit of their pelagic distribution across the North Pacific is approximately 35° N. Vagrants reach the Yellow Sea in the west and eastern Beaufort Sea in the Arctic. The vast majority of the population breeds on the Pribilof Islands, with substantial numbers on the Commander Islands as well. Still other sites are used, including San Miguel Island in California, Bogoslof Island in the Bering Sea, and Robben Island off Sakhalin Island in Russia. Numerous other sites were formerly occupied and may still be visited.

Ecology and behavior This is a highly polygynous species. Males arrive at the rookeries up to one month before females and vocalize, display, and fight to establish and maintain territories. Breeding on the Pribilof Islands occurs from mid-June through August, with a peak in early July (the median date in southern California is approximately 2 weeks earlier than at the Pribilofs). Northern fur seals become sexually mature at 3–5 years old, at which time females usually produce one pup a year for most of the rest of their lives. Males do not become physically



Adult male northern fur seals have very long pale vibrissae, a thick mane and pale-tipped guard hairs. PHOTO: T. PUSSER

Typical coloration of an adult male northern fur seal. Note the torn hindflipper digit. PHOTO: J. WAITE

An adult female showing the long hindflipper, short pointed muzzle, and typical female coloration. PHOTO: J. WAITE

A pair of northern fur seals. The animal in front is in the "jug-handle" position commonly used by this species when resting at sea. The tips of the very long hindflippers reach the front edge of the foreflipper. The animal in the back shows the long hindflippers. PHOTO: S. N. G. HOWELL

mature, and large enough to compete for a territory that will be used by females, until they are 8–9.

Northern fur seals usually give birth a day after arrival at the rookery. Mean time from birth to estrus is 5.3 days, and 8.3 days for departure on the first feeding trip. Females breeding at the Pribilof Islands are relatively far from the foraging areas at the edge of the continental shelf. As a result, they consistently make longer foraging trips than most other female otariids, with a mean trip length of 6.9 days. Once foraging begins the mean depth of dives is 68 m and duration is 2.2 minutes with maximum depth recorded of 207 m, and duration of 7.6 minutes. Pups are visited 8–12 times and attended for a mean of 2.1 days before being abruptly weaned at 4 months old.

Northern fur seals are one of the most pelagic pinnipeds. Adults are at sea most of the year, only coming ashore for the breeding season for 35 and 45 days (on average) for adult females and males, respectively. They do not haul-out between breeding seasons, and once weaned, juveniles go to sea and do not haul-out until they return, usually to the island of their birth, 2–3 years later. Many animals, especially juveniles, migrate from the Bering Sea south into the North Pacific to spend the winter feeding.

At sea, northern fur seals are most likely to be encountered alone or in pairs, with groups of 3 or more being uncommon. They forage relatively far from shore, over the edge of the continental shelf and slope. Diving is very active at dawn and dusk, otherwise northern fur seals spend quite a bit of time rafting at the surface, either asleep or grooming. They employ a wide variety of resting postures, including raising one or more flippers into the air, and draping one of their foreflippers over both of the hindflippers to form a posture known as the "jug handle" position. Predators include killer whales, sharks, and Steller sea lions.

Feeding and prey The diet varies by location and season, and includes many varieties of epipelagic and vertically-migrating mesopelagic schooling and non-schooling fish and squid. Prey species of importance in

An unusually proportioned male with a collar of marine debris embedded in the skin. All white whiskers indicate an older animal, yet the lack of neck development suggest he may be a cryptorchid. Lovushki Island, Russia. PHOTO: J. WAITE

Adult male Northern ful seal with mange that has caused the loss of guard hairs on the crown and neck, revealing the cream-colored underfur. Patches of fur lost from mange can occur anywhere on the body. PHOTO: J. WAITE the waters off California and Washington include anchovy, hake, saury, several species of squid and rockfish, and salmon. In Alaskan waters, walleye pollock, capelin, sand lance, herring, Atka mackerel, and several species of squid are important prey.

Threats and status Northern fur seals have a long and complex history of commercial harvesting, which began when the main breeding colonies were discovered in the late 18th century, and that lasted until 1984. Numerous international treaties and agreements have been enacted to manage this species. There were many intervals of decline and recovery over this long period. It is estimated that the population numbered up to 2.5 million animals in the 1950s. They may even have been more numerous farther in the past when there were more rookeries before the onset of exploitation by Europeans and Americans. The current population is estimated at 1.1 million and is declining.

Entanglements in commercial fisheries gear, including derelict and discarded gear and marine debris, have caused significant annual mortality in the past. This mortality was highest during the period of active high seas driftnet fishing in the North Pacific in the 1980s. Entanglement in debris is ongoing and affects juveniles and subadults more than adults. Northern fur seals compete for walleye pollock with one of the largest commercial fisheries in the world. Mortality from interactions with numerous fisheries and entanglement in debris, large annual harvests of prey species in commercial fisheries, long-term ecosystem change in the North Pacific, and possible changes in the foraging patterns of a key predator (the killer whale), may all be working synergistically to cause the current population decline.

IUCN status Vulnerable.

References Fowler 1987; Gentry 1981,1998, 2002; York 1987.

A hybrid Northern fur seal X California sea lion. The identification of lineage is based on DNA analysis. At a stranding center. California. PHOTO: R. J. WILSON/THE MARINE MAMMAL CENTER

The same hybrid Northern fur seal X California sea lion. It has long ear pinnae as found on a northern fur seal. The muzzle is long and somewhat blunt on the end as on a California sea lion. The eyes are proportionately large and bulging for either species. PHOTO: R. J. WILSON/THE MARINE MAMMAL CENTER

A different view of the same hybrid showing the relatively long hindflippers as found on northern fur seals and fur on the dorsum of the foreflipper past the wrist as found on California sea lions. Like northern fur seals, this animal has a pelt of long guard hairs with a cream-colored underfur. PHOTO: R. J. WILSON/THE MARINE MAMMAL CENTER

Note on Hybrid Southern Hemisphere Fur Seals Genus Arctocephalus

Hybrids of a number of species of otariids are known, and genetic, behavioral, and morphological characteristics have been published in the scientific literature. Only one wild hybrid phocid has been reported. It resulted from a harp seal and hooded seal mating. In general, most otariid hybrids have features that are a blend of the basic characteristics of the parent species.

Several otariid species hybridize, including: northern fur seal X California sea lion (see northern fur seal account), South American X California sea lions, and Guadalupe X northern fur seals. However, the most frequently encountered hybrids are from crosses of Southern Hemisphere fur seals, genus *Arctocephalus*, especially where several species occur at the same breeding islands, such as at Macquarie and Marion Islands, and the Juan Fernandez Islands. Examples of the known hybrid crosses are shown. The mating patterns, reproductive success, and behavior of hybrids are poorly known. Recent studies have shown that hybrid males may have reduced fertility and that females may depart their territories to bread with other males.

However, vocalizations of southern fur seals are well known, and hybrids are often first recognized or identified based on their unusual vocalizations. Vocalizations of pinnipeds, and particularly hybrid fur seals, are not covered in depth in this guide, and the reader can consult a number of the references provided for more information.

Special thanks are due to the researchers who made these previously-unpublished photographs, notes, and observations available for this brief overview.

Photograph notes and credits

A) Hybrid subantarctic X Antarctic fur seal bull with a mixture of features. The crest of longer guard hairs on the forehead and pale colored muzzle and lower jaw, and dark ear pinnae, are characteristic of subantarctic fur seal bulls. The dark neck and chest are characteristics of an Antarctic fur seal bull. The pale-color of the muzzle reaches to the eyes and partially around them, which is an intermediate pattern between subantarctic and Antarctic fur seals. The overall color is also intermediate between the two species, being paler than the subantarctic fur seal, and darker than the Antarctic fur seal. Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN

B) A hybrid subadult male subantarctic X Antarctic fur seal bull. The pelage is not as dark as on a subantarctic fur seal, and lacks the light-colored fur in the chest and face. The ears are pale, as is the case for Antarctic fur seals. The muzzle is short and sharply pointed as in the subantarctic fur seal. The identification of this animal as a hybrid was supported by his vocalizations. Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN

C) A hybrid subantarctic X Antarctic fur seal adult female and pup, with a subantarctic fur seal female in the background. This hybrid is presumed to be a first generation cross because of the small numbers of Antarctic fur seals breeding at Marion Island. She has a fairly even mix of features from both species. Her lighter chest suggests subantarctic fur seal, while her darker upper neck and face, paler back, and large muzzle and head, suggest Antarctic fur seal. Her darker pup looks more like a subantarctic than Antarctic fur seal (the unlikely possibility that this pup was adopted cannot be ruled out). Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN.

D) Subantarctic fur seal pup (right) and hybrid subantarctic-Antarctic fur seal pup (left). Subantarctic and Antarctic fur seal pups are difficult to separate in the field without experience. Additionally, pups of each species change slightly as they age and approach their first molt. During this time, their features can change to be like those of known hybrids. The identification of this hybrid pup was confirmed based on vocalizations. It has features similar to those found on Antarctic fur seal pups including an extensive area of pale color on the muzzle, and gray in the face. The muzzle is too large and wide, and the overall pelage color is not black enough for this to be a subantarctic fur seal pup. Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN

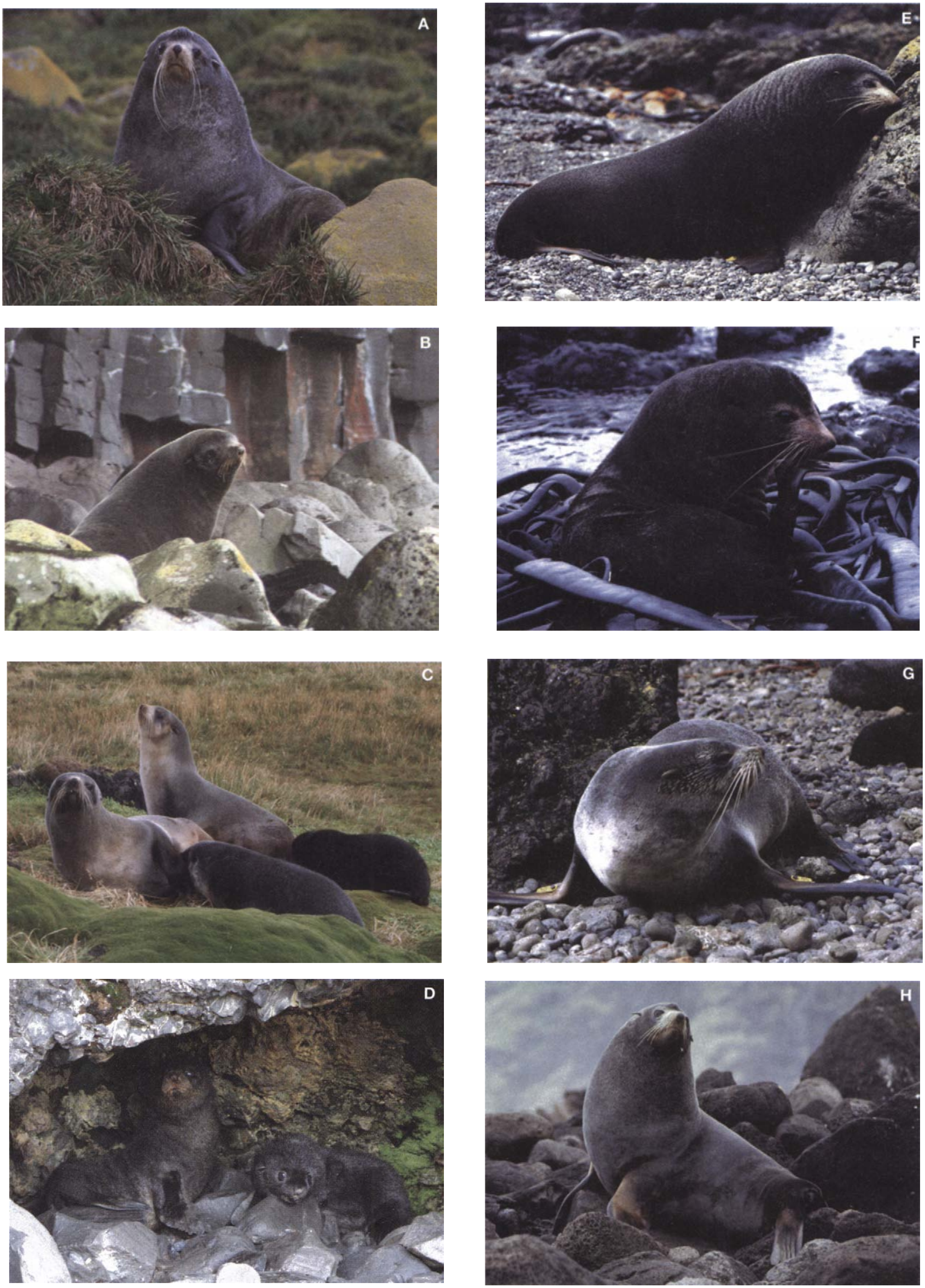
E) Adult male Antarctic X New Zealand fur seal hybrid confirmed by mtDNA analysis, as well as by vocalizations. His overall dark gray color is darker than that found in either Antarctic or New Zealand fur seals. His pale muzzle and face are similar to New Zealand fur seals. The muzzle is of medium length, without an upturned end, which is more like an Antarctic fur seal. The ear pinnae are pale and lighter than the surrounding fur, like on Antarctic fur seals. This bull has a slight crest of fur on his forehead, which is a feature occasionally seen on New Zealand fur seals and not found on Antarctic fur seals. Note the yellow tag on the foreflipper. Macquarie Island. PHOTO: B. PAGE.

F) Another Antarctic X New Zealand fur seal hybrid bull confirmed by mtDNA analysis and vocalizations. This animal has the same muzzle shape and facial color and a slight crest of fur on his forehead as on the animal in photo E, but his ear pinnae are dark. Macquarie Island. PHOTO: B. PAGE.

G) An adult female Antarctic X New Zealand fur seal hybrid. The identity of this female was confirmed by mtDNA analysis and vocalizations. The gray palage and pale ear pinnae are like that in Antarctic fur seals. The slightly up-turned muzzle is typical of New Zealand fur seals. Macquarie Island. PHOTO: B. PAGE.

H) A probable adult male subantarctic X Juan Fernandez fur seal hybrid. This animal has a crest of fur on his forehead and large tear-drop shaped eyes like a subantarctic fur seal. The body color is not as dark as a subantarctic fur seal, and not at all like the dark brown to blackish-brown of a Juan Fernandez bull. The lighter reddish-brown fur on the tops of the flippers is like the color found on Juan Fernandez fur seal flippers. The pale muzzle and face color is similar to the coloration found on other hybrid males. The hind- and possibly foreflippers appear small, and are proportionately more like the flippers found on subantarctic fur seals. Juan Fernandez Islands. PHOTO: J. FRANCIS.

References Brunner 2002; Condy 1978; Goldsworthy et al. 1999; Hill et al. 2001; Kovacs et al. 1997; Lancaster et al. 2007; Page et al. 2001; Page et al. 2002.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Guadalupe Fur Seal—*Arctocephalus townsendi*

Merriam, 1897

Recently-used synonyms *Arctocephalus philippii townsendi*, *Arctophoca townsendi*.

Common names En.–Guadalupe fur seal; Sp.–*lobo fino de Guadalupe*; Fr.–*otarie de Guadalupe*.

Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Guadalupe fur seals are sexually dimorphic, with males 1.5–2 times longer and approximately 3–4 times heavier than adult females.

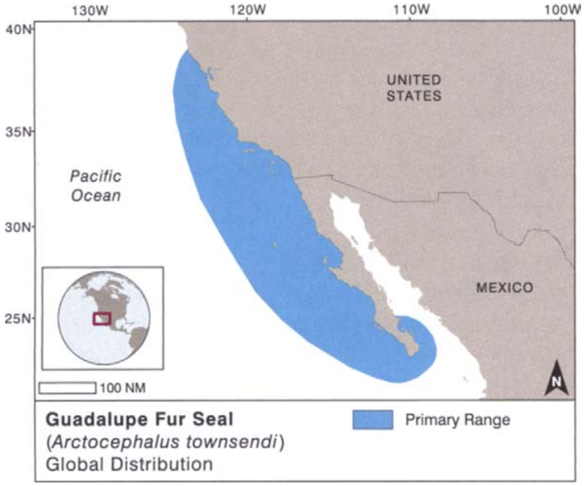
An adult female Guadalupe fur seal in prime condition on Guadalupe Island. PHOTO: C. ALLAN MORGAN

They have thick pelage, with dense, cream-colored underfur. Adults have moderate length pale vibrissae and long prominent ear pinnae.

Adult males have a slightly rounded crown with the apex above the ear pinnae. Longer, more erect, mane guard hairs on the head accentuate the minor elevation of the crown, and contribute to a slight sloping forehead, where the longer fur ends at the shorter, more swept-back, fur of the muzzle. The muzzle is long, narrow, straight, and tapers in width and thickness to a pointed end. The naked black skin area of the nose, the rhinarium, is bulbous and the nares are angled downward. A mane of longer and coarser guard hairs extends from the crown and nape to the shoulders on the back, and includes the sides and front of the neck. The neck, chest, and shoulders are greatly enlarged. The abdomen is thin in comparison, and tapers to the insertion of the hindflippers. The canine teeth of adult males are larger and thicker than those of females.

Adult females, subadults, and juveniles also have a long muzzle with downward-pointing nares, but the nose is not enlarged. The crown is flatter and the mane absent, and as a result they have a flat-topped head. The ear pinnae are long and stand-out from the head enough to make them conspicuous.

The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless



black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Coloration of adult males is dark grayish-brown to grayish-black. The longer guard hairs of the mane are often light tipped with off-white to buff tones on the crown, nape, and upper neck, creating a grizzled or gingered appearance. Adult females, subadults, and juveniles are dark brown to grayish-black above and paler in variable patterns below, especially on the chest and underside of the neck, which can be tan to creamy-gray. Both sexes have a variable amount of buff to reddish-brown color on the muzzle that often extends into the face and above the eyes. Pups are born in a black coat that lightens to a dark brown, and they probably molt to a juvenile coat several months after birth, but this has not been documented.

Adult male vocalizations include a single sharp, almost explosive, "puff" used in conflicts with other males; a bark that is repetitive, high-pitched with nasal qualities that are sometimes referred to as "whickery;" and a guttural growl. Females growl with their mouths open when angered or threatening another animal, and use a low-pitched, prolonged "bawl" for a pup attraction call. Young animals have a high-pitched roar; a cough which is less sharp and explosive than the puff of adult males, used when they threaten each other; and a bark used during play.

Adult males may reach 2 m in length. Two adult males measured approximately 1.8 and 1.9 m. The 1.9 m male was estimated to weigh 160–170 kg. Adult females average 1.2 m and reach approximately 1.4 m, and weigh 40–50 kg. Pups are estimated to be 50–60 cm long.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{6}/5$.

Recognizable geographic forms None.

Can be confused with Two other otariids, the California sea lion and northern fur seal can be confused with the Guadalupe fur seal.

Coloration of Guadalupe and northern fur seals is similar. Guadalupe fur seals have fur on the dorsum of the foreflipper beyond the wrist, proportionately shorter hindflippers, and a longer tapering muzzle that appears slightly upturned on the end in males and flat in females.

Two views of a large adult male Guadalupe fur seal on Guadalupe Island. The long muzzle with the bulbous rhinarium, gently sloping forehead and rounded crown are visible in both views. PHOTO: R. L. PITMAN

A Guadalupe fur seal showing the typical coloration of the body and foreflippers. Note the fur on the dorsum of the fore-flipper beyond the bend at the wrist forming roughly a "V" pattern. East San Benitos Island, Mexico. PHOTO: M.WEBBER

Adult Guadalupe fur seal female with her pup in lanugo. Guadalupe Island, Mexico. PHOTO: P. COLLA/OCEANLIGHT

Two subadult male Guadalupe fur seals sparring. The male on the left is just beginning to develop the large fleshy end of his nose. East San Benitos Island, Mexico. PHOTO: I. SZCZEPANIAK

At sea, both species actively groom while at the surface. Guadalupe fur seals will rest in a posture characteristic of fur seals of the genus *Arctocephalus* with the head down and both hindflippers held in the air and apart forming a Y-shape. Both species sleep in a "jug handle" position with the palm of one foreflipper draped over the soles of the hindflippers which are rotated forward to meet the foreflipper.

Guadalupe fur seals can be readily separated from California sea lions based on differences in coloration, pelage length and thickness, length and pointedness of the muzzle, relative size and prominence of the ear pinnae, overall size, hindflipper length, and shape of toes. In California sea lions, the muzzle tapers to a blunt end, and the first toe or hallux is larger and longer than all of the other toes. Adult female, subadult, and juvenile California sea lions are tan to pale brown and much lighter in coloration than Guadalupe fur seals. Adult and subadult male California sea lions become dark brown and are similar in color to Guadalupe fur seal bulls. However, dark male sea lions have a sagittal crest in contrast to the head of Guadalupe fur seal bulls that is slightly domed and lacks a conspicuous sagittal crest. California sea lion bulls lack the light hairs in their much shorter mane. The loud repetitive bark of male California sea lions is distinctive and different from all Guadalupe fur seal vocalizations.

Distribution The distribution of Guadalupe fur seals has been expanding in recent years. The majority of the population is centered on Guadalupe Island, off the west coast of central Baja California, where nearly all pups are born. However, In 1997 a small colony with 9 pups was discovered at the San Benitos Islands, near the Baja California coast, at the site of a former rookery. This colony continues to grow. Also in 1997, a pup was born on San Miguel Island in the Channel Islands. Guadalupe fur seals have been reported on other Southern California islands, and the Farallon Islands off Northern California with increasing regularity since the 1980s. They have been sighted in the Sea of Cortez, and as far south as Zihuatanejo, Mexico. Their distribution at sea is poorly known.

Ecology and behavior Guadalupe fur seals are polygynous, with males establishing territories that are occupied by an average of six females. Pups are born from mid-June to August with a median birth date of 21 June. Male tenure on territories lasts at least 31 days. Males defend territories with vocalizations, displays and fighting with neighboring bulls. Once territories are established, fighting between males is rare. Females select male territories that provide cover and shade from the sun for pupping, and territories with females are fronted by water including tidal pools. Many animals breed in small caves, grottos, and cliff and boulder areas on the rugged east coast of volcanic Guadalupe Island. Adult

Guadalupe fur seals commonly float inverted in the water with their hindflippers in the air. PHOTO: P. COLLA/OCEANLIGHT

Guadalupe fur seals have long, pointed muzzles and conspicuously long ear pinnae. PHOTO: P. COLLA/OCEANLIGHT

Adult male Guadalupe fur seal showing the long muzzle that ends in a large fleshy nose. PHOTO: P. COLLA/OCEANLIGHT

females enter the water daily, presumably for cooling, while otherwise ashore attending their pups.

Females returning to the rookery for the first time usually arrive at night or early in the morning. Estrus occurs 5–10 days after a female gives birth, and females can leave for their first foraging trip right after mating, or stay on the colony for another few days before departing. Foraging and attendance patterns are not well-known. Pups are weaned at 9–11 months, and females with pups can be seen on or around the island throughout the winter and into the spring.

Behavior at sea is not well known, but they appear to be mostly solitary. Observations of animals in captivity suggest that they spend considerable time grooming while floating at the surface. They will groom and rest at the surface in the characteristic "southern fur seal," head-down posture. They also raft with one or more flippers extended out of the water, and will use the "jug-handle" posture. When traveling rapidly, they have been observed to porpoise. Killer whales and sharks are undoubtedly predators, although there is no evidence in the literature to support this assumption. A wound on a male from a cookie-cutter shark bite has been reported.

A Guadalupe fur seal rafting in a "jug-handle" position. Notice the long narrow tapering muzzle and prominent ear pinnae. PHOTO: R. L. PITMAN

Feeding and prey Prey preference and foraging activity are poorly known. Stomach contents retrieved from stranded animals included a variety of squid, bony fishes, and crustaceans, including vertically-migrating species.

Threats and status Guadalupe fur seals have a long and mostly unfortunate history of association with humans. Hunted to the brink of extinction by the late 19th century, they were not reported again until 1926. Following this "rediscovery" all animals that could be found were taken and once again the species was thought to be extinct. Guadalupe fur seals were suspected to have survived based on scattered, unconfirmed reports in the 1930s, and were dramatically rediscovered again with the sighting of a bull on San Nicholas Island in Southern California in 1949. An expedition to Guadalupe Island in 1954 confirmed the survival of the species. Since the 1950s, the species has recovered from an estimated population of 200–500 animals to approximately 7,400 in 1993 and is increasing by 13.7% annually.

Although Guadalupe fur seal numbers are increasing, the species is still at risk because the total population is small and nearly all pups are born on one island. Guadalupe Island is relatively close to, and down current from, large human population centers with extensive oil tanker traffic. The species also shares all of its range with California sea lions, which have suffered from viral disease outbreaks in the past, and because of their coastal nature, they could be a vector for diseases from terrestrial sources. No conflicts with commercial fisheries are known to exist at the present time, although gillnet and set-net fisheries may take small numbers, as could entanglement in marine debris.

IUCN status Vulnerable.

References Arnould 2002; Belcher and Lee 2002; Bonner 1981; Fleischer 1987; Peterson et al. 1968.

Juan Fernandez Fur Seal—*Arctocephalus philippii*

(Peters, 1866)

Recently-used synonyms *Arctocephalus philippii philippii, Arctophoca philippii.*

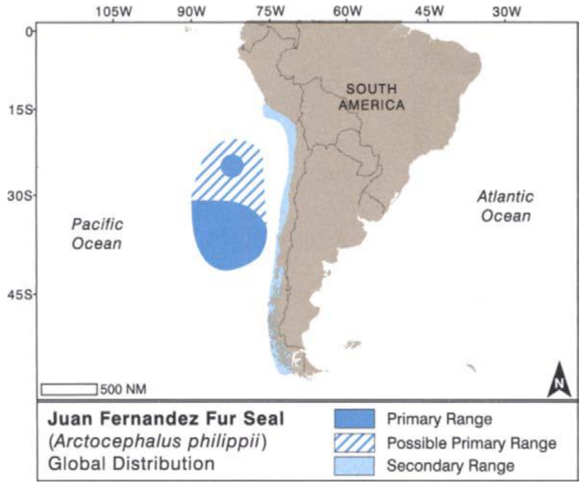
Common names En.–Juan Fernandez fur seal; Sp.–*lobo fino de Juan Fernandez*; Fr.–*otarie de Juan Fernandez*.

Taxonomic information Order Carnivora, Family Otariidae.

An aggressive interaction between two Juan Fernandez fur seal bulls in a rookery.
PHOTO: L. OSMAN

Species characteristics Juan Fernandez fur seals are sexually dimorphic, with males about 1.4 times longer and approximately 3 times heavier than adult females. Juan Fernandez fur seals have thick pelage with dense underfur. Adults have moderate length pale vibrissae and long prominent ear pinnae.

Adult males have a rounded crown with the apex above the ear pinnae. There is a slight rounded forehead. The muzzle is long, straight, somewhat flattened on top, and tapers in width and thickness to the fleshy nose on the end. The black, naked skin of the nose, or rhinarium, is large and somewhat bulbous and the nares orient downward. The mane extends from the shoulders to the crown, and the long erect guard hairs on the head accentuate the crown and forehead. This is especially noticeable where the longer fur of the crown meets the shorter, more swept-back, fur of the muzzle between the eyes. From the crown, the long coarse guard hairs of the mane cover the nape and neck to the shoulders, and on the sides and undersides of the neck from throat to chest. The neck, chest, and shoulders to the foreflippers are enlarged with muscle and fat. The abdomen is smaller, and



tapers to the narrow pelvis. The canine teeth of adult males are larger and thicker than those of females.

Adult females, subadults, and juveniles also have a long tapering muzzle, with nares angled slightly downward. However, because the rhinarium is not enlarged, the muzzle is more pointed. The crown is slightly domed, giving the head a rounded look in profile. The ear pinnae are long and stand out from the head enough to make them conspicuous.

The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial, like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of similar length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

A partly-wet adult male Juan Fernandez fur seal showing the pale crown, nape and back of the neck, on the dark body. PHOTO: J. FRANCIS

Adult male and female Juan Fernandez fur seals. The coloration of the adults is typical. The long muzzle with a large nose of the male is clearly evident. PHOTO: J. FRANCIS

Juan Fernandez fur seal adult male, female, and pup. The adult female shows coloration similar to many adult female *Arctocephalus* fur seals. PHOTO: J. FRANCIS

Adult female Juan Fernandez fur seal showing long slightly down-turned nose. PHOTO: M. GOEBEL/SWFSC

Pale streaks of underfur show through the wet guard hairs on this wet Juan Fernandez fur seal. PHOTO: M. GOEBEL/SWFSC

Adult males are dark grayish-brown to grayish-black. The longer guard hairs of the mane are tipped off-white to ginger on the crown, nape and, to a variable extent, on the sides and back of the neck, creating a grizzled cape. Adult females, subadults, and juveniles are dark brown to grayish-black above and paler in variable patterns below, especially on the chest and underside of the neck, which can be tan to creamy gray. Both sexes have a variable amount of lighter buff to reddish-brown color on the muzzle, which often extends into the face above the eyes. Pups are born with a black wooly coat.

Adult males are estimated to be 2 m long and weigh 140 kg. A series of lactating females, combined from several years, were an average of 1.42 m long and weighed an average of 48.1 kg. Newborn pups are approximately 65–68 cm and 6.2–6.9 kg

The dental formula is I $^3/_2$, C $^1/_1$, PC $^6/_5$.

Recognizable geographic forms None.

Can be confused with South American, Antarctic, and subantarctic fur seals, and South American sea lions have distributions that bring them near to the range of Juan Fernandez fur seals.

Adult male Juan Fernandez fur seals have a longer muzzle, distinctive bulbous rhinarium, and unique coloration of the crown, nape and upper neck that separate them from other southern hemisphere fur seals. Separating adult female, subadult, and juvenile southern fur seal species at a distance is usually difficult and often impossible without extensive experience with the species in question. In general, adult female Juan Fernandez fur seals are longer and heavier than female Antarctic, subantarctic, and South American fur seals, and have a proportionately longer muzzle with downward oriented nares, and a more rounded crown.

Adult subantarctic fur seals are uniquely cream-colored in the face and neck. They have a shorter muzzle and proportionately smaller flippers. Adult males have a crest of fur on the forehead.

Hybrid Juan Fernandez X subantarctic fur seals are known. The few photographs available show that they share characteristics of both species (see Note on Hybrid Southern Fur Seals Genus *Arctocephalus*, pages 340–341).

South American sea lions have large, blocky heads with a short muzzle that is blunt on the end, and smallish inconspicuous ear pinnae. They are also pale tan to light golden brown, with sleek fur that is not dense or shaggy, except in the case of the mane on the otherwise unmistakable adult males, and are heavy bodied.

Distribution The Juan Fernandez fur seal is only found ashore regularly in the Juan Fernandez Archipelago in the eastern South Pacific, west of Chile. The Archipelago includes the Juan Fernandez Island group, and the San Felix Islands, approximately 600 km to the north. Vagrant Juan Fernandez fur seals have been found on the west coast of South America from southern Peru to southern Chile. When ashore, these fur seals prefer rocky and volcanic shorelines with boulders, grottos, overhangs and caves.

Ecology and behavior The Juan Fernandez fur seal is a polygynous species. The breeding season lasts from mid-November to the end of January, and the colonies are essentially vacated by early September (based on the observations of sealers from the late 18th century), and no later than mid-October.

Males defend territories that are typically around 36 m^2 in size and that have an average of 4 females. Most adult females give birth within a few days of arriving at the rookery. Mean time from birth to departure on the first foraging trip is 11.3 days. Juan Fernandez fur seal females travel long distances to find adequate quantities of prey and, on average, have the longest foraging trips of any otariid. Although females can be gone for as little as 1 day, the mean is 12.3 days per foraging trip and the longest trip recorded lasted 25 days. Mean length of pup attendance is 5.3 days with a range of 0.3–15.8 days. Based on the onset of pupping and the observations of vacant colonies in early September, it has been calculated that pups are weaned in 7–10 months.

Juan Fernandez fur seals travel long distances to their foraging areas. The mean distance traveled away from the breeding colony is 653 km, and all tagged females traveled at least 550 km to forage. Most trips were southwest and west of the Juan Fernandez Islands, far offshore to deep oceanic areas. Despite this, the mean depth of dive of 12.3 m, and the mean duration of 51 seconds is shallow and short even for an otariid, and indicates surface feeding. The deepest dives are made to 90–100 m and the longest dives are just over 6 minutes. Nearly all foraging dives occur at night.

At sea, these fur seals can be quite animated as they groom at the surface. They also rest in, and assume a number of postures including: head down with hind-flippers elevated and swaying in the air, as is typical of many southern fur seals; asleep at the surface with both hindflippers tucked under a foreflipper in a "jug-handle" position, and with both foreflippers or all 4 flippers held in the air. Little is known about predators, but blue and great white sharks are suspected, as are killer whales, and possibly leopard seals that infrequently visit the islands.

Feeding and prey Juan Fernandez fur seals feed on vertically-migrating prey at night. Their diet is one of the least diverse of any otariid, and along with the long foraging trips made by lactating females, reflects the low productivity of their oceanic feeding areas. Diet varies between years and probably reflects abundance and availability of prey. Myctophids are the most important fishes in the diet and onychoteuthid squid are the most important cephalopods.

Threats and status Juan Fernandez fur seals were hunted to the brink of extinction by sealers trading pelts in China. Intensive sealing began in the late 18th century and ended in the late 19th century. It is likely that several million seals were killed during this period. Small numbers were seen in the early 20th century, but the species was thought to have gone extinct shortly thereafter. They were rediscovered in the middle of the 20th century and have since been making a slow comeback. Following the 1990–91 breeding season the total population was estimated to number 12,000 animals.

The limited size of the population and the fact that the species passed through a genetic bottleneck, make this species vulnerable to catastrophic events and stress from disease outbreaks, oil spills, environmental regime shift, disturbance, and fisheries conflicts. No fisheries conflicts have been identified to date. Individual seals have been seen with plastic bands around their necks since 1982, but the level of mortality from these entanglements is unknown.

IUCN status Vulnerable.

References Aguayo 1979; Arnould 2002; Bonner 1981; Francis et al. 1998; Hubbs and Norris 1971; Torres 1987.

A subadult male Juan Fernandez fur seal grooming, showing a lightening of the pelage of the crown, nape, and neck. PHOTO: L. OSMAN

Young adult male Juan Fernandez fur seal. PHOTO: M. GOEBEL/SWFSC

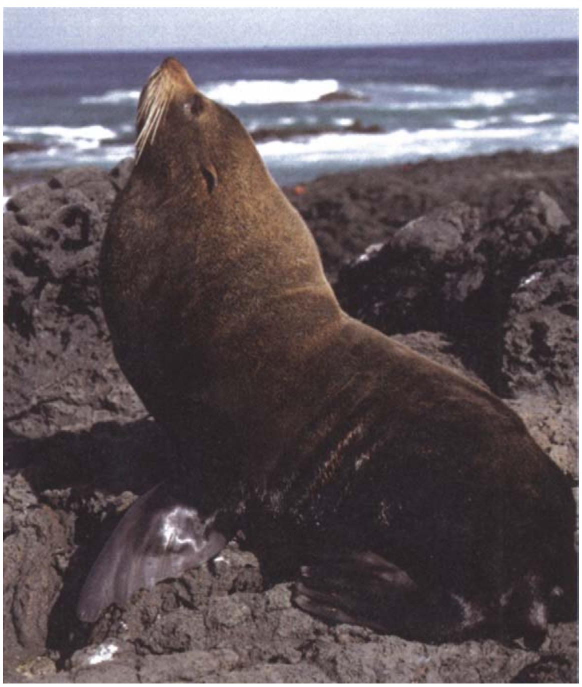
Juan Fernandez fur seal pup. PHOTO: M. GOEBEL/SWFSC

Galapagos Fur Seal—*Arctocephalus galapagoensis*

Heller, 1904

Recently-used synonyms *Arctocephalus australis galapagoensis*.

Common names En.–Galapagos fur seal; Sp.–*lobo fino de Galapagos*; Fr.–*otarie des Galapagos*.



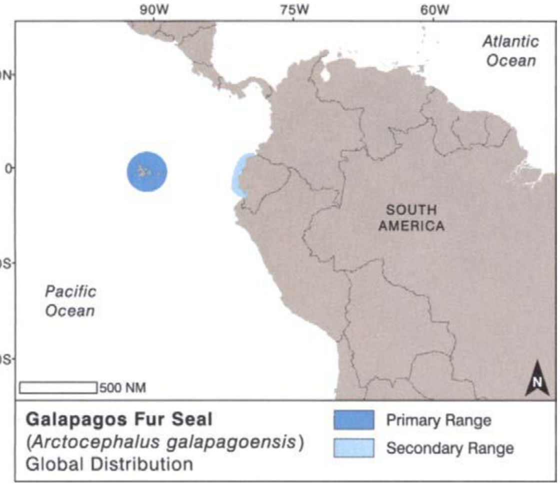
Adult male Galapagos fur seal. Note the enlarged chest and neck and pale-colored muzzle. PHOTO: G. MEYER

Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Galapagos fur seals are the smallest and the least sexually dimorphic otariid species. Adult males are 1.1–1.3 times longer and 2–2.3 times heavier than adult females. Galapagos fur seals are small and compact, and adult males are stocky in build. The muzzle is small: short, straight, and rapidly tapers in width and thickness to the small nose. Mystacial vibrissae are pale in adults. The eyes are proportionately large and the ear pinnae long and prominent.

Adult males are much thicker in the neck and shoulders than females, despite the fact that they lack a mane of longer guard hairs. Adult males do not have a conspicuous sagittal crest, but do have a slightly rounded crown and a short sloping forehead. The canine teeth of adult males are larger and thicker than those of females. Adult females and juveniles lack the thicker neck and shoulders of adult males, and have a flatter crown and barely noticeable forehead. Many adults have scars from shark attacks.

The foreflippers are short and wide and have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are



successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial, like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Galapagos fur seals are medium to dark brown above and can have silvery gray to ginger grizzling. In both sexes, most of the muzzle is pale tan and in adult males, this color extends onto the face and forehead over the eyes, giving them a small pale mask. In adult females and subadults, the chest is pale grayish-tan, sometimes continuing to the back of the neck, and the belly is tan to reddish-brown. Bulls are dark above with lighter tones below. Pups are blackish-brown, sometimes with grayish to whitish margins around the mouth and nose. Pups molt this natal coat for one that resembles that of the adult female.

The few adult males measured to date have been 1.5–1.6 m and weighed 60–68 kg. Adult females have shown a range of curvilinear lengths of 1.1–1.3 m and an average weight of about 27.3 kg, with a maximum of 33 kg. Pups are 3–4 kg at birth, and an average of 11.3 kg when they are 12 months old.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

Recognizable geographic forms None.

Can be confused with Galapagos fur seals share their restricted range in the Galapagos Archipelago with the Galapagos sea lion. The fur seal can be readily distinguished from the sea lion by its small and compact stocky body, short pointed muzzle, long pale vibrissae (on adults), thick long fur and shaggy look when wet, long prominent ear pinnae, proportionately large eyes, and equal length toes on the hindflippers. The South American sea lion has also been recorded in the Galapagos from a single stranding. All of the features that separate Galapagos fur seals from Galapagos sea lions can be used to separate them from this even larger sea lion species. Galapagos fur seals are considerably smaller than South American fur seals, and can be separated from them based on overall size, and muzzle length and color.

Distribution Galapagos fur seals are found throughout the Archipelago. Lactating females make trips of relatively short duration, suggesting they do not get far from their colonies. Foraging by males and all animals outside the breeding season is unknown. They are present on nearly

Notice the short, sharply-pointed, pale-colored muzzle of this Galapagos fur seal. The all pale vibrissae suggest an adult, and the lack of an enlarged neck, chest and shoulders suggest a female. PHOTO: P. COLLA/OCEANLIGHT

Adult female Galapagos fur seal and a pup that is only several days old, born on the mainland coast of Equador near Guayaquil. PHOTO: F. FELIX

The same newborn pup as in the photograph at left. Notice the glossy, black coat, long ear pinnae, and relatively large eyes. PHOTO: F. FELIX

Adult female and molted pup/small juvenile Galapagos fur seal. The relatively wide flat head of this species is evident on the juvenile. PHOTO: D. PÁEZ ROSAS

all of the islands in the Archipelago, and prefer to haul-out near the shoreline on rocky coasts with large boulders and ledges that provide shade and the opportunity to rest in crevices and spaces between the rocks. Most of the colonies are also located in the western and northern parts of the Archipelago, close to productive upwelling areas offshore. Galapagos fur seals are also known to occasionally haul-out on the coast of mainland Ecuador.

Ecology and behavior The behavior of the Galapagos fur seal has been extensively studied. It has a fairly long pupping and breeding season, lasting from mid-August to mid-November. The peak of pupping shifts from year to year, but usually occurs sometime from the last week of September through the first week of October.

Galapagos fur seals mature at 3–5 years old. Males do not become physically mature, and large enough to compete for a territory that will be used by females until they are much older. Males hold territories that average 200 m^2, which is large compared to the average size of territories held by other otariid males, and especially so when considering Galapagos fur seal's small size.

Colonies are located close to foraging areas and the average length of female trips is the shortest for a fur seal with a mean trip length of 1.5 days. Most foraging occurs at night and the mean depth of foraging dives is 26 m and duration is less than 2 minutes with maximum depths recorded of 115 m, and duration of 5 minutes. Pups are visited around 300 times before weaning, with attendance periods of 0.5–1.3 days. Weaning occurs at 18–36 months, with most pups being weaned in their third year. Pups born prior to the weaning of an older sibling rarely survive, with most starving to death and a small percentage being killed by the older pup. Females will allow multiple pups to nurse, but this rarely lasts long enough for the youngest pup to get strong enough to survive. In exceptional cases offspring were allowed to nurse when they were 4–5 years old.

In the water near haulouts, Galapagos fur seals raft in postures typical of many of the southern fur seal species. There is no evidence for migration, and they do not seem to spend prolonged periods of time at sea. Predators at sea include sharks and killer whales. On land, feral dogs on Isabella Island decimated colonies on the southern end of the island killing both pups and adults.

Feeding and prey Food habits are poorly known. Galapagos fur seals consume a variety of small squids including *Onychoteuthis banksi*, and a number of species of ommastrephids. A variety of fish species are also taken including myctophids and bathylagids. They seem

A wet adult male Galapagos fur seal on the mainland coast of Ecuador. PHOTO: F. FELIX

An adult female Galapagos fur seal. Notice the relatively wide, flat-topped crown of the head and pale end of the muzzle. PHOTO: G. MEYER

Galapagos fur seals are short, stocky, and compact. The scrotum is visible on the animal on the right. PHOTO: G. MEYER

A juvenile Galapagos fur seal showing the very short, pointed muzzle that is usually light-colored, the relatively large eyes, and flat-topped head. PHOTO: M. ELLIS/FOOTLOOSE FORAYS

to feed mostly at night, possibly exploiting vertically migrating species when they are at the surface.

Threats and status As with all the southern fur seals, there was a severe population decline as a result of 19th Century exploitation by sealers and whalers. The species was near extinction early in the 20th century, and has since recovered. A census conducted in 1988–89 estimated 40,000 animals. El Niño events dramatically raise pup mortality, may have an impact on the survival of other age classes, and cause population declines when upwelling and marine productivity dramatically decline around the Archipelago.

Tourism in the Galapagos, an Ecuadorian National Park, is heavy but regulated, and fur seals are protected. Episodes of entanglement in local net fisheries have been reported, but are thought to have been largely mitigated by no-fishing zones. Feral dogs on Isabela Island destroyed colonies on the south end of the island by killing seals of all ages. Subsequently, a feral dog control program was put in place, but this problem could erupt again if any remaining animals find their way to colony sites again. Both feral and pet dogs could transmit diseases to pinnipeds. Despite their population size, the Galapagos fur seal will always be vulnerable to a variety of threats because the species is restricted to a relatively small island group.

IUCN status Vulnerable.

References Arnould 2002; Bonner 1981; Clark 1975; Trillmich 1986; Trillmich 1987.

South American Fur Seal—*Arctocephalus australis*

(Zimmerman, 1783)

Recently-used synonyms None.

Common names En.–South American fur seal; Sp.–*lobo fino austral lobo de dos pelos*; Fr.–*otarie d'Amerique du sud.*

Taxonomic information Order Carnivora, Family Otariidae. Recognized subspecies are *A. a. gracilis* from Peru to Brazil in South America, and *A. a. australis* from the Falkland Islands.

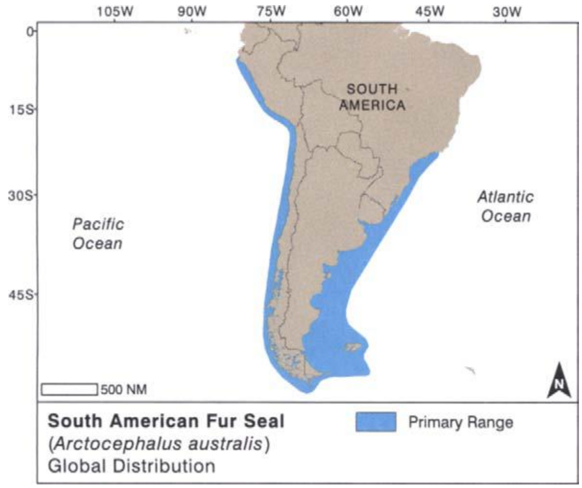
Species characteristics South American fur seals are sexually dimorphic. Adult males are approximately 1.3 times longer and 3.3 times heavier than adult females. Both adult males and females have a stocky robust build, large prominent eyes, long conspicuous ear pinnae, and moderate length pale vibrissae. The muzzle is moderately long, straight, and tapers in width and thickness to the nose. The rhinarium is slightly enlarged on the top, contributing to the somewhat upturned look to the end of the muzzle in profile. The crown is rounded and there is a conspicuous forehead that is steeper in adult males.

A South American fur seal bull with grizzled mane. New Island, Falkland Islands. PHOTO: M. WEBBER

Adult males have a very thick neck and large shoulders. They have a mane of longer guard hairs from the crown to the shoulders, including the neck and upper chest. The canine teeth of adult males are larger and thicker than those of females.

The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest



A vocalizing adult male South American fur seal with an adult female behind. Peru. PHOTO: A. PHILLIPS

Two adult male South American fur seals engaged in a boundary dispute. Peru. PHOTO: S. CÁRDENAS ALAYZA

of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial, like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Adult females and subadults are brown to grayish-black above and paler, often with mixed shades of tan, gray, and rusty brown below. The chest, ventral part of the neck, and sides of the neck are light colored to a variable extent. The head and face are dark, but the sides of the muzzle in the mystacial area are paler. The ear pinnae are pale colored, and in females and juveniles the fur at the base of the pinnae can also be lighter colored. The fur on the top of the flippers is generally quite dark. As they age, males darken and become more uniformly-colored, generally dark brown, with grizzled frosting. Some bulls are paler. At birth, pups have a longer blackish fur, but there may be some paler markings on the face and muzzle, and some animals are paler below.

Adult males reach 1.9 m and 120–160 kg (possibly 200 kg) females are about 1.4 m and 40–50 kg. Newborns are 60–65 cm and 3.5–5.5 kg.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{6}/5$.

Recognizable geographic forms Although two subspecies are recognized by most authors, there is no known way to tell them apart in the field.

Can be confused with South American fur seals share most of their range with South American sea lions. Five other otariids: Juan Fernandez, Antarctic, subantarctic, and Galapagos fur seals, and Galapagos sea lion can be found as vagrants within the range of the South American fur seal.

South American sea lions have large, blocky heads with a short, blunt muzzle, and smallish inconspicuous ear pinnae. Similar-sized South American sea lions are tan to light brown, heavy bodied, with short, sleek fur that is not dense or shaggy except for the mane on bulls.

Female, juvenile, and subadult Galapagos sea lions are also pale tan to light golden brown, with sleek fur that is not dense or shaggy. Adult male Galapagos sea lions are dark brown to black, and thus similar in color to South American fur seals, but have a conspicuous sagittal crest on the crown behind the eyes and lack a conspicuous mane. All Galapagos sea lions have a proportionately wider muzzle that is blunt on the end, with less conspicuous vibrissae, and proportionately smaller eyes and shorter ear pinnae.

Adult male, females, and a pup of the South American fur seal. Note the even-length toes of the hindflipper. New Island, Falkland Islands. PHOTO: M. WEBBER

Adult male South American fur seals sparring. Notice the steep forehead, slightly upturned muzzle, and long pale tipped guard hairs of the wet male on the right. PHOTO: C. ALLAN MORGAN

Adult male, female, and pup South American fur seals. Note the degree of sexual dimorphism. Peru. PHOTO: S. CÁRDENAS ALAYZA

A partially wet adult female and young pup South American fur seal. Peru. PHOTO: S. CÁRDENAS ALAYZA

Adult male Juan Fernandez fur seals have a longer muzzle with a bulbous, enlarged rhinarium and significantly downward-angled nares. The mane of adult males is grizzled principally on the crown, nape and upper neck whereas adult male South American fur seals are grizzled more evenly throughout the entire mane.

Galapagos fur seals are very small and stocky. The muzzle is quite short and tapers rapidly to a sharp point. Adult males have a paler "mask" of short lighter colored pelage on the muzzle and face to the eyes. Because of their small size the head of adult females seems proportionately wide.

Distinguishing adult male Antarctic fur seals from adult male South American fur seals is difficult due to similar size. Adult male Antarctic fur seals are darker brown or gray, have a shorter muzzle without any enlargement to the rhinarium and no upward angle at the end. Also, Antarctic fur seals have proportionately longer fore- and hindflippers. Subantarctic fur seals are uniquely colored with a pale face and neck. Both sexes have short, dark ear pinnae and adult males have a crest of longer pale fur on the dark crown. The flippers are proportionately small in both sexes.

With the exception of adult, female subantarctic fur seals, identifying lone adult female, subadult, or juvenile southern fur seals is usually difficult and often impossible without extensive experience. This is expecially true in an area like the southern South America where vagrants of a number of species are possible.

Distribution South American fur seals are widely-distributed from central Peru, around the southern tip of the continent, and north to southern Brazil. They also occur in the Falkland Islands. Distribution at sea is poorly-known. These seals are thought to forage primarily in continental shelf and slope waters. However, there are records from more than 600 km offshore.

Ecology and behavior Pupping and breeding takes place from mid-October through mid-December. Colonies are generally on rocky coasts on ledges above the shoreline or boulder strewn areas. Most areas provide some source of shade such as at the base of cliffs, and easy access to the water or tidal pools. Males are polygynous and territorial, and fighting can result in dramatic wounds and scars. Individual bulls can occupy territories for up to 60 days and have up to 13 females on their territories at Uruguayan colonies. Male vocalizations include a bark or whimper, a guttural threat, and a submissive call. Females growl and have a pup-attraction call that is a high-pitched wail.

Most females give birth for the first time when they are 4 years old. Pups are born shortly after females return to the colonies. Estrus is 7–10 days later, and following mating, a female begins to make foraging trips punctuated by time attending the pup ashore. Time spent on trips and attending the pup likely varies with location and changes in marine productivity such as during El Niño years for animals in Peru. Female attendance in Uruguay is effected by weather with females spending less time ashore during the day when ground temperature exceeds 36°C, and conversely, staying ashore longer during storms. Survival rates of pups can be quite low when marine productivity is low, and storm surges can sweep large numbers of pups off colonies. Locally, predation by adult male South American sea lions can be significant at some colonies. Data collected on adult females during an El Niño, resulted in mean dives to 29 m, with a maximum of 170 m, and mean duration of 2.5 minutes and maximum dive length of 7 minutes. Pups are weaned at 8 months to 2 years. Females will nurse a yearling and newborn pup.

No migration is known. Colonies on islands off Uruguay are occupied by portions of the population year-round. At sea, these fur seals may be seen traveling or rafting at the surface in groups. They will "porpoise," or leap clear of the water when moving rapidly at sea, sometimes traveling like this in large groups. While resting at the surface they spend considerable time grooming and assume many poses typical of southern fur seals, including waving both hindflippers in the air while the head is submerged. Groups often form in the water at the base of a colony. Predators include killer whales, sharks, South American sea lions, and leopard seals. Vampire bats are known to drink blood from the naked skin of the flippers of sleeping animals.

Feeding and prey Demersal and pelagic fishes make up the majority of the diet in Uruguay and include anchoveta, weakfish, cutlassfish, and anchovy. Cephalopods, lamellibranchs, and gastropods are also taken. Additional prey taken in other areas includes sardines, mackerel, and crustaceans such as lobster krill in southern Chile and the Falkland Islands where squid is also a common prey item.

Threats and status Humans have hunted South American fur seals for thousands of years. Exploitation began after discovery by Europeans and the onset of commercial sealing in the 18th century. Harvest levels declined in the 20th century, and hunting ended in many locations. A managed harvest of small numbers of adult males continues in Uruguay.

The effect of overfishing by large-scale commercial fisheries, and the ongoing take of numerous small-scale coastal fisheries has an unknown effect on the amount of food available to fur seals. Small numbers of fur seals are taken for food in Chile and Peru. The total population along the coast and offshore islands of South America is estimated at 215,000–265,000, with the majority of these in Uruguay. The Falklands population is estimated to be 15,000–20,000.

IUCN status Least Concern.

References Arnould 2002; Bonner 1981; Majluf 1987; Vaz-Ferreira 1979; Vaz-Ferreira and Ponce de Leon 1987.

South American fur seal rafting. PHOTO: C. JOHNSON

Juvenile South American fur seal. PHOTO: C. ALLAN MORGAN

New Zealand Fur Seal—*Arctocephalus forsteri*

(Lesson, 1828)

Recently-used synonyms *Arctocephalus doriferus* (population in Australia only).

Common names En.–New Zealand fur seal; Sp.–*l'otarie á fourrure de Nouvelle-Zélande*; Fr.–*otarie de Nouvelle-Zélande*.

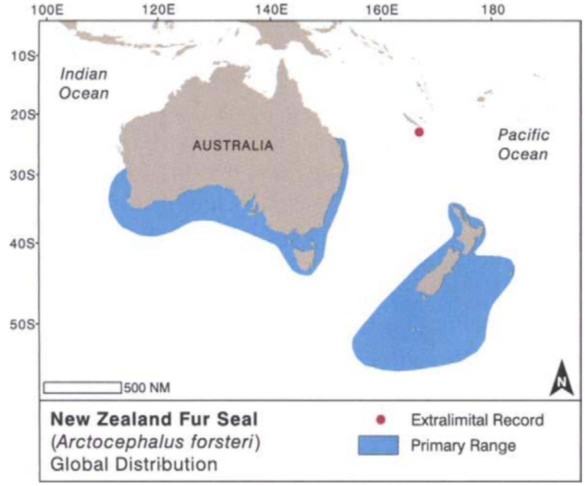
Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics New Zealand fur seals are sexually dimorphic, with adult males reaching 1.3 times the length and 3 times the weight of adult females. The muzzle is moderately long, flat, and tapers in width and depth to a slightly upturned and pointed nose. In adults, the vibrissae are pale and medium to long. The ear pinnae are long and prominent, and the eyes are almond shaped.

Adult males have a mane of elongated, coarse guard hairs covering the greatly enlarged neck, chest, and shoulders, which extends to the nape and the top of the head. The crown is somewhat rounded, due to the modest sagittal crest, and there is a slight forehead. The canine teeth of adult males are larger and thicker than those of females. Adult females, subadults and juveniles have a flatter head with a minimal forehead.

New Zealand fur seal bull showing the slightly upturned muzzle, pale vibrissae, and slight crest. PHOTO: M. JØRGENSEN

New Zealand fur seal bull with a pale muzzle and enlarged forequarters. Kaikoura, New Zealand. PHOTO: M. WEBBER



The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of the foreflippers are covered with a hairless black leathery skin. The first digit is the longest and widest, and unlike most otariids has a relatively straight leading edge, giving the flipper a triangular look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit.

The hindflippers are relatively long, and have dark, short, sparse hair covering part of the proximal end of the flipper. The rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Adults are dark olive brown or gray brown above and paler below. The muzzle is variably paler, gray to rusty tan on the end, in the mystacial area, and around the line of the mouth. The ear pinnae are brown. Adult females are paler on the undersides than males, and are also pale from the lower sides of the abdomen to the chest and neck. Pups are blackish, except for a pale muzzle and undersides. They molt to adult pelage at 2–3 months.

There is some variation in weights of adult males in the literature. Some ranges are up to a maximum of 250 kg, others to 200 kg. The largest male weighed at the Open Bay Islands of New Zealand was 154 kg. Adult males 8–12 years old had a maximum weight of 124 kg. Adult males are up to 2 m long. Adult females are 1.5 m and 30–50 kg. Pups average 3.3–3.9 kg and 40–55 cm at birth, males average 14.1 kg and females 12.6 kg around weaning at 290 days old.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

Recognizable geographic forms None. Recent studies have determined that the New Zealand and Australian populations are more genetically distinct than some other fur seal species are from each other.

Can be confused with New Zealand fur seals share their range with five other otariids: Antarctic, subantarctic, and Australian fur seals, and New Zealand and Australian sea lions. Shape of the head and muzzle, presence of a dense underfur, coloration, size and prominence of ear pinnae, and length of the toes on the hindflipper readily distinguish New Zealand fur seals from both sea lions.

New Zealand fur seal fishing. Fish that are too large to swallow whole are often brought to the surface and broken into smaller pieces. Kaikoura, New Zealand. PHOTO: K. WESTERSKOV/NATURAL IMAGES

New Zealand fur seal rafting. New Zealand. PHOTO: K. WESTERSKOV/NATURAL IMAGES

New Zealand fur seal rafting in the "jug-handle" position. PHOTO: T. JEFFERSON

Adult female and young pup New Zealand fur seal showing typical adult female pelage. PHOTO: B. PAGE

A New Zealand fur seal female with a young pup in lanugo. PHOTO: K. ABERNATHY

Australian fur seal bulls are larger and heavier but less stocky, with a long head, and wider and blunter muzzle. The guard hairs of the mane are longer, and the neck and shoulders much more massive and muscular than on New Zealand fur seal males. Generally, both male and female Australian fur seals are paler above than New Zealand fur seals.

Distinguishing New Zealand fur seals from Antarctic fur seals is difficult due to similar size, shape and coloration. Adult male Antarctic fur seals are darker than adult male New Zealand fur seals. They are darker brown or dark gray and have extensive light grizzling on the mane. They also have long, pale-colored ear pinnae, a wider and shorter straight muzzle, smaller nose, and steeper forehead. Separating females, subadults and juveniles out of range or when isolated is problematic.

Subantarctic fur seals are uniquely colored with a pale face and chest, have ear pinnae that are short and black and have a short, sharply-pointed muzzle. There is also a crest of longer, pale fur in the dark crown. Adult females have similar coloration to the males, but have less well-defined pale facial markings that can be shaded with dull yellow orange to light brown. In both sexes the top of the foreflippers is darker as is the area where the flippers attach to the sides. The fore- and hindflippers are proportionately small.

Hybrid New Zealand X Antarctic fur seals are known. The few photographs available show that they share characteristics of both species (see Note on Hybrid Southern Hemisphere Fur Seals Genus *Arctocephalus*, pages 340–341).

Distribution New Zealand fur seals are distributed in two geographically-isolated and genetically-distinct populations. In New Zealand, they occur around both the North and South Islands, with small breeding colonies on the north, and larger colonies on the west and southern coast and islands of the South Island, and on all of New Zealand's subantarctic islands. They are less common off the North Island, with no colonies, but occur as far north as the Three Kings Islands. They are present, but do not breed, on Macquarie Island in April and May.

A separate population occurs in the coastal waters of southern and western Australia, from just east of Kangaroo Island west to the southwest corner of the continent in Western Australia. Vagrants have been recorded in New Caledonia, and from a bone in a 14th century archaeological site in the Cook Islands.

New Zealand fur seals prefer rocky habitat in windy locations with shelter from the sun. They will also readily enter vegetation. They prefer waters of the continental shelf and slope, and are found widely in waters over the Campbell Plateau, south of New Zealand.

Ecology and behavior New Zealand fur seals are polygynous. Males arrive at colonies in late October before females and acquire and defend territories with vocalizations, ritualized displays, and fighting. Male territories include an average of 5–8 females with numbers varying between colonies. Pupping and breeding occurs from mid-November to January. The number of animals ashore declines rapidly in January. Male vocalizations include a bark or whimper, a guttural threat, a low-intensity threat, a full threat, and a submissive call. Females growl and call their pups with a high-pitched wail.

Most pups are born from late November to mid-December. Estrus occurs 7–8 days after a female gives birth, and they usually spend another 1–2 days ashore

Subadult male New Zealand fur seal just beginning to show enlargement of the neck and chest. PHOTO: B. SABERTON

Compare the coloration and muzzle shape between the Australian sea lion (left) and New Zealand fur seal. PHOTO: B. PAGE

Juvenile New Zealand fur seals and a paler Australian fur seal (back, left). Note the straight leading edge of the foreflipper. PHOTO: T. HASSE

with their pup before departing and beginning a cycle of foraging trips and periods of pup attendance ashore. The female uses a high-pitched trilling call to attract her pup when she returns to the rookery. Pups are weaned when they are about 10 months old. Foraging trips are shorter when the pup is young and become longer as the pup gets older. The overall mean time ashore attending the pup is a little over 3 days, and is roughly equal to the mean time of all foraging trips combined: of approximately 3.3 days.

Foraging dives by lactating females are almost entirely at night to an average depth of 15 m with a maximum depth of 163 m. Mean dive duration is 50 seconds with a maximum of 6.2 minutes. Maximum depth of dive is 275 m and length of dive is approximately 11 minutes.

New Zealand fur seals are considered non-migratory. At sea they actively groom and raft in a variety of postures typical of southern fur seals including the "jug-handle" position while sleeping at the surface. They will also porpoise when traveling rapidly. Predators include killer whales, sharks, male New Zealand sea lions, and possibly leopard seals at subantarctic islands.

Feeding and prey The diet varies by location and time of year. Nearly all foraging by lactating females occurs at night. Important prey species include both vertically migrating species, and other species that occur throughout the water column and on the bottom. In New Zealand, arrow and other squid species, barracouta, anchovy, various lanternfish species, jack mackerel, red cod, hoki, octopus, and penguins are important prey species. They also feed on shearwaters and possibly other flying marine birds.

Threats and status Humans have likely harvested New Zealand fur seals since first contacts occurred. There is evidence that Polynesian colonization of New Zealand and harvest of seals led to declines and loss of colonies on the coast of North Island. European sealers nearly exterminated the species in the 19th century, but beginning with governmental protection starting in New Zealand and Australia in the late 19th century, the species has rebounded to occupy most of its former range.

Trawl and other fisheries are a source of entanglement and drowning. Tourism and disturbance at colonies can lead to disruption of breeding behavior and site abandonment, although most colonies are on offshore islands and are relatively inaccessible. The total population is estimated at approximately 135,000 with 35,000 of these in Australia.

IUCN status Least Concern.

References Arnould 2002; Bonner 1981; Dickie and Dawson 2003; Ling 1987; Mattlin 1987; Shaughnessy 1999.

Subantarctic Fur Seal—*Arctocephalus tropicalis*

(Gray, 1872)

Recently-used synonyms *Arctocephalus tropicalis tropicalis.*

Common names En.–Subantarctic, or Amsterdam fur seal; Sp.-*lobo fino de subantarctico*; Fr.–*otarie subantarctique.*

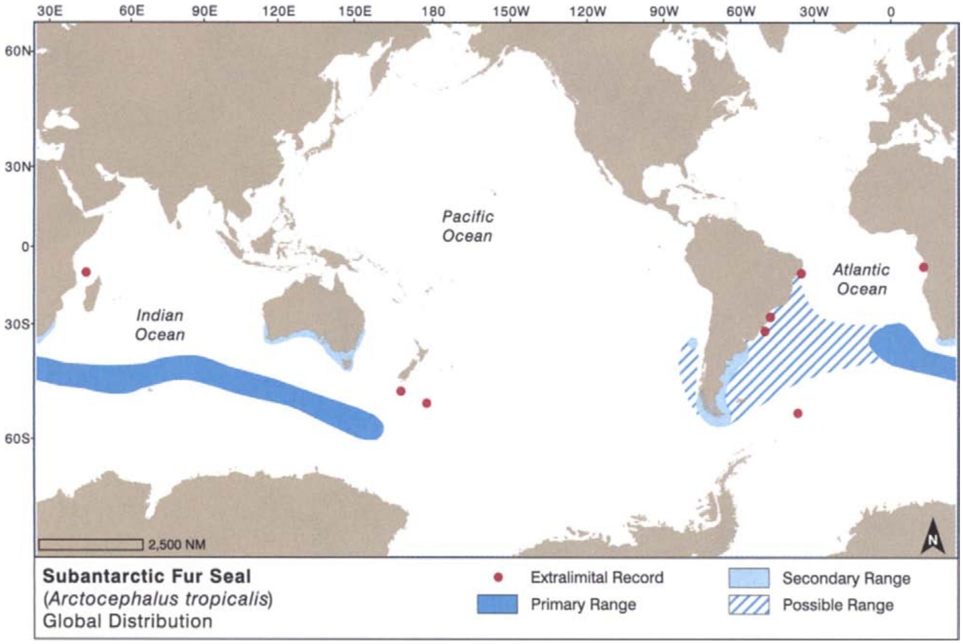
Taxonomic information Order Carnivora, Family Otariidae.

Species characteristics Subantarctic fur seals are sexually dimorphic, with adult males being 3 times heavier and 1.2–1.3 times longer than females. In both sexes, the muzzle is straight, short, and narrow, and tapers rapidly in width and thickness to a pointed end. The rhinarium is small. A forehead, more abrupt in males, separates the muzzle from the elevated, but somewhat flattened, crown. The vibrissae are very long and pale, and often reach well past the ears and down the neck. The short, dark, ear pinnae with naked tips, lie close to the head and are not particularly prominent. The eyes are rounded and teardrop shaped.

An adult male subantarctic fur seal. PHOTO: M. JØRGENSEN

Adult males are heavily-built; their enlarged chest and shoulders make the neck appear short. They develop a prominent tuft, or crest of long guard hairs on top of the head above and behind the eyes and forehead. The guard hairs on the neck and chest are somewhat longer than those on the rest of the body, but there is no conspicuous mane and grizzling is absent. Adult females, young subadult males, and juveniles do not have the crest of hair on the crown.

Overall, both the fore- and hindflippers are proportionately short and broad in all age classes and both sexes. A series of vagrant animals found in South Africa had foreflippers that measured from 19–26% of body length and hindflippers that were 12–16% of body length. The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest



and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. Each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Subantarctic fur seals are uniquely and strikingly colored. The back and rump of adult males are dark gray to brownish-black, subadults darkening as they age. From the chest through the muzzle, face, and area around the eyes, the pelage is continuously cream colored, with yellow to orange shading possible. The ear pinnae are dark, and attach in the dark pelage of the upperparts. The crest of longer fur above the eyes and behind the forehead is pale and is situated in the dark fur of the crown.

Adult females have similar coloration to males, but have less well-defined pale facial markings, which can be shaded with dull yellow orange to light reddish-brown. In both sexes, the top of the foreflippers is darker, as is the area where the flippers attach to the sides. The underside of the abdomen is dark ginger to reddish-brown.

Adult males are up to 1.8 m long and weigh 70–165 kg, and adult females are 1.19–1.52 m long and weigh 25–67 kg, with a mean of around 50 kg. Newborns are about 60 cm long and weigh 4–4.4 kg.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

A juvenile male subantarctic fur seal rafting near shore in a "jug-handle" position. PHOTO: M. JØRGENSEN

A subantarctic fur seal "porpoising." Note the long vibrissae and orange tinged face and neck. PHOTO: T. JACOBSEN/POLARIMAGES

Note the pale face and chest, and short hindflippers of this adult male subantarctic fur seal. PHOTO: T. JACOBSEN/POLARIMAGES

The hindflippers are proportionately shorter on subantarctic fur seals than on other fur seal species. PHOTO: I. CHARRIER

An adult male subantarctic fur seal showing the crest of fur on the crown. PHOTO: T. JACOBSEN/POLARIMAGES

Adult male subantarctic fur seal with crest, long vibrissae, pale face and chest. PHOTO: G. HOFMEYER

Recognizable geographic forms None.

Can be confused with Subantarctic fur seals can be differentiated from all sea lions by their distinctive coloration, short and sharply pointed muzzle, large eyes, long white vibrissae, proportionately short and wide flippers, and thick pelage. They can be differentiated from all southern fur seals by their distinctive coloration and proportionately small flippers.

Hybrid subantarctic X Antarctic fur seals are known. The few photographs available show that they share characteristics of both species (see Note on Hybrid Southern Hemisphere Fur Seals Genus *Arctocephalus*, pages 340–341).

Distribution Subantarctic fur seals are widely-distributed in the Southern Hemisphere. They breed on subantarctic islands north of the Antarctic Polar Front, including Prince Edward, Marion, Crozet, and Macquarie islands, and north of the Subtropical Front at Tristan da Cunha, Gough, and Saint Paul and Amsterdam Islands. The northern limit of their range is not well-known, but vagrants have appeared in Brazil, the Juan Fernandez Islands, southern South America, southern Africa, Madagascar, Australia and Tasmania, and South Island, New Zealand. Subantarctic fur seals have also been recorded south of the convergence at South Georgia, and on the Antarctic continent at Davis and Mawson bases.

Ecology and behavior Subantarctic fur seals are polygynous, with males defending territories with vocal and postural displays and fighting. Typical territories include 1–5 females and are located on boulder-strewn beaches, at the foot of cliffs, shoreline ledges and terraces, and in shallow shoreline caves and grottos. Most areas have sources of shade or are exposed to prevailing winds. Male vocalizations include a bark or whimper, a guttural threat, a low-intensity threat, possibly a full threat, and a submissive call. Females growl and have a pup-attraction call that is a mournful wail without trilling.

Pups are born from late October to early January, with a peak in mid-December. Females give birth within 6 days of arriving at the colony and estrus and mating occur 8–12 days later. Females spend the time between the birth of their pups and estrus with their newborn before departing for their first foraging trip. Females wean their pups in approximately 10 months. Trip length by lactating females increases over the course of the summer from 5.7 to 10.8 days. Also during the summer, dives become deeper and slightly longer, starting at a mean of 16.6 m and increasing to a mean of 19 m. Dive duration at this time is generally just over 1 minute. In the winter, fur seals spend longer periods at sea, with a mean of almost 23 days, diving to a mean depth of 29 m for 1.5 minutes, with a maximum depth of 208 m and maximum duration of 6.5 minutes. Subantarctic fur seals are ashore for the annual molt between February and April.

Subantarctic fur seals share several breeding islands with Antarctic fur seals. Hybrids are known, and

Adult female subantarctic fur seals have similar coloration to adult males. Pups are dark, glossy black. PHOTO: I. CHARRIER

The short flippers and short pointed muzzle are visible on these plump juvenile subantarctic fur seals. PHOTO: I. CHARRIER

have grown to maturity and bred. With the exception of some information on appearance and vocalizations little is known of the foraging and behavior of these hybrids.

Little is known of their behavior at sea. Except for cows with pups, most of the population spends much of the winter and spring (June–September) at sea. Predators include killer whales, sharks, and at Macquarie Island, New Zealand sea lions.

Feeding and prey Generally, they are known to feed on varieties of nototheniid fishes, cephalopods, krill, and penguins. It has been estimated that their diet is 50% cephalopods, 45% fish, and 5% krill at the Prince Edward Islands. At Amsterdam Island they feed on cephalopods, fish, and rockhopper penguins.

Threats and status As with all other southern fur seals, subantarctic fur seals were over-exploited by sealers in the 19^{th} century and were hovering on the brink of extinction at the beginning of the 20^{th} century. Since then they have rebounded to refill much of their former range.

The total population is believed to be greater than the 310,000 animals estimated in 1987, as all indications are that it has been steadily growing since that time. Subantarctic fur seals live in some of the most remote oceanic areas, and breed on many of the most isolated islands on Earth. All of the breeding islands are managed as protected areas or parks by the governments that claim them. Human visitation and disruption from scientific research activities is minimal. Fisheries takes and entanglement in marine debris are not well understood, but are not listed as a major threat in status reviews.

IUCN status Least Concern.

References Arnould 2002; Bester 1987; Bonner 1981; Georges and Guinet 2000; Guinet et al. 1994; Shaughnessy 1982.

Juvenile subantarctic fur seal. Notice the very short, sharply pointed muzzle, and relatively short flippers. PHOTO: T. JACOBSEN/POLARIMAGES

A young subantarctic fur seal pup showing the short muzzle and short flippers of this species. PHOTO: I. CHARRIER

Antarctic Fur Seal—*Arctocephalus gazella*

(Peters, 1875)

Recently-used synonyms *Arctocephalus tropicalis gazella.*

Taxonomic information Order Carnivora, Family Otariidae.

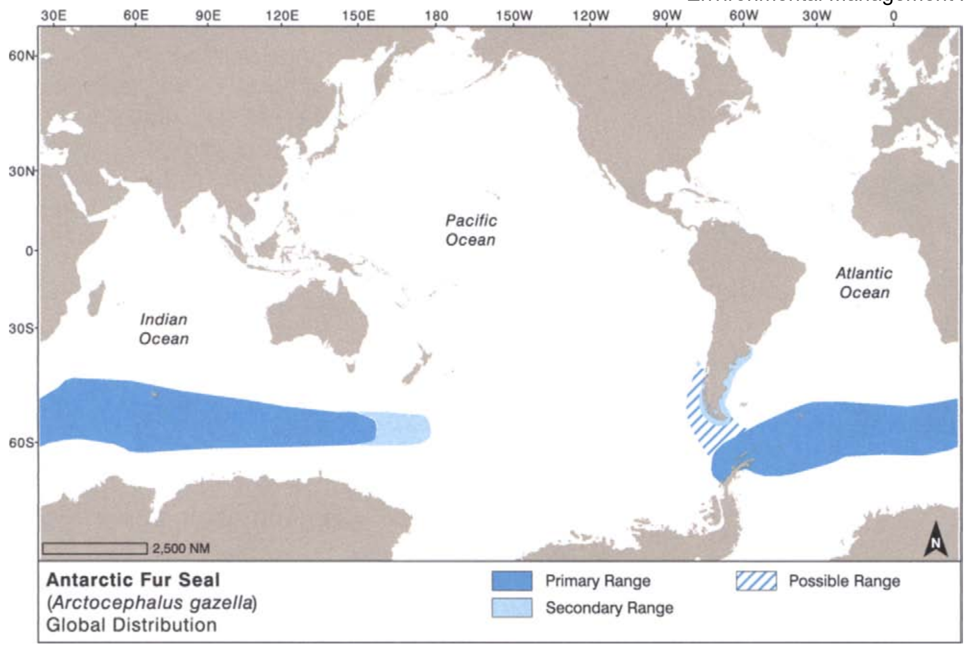
Common names En.–Antarctic fur seal; Sp.–*lobo fino antartico*; Fr.–*otarie antarctique.*

Species characteristics Antarctic fur seals are strongly sexually dimorphic with adult males 4–5 times the mass and 1.4–1.5 times the length of adult females. The muzzle is a medium length and width, straight, and tapers to a moderately pointed end. The rhinarium is modest in size and does not extend much past the mouth. The ear pinnae are long, prominent, and pale in color usually with lighter tips. The eyes are almond-shaped. The pale vibrissae are long and conspicuous. On adult males they are some of the longest found on any pinniped, reaching 35–50 cm.

Adult males develop a mane of thicker, coarser guard hairs on the chest, neck, and top of the head. The neck and shoulders are also greatly enlarged with fat and the development of muscles in older adult males. Adult females, subadults and juveniles are difficult to tell apart from males until the latter begin to grow larger when they are 4–6 years old. Juveniles and subadults have dark, to mixed light and dark vibrissae, becoming lighter as they age, and become pale when they are adults.

The fore- and hindflippers are proportionately long, at 28–33%, respectively, and 22–28% respectively of the total body length of all age classes. The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a

Adult male and adult female Antarctic fur seals showing the extent of sexual dimorphism in this species. Males have a thick, grizzled mane which adds bulk to their larger size. South Georgia. PHOTO: M. WEBBER



"V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers are long and dark, with short, sparse hair covering part of the proximal end of the flipper and the entire sole is covered in black, leathery skin. Each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial, like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Adult females and subadults are gray to brownish-gray above and cream to light gray below with shades of ginger and reddish-brown. There is usually an area of pale color of variable extent on the sides between the flippers. Pale color extends from the chest variably up the neck and on the sides of the neck to as high as the throat, eyes, and muzzle. The dark fur on the top of the foreflippers extends into the area where the foreflipper attaches at the

A large, brown, adult male Antarctic fur seal showing the enlarged chest, shoulders, and long vibrissae. PHOTO: D. WALKER

Subadult male Antarctic fur seal on an ice floe. This species will haul-out on sea ice far from shore. PHOTO: M. JØRGENSEN

Antarctic fur seal mother and nursing pup showing dark dorsal color of the adult female and pale areas in the face. South Georgia. PHOTO: M. WEBBER

Antarctic fur seal mother and pup showing the light gray neck, dark band on the chest, and chestnut colored abdomen of adult females. South Georgia. PHOTO: M. WEBBER

Adult female Antarctic fur seal leucistic or "golden phase" with a normally colored pup. Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN

shoulder. Additional lighter areas often surround where the ear pinnae attach and are also on the scrolled pinnae. There is a variable amount of cream to reddish-brown color on the muzzle in the mystacial area. Newly molted juveniles have the same color pattern as adult females, but are silvery-gray in all lighter areas. At birth, pups are blackish, though they may be pale on the face and muzzle, and some animals are paler below.

Adult males are dark grayish-brown to charcoal, with off-white to silver grizzling on the guard hairs of the back, mane, and flanks. The long guard hairs of the mane often bunch up and reveal the fawn color underfur.

A cream- to honey-colored, leucistic morph of the Antarctic fur seal is seen at a rate of 1–2 per thousand at South Georgia. These golden animals are not albinos. They have normally pigmented eyes and paler, but not unpigmented, skin. The guard hairs on these pale animals lacks pigment, and the underfur and skin are paler than in normally-pigmented animals.

Adult males on breeding territories can be up to 2 m long, but are usually around 1.8 m long. Mean weight is 188 kg, but they can weigh 133–204 kg. Adult females are 1.2–1.4 m and 22–51 kg, with a mean weight of 26 kg. Newborns are 63–67 cm long, and weigh 6–7 kg.

The dental formula is $I\ ^{3}/_{2}$, $C\ ^{1}/_{1}$, $PC\ ^{6}/_{5}$.

Recognizable geographic forms None.

Can be confused with Antarctic fur seals can be confused with southern otariids that share their range or where Antarctic fur seal vagrants have been found. Subantarctic, New Zealand, South American, and Juan Fernandez fur seals, and South American and New Zealand sea lions are the most likely species to consider.

Subantarctic fur seals are uniquely colored with a very pale chest and face, and have short, dark ear pinnae. Males also have a crest of longer pale fur in the dark crown. The flippers are proportionately small on all comparable sizes of subantarctic fur seals.

Separating New Zealand and South American fur seals from Antarctic fur seals can be problematic especially with females and immature animals. Adult male New Zealand and South American fur seals are stockier in build with a longer, more pointed muzzle that appears slightly upturned at the nose. Adult male Antarctic fur seals are generally darker with paler grizzling than on either the grayer brown New Zealand or light to dark brown South American fur seals. New Zealand fur seals have brown ear pinnae while South American fur seals have pale pinnae. Separating adult female, subadult and juvenile New Zealand and South American fur seals from Antarctic fur seals of similar size and age is more problematic due to overlap of coloration. Note the muzzle size and rhinarium size and shape.

Adult male Juan Fernandez fur seals have a longer muzzle, distinctive bulbous rhinarium, and unique coloration of the crown, nape and upper neck. Separation of adult female, and subadult, and juvenile Juan Fernandez fur seals from Antarctic fur seals is problematic. In general, adult female Juan Fernandez fur seals are somewhat larger than female Antarctic fur seals, and have a longer muzzle, larger rhinarium and downward oriented nares, and a more rounded crown.

Hybrid Antarctic X subantarctic, and Antarctic X New Zealand fur seals are known. The few photographs

Subadult male Antarctic fur seals. Notice the guard hairs on the neck of both animals is just beginning to lengthen and become a mane. PHOTO: L. CUNNINGHAM

A young subadult male Antarctic fur seal with elements of adult female coloration. Sexing juveniles is difficult without seeing the pattern of genital openings. PHOTO: M. WEBBER

Newly molted juvenile Antarctic fur seals are very pale colored. Marion Island, Prince Edward Islands. PHOTO: P. J. N. DE BRUYN

Antarctic fur seal juveniles and a pup just beginning to molt. PHOTO: D. WALKER

available show that they share characteristics of both species (see Note on Hybrid Southern Hemisphere Fur Seals Genus *Arctocephalus*, pages 340–341).

Antarctic fur seals can be differentiated from all Southern Hemisphere sea lions by their coloration, narrower, pointed muzzle, proportionately large eyes, long, pale vibrissae, and thick pelage. Sea lions have large, blocky heads with blunt-ended and wide muzzles, and are paler in color than comparably-sized animals. Adult males of all sea lions are much larger and distinctive.

Distribution Antarctic fur seals are widely distributed in waters south, and in some areas slightly north, of the Antarctic Convergence. Most of the population breeds on South Georgia and Bird islands, but colonies are widely spread-out and can be found in the South Shetland, South Orkney, South Sandwich, Prince Edward, Marion, Crozet, Kerguelan, Heard, McDonald, Macquarie, and Bouvetoya islands. Vagrants have been found in southern South America, the Juan Fernandez Islands, and at Australia's Mawson Station on the Antarctic Continent.

Males haul-out extensively in the mid- and late summer on islands along the Antarctic Peninsula. Ashore, they prefer rocky habitats, but will readily haul-out on sandy beaches and move into vegetation zones such as tussock grass. They disperse widely at sea. Distribution and movements in winter are not well-known. Males and subadults occur south to the edge of the consolidated pack ice, and can be found hauled-out on sea ice.

Ecology and behavior Antarctic fur seals are highly polygynous. Many males arrive at the colonies in late October 2–3 weeks before the first females arrive and establish themselves on territories. Males continue to arrive and challenge for territories through much of the season. Territories are acquired and held with vocalizations, threat postures and fighting. In prime areas territories can be as small as 20 m^2 and have up to 19 females. The mean length of tenure for bulls at South Georgia is approximately 34 days. Male vocalizations include a bark or whimper, a guttural threat, a low-intensity threat, and a submissive call. Females growl and have a pup-

A young bull Antarctic fur seal with almond-shaped eyes and long vibrissae. PHOTO: M. JØRGENSEN

Antarctic fur seal "porpoising" at sea near South Georgia. This is a subadult male because of the dark neck and sides, and robust looking neck and shoulders. PHOTO: M. WEBBER

attraction call that is a high-pitched wail that usually includes trilling.

Females begin to arrive in mid-November and most pupping and breeding occurs from late November to late December. They give birth 1–2 days after arrival at the colony, attend their pup for 6–7 days, come into estrus and mate, and then depart minutes to hours after mating for their first foraging trip. The length of foraging trips and attendance periods varies by year depending on the availability of the lactating female's chief prey, adult krill. Generally, 4–5 days at sea are followed by 2–3 days attendance on land. Lactating females routinely dive to 8–30 m and are submerged for less than 2 minutes, but have been recorded to depths of 181 m, and to undertake dives that have lasted 10 minutes. Mean dive depth and duration increase during the lactation period.

Pups are weaned in about 4 months. After they wean their pups, females disperse widely, possibly migrating north and are not seen at the colonies much until the next breeding season. Bulls also depart breeding areas, but subadults and adult males can be seen around the rookeries at South Georgia all year.

Like other southern fur seals, Antarctic fur seals porpoise when swimming rapidly. When rafting they often assume many of the typical fur seal resting postures. At other times, they can be found busily engaged in grooming. Predators include killer whales, leopard seals, and at Macquarie Island, New Zealand sea lions. Leopard seals have had a dramatic effect on several re-colonized areas in the South Shetland Islands and have caused a decline at one site due to their extensive predation on pups.

Feeding and prey The diet varies by season and location. Adult females at South Georgia feed heavily and selectively on adult krill. At Heard Island krill is not available and lactating females prey primarily on fish such as myctophids and mackerel icefish. In the winter, males and subadult males at South Georgia take krill and a variety of fish that eat krill, while squid and myctophids are only a small percentage of the diet. At Heard Island in the winter squid and myctophid fish dominate the diet. Foraging patterns of females in summer indicate nocturnal feeding.

Antarctic fur seals will eat penguins. Adult males have been documented chasing, killing and eating King penguins on land on Marion Island. They are also known to take Macaroni and Gentoo penguins in the water at Heard, Macquarie, and South Georgia islands.

Threats and status As was the case for all other southern fur seals, sealers drove the species to the brink of extinction by the late 19th century. The colony at South Georgia was thought to be as small as 100 animals in the 1930s. Today the population is estimated to exceed 3 million animals and is believed to be growing and expanding at a rapid rate with 95% of these using the colony at South Georgia.

The Antarctic Treaty and the Convention for the Conservation of Antarctic Seals protect this fur seal below 60° S. Various efforts to launch commercial fisheries for krill near South Georgia have been unsuccessful. Trawling activities developing around Macquarie Island may effect the prey base of the primarily fish-eating Antarctic fur seals that breed on those islands. No direct fisheries conflicts involving regular entanglements are known to exist.

Antarctic fur seals become entangled in marine debris such as discarded fishing line, nets, packing bands and anything that can form a collar. It was estimated from a 1988–89 study, that the numbers entangled might be as high as 1% of the total population, with the majority of the impact on juveniles and subadults, particularly males.

IUCN status Least Concern.

References Arnould 2002; Bengston 1988; Bonner 1981; Boyd et al. 1991; Croxall et al. 1988; Guinet et al. 1994.

South African and Australian Fur Seals—*Arctocephalus pusillus*

(Schreber, 1775)

Recently-used synonyms *Arctocephalus doriferus*, *Arctocephalus tasmanicus* (both for the Australian subspecies).

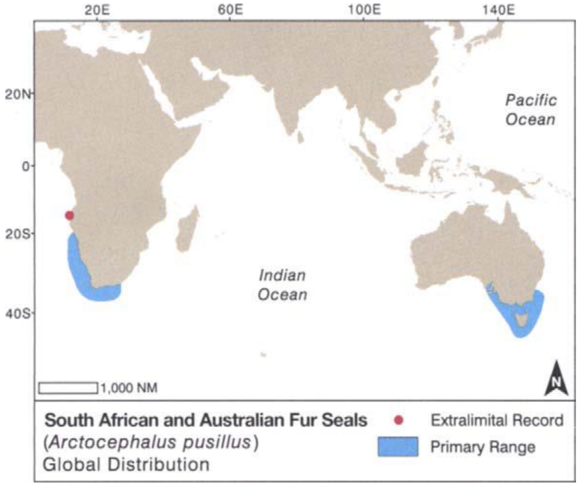
Common names *A. p. pusillus*: En.–South African or Cape fur seal; Sp.–*lobo marino de dos pelos de Sudafrica*; Fr.–*otarie du Cap. A. p. doriferus*: En.–Australian or Tasmanian fur seal; Sp.–*l'otarie á fourrure australe*; Fr.–*otarie d'Australie*

Taxonomic information Order Carnivora, Family Otariidae. There are two widely-separated subspecies: *A. p. pusillus* in southern Africa, and *A. p. doriferus* in southern Australia.

Species characteristics These two subspecies are the largest fur seals and have a high degree of sexual dimorphism. Adult males are 3.5 to almost 4.5 times heavier, and approximately 1.3–1.9 times longer, than females. Both sexes of Australian fur seals average heavier than their South African counterparts. Adult female Australian fur seals average slightly longer, and males slightly shorter than females and males of the South African subspecies, and the relationship between female and male Australian animals is closer, with males being about 1.1–1.8 times longer than females.

Both subspecies have been described as the most sea lion-like fur seals. In both, the head is large and wide, and the crown rounded in adult males and flatter in females. There is a sloping forehead that is more prominent in adult males, and less steep, but still present, on females. The muzzle is robust and long, flat and wide on top, tapering only somewhat in width and thickness to

There is less sexual dimorphism in overall size in South African and Australian fur seals than in most other otariids. Notice the enlarged forequarters of the adult males and the long straight muzzle on these South African fur seals. PHOTO: C. STEWARDSON



the large conspicuous nose. The rhinarium is large, wide and rounded in adult males, less so in adult females, and extends beyond the end of the mouth. The ear pinnae are long and prominent. The vibrissae are moderately long, pale, and regularly extend to the ear pinnae. Adult males are greatly enlarged in the neck and shoulders, with a mane of longer guard hairs from the nape and neck to shoulders and chest. Adult females, subadults, and juveniles are robust, but normally proportioned in the neck and shoulders.

The foreflippers have a dark, sparse, short fur that extends beyond the wrist onto the middle of the dorsal surface of the flipper in a "V" pattern that does not reach the rounded tip. The rest of the dorsal surface and the palms of both foreflippers are covered with a hairless black leathery skin. The first digit is the longest, widest and thickest, and curves posteriorly, giving the flipper a swept-back look. Digits 2–5 are successively shorter. There is a small opening in the skin at the end of each digit for a claw that is usually reduced to a vestigial nodule, and rarely emerges above the skin. The claw openings are set back from the free edge of the flippers by cartilaginous rods that extend the length of each digit, and expand the size of the flippers.

The hindflippers have dark, short, sparse hair covering part of the proximal end of the flipper, and the rest of the dorsal surface, and the entire sole is covered in black leathery hairless skin. The hindflippers are long and each digit has a cartilaginous rod that adds a flap-like extension to each toe. The bones of the three central toes terminate at the position of the small nails that emerge through the skin on the dorsal surface, set back from the end of the flipper. The claws of digits 1 and 5 are vestigial, like the claws on the foreflippers, and may or may not emerge from small openings set back from the end of the flaps. All of the flaps at the end of the flipper are of relatively equal length. The first toe or hallux and the fifth toe are somewhat wider than toes 2–4.

Adults are tan to grayish-brown with yellowish to orange highlights above and on the neck, and variably paler with reddish-brown shades on the abdomen. Males are usually darker than females and darken as they age. South African fur seals are generally darker than animals from Australia. The guard hairs have a slight grizzled appearance, especially on bulls. Females, subadults and juveniles can be lighter on the chest. The mystacial area can be paler. The tops of the flippers are very dark. Part of the ear pinnae and the area around the insertions of the pinnae are paler, however the tips of the pinnae are naked and dark in older animals. Pups are blackish, with variable hints of silver overall, and can be paler below. They first molt at 4–5 months to an olive-gray coat. As juveniles, they molt a year later into a silvery-gray coat.

Adult male Australian fur seals average just less than 2 m, and can reach 2.3 m in length. They attain an average weight of 279 kg, and can weigh up to 360 kg. Adult females are 1.2–1.8 m in length, and attain an average weight of 76 kg, and can weigh up to 110 kg. Newborns average 73 cm in length. Female newborns average

Adult female and male Australian fur seals. Notice the long pointed muzzle and the mane of longer guard hairs on the neck and chest of the bull. PHOTO: G. ABEL

A wet bull Australian fur seal showing the slight forehead, the long pointed muzzle, and shaggy mane of long guard hairs. Phillip Island, Australia. PHOTO: R. KIRKWOOD

A female Australian fur seal showing the long muzzle and slight forehead. The dark vibrissae with lighter tips suggest a younger animal. PHOTO: R. KIRKWOOD

The ear pinnae of fur seals are especially noticeable when an animal is wet, as on this juvenile Australian fur seal PHOTO: R. KIRKWOOD

A young subadult male Australian fur seal showing the long pointed muzzle, and the low-angle forehead. PHOTO: R. KIRKWOOD

7.1 kg, and males 8.1 kg in weight. Adult male South African fur seals are 2–2.3 m long, average 247 kg in weight, and may reach 353 kg. Adult females are 120–160 cm long and weigh an average of 57 kg, with a maximum of 107 kg. Pups are born at around 6 kg and are 60–70 cm long.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{6}/_{5}$.

Recognizable geographic forms Although there are two widely-recognized subspecies that are slightly different in average size and weight of adults, there is otherwise no published information available on external differences between the two forms.

Can be confused with South African and Australian fur seals both share their ranges with vagrant subantarctic fur seals.

For the Australian fur seal, New Zealand fur seals and Australian sea lions pose a regular chance for confusion. New Zealand fur seals are grayer and darker, have a thinner and proportionately longer, more pointed, and slightly upturned muzzle, a more flattened crown, and darker brown ear pinnae. They are stocky, but smaller overall. The mane of Australian fur seal males is more conspicuous. On land, Australian fur seals move one foreflipper forward at a time, and the head sways from side to side with an alternating gait used by many sea lions. New Zealand fur seals extend both foreflippers ahead at the same time in a bounding gait.

Australian sea lions have large, blocky heads with a wide, blunt muzzle, distinctive coloration, lack the longer, thicker pelage of the Australian fur sea, and have shorter ear pinnae.

Subantarctic fur seals are uniquely colored with a pale head and chest. The ear pinnae are dark and short. Adult males have a crest of longer pale fur in the dark crown. Subantarctic fur seals also have proportionately small flippers.

Distribution South African fur seals are found along the south and southwest coasts of southern Africa, from South Africa to Angola. Australian fur seals are found along the coast and continental shelf and slope waters from western Victoria, east along the coast to the southeast corner of Australia, then north through most of New South Wales. The range also includes Tasmania, and the islands of Bass Strait. Australian fur seals will travel up to 160 km offshore. On land, they prefer preference for rocky habitat.

Ecology and behavior Both subspecies are highly polygynous. Adult males arrive at the colonies first. Breeding is from late October to the beginning of January. Males establish and defend territories with vocalizations, ritualized postures and fighting. The territories of bulls are a

Two reddish-brown, probably rookery-stained adult male South African fur seals surrounded by females and pups. In addition to being larger than females, adult males have much thicker necks and shoulders. PHOTO: R. L. PITMAN

Adult female and young juvenile Australian fur seal. Although pale, these fur seals have contrasting areas of color as found on other fur seal species. Notice the dark top of the fore flipper and area around the flipper insertion. Phillip Island, Australia. PHOTO: R. KIRKWOOD

A very robust adult female Australian fur seal as seen from above. This is the typical appearance of female otariids with a proportionately small head and lack of muscular enlargement of the neck. This animal is in prime condition. Phillip Island, Australia. PHOTO: R. KIRKWOOD

Australian fur seal pups, like most otariid species, form groups or crèches when their mothers depart for foraging trips. Phillip Island, Australia. PHOTO: R. KIRKWOOD

mean of 62 m^2 and hold about 9 females on average. Male vocalizations include a bark or whimper, and a guttural threat. Females have a threat and a bawling pup attraction call.

Female Australian fur seals come ashore and give birth 1.5–2 days after arrival. The peak is in the first week of December, although there is some variation between colonies. Females attend the pup for 8–9 days before coming into estrus, mating, and departing on their first foraging trip. Foraging trips get longer as the season progresses from summer to winter, changing from a mean of 3.71 to 6.77 days. Periods of attendance stayed the same from birth to weaning, and had a mean length of 1.7 days. Pups are usually weaned at 10–12 months even though some pups begin to forage at 7 months, and others are nursed for 2–3 years. The data are similar for South African fur seals, except that foraging intervals are much shorter, probably reflecting greater availability of food near the colonies in the productive, upwelling waters off southwest South Africa.

Foraging dives by lactating Australian fur seal females are usually to 65–85 m with a maximum of 164 m, and last 2–3.7 minutes with a maximum recorded duration of 8.9 minutes. Unlike many other fur seals, considerable foraging occurs during the day. Two lactating female South African fur seals dove shallower averaging 41 and 49 m respectively, but had much deeper maximum dive depths of 191 and 204 m.

At sea, this species is found alone or in small groups, often gathering in huge rafts adjacent to rookeries. They adopt a variety of poses while resting in the water, including the "jug-handle." They also purposely entangle themselves in rafts of kelp, possibly using the kelp as an anchor and for camouflage. When traveling rapidly, they sometimes "porpoise." Neither of the subspecies is migratory; they move more locally within their restricted ranges. Predators include killer whales and great white sharks at sea, and black-backed jackals and brown hyenas for South African fur seals at their mainland colonies.

Feeding and prey Both subspecies are opportunistic feeders that take a wide variety of prey, including pelagic, mid-water, and benthic animals. Australian fur seals take squid, octopus, barracouta, whiting, flathead, red mullet, parrotfish, leather jackets, pilchards, and rock lobsters. For South African fur seals, the diet consists of fish (75%), cephalopods (17%), and crustaceans (8%). Important species are cape hake, horse mackerel, pelagic goby, pilchards, anchovy, squid of the genus *Loligo*, rock lobster, shrimp, prawns, and amphipods. South African fur seals have also been reported to occasionally take jackass penguins and several species of flying seabirds.

Threats and status South African and Australian fur seals were hunted heavily in the 19th century and both

A South African fur seal grooming. This is probably an adult female due to the all pale vibrissae on a smaller animal. PHOTO: J. POKLEN

This adult female South African fur seal shows the long muzzle and pale color typical for this species. Skeleton Coast, Namibia. PHOTO: M. JØRGENSEN

This subadult male South African fur has darkened in color and is beginning to develop a larger neck and chest. PHOTO: R. L. PITMAN

Adult female and pup South African fur seals at Cape Cross, Namibia. PHOTO: IFAW/A. BANNISTER

The hindflippers of this South African fur seal and pup are typical of all *Arctocephalus* species. PHOTO: M. JØRGENSEN

populations were driven to very low levels. With protection, both have recovered, although the South African subspecies to a much greater extent than the Australian. South African fur seals numbered approximately 1.7–2 million animals in 1990, and the population was estimated to be increasing at a rate of 3% per year. Australian fur seals were estimated to number 35,000–60,000 in the early 2000s.

Fur seal harvests in South Africa were suspended in 1990, but are ongoing in Namibia. The South African fur seal is considered to be detrimental to commercial fisheries, costing large sums in damaged gear and stolen and damaged catch annually. Some are taken incidentally in fishing operations every year. Also, significant numbers of South African fur seals are known to become entangled in marine debris such as packing bands, discarded lines and nets, and other material that can become a collar around an animal's neck. Rates of entanglement vary by colony, but have been estimated to be between 0.12–0.66%. There is a potential for human disturbance from tourism at several large colonies. The population of South African fur seals is located beside one of the busiest shipping lanes for oil tankers, and is at risk from the potential for a catastrophic oil spill. Conflicts exist with commercial fisheries off South Africa, where this fur seal forages around trawlers bringing in their nets.

Australian fur seals are protected from harvest. There are conflicts with local commercial fisheries from fur seals stealing catch, damaging gear, and becoming entangled in nets and traps. They are considered a pest species by some, and are shot under permit to protect fishing gear and catch. Mortality is highest and more significant for younger age classes. They also live close to human population centers and agricultural areas and are exposed to a wide variety of pollutants through the food chain.

IUCN status Least Concern (for both subspecies).

References Arnould 2002; Arnould and Hindell 2001; Bonner 1981; David 1987; Shaughnessy 1985; Shaughnessy 1999; Shaughnessy and Warneke 1987.

Walrus—*Odobenus rosmarus*

(Linnaeus, 1758)

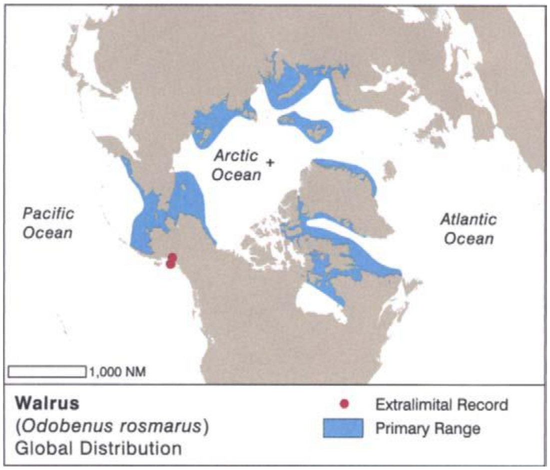
Recently-used synonyms None.

Common names En.–walrus, Pacific walrus, Atlantic walrus, Laptev walrus; Sp.–*morsa*; Fr.–*morse*.

Taxonomic information Order Carnivora, Family Odobenidae. Three subspecies are recognized: Atlantic, *O. r. rosmarus*, from the eastern Canadian Arctic, and Greenland east to Novaya Zemlya; Pacific, *O. r. divergens*, in the Bering Sea and adjacent Arctic Ocean, and *O. r. laptevi*, in the Laptev Sea, north of Siberia.

Species characteristics Walruses are very large, heavy-bodied pinnipeds. Males are longer and heavier than females. Adults have a short coarse pelage that becomes sparse as they age, more so for males than females. The skin is thick, rough and heavily marked with creases and folds. Older males have many lumps called tubercles on the neck and chest, giving them a warty appearance, and most become virtually hairless. The neck, chest, and shoulders are massive, and the body tapers towards the hindflippers. The head, and the muzzle, are short, but very wide. The "bloodshot" eyes are small, somewhat protruding, and set far apart. The end of the muzzle is flattened and has large, fleshy, forward-facing mystacial pads sprouting several hundred short, stiff, pale vibrissae. The nostrils are located on top of the muzzle. Walruses have no ear pinnae.

The foreflippers are short and squarish, resembling otariid foreflippers, but unlike otariids, each digit has a weakly developed claw. The hindflippers are phocid-like, with longer first and fifth digits, and strong expandable webbing between the digits, each with a small claw. The tail is attached to the body by a web of skin.



A large adult male Atlantic walrus with thick rolls of fat on the neck and shoulders. Svalbard. PHOTO: M. JØRGENSEN

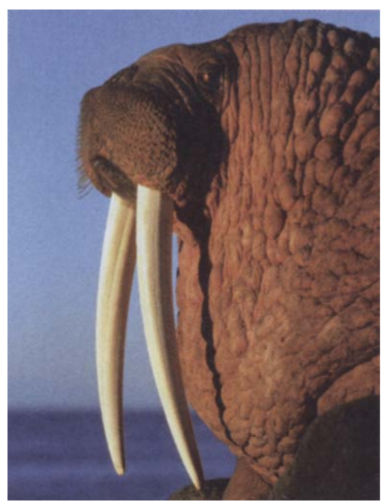
Walrus coloration varies with age and activity. Most walruses are yellowish- to reddish-brown. When walruses remain in cold water for long periods of time, their coloration fades to a pale grayish-hue, due to reduced blood flow to the skin, known as peripheral vaso-constriction. Conversely, when they come out of the water, vaso-dilation causes blood and color to return to the skin, and under warm conditions, causes the animals to appear pink to reddish, giving them the appearance of having a sunburn. Calves are darker with slate-gray fur.

Males reach about 3.6 m and 880–1560 kg, females about 3 m and 580–1039 kg. Newborns are 1–1.4 m and weigh 33–85 kg.

The dental formula is: I $^{1}/_{0}$, C $^{1}/_{1}$, PC $^{3}/_{3}$. Walruses are unique among pinnipeds, as the upper canine teeth develop into tusks that grow throughout life. The tusks are longer (up to 1 m) and thicker, with more grooves and fracture lines in males than in females, and one or both tusks can be partially, or entirely, broken off in adults of both sexes. Tusks also tend to be less curved and more divergent at the tips in males. In general, adult male and female Pacific walruses have longer tusks than Atlantic walruses. Tusks about a meter long can be found on male Pacific walruses. Walrus calves are born without tusks, but they generally become visible below the lips at age 3–4 in the Pacific population.

Recognizable geographic forms There may rarely be transits of the Canadian Arctic Archipelago, resulting in either Pacific or Atlantic walruses showing up in the other's range. This would present an interesting identification problem. Some useful features to look for are: adult Pacific walruses of both sexes generally have longer, thicker, and more curving tusks than similar size and age Atlantic walruses, although there is overlap in tusk length. Pacific walruses have wider skulls than Atlantic walruses, and as a result, have somewhat wider heads and muzzles. There is overlap in the overall size of adults, and size is not a useful feature for separating Pacific and Atlantic walruses. Adult male Pacific walruses regularly have more

This large adult male Pacific walrus shows the wide, deep, face of bulls of this species. Note the robust lower jaw, and thick tusks. Bering Sea. PHOTO: T. FISCHBACH/USGS



Pacific walrus bull with very long tusks. and many tubercles. Round Island, Alaska. PHOTO: J. GARLICH-MILLER/USFWS

Female Pacific walrus and calf. Cow faces are narrower than those of bulls. Barrow, Alaska. PHOTO: T. FISCHBACH/USGS

An adult female Atlantic walrus with a young, dark calf. PHOTO: I. CHARRIER

Female Pacific walrus with broken tusks and her yearling calf that has budding tusks. Bering Sea. PHOTO: T. FISCHBACH/USGS

Female Pacific walruses will push their calves on the surface until they are able to swim well. PHOTO: T. FISCHBACH/USGS

pronounced tubercles on the neck, chest, and shoulders than Atlantic walruses.

The status of the Laptev walrus as a subspecies is unclear. It is thought that they are most closely related to Pacific walruses, but this is uncertain. The appearance, distribution, and movements of Laptev walruses are poorly known, and as a result, identifying Laptev walruses outside their range should be considered problematic.

Can be confused with Walruses are unmistakable on land or ice and in most sightings at sea. At sea they should not be confused with any other species if more than the back is seen during a surface period.

Distribution Walruses have a discontinuous circumpolar distribution in the Arctic and subarctic. The Pacific subspecies is found in the Bering and Chukchi seas to the East Siberian Sea in the west and the Western Beaufort Sea in the east. The Atlantic subspecies occurs in numerous subpopulations from the Eastern Canadian Arctic and Hudson Bay, to the Kara Sea. The Laptev walrus is isolated in the Laptev Sea north of central Russia. All three subspecies of walrus are found in relatively shallow continental shelf areas, and rarely occur in deeper waters. They regularly haul-out on sea ice, sandy beaches, and rocky shores, to rest, molt, give birth and nurse their young.

Ecology and behavior Calves are born from mid-April to mid-June on sea ice. Courtship and mating has been little studied, because walruses mate in the harsh winter environment of the Arctic. It is believed that walruses are polygynous and that males may form a type of lek with small aquatic territories adjacent to females on ice floes, where they vocalize and display. There is also intense male-male fighting at this time.

Males produce an unusual bell-like sound when they are in the water. A pair of elastic pharyngeal pouches can be inflated with air and provide flotation when a walrus is resting in the water. Walruses can walk and climb on land by using all four flippers to move the body in the manner of an otariid, although they are far less agile and move much more slowly. In the water they primarily rely on side-to-side sculling strokes of the hindflippers for swimming in the manner of a phocid.

In the Pacific, walrus migration follows the seasonal advance and retreat of the sea ice. However, some walruses, particularly males, summer far from the sea ice, using land-based haulouts in Bristol Bay, Alaska, some islands in the Bering Sea, and in Russia from the Chukotka to the Kamchatka peninsulas. Walruses also haul-out on shore, away from ice in years of reduced pack ice. Walruses are among the most gregarious of pinnipeds. When hauled-out, they are regularly found in tightly hud-

Adult female Atlantic walrus. Atlantic females usually have shorter tusks than Pacifics. Svalbard. PHOTO: M. JØRGENSEN

A pair of subadult Atlantic walruses. Notice the short tusks. Svalbard. PHOTO: M. JØRGENSEN

A recently hauled-out gray male Pacific walrus is gray from vaso-constriction. Cape Seniavin, Alaska. PHOTO M. SNIVELY/USFWS

An ice floe packed with Pacific walruses is not uncommon for this gregarious species. Bering Strait. PHOTO: M. WEBBER/USFWS

dled masses, often lying on top of each other; at sea they are often seen in large herds. Tusks are used for aggressive displays, fighting, and pulling themselves onto ice floes, not for digging up food.

Feeding and prey Walruses feed on a variety of prey, chiefly benthic invertebrates including: clams, worms, snails, shrimp, and slow-moving fish. Some "rogue" walruses are known to prey on seals and small whales.

Threats and status The current population level of Pacific walruses is uncertain, but roughly estimated to be 200,000. This is also the case for the Laptev population, estimated to be 4,000–5,000. The better-known Atlantic population is about 10,000–19,000. All three populations were severely depleted by episodic commercial hunting that was heaviest from the 18th through the mid-20th centuries. Native peoples of the Arctic have depended on walruses for food, hides, ivory, bones and more since first contact, and subsistence harvests continue today in many parts of the species' range. Conflicts with fisheries are low. However, industrial development, dispersal of pollutants, and human disturbance along with global warming and associated reduction in sea ice extent and duration all have the potential to cause significant impacts on walrus populations.

IUCN status Data Deficient (*laptevi* subspecies); Least Concern (other subspecies).

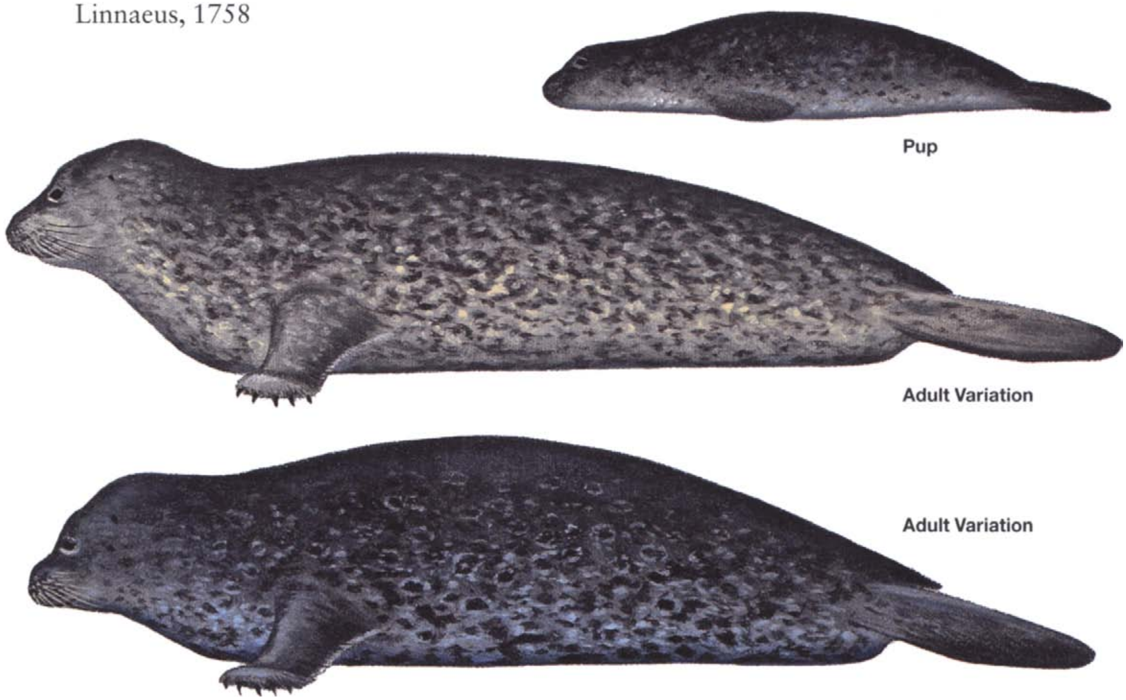
References Fay 1981; Fay 1982; Fay 1985; Fay et al. 1997; Gilbert 1999; Kastelein 2002.

Male Pacific walrus tusks (bottom) are thicker with more ridges and cracks than those of females. PHOTO: USFWS

An unusual adult male Atlantic walrus with three tusks. Svalbard. PHOTO: M. JØRGENSEN

Harbor Seal—*Phoca vitulina*

Linnaeus, 1758



Recently-used synonyms None.

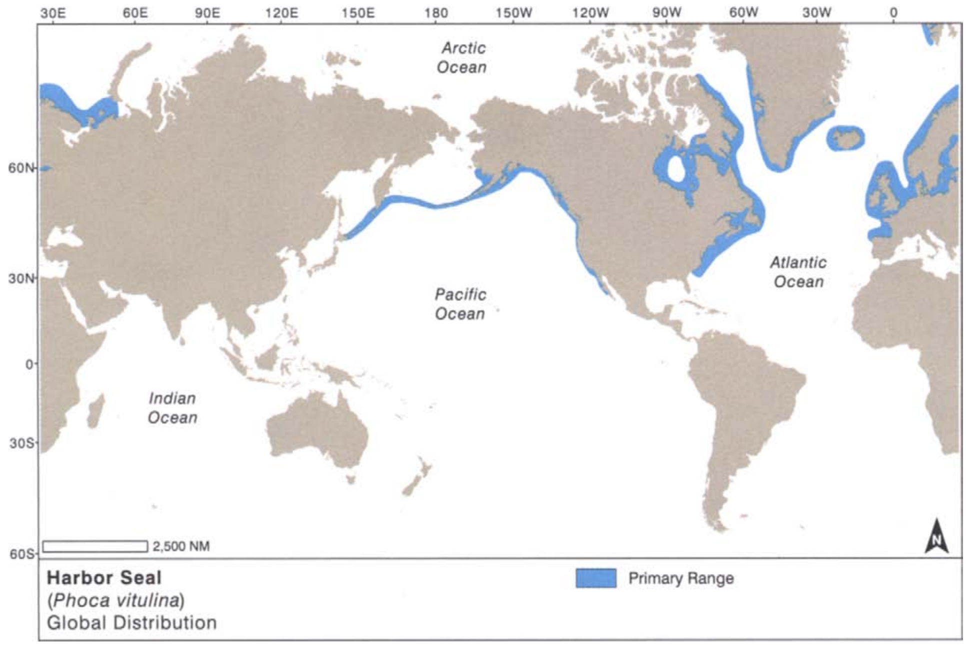
Common names En.–harbor seal, common seal; Sp.–*foca común*; Fr.–*phoque veau marin*.

Taxonomic information Order Carnivora, Family Phocidae. Five subspecies are currently recognized: *P. v. vitulina* in the eastern Atlantic; *P. v. concolor* in the western Atlantic; *P. v. mellonae*, in fresh water lakes in the Ungava Peninsula, Canada; *P. v. richardii* in the eastern Pacific; and *P. v. stejnegeri* in the western Pacific.

Species characteristics Harbor seals are small phocids. They have a torpedo-like body shape with little differentiation of neck or hips, with a thick, solid appearance. The head is medium-sized, and the eyes are relatively close-set, the inner corners being about as far apart as the outer edges of the nostrils. There are prominent light-colored, beaded vibrissae above the eyes and on the tapering, somewhat short muzzle. The nostrils are small and terminal, forming a "V" that converges at the bottom. The external ear openings are conspicuous, and positioned slightly behind and below the eyes. Harbor seals are not obviously sexually dimorphic, and observation of the pattern of genital openings and the presence or absence of mammary openings on the ventrum, or the close association of a pup with its mother are required to separate the sexes. The flippers are relatively short, only about $^1/5$ to $^1/6$ of standard length, with long, thin, dark hooked claws on all digits. The ends of the foreflippers are somewhat pointed, with a longer first digit and successively shorter digits two through five.

A lighter phase (and wet) *P. v. vitulina* harbor seal with her dark phase pup. Scotland. PHOTO: L. CUNNINGHAM

The most conspicuous feature of the variably-colored coat is the presence of many fine to medium-sized spots, usually with smaller numbers of ring-like markings and blotches. The markings are usually scattered liberally over the body, with higher densities occurring dorsally than ventrally. Fusion of markings, and the appearance of markings superimposed on other markings impart a confused speckled appearance to the backs of many animals. The most common base color pattern is a light to dark gray, or brown-gray, dorsally, forming a mantle or saddle, lightening to a paler belly in a countershaded pattern. Many dark-pelage animals are uniformly dark brown-black above and below, and appear to have only pale rings and ovals. In some localities,



a small percentage of animals have a rust-colored tinge to the head, which in extreme cases can form a complete hood that reaches the flippers and back. Most pups shed their silvery-gray lanugo coat in the uterus before birth. Exceptions to this include pups born early in the breeding season or those born prematurely.

The dental formula is I $^3/2$, C $^1/1$, PC $^5/5$.

Adult males are up to 1.9 m long and weigh 70–150 kg, females 1.7 m and 60–110 kg. At birth, pups are 65–100 cm and 8–12 kg.

Recognizable geographic forms Five subspecies of harbor seal are recognized. Unfortunately, there are no external characteristics known that could be used to identify individuals to any of the named populations, and identifications in the field are generally made based on location.

Can be confused with Eight other phocids share the range with one or more subspecies of harbor seal. Features for distinguishing harbor seals from northern elephant, gray, hooded, ringed, spotted, harp and ribbon seals are given in those respective species accounts. In the North Pacific, spotted seals pose the greatest identification challenge, and cannot reliably be separated from harbor seals where they share the same habitats, even by most experienced observers.

Distribution Harbor seals are one of the most widespread of the pinnipeds. They are confined to coastal areas of the Northern Hemisphere, from temperate to Polar regions. Five subspecies are recognized: *P. v. vitulina* occurs in the eastern Atlantic from northern Portugal to the Barents Sea in northwestern Russia, and north to Svalbard; *P. v. concolor* occurs in the western Atlantic from the mid-Atlantic United States to the Canadian Arctic and east to Greenland and Iceland; *P. v. richardii* is found in the eastern Pacific from central Baja California, Mexico, to the end of the Alaskan Peninsula, and possibly to the eastern Aleutian Islands; *P. v. stejnegeri* ranges

A group of dark-phase harbor seals from the *P. v. richardii* population. La Jolla Cove, California. PHOTO: P. COLLA/OCEANLIGHT

Dark phase, adult male harbor seal (foreground) from the *P. v. vitulina* population in Scotland. PHOTO: L. CUNNINGHAM

P. v. vitulina harbor seal. The short muzzle and slight forehead distinguish this from the gray seal. PHOTO: G. CRESSWELL

A dark *P. v. vitulina* harbor seal with numerous light rings and irregular markings. Scotland. PHOTO: L. CUNNINGHAM

A light *P. v. vitulina* with a high density of small dark spots. The vibrissae resemble a chain of beads. PHOTO: L. CUNNINGHAM

A brown phase of *P. v. vitulina* with a large number of lighter rings fusing on its back. Scotland. PHOTO: L. CUNNINGHAM

A molting *P. v. vitulina* harbor seal. The new coat is light gray on this animal. Scotland. PHOTO: L. CUNNINGHAM

A dark phase adult harbor seal from the *P. v. stejnegri* subspecies. Kamchatka Peninsula, Russia. PHOTO: M. JØRGENSEN

An especially pale juvenile *P. v. richardii* harbor seal with a low density of spots. PHOTO: P. COLLA/OCEANLIGHT

from either the end of the Alaskan Peninsula or the eastern Aleutians to the Commander Islands, Kamchatka, and through the Kuril Islands to Hokkaido in the western Pacific; and *P. v. mellonae*, occurring in rivers and landlocked lakes of the Ungava Penninsula, Canada.

Ecology and behavior Harbor seals are mainly found in the coastal waters of the continental shelf and slope, and can be found commonly in bays, rivers, estuaries, and intertidal areas, and are essentially non-migratory. On land, harbor seals are extremely wary and shy, and it is almost impossible to approach them when they are ashore without stampeding them into the water. In contrast, when in the water, they can be curious, often craning their necks to peer at people on shore or in boats. Most harbor seal haulout sites are used daily, based on tidal cycles, although foraging trips can last for several days.

Harbor seals are gregarious at haulout sites; however they usually do not lie in contact with each other. A hissing rolling growl is one of the few vocalizations made by this seal, and it frequently accompanies foreflipper slapping, batting and scratching of neighbors when a seal is agitated. This is a common occurrence at crowded haulouts where animals moving and shifting positions bump into or move too close to one another. At sea, they are most often seen alone, but occasionally occur in small groups. Localized aggregations can form in response to feeding opportunities.

The mating system is promiscuous or weakly polygynous. Mating usually takes place in the water, during the February to October breeding season. Pupping peaks sometime between April and July. In some regions, pupping occurs earlier in more southerly areas of a given population's range.

Feeding and prey Harbor seals are generalist feeders taking a wide variety of fish, cephalopods, and crustaceans obtained from surface, mid-water, and benthic habitats. Although primarily coastal, dives to over 500 m have been recorded.

Threats and status Many harbor seals live in close proximity to large populations of humans and are exposed to high levels of industrial, urban, and agricultural pollutants. Both chronic oil spills and discharges, and episodic large scale spills cause direct mortality, and have long term impacts on harbor seal health and their environment.

Harbor seals live in coastal areas in the middle of some of the most heavily fished waters on Earth, and as a result there are entanglement issues as well as effects on the food chains they depend on for their prey. There are also conflicts with smaller, localized fisheries, and historically there have been organized population reduction programs and bounties for taking seals.

Mass die-offs from viral outbreaks have claimed thousands of harbor seals. In the late 1980s more than 18,000 harbor seals are estimated to have been killed by a phocine distemper virus (morbillivirus). Exposure to diseases from terrestrial carnivores, including human pets, creates an increased risk of exposure to communicable diseases. Immunosuppression from chronic exposure to pollutant contaminants probably contributes to harbor seal susceptibility to diseases.

Despite the fact than most harbor seals live in relatively close proximity to humans, their population levels are generally not well-known. Combining recent estimates yields a world-wide population of 300,000 to 500,000 animals. The subspecies *P. v. stejnegeri* of the western Pacific (approximately 7,000), and *P. v. mellonae* (120–600) of the rivers and seal lakes of the lower Ungava Peninsula, Canada, may be the subspecies most at risk due to low population numbers. Isolated populations in Svalbard and the Baltic Sea, both in the hundreds, are also dangerously low.

IUCN status Data Deficient (*mellonae* subspecies), Least Concern (other subspecies).

References Bigg 1981; Burns 2002; Dietz et al. 1989; Harkonen and Heide-Jorgensen 1990; Heide-Jorgenssen and Harkonen 1988; Hoover 1988; Payne and Selzer 1989.

Harbor (foreground) and northern elephant seals (background) differ in many ways including adult size, markings and coloration, body proportions and features of the head and flippers. Todos Santos Island, Mexico. PHOTO: I. SZCZEPANIAK

A harbor seal in the foreground and a gray seal behind in Europe. Coloration is not useful for telling harbor and gray seals apart, as both species have light and dark phases and can be many shades of gray and brown. PHOTO: G. CRESSWELL

Harbor seals can have a bright, rusty-red pelage on the head and front of the body. *P. v. richardii* population. San Francisco Bay, California. PHOTO: E. GRIGG

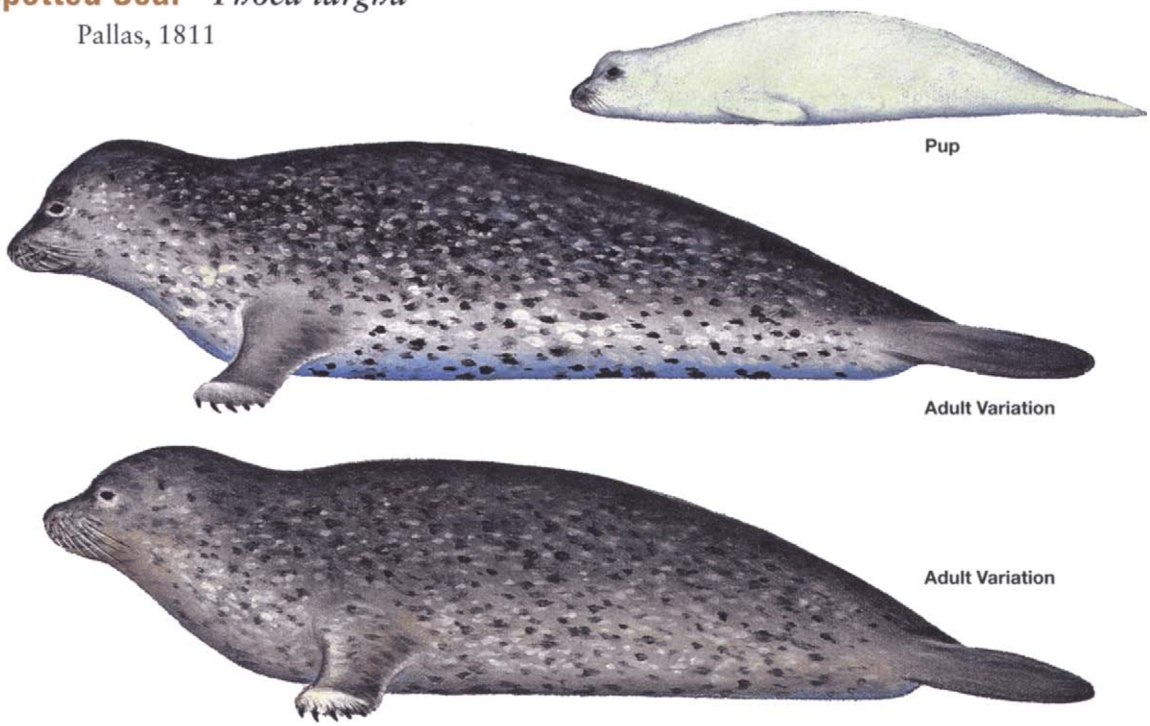
Harbor seals swim with alternate side-to-side sculling of the hindflippers like nearly all phocids. This seal is from the *P. v. richardii* population. PHOTO: P. COLLA/OCEANLIGHT

Phocidae

Harbor Seal

Spotted Seal—*Phoca largha*

Pallas, 1811



Recently-used synonyms None.

Common names En.–spotted seal or largha seal; Sp.–*foca largha*; Fr.–*veau marin du Pacifique*.

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics The spotted seal is a sibling species with the harbor seal. The coloration is generally pale, silver gray above and below. However, darker and brownish morphs also occur. The usually darker mantle is dominated by even darker oval spots of fairly uniform size (1–2 cm) and generally oriented parallel to the long axis of the body. There can be light rings around the spots, or large irregular spots or blotches. Spotting tends to be of fairly even distribution and darkness overall. Pups are born with a long, woolly, whitish lanugo, which is shed 2–4 weeks.

The dental formula of adults is I $^{3}/2$, C $^{1}/1$, PC $^{5}/5$.

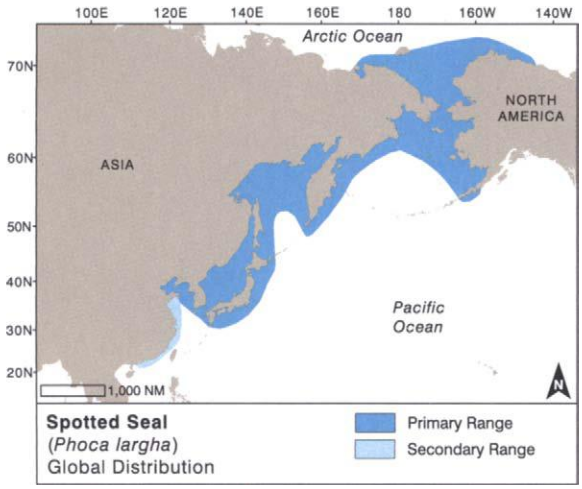
Adult males are up to 1.7 m and females to 1.6 m long. Adults weigh 82–123 kg. At birth, spotted seals are 77–92 cm long and weigh 7–12 kg.

A probable mating triad of spotted seals in spring. Southern Bering Sea. PHOTO: G. BRADY/NMFS

Recognizable geographic forms None.

Can be confused with Spotted seals share their range with ringed, ribbon, bearded, and harbor seals. Ribbon seals lack spots and have broad, pale to white bands on a black or brown body, or as juveniles are gray above and lighter below, but in all age classes, ribbon seals lack the abundant spots of the spotted seal.

The range of the eastern Pacific and western Pacific subspecies of the harbor seal overlaps with the range of the spotted seal. Unfortunately, the consistent differences between the



species are features of the skull and genetic characteristics. Coloration, body size, and shape overlap in the two species. The only known features for separating the species in the field, are behavioral. Spotted seals give birth on sea ice and usually are alone or accompanied by a male. Harbor seals give birth on land or glacial ice in haulout groups typical of the sites where they are found year-round. In addition to being born in a long gray lanugo coat, spotted seals spend their first weeks on the ice, while harbor seals are generally born in a short hair coat similar to the adult, and are able to swim within hours of birth. Where they occur together, spotted seals give birth up to 2 months earlier than harbor seals.

Spotted seals haul-out on land in Bristol Bay, Alaska where they can be found in mixed groups with harbor seals. Very experienced observers can separate them from harbor seals based on behavior, response to disturbance, and subtle differences in facial features.

Spotted seals and ringed seals can be confused. Spotted seals are longer and proportionately leaner, with a longer neck, head, and muzzle. Spotted seals rarely have many rings, whereas ringed seals have an abundance of rings and a low density of less conspicuous spots. Pups of both species are born in a long, grayish lanugo coat and would be difficult to tell apart if away from adults. However, spotted seal pups are born on top of ice floes, whereas ringed seal pups are born in lairs under snow and ice.

Distribution Spotted seals are widespread in the Sea of Okhotsk and the Sea of Japan, and reach China in the northern Yellow Sea. They are widespread in the Bering and Chukchi seas and range north into the Arctic Ocean north to about the edge of the continental shelf, west to about 170° E and east to the Mackenzie River Delta in Canada. They inhabit the southern edges of the pack ice from winter to early summer. In late summer and fall, spotted seals move into coastal areas, including river mouths. They breed exclusively, and haul-out regularly, on sea ice, but do come ashore on beaches, sandbars, mudflats, and rocky reefs.

Ecology and behavior Spotted seals are annually monogamous and territorial. Breeding takes place on pack ice from January to mid-April. Peak numbers of pups are born mid- to late March. Males associate with females and their pups, on sea ice, forming triads.

Feeding and prey Adults can dive to at least 300 m, and feed on a wide variety of organisms; composition of diet varies with the age of the seal, and on seasonal variation in abundance of preferred prey species. Newly weaned pups feed on small crustaceans, advance to schooling fishes, larger crustaceans, and octopuses, and finally "graduate" to higher percentages of bottom dwelling fish species.

Dark and light phase spotted seals. Note the head, muzzle and lower jaw shape. Korea. PHOTO: H. W. KIM

A light phase juvenile spotted seal with a darker mantle. Korea. PHOTO: H. W. KIM

Many spotted seals spend considerable time away from sea ice. Yellow Sea, near Korea. PHOTO: H. W. KIM

An unusual rusty-headed female spotted seal with pup. Southern Bering Sea. PHOTO: G. BRADY/NMFS

A wet spotted seal with excellent detail on the head shape, countershaded coloration and mix of spots and rings. Southern Bering Sea. PHOTO: G. BRADY/NMFS

A tagged and recently released spotted seal. Compared to the undersides, the upper surface is usually darker, more spotted and marked with more rings. PHOTO: M. CAMERON/MNFS

An older spotted seal pup about to begin to molt the light colored lanugo. Southern Bering Sea. PHOTO: S. DAHLE /NMFS

Juvenile spotted seal molting the lanugo birth coat to reveal a countershaded, heavily spotted coat. PHOTO: K. FROST

Spotted seals are variable in coloration like harbor seals, with pale to dark phase animals. Korea. PHOTO: H. W. KIM

Threats and status Subsistence hunting of spotted seals has no doubt occurred since humans made first contact with the species. Intensive harvesting of commercial fish species in the North Pacific and southern Bering Sea poses an as-yet unquantified risk. Entanglement in commercial fishing gear occurs in Japan and the Sea of Okhotsk, and population culls regularly occur in Japan. The latest estimate for the populations of the spotted seal is by area: 100,000–135,000 in the Bering Sea; 100,000–130,000 in the Sea of Okhotsk; and 4,500 in the Bohai Sea off China.

These light phase spotted seals have few or no rings. Korea. PHOTO: H. W. KIM

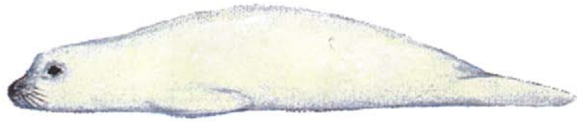
Global climatic change, including global warming, and decreases in annual sea ice development and extent of coverage pose an unknown, but potentially serious, threat to this pagophilic species.

IUCN status Least Concern.

References Angliss and Lodge 2004; Bigg 1981; Bradford and Weller 2005; Burns 2002; Lowry et al. 2000; Mizuno et al. 2002; Quakenbush 1988; Rugh et al. 1997.

Ringed Seal—*Pusa hispida*

(Schreber, 1775)



Pup

Adult Variation

Adult Variation

Recently-used synonyms *Phoca hispida.*

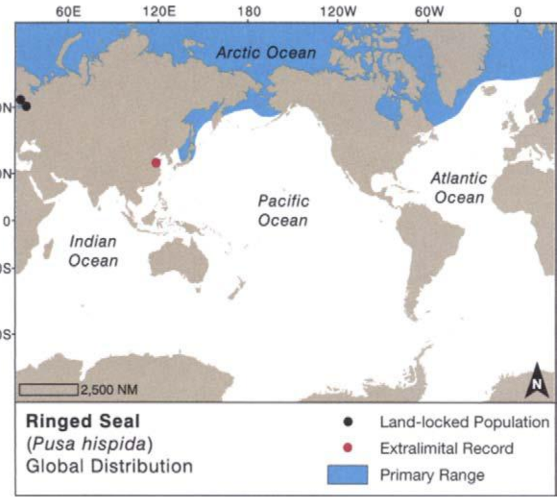
Common names En.–ringed seal; Sp.–*foca marbreada*; Fr.–*phoque annelé ou marbré*.

Taxonomic information Order Carnivora, Family Phocidae. There are five recognized subspecies: *P. h. hispida*, in the Arctic basin; *P. h. ochotensis*, in the Seas of Okhotsk and Japan; *P. h. saimensis*, in Lake Saimaa; *P. h. ladogensis*, in Lake Ladoga, and *P. h. botnica*, in the Baltic Sea.

Species characteristics Ringed seals resemble harbor and spotted seals, but are decidedly plumper (axillary girth may reach 80% of length). They also have a smaller, somewhat rounded head and muzzle, and a conspicuously short and thick neck. The muzzle is short, slightly broader than thick, and blunt. The vibrissae are light-colored and beaded. The eyes are relatively large and conspicuous. More than in other northern phocids, the size of the head and muzzle, and the close-set forward-facing eyes, impart a cat-like appearance. The foreflippers are relatively small and slightly pointed, as in the harbor seal.

The background coloration is variable, but normally is medium to dark gray above and light gray to silver below. Ringed seals are conspicuously marked with light gray to off-white rings that encircle "spots" of the darker dorsal and lateral background pelage coloration. Some ringed seals can be so heavily marked, that many rings and spots fuse, creating a confused paint-splattered appearance. The lighter colored sides have a variable number of dark spots that do not appear to be encircled by rings because of the paler lateral and ventral pelage. Pups are born with a wooly, thick, whitish lanugo. Fur of the succeeding coat is

This adult ringed seal was released after capture and tagging, and shows the complex pattern of interconnected rings and numerous spots typical of this species. Hudson Bay, Canada. PHOTO: B. DUNN



finer and slightly longer than that of adults, and is dark gray above, merging to silver below. There may be a few scattered dark spots on the undersides of these juveniles, and few, if any, rings on the back. At this stage, they are known as "silver jars".

The dental formula is: I $^3/_2$, C $^1/_1$, PC $^5/_5$.

Adults are up to about 1.65 m in length. Weight is 50–70 kg, with a maximum of 110 kg. Pups average about 60–65 cm and 4–5 kg at birth.

Recognizable geographic forms There are five recognized geographic forms of ringed seal. Of these, the primary subspecies that occupies most of the Arctic, *P. h. hispida* and the the Sea of Okhotsk subspecies *P. h. ochotensis* are very similar, and can only be can be separated in the field based on location of sighting. *P. h. botnica* is cut-off from the main ringed seal population through isolation in the Baltic Sea. This subspecies is dark overall with a scattering of light rings and may be the largest subspecies. Both the Saimaa *P. h. saimensis* and Ladoga *P. h. ladogensis* populations live in fresh-water lakes isolated from the Baltic Sea. Seals from both of these subspecies are dark compared to *P. h. hispida* that is found across most of the Arctic.

Can be confused with Ringed seals share their extensive range with seven other phocids. They are not likely to be confused with bearded, harp, hooded, gray, or ribbon seals because of differences in size, coloration, and body shape. However, care is required to distinguish them from other seals with rings, spots or spot-like markings, such as harbor and spotted seals. Separating these species requires paying attention to coloration and markings, noting the relative size and shape of the head, and to the overall body size and shape.

Spotted and harbor seals are very similar in build and length. Adults of both are longer than ringed seals, and the neck, head and muzzle are also proportionately longer. Also, most spotted seals have few or no rings. Spotted seals have their pups on the surface of the ice, whereas ringed seals have their pups in lairs under snow layers on sea ice, and inside pressure ridges.

Harbor seals do not regularly use ice except where glaciers discharge ice into bays and fjords and it is a semi-permanent feature. Except in rare cases, or when pups are born prematurely, the coloration of harbor seal pups is essentially the same as in adults and subadults. Harbor seals generally have some rings, but when present, always have a mixture of rings and spots and are far less uniformly marked with rings than most ringed seals.

Distribution Ringed seals have a circumpolar distribution throughout the Arctic basin, Hudson Bay and Straits, and the Bering, Okhotsk, and Baltic seas. The distribution of ringed seals is strongly correlated with pack and land-fast ice, and areas covered at least seasonally by ice. Adults use land-fast ice for breeding, molting, and over-wintering habitat.

Ecology and behavior Nearly all ringed seals breed on fast ice. Females excavate lairs in snow, in pressure ridges, and other snow-covered features. These lairs have access to the water, and provide camouflage and some protection from polar bears, which are the chief predator. Pupping generally occurs from March through April, and earlier in the Baltic Sea. Males are thought to be territorial, and possibly annually monogamous.

Ladoga seal herd at a summer haul-out in the Valaam Archipelago. Note the uniformly dark color of all of the animals. Lake Ladoga, Russia. PHOTO: T. SIPILA

This wet ringed seal shows a complicated lattice work of rings on a plump and round, countershaded body, and relatively large, close-set eyes. PHOTO: M. JØRGENSEN

This ringed seal shows small tight rings, a small rounded head, and short and narrow muzzle. PHOTO: M. JØRGENSEN

A very young ringed seal pup in lanugo outside its lair. Barrow, Alaska. PHOTO: L. LOWRY

Many adults remain in the same localized areas year-round. Out of water, ringed seals are generally wary, regularly scanning for predators, such as polar bears and humans.

Feeding and prey Ringed seals consume a wide variety of small prey, including many species of fishes, and planktonic and benthic crustaceans. These opportunistic feeders are known to have over 72 different species in their diet. In deep water they forage in the water

A juvenile ringed seal. Ringed seals are some of the smallest seals and have a feline-like face, small features and long claws on the foreflippers. Disko Bay, Greenland. PHOTO: F. UGARTE

A juvenile ringed seal, possibly recently weaned, with a light coat and pale rings. Note the very short muzzle on the small head. Svalbard. PHOTO: M. JØRGENSEN

column and along the undersides of ice floes, while in shallow water they often forage along the bottom with polar cod being a preferred prey species. Ringed seals forage either singly or in small groups.

Threats and status The vast geographic range occupied by ringed seals, coupled with their solitary nature, and the challenges of conducting population assessments in remote polar areas, make it difficult to estimate ringed seal population levels. Estimates of the world-wide population range from 2.5 to 7 million, with most authors expressing caution over the accuracy of both local area and range-wide figures. *P. h. saimensis*, of Lake Saimaa, Finland, and *P. h. ladogensis*, found in Lake Ladoga, Russia, are both restricted to only these land-locked bodies of water, and occur in very low population numbers (approximately 200 and 5,000 respectively). The Baltic Sea population of *P. h. botnica* is estimated to be 5,000–8,000.

Native peoples of the Arctic hunt ringed seals for food and skins, and have done so for thousands of years. Direct human interaction and conflicts are otherwise minimal. Existing subsistence harvests, and the commercial use of skins from some of these harvests, such as occurs

A young Saimaa seal with a dense pattern of rings, showing the very small size and width of the muzzle. The eyes are set relatively close together as in other ringed seals. PHOTO: T. SIPILA

A Saimaa seal with large, thick-banded rings. Note the prominent claws on the foreflipper and the plump body for the size of the animal. Lake Saimaa, Finland. PHOTO: I. MARTTINEN

A very dark Ladoga seal at Valaam Archipelago. These seals usually have scattered light rings on the body. Lake Ladoga, Russia. PHOTO: T. SIPILA

in Greenland, do not appear to be negatively affecting any ringed seal populations. Most ringed seals take few commercially important prey species, with notable exceptions in Greenland and in the White and Barents seas. The Baltic Sea population, *P. h. botnica*, is surrounded by large human population centers and may suffer from exposure to pollutants that compromise the seal's immune system and lead to higher rates of disease that negatively affect reproduction.

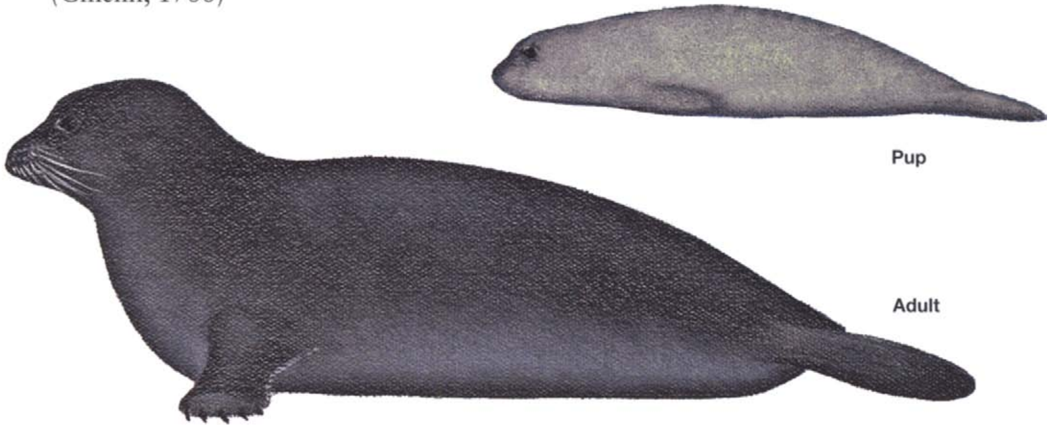
The effects of global warming and the projected decreased extent and duration of sea ice cover associated with warming of the Arctic could have dire consequences for ringed seal survival. Several studies have already demonstrated decreased reproductive success in response to poor sea ice conditions.

IUCN status Endangered (*saimensis* subspecies), Vulnerable (*botnica* and *ladogensis* subspecies), Least Concern (other subspecies).

References Frost and Lowry 1981; Harkonen et al. 1998; Kelly 1988; Miyazaki 2002; Reeves 1998; Sipila and Hyvarinen 1998.

Baikal Seal—*Pusa sibirica*

(Gmelin, 1788)



Recently-used synonyms *Phoca sibirica*.

Common names En.–Baikal seal; Sp.–*foca de Baikal*; Fr.–*phoque du lac Baikal*; Ru.–*nerpa*

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Baikal seals are dark silver gray above and lighter gray on their undersides. They appear charcoal to black above when wet. Pups are born in a whitish lanugo that is shed at 4–6 weeks, when they transition to a juvenile pelage that is lighter gray with a dark face. Baikal seals are unmarked, having no rings or spots.

These seals are plump, with a proportionately wide body and a small delicate-looking head. The eyes are proportionately large, forward set, and have a slight bulging appearance. The muzzle is small, wide, and delicate looking in juveniles. The vibrissae are beaded, long and prominent, including those over the eyes. The foreflippers are short, broad, and have large strong claws.

The dental formula is I $^{3}/_{2}$, C $^{1}/_{1}$, PC $^{5}/_{5}$.

Measurements of Baikal seals have been taken as curvilinear lengths, which yield longer measurements than the standard lengths used for other species. Adult Baikal seals have been reported to reach approximately 1.4 m and 80–90 kg. Newborn pups are 64–66 cm in length and 4–4.2 kg in weight.

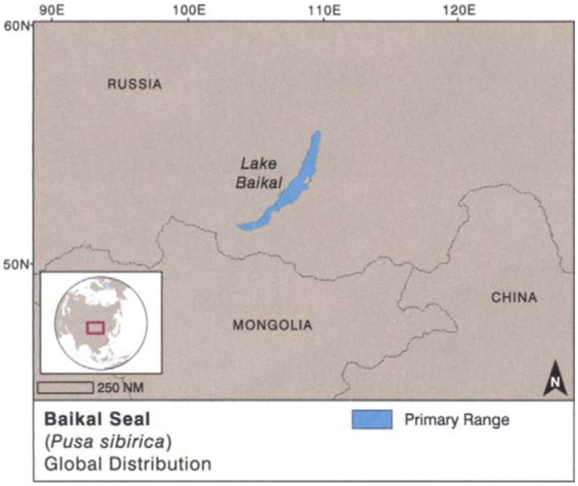
Recognizable geographic forms None.

Can be confused with There should be no confusion; the Baikal seal does not share its range with any other pinniped species.

Distribution Baikal seals are entirely confined to Lake Baikal and short distances up its rivers and streams. Most seals are found in the northern and central regions of the lake, and a portion of the population moves south in front of advancing ice that forms in the late fall and winter.

A group of wet and dry, adult and subadult, Baikal seals. Notice the short and very wide, rounded body of this species. PHOTO: Y. WATANABE

Ecology and behavior The origin of the Baikal seal is poorly known. They are believed to have made it to Lake Baikal sometime during Pleistocene glaciation events from northern Arctic Seas, and are derived from the ringed seal, or a ringed seal ancestor. Baikal seals use islands and the rugged lake shoreline for hauling-out in the summer, and during other ice-free periods, and are ice-living when the lake is frozen. They maintain breathing and access holes in ice, and give birth in snow-covered lairs excavated on lake ice. Twins are born at a rate of




The eyes on the Baikal seal are set particularly close together. PHOTO: Y. WATANABE


Dry Baikal seals have a soft looking gray pelage that is darker above, with no rings or spots. PHOTO: Y. WATANABE

approximately 4%, which is probably the highest for all pinnipeds. Pupping occurs from mid-February to the end of March, and pups are weaned in 2–3 months. Newly-weaned juveniles emerge from the lairs in April. Instrumented Baikal seals dove for 2–6 minutes, to depths of 10–50 m; the deepest dives were to 300 m.

Feeding and prey Baikal seals forage extensively through the winter. Their diet consists primarily of several species of sculpins and golomyanka (genus *Comephorus*), but includes many varieties of freshwater fishes, including commercially important species.

Threats and status The population of Baikal seals was estimated at 60,000–70,000 in 1978. Subsistence and commercial hunting, and poaching continue. Several mass mortality events have been recorded. One event, attributed to a distemper virus in 1987–88, resulted in a large number of deaths. Baikal seals have high organochorline contaminant burdens due to industrial wastes discharged into rivers feeding the lake and bioconcentrating up the Lake's food chain, and these pose an as-yet undetermined level of risk to the health of the population. Entanglement in commercial fishing nets accounts for an unknown level of mortality.

IUCN status Near Threatened.

References Frost and Lowry 1981; Miyazaki 2002; Stewart et al. 1996; Thomas et al. 1982.


Juvenile Baikal seal with a dark face and crown. PHOTO: E. PETROV

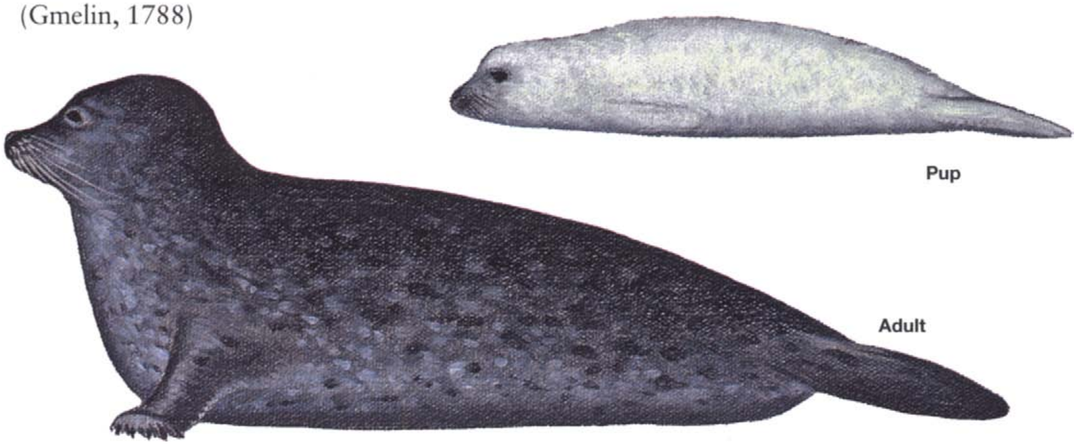

Baikal seals have particularly long vibrissae. PHOTO: Y. WATANABE


Adult male Baikal seal with very long claws. PHOTO: Y.WATANABE


Baikal seal pup, in lanugo, at the opening of its lair. PHOTO: A. ZAHRADNIKOVA

Caspian Seal—*Pusa caspica*

(Gmelin, 1788)



Recently-used synonyms *Phoca caspica*.

Common names En.–Caspian seal; Sp.–*foca del Caspio*; Fr.–*phoque de la Caspienne*.

Taxonomic information Order Carnivora, Family Phocidae. The origin of the Caspian seal is uncertain. Formerly they were thought to be closely related to ringed and Baikal seals, but recent genetic evidence suggests a closer connection to gray seals.

Species characteristics Caspian seals are medium gray to grayish-brown above and paler below in a typical countershaded pattern. There are often yellowish or tan undertones to the coat color. Caspian seals have a highly variable covering of light and dark spots and mottling all over their body. Males are typically more heavily spotted than females. Pups are born in a long white lanugo coat that is molted around weaning, at about 3–4 weeks. The juvenile coat is lightly spotted and more silvery and paler on the ventral surface than the adult pelage.

Caspian seals are relatively short and plump. The head is small in proportion to the body with large conspicuous eyes. The muzzle is relatively long for a small phocid, and has a wide and somewhat flattened appearance, with whitish vibrissae.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{6}/5$.

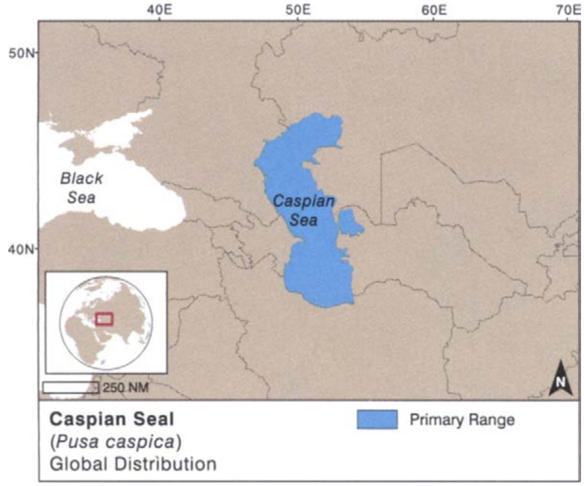
Adult males and females reach maximum lengths of 1.5 and 1.4 m, respectively, and weigh around 86 kg. Pups are 64–79 cm and about 5 kg at birth.

Recognizable geographic forms None.

Can be confused with No other pinniped occurs in the Caspian Sea, and this species occurs nowhere else in the world.

Distribution Caspian seals are entirely confined to the saline waters of the Caspian Sea and its feeder rivers. Seasonal movements of the Caspian seal are prompted by ice formation and foraging opportunities. In the late winter, breeding adults migrate to the northern part of the

The Caspian seal pup (left) is nearly completely molted from lanugo to juvenile pelage. The adult female provides a good view of the long and somewhat flattened muzzle characteristic of this species. PHOTO: S. WILSON



sea, where they haul-out on islands awaiting the formation of the ice. In late January, after the ice has formed, they assemble on the ice for pupping. Following pupping and the ice melt, the breeding seals again haul-out on the islands of the north Caspian, where they undergo their annual molt. After the molt, from late spring, they again disperse to all parts of the Caspian, particularly the deep central and southern basins. Non-breeding adults and juveniles may spend the winter in the central and southern Caspian. A small number of females may pup on Ogurchinsky Island in the southern Caspian.

Ecology and behavior Pups are born on the winter ice-field in the northern Caspian. Most pups are not concealed in snow lairs, but are born and nursed on the ice surface. Females may select the edges of cracks in the ice for pupping, or otherwise give birth amongst the rough mounded ice formations where they create and maintain a network of holes for access to the sea. Pups are weaned in 4–5 weeks, and females mate around this time. Molting follows breeding. Predators include wolves and several species of eagles that prey primarily on pups.

Dive data from two adult males revealed that most dives lasted less than 50 seconds, with some dives extending to over 3 minutes. Depths were typically less than 50 m with a few dives reaching over 200 m.

Feeding and prey Caspian seals take a wide variety of fishes and small crustaceans; the diet varies seasonally. Caspian kilka (sprat), silverside and gobies historically making up much of the diet.

Threats and Status Commercial and subsistence hunting continue to this day. The population probably exceeded one million animals early in the 20th century, and was estimated at 360,000–400,000 in the late 1980s. There have been several large mortality events beginning in the late 1990s and extending to 2001. The mortality in 2000 was attributed to canine distemper virus (morbillivirus), and this, at least initially, affected mainly young animals. A further threat to seal survival is by-catch in fishing nets and deliberate killing by fishermen. There has been considerable industrial development around the shores of the Caspian Sea, and discharge of high levels of many kinds of pollutants from the 20th century to the present time. Accumulation of organochlorine contaminants, including particularly high levels of DDT and derivatives in Caspian seals has been recently reported and it has been suggested that the levels may be high enough to play a role in weakening the immune systems

Caspian seals have variable amounts of irregular spots and mottling. PHOTO: A. ISLAMZADEH

An adult Caspian seal with several pups in lanugo and juveniles. Note the plump body of the adult. Ogurchinsky Island, Turkmenistan. PHOTO: P. EROKHIN

Caspian seals look like typical small phocids at sea. PHOTO: P. EROKHIN

Caspian seal adult female and pup in lanugo. The female is heavily marked with spots. PHOTO: S. WILSON

Caspian seals near an access hole in the sea ice. The relatively long muzzle of the adult is noticeable. PHOTO: S. WILSON

A recently born Caspian seal in the lanugo coat. PHOTO: N. ZAKHAROVA AND V. KUZNETZOV

A countershaded juvenile Caspian seal with a low density of spots. PHOTO: N. ZAKHAROVA AND V. KUZNETZOV

of these animals and contributing to these disease outbreaks and a reduced reproductive rate in females. Overfishing in this large, but essentially closed, ecosystem is an ongoing concern. An invasive comb jellyfish that is a predator on zooplankton, arrived in the Caspian Sea in 1999. It is believed to be causing a reduction in fish stocks including stocks of kilka, and poses an undetermined threat to the Caspian seal.

IUCN status Near Threatened.

References Frost and Lowry 1981; Krylov 1990; Miyazaki 2002; Popov 1979.

Harp Seal—*Pagophilus groenlandicus*

(Erxleben, 1777)

Pup

"Spotted Harp" Adult

"Old Harp" Adult

Recently-used synonyms *Phoca groenlandica.*

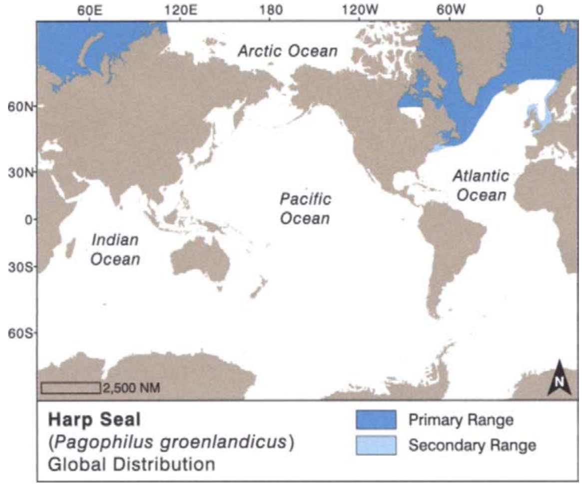
Common names En.–harp seal; Sp.–*foca de Groenlandia*; Fr.–*phoque du Groenland.*

Taxonomic information Order Carnivora, Family Phocidae. Two subspecies are recognized: *P. g. groenlandicus* of the eastern Canadian Arctic and subarctic, east to Jan Mayen, and including waters around Greenland and Iceland, and *P. g. oceanicus* of the White and Barents seas, south to Norway and east to about 110° E in north central Russia.

Species characteristics The harp seal's head appears somewhat long, wide, and flattened. The long muzzle tapers slightly, and in adults, can appear upturned. The eyes are close-set and there is a slight dip to the forehead. The flippers are relatively small. The foreflippers are slightly pointed and angular, with a short row of digit endings; the claws are strong and dark.

The change of pelage patterns over the lifespan of an animal is the most complicated of any pinniped, and in most stages is the species' most distinctive feature. The newborn's pure white coat, which can be stained yellowish for the first few days by amniotic fluid, persists for about 12 days, during which time they are known as "whitecoats". At this stage they are difficult to distinguish from other northern phocids born in a similar lanugo pelage. The "greycoat" and "ragged jacket" stages follow when the underlying juvenile pelage and spotted pattern

A group of mixed-age harp seals, several of which are in an alert posture probably in response to the passing ship. Harp seals will travel and haul-out together outside the breeding season. PHOTO: M. JØRGENSEN



shows through the lanugo, and then appears as the lanugo is molted. From approximately 3 to 4 weeks-old when they have completely molted out of their lanugo coat, through about age 13 to 14 months, harp seals are known as "beaters," at which time they can be countershaded slightly darker gray above and silver-gray below with numerous spots and irregular dark blotches all over the body. At their next molt they initially look about the same, but are then known as "bedlamers". They remain at this stage until a dark harp pattern begins to form on the back and sides and the spots start to disappear. Harp seals with both spots and a harp are known as "spotted harps". Finally, when all spots disappear and the harp and face become black, they are known as "old harps".

The adult pattern is complex and varied. The base color is silvery-white to light gray. Initially the harp pattern of the adult appears as a faint shadow of what it will become, as the seals transition to the "old harp" pattern. It consists of wide and irregular shaped bands with ragged edges starting at the pelvis, that dip down on each side before rising up and connecting over the shoulders. Seen from above, the pattern resembles a large irregular "V" with curving arms. The head of the adult is hooded: the face, chin, upper neck and top of the head are black. This hood also has ragged margins. Black marks may also occur at the insertions of the hindflippers.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{5}/5$.

Adult males are up to 1.9 m in length and average 135 kg in weight, females up to 1.8 m and 120 kg. Pups are born at about 85 cm and almost 10 kg.

Recognizable geographic forms There are 2 recognized subspecies of harp seal: those associated with the western Atlantic and Jan Mayen breeding aggregations, and those that breed in the White Sea. The subspecies were primarily established on the basis of differences in skull morphology. The mean length of both adult males and females from the White Sea subspecies is slightly longer than their counterparts from the Atlantic subspecies (about 8–9 cm), but there is overlap between the populations. Although, there may also be minor differences in the pelage between the two subspecies. Currently, there is no known reliable way to separate the two populations in the field, except by going to whelping grounds for each during the breeding season.

Can be confused with Harp seals in adult pelage are unlikely to be confused with any other animal. The silvery-white body, emblazoned with a conspicuous black harp pattern and hood, is unique. However, the "bedlamer" and "spotted harp" patterns are more generic and pose some possibility for confusion with the harbor, ringed, gray, and hooded seals that share their range. The irregular spots of the "bedlamer" and "spotted harp" phases are generally lower density, and randomly scattered over the entire body. Harbor seals tend to have more spots and markings dorsally than ventrally, and are usually countershaded. Harp seals lack the rings that characterize ringed seals. Hooded and gray

A "bedlamer" harp seal. Note the large irregular spots found all over the body that resemble gray and hooded seal markings. Cape Cod, United States. PHOTO: CAPE COD STRANDING NETWORK

A "bedlamer" harp seal with very fine spotting, like spotting found on a harbor seal. Cape Cod, United States. PHOTO: CAPE COD STRANDING NETWORK

"Old harp" female and a newborn with amniotic fluid stained lanugo. Gulf of Saint Lawrence, Canada. PHOTO: IFAW/D. WHITE

A "spotted harp" female nurses a white coat pup. Gulf of Saint Lawrence, Canada. PHOTO: IFAW/D. WHITE

A "ragged jacket" or molting pup. Gulf of Saint Lawrence, Canada. PHOTO: IFAW/S. COOK

Molted pups and juveniles are called "beaters" because of the way they beat the water when they swim. PHOTO: IFAW/S. COOK

seals are much larger as adults and have distinctive heads with larger or unique features. Hooded seals have a larger head with a wider muzzle at all ages. Young hooded seals are strikingly countershaded dark, bluish-gray above and lighter gray below, and have no spots. Adult hooded seals are large with medium to large irregular spots over the entire body, and dark, sooty faces and foreflippers. Gray seals are also large, heavy-looking animals at all ages with proportionately large heads and a large muzzle that is long and wide, often with a convex bridge. Bearded seals lack spots, have very dense mystacial vibrissae, and have rounded-off ends of their foreflippers.

Distribution Harp seals are widespread in the Arctic and North Atlantic oceans and adjacent areas from Hudson Bay and Baffin Island east to Cape Chelyuskin, Russia. Vagrants reach New York and northern Europe. There are regular appearances of large numbers of animals in the coastal waters of central and northern Norway for feeding. The most famous of the four main breeding aggregations is the "Front," near the Magdalen Islands in the Gulf of St. Lawrence and waters off northeastern Newfoundland and southern Labrador. Harp seals live chiefly in pack ice, but can be found away from it in summer.

Ecology and behavior Harp seals congregate to whelp (pup) on pack ice, where they form huge groups.

A large, adult harp seal in the "old harp" pelage. Note the irregular edge to the black harp-shaped bands. White Sea, Russia. PHOTO: S. V. ZYRIANOV/PINRO

A group of "old harps" with black masks swimming in a lead. with many more hauled-out behind. PHOTO: IFAW/D. WHITE

The black-masked faces of "old harps". Gulf of Saint Lawrence, Canada. PHOTO: IFAW/D. WHITE

Harp seals travel in groups at sea and churn the water up like a large school of dolphins, and are often followed by seabirds. Notice that many animals are swimming upside-down. Gulf of Saint Lawrence, Canada. PHOTO: IFAW/S. COOK

Pups are born from late February to mid-March. Mating occurs in the water from mid- to late March. Adult animals follow the ice north and haul-out for periods of time to undergo an annual molt after the breeding season.

Harp seals are migratory and following the breeding season and molt, they follow the ice north in summer to feed in the Arctic. They are very active in the water and sometimes travel in groups that are quite large and can churn the water like fast moving dolphin schools.

Feeding and prey Harp seals feed on a wide variety of crustaceans and fishes, with more than 130 species reported in their diet. Capelin, arctic cod, and polar cod are preferred fishes. Atlantic cod, a mainstay of North Atlantic fisheries and now severely reduced in numbers, makes up a small percentage of the diet. Dive durations averaged 16 minutes, and an maximum dive depth of 370 m was recorded during a study of seals carrying dive recording instruments.

Threats and status Harp seals have been at the center of controversies between environmentalists, sealers and governments for decades. Commercial hunting has been ongoing since the 1600s, with harp seals being particularly sought after when easily reached populations of walrus, gray and harbor seals had been dramatically reduced. Harp seals were harvested for oil, pelts and meat. As recently as 1999, over 460,000 animals were taken in Canada. The population of harp seals in the northwestern North Atlantic was recently estimated at approximately 5.2 million, in the White Sea at 1.5–2 million (1998), and 296,000 in the "West Ice" near Jan Mayen.

Attempts have been made to link harp seals with the demise of the once vast stocks of Atlantic cod, but this species is not an important component of the seal's diet. Despite this fact, efforts are continuously being made to justify reducing numbers of harp seals in response to pressures stemming from this complex fisheries management issue. Overfishing and alteration of marine ecosystems pose an ongoing threat to the health of harp seal populations, as does global warming and changes in sea ice patterns, and accumulation of toxic contaminants in the marine environment.

IUCN status Least Concern.

References Folkow et al. 2004; Lacoste and Stenson 2000; Lavigne and Kovacs 1988; Lavigne 2002; Lydersen and Kovacs 1993; Ronald and Healey 1981.

Ribbon Seal—*Histriophoca fasciata*
(Zimmerman, 1783)

Recently-used synonyms *Phoca fasciata.*

Common names En.–ribbon seal; Sp.–*foca fajada*; Fr.–*phoque a rubans*.

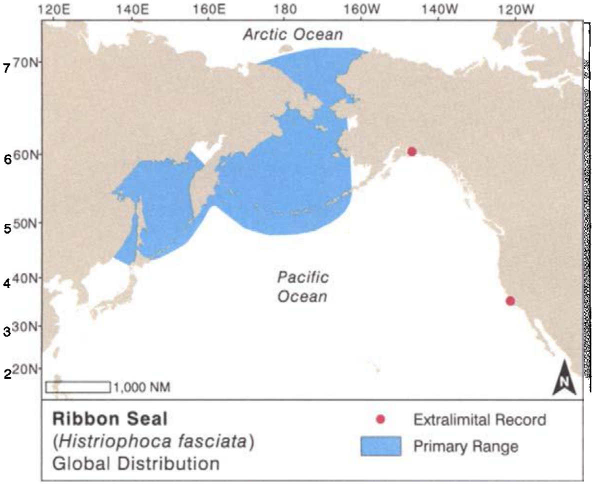
Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Adult male ribbon seals have the most striking color pattern found on any seal. Adults of both sexes have pale bands of variable width that encircle each foreflipper, the neck and nape, and the pelvic area. The bands have defined edges and vary greatly in width. On some animals, the bands are so wide that they merge. Band color ranges from a shade just paler than the surrounding dark pelage to white. Adult males are black to brownish-black, while females are light to dark brown. The bands are less distinct on females and subadults. Juveniles are plain looking until they are about two years old and lack the dramatic markings that will characterize them as adults. They are gray to brownish after molting the woolly whitish lanugo or birth coat at an age of about five weeks.

Ribbon seals are more slender than other Bering Sea ice seals. The head is small, relatively wide, and flat topped. The forehead is small in profile. The close-set eyes appear large. The muzzle is short, blunt, and slightly tapering. The vibrissae are light-colored, beaded, and fairly prominent. There are long, hooked claws on all digits of the foreflippers. The ends of the foreflippers are weakly pointed with a somewhat longer first or outer digit and successively shorter digits 2–5.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{5}/5$.

An adult female ribbon seal with an older pup in full lanugo. Both animals show the short muzzle of the species. The dark blotches on the female are believed to be skin where molting has caused temporary fur loss. Bering Sea. PHOTO: G. BRADY/



Adult female ribbon seals are browner overall with less distinct bands than the white-on-black bands of males. PHOTO: K. FROST

An adult male ribbon seal. Note the complex pattern of the bands on the ventrum. Bering Sea. PHOTO: G. BRADY/NMFS

An adult male ribbon seal showing the wide bands on the lower back, and the shoulder bands on the back. Note the wide, short, blunt muzzle. Bering Sea. PHOTO: D. WITHROW/NMFS

The same adult male, partially wet, and in an alert posture. PHOTO: D. WITHROW/NMFS

Adult ribbon seals reach a maximum length of about 1.8 m and weights of 90–148 kg. Pups are approximately 86 cm long and 10.5 kg at birth.

Recognizable geographic forms None.

Can be confused with Four other phocids: ringed, harbor, spotted, and bearded seals share the range of the ribbon seal. Adult ribbon seals have distinctive bands, and have no spots or rings. Juvenile ribbon seals lack bands, are countershaded, and also have no rings or spots. The bearded seal has a much greater density of downward-curving vibrissae than the ribbon seal, and has foreflippers that are rounded on the end.

Distribution Ribbon seal distribution most closely matches that of the spotted seal. They occur in the Seas of Okhotsk and Japan, the western North Pacific, and from the Bering Sea northward through the Chukchi Sea, east to the western Beaufort and west to about 180° longitude.

Three separate populations of ribbon seals have been proposed and include the southern and northern Sea of Okhotsk, and the Bering Sea breeding groups. Ribbon seals inhabit the southern edge of the pack ice from winter to early summer. Most are thought to be pelagic in the Bering Sea during the summer. Records from the North Pacific south of the Aleutians suggest a possibly wider range during the summer when ribbon seals are not associated with sea ice. A stranding from central California is evidence of occasional distant wanderings.

Ecology and behavior Ribbon seals are solitary for much of their lives. Pups are born on ice floes from early April to early May. Broken pack ice is preferred over solid ice sheets and highly concentrated pack ice, as ribbon seals can only open and maintain access holes in ice up to approximately 15 cm thick. Males are generally no-

Front view of the markings on a ribbon seal female with a pup in lanugo. Note the light areas around the eyes. PHOTO: K. FROST

Adult female ribbon seals are tans, grays, and browns with less distinct bands than adult males. PHOTO: L. LOWRY

where to be seen during the nursing period. Ribbon seals are able to move rapidly on ice using slashing side-to-side motions. They also extend their necks to peer at sources of disturbance but are fairly approachable by boat. They are rarely encountered because of the remote and inhospitable nature of their polar habitat.

Feeding and prey Diet varies by area and age of the seal. Ribbon seals in the Okhotsk and Bering seas are known to take 35 different species of fish and invertebrates. Young ribbon seals feed on euphausiids after weaning and until about age one when they switch to feed predominantly on shrimp for a year. As 2-year-olds they take up the adult diet, which includes a variety of fishes, squids, and octopuses. Ribbon seals in the Sea of Okhotsk have a diet that is 65% pollock, while those in the Bering Sea consume about the same percentage of squid and octopuses.

Threats and status The population of ribbon seals is estimated to be 90,000–140,000 in the Bering Sea. Commercial hunting was carried out in the Sea of Okhotsk and Bering Sea from the middle to the late 20th century. Subsistence hunting by Alaskan Natives occurs at low levels in the United States. Global warming, accumulation of contaminants, entanglements in commercial fishing gear and depletion of prey species (such as pollock) in commercial fisheries are all on–going threats and concerns.

IUCN status Least Concern.

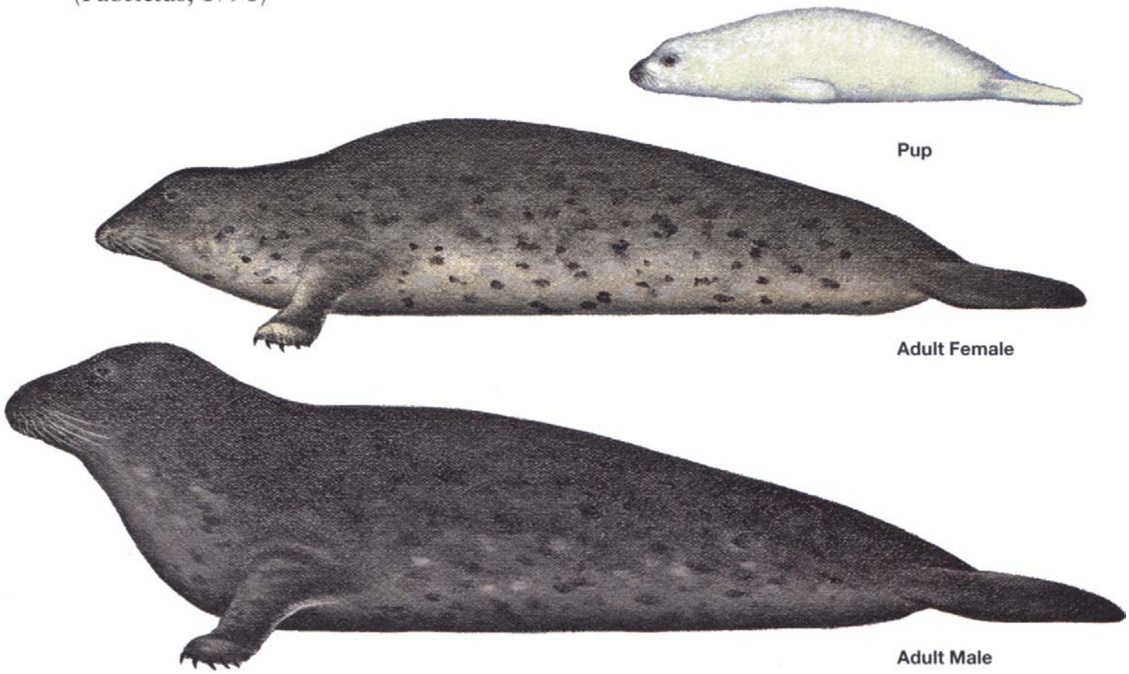
References Burns 1981; Fedoseev 2002; Heptner et al. 1996; Kelly 1988; Mizuno et al. 2002.

A ribbon seal female and pup. Note the light patch of fur near the ear opening. Bering Sea. PHOTO: D. WITHROW/NMFS

An adult female ribbon seal with a molting pup. Bering Sea. PHOTO: S. DAHLE/NMFS

A weaned juvenile ribbon seal. Note the irregular boundary on this countershaded animal, and the light colored mark near the ear. Ozernoy Gulf, Russia. PHOTO: M. CAMERON/NMFS

Gray Seal—*Halichoerus grypus*
(Fabricius, 1791)



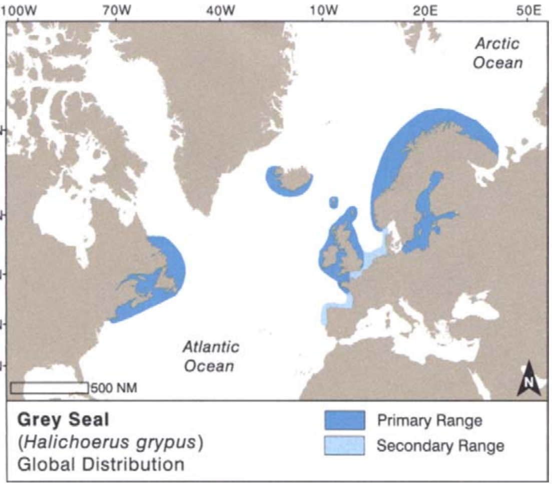
Recently-used synonyms None.

Common names En.–gray seal, grey seal; Sp. *foca de gris*; Fr.–*phoque gris*.

Taxonomic information Order Carnivora, Family Phocidae. Two subspecies are recognized: *H. g. grypus* from the western North Atlantic east, including Greenland and Iceland, to western Russian, south to the British Isles and France; and *H. g. macrorhynchus* from the Baltic Sea.

Species characteristics Gray seals are robust and sexually dimorphic; males grow substantially larger, with a proportionately larger and broader head and larger muzzle. The most distinctive features are the muzzle and head. The muzzle is particularly long, and wide at the end, with a fleshy mystacial area. In adult males, the top of the muzzle is convex. In adult females and subadults, the top of the muzzle is variable and can be flat, slightly convex (as in adult males), or slightly concave; the last case produces a barely noticeable forehead. The shape of the head has led to the locally-used common name "horsehead". The nostrils are widely-separated and almost parallel to each other, forming a "W" pattern as opposed to the "V" of seals of the genus *Phoca*. The eyes are small in proportion to the size of the head, widely-separated, and due to the length of the muzzle, proportionately farther back from the nose than on other phocids that share the gray seal's range. The foreflippers are short and on adult males, wide and relatively thick. Adult males have a thicker neck than females.

Adult female, male and pup gray seals. The long muzzle of both sexes is evident as well as the discrepancy in size. The pup is in the lanugo coat. Sable Island, Canada. PHOTO: R. W. BAIRD



A bull gray seal showing the convex muzzle that has lead to the nickname "horsehead" for this species. Gray seal nostrils do not converge to a "V" at the bottom. PHOTO: G. CRESSWELL

Gray seal females also have a long muzzle and nose that extends well beyond the mouth. PHOTO: G. CRESSWELL

Gray seal bulls generally darken with age. Notice the wide and long muzzle. Sable Island, Canada. PHOTO: R. W. BAIRD

Adult male and female gray seals. The difference in overall size and shape of the muzzle between the sexes is dramatic. PHOTO: G. CRESSWELL

Pelage color and pattern are variable within the sexes and age classes. Most gray seals are shades of gray, tan, or brown, and slightly darker above than below. There are usually numerous irregular dark blotches and spots on the back and sometimes a few below, although some females with very few spots appear to be solid grayish-cream color. Males darken with age, becoming dark brown to blackish, with a variable number of lighter blotches and spots. Orange to reddish coloration can be seen on the neck, undersides, and flippers of some animals. Gray seals appear paler and duller in coloration just prior to the annual molt. Newborns have a silky, creamy-white lanugo, occasionally with a grayish tinge. The lanugo is molted in 2–4 weeks, and is replaced by a pelage like that of the female, but with more subtle markings.

Adult males are up to 2.3 m long and weigh 170–310 kg; females average 2 m and 105–186 kg. Pups are 90–105 cm and 11–20 kg at birth.

The dental formula of adults is I $^3/_2$, C $^1/_1$, PC $^{5-6}/_5$.

Recognizable geographic forms The two subspecies of gray seal cannot be separated in the field, the distinctiveness being in features of the skull. Within the Atlantic subspecies, gray seals in Canada have been shown to be slightly larger than European animals. Other differences also exist between and within subspecies such as timing of birthing, and breeding on shorefast ice versus land. However, none of these differences have been used to separate or establish the two subspecies.

Can be confused with Harbor, ringed, bearded, hooded, and harp seals share the gray seal's range. The gray seal is larger, with a relatively larger head and longer muzzle; it has widely-separated eyes that are set far back from the end of the muzzle. It also has distinctly different pelage markings from the harbor, ringed, bearded, and harp seals. The shape of the head, nose, and muzzle,

Phocidae

Gray Seal

A wet adult female gray seal and pup in lanugo. This female has a high density of dark spots and blotches on her lighter sides. Wales, United Kingdom. PHOTO: F. UGARTE

An anomalously colored gray seal pup in lanugo with adult female. Gray seal pups are typically light silver gray. Sable Island, Canada. PHOTO: R. W. BAIRD

A dark gray seal with light blotches. Scotland. PHOTO: L. CUNNINGHAM

Gray seals have many irregular spots that can be light or dark as on this adult female. Sable Island, Canada. PHOTO: R. W. BAIRD

placement of the eyes, impart and equine-like appearance. Overall coloration and markings, and head and muzzle size and shape, also facilitate separation of gray seals from similar-sized bearded and hooded seals. Gray seal nostrils are widely separated at the bottom of the nose and do not converge to a "V" shape.

Distribution Gray seals have a cold temperate to subarctic distribution in the North Atlantic. The North Atlantic subspecies has two somewhat isolated stocks: a western Atlantic stock, centered off northeastern North America, with Sable Island off Nova Scotia as an important breeding site, and an eastern Atlantic stock, at Iceland, the Faroe Islands, Norway, the United Kingdom and Ireland. The Baltic subspecies is isolated in the Baltic Sea.

Ecology and behavior Gray seals are polygynous, but males do not defend territories or herd females. They actively compete for access to females using vocalizations, threat gestures, and occasional fighting. Pupping and breeding occur between late September and early March, depending on location. Gray seals breed earliest in the British Isles, followed by those in Norway and Iceland, and finally by those off Canada, and in the Baltic Sea. The single pup is usually attended continuously by its mother and weaned in 15–20 days, at which time many have quadrupled their birth weight of 11–20 kg. After weaning, the pups remain ashore fasting for 2–4 weeks before dispersing to sea and wandering widely.

Many, but not all gray seals disperse from their rookeries during the non-breeding season, but gather again at traditional sites to haul-out for the annual molt. They are usually quite gregarious at haulouts with groups of 100 or more being common, and they will share haul-outs with harbor seals. When ashore, gray seals do not generally lie in contact with each other.

Gray seals spend most of their time in coastal waters. When not in the water they haul-out on isolated beaches and rocky ledges of islands, and will also haul-out and give birth on shore-fast and pack ice. At sea, gray seals are usually solitary, or can be seen in small dispersed groups. They will rest at the surface in a vertical "bottle" position, treading water with only the head and upper neck exposed. The maximum depth and duration of dives is about 300 meters and up to 30 minutes. Most dives are from 1 to 10 minutes, and to 60 meters or less.

Feeding and prey Gray seals feed on a wide variety of benthic and demersal prey in coastal areas. They also feed on schooling fish in the water column; and occasionally take seabirds. Prey species taken include: sand lance, whiting, saury, smelt, various kinds of skates, capelin, lumpfish, pollock, cod, haddock, saithe, plaice, flounder, salmon, and a variety of cephalods and mollusks. Cannibalism by adult males on pups has been reported.

Threats and status At present, the Atlantic gray seal population is healthy and growing, and the worldwide population is estimated at about 380,000. The Baltic Sea population, which once numbered 100,000 is now comprised of approximately 17,600 animals, having never fully recovered from sealing and poaching in the early 20th century. Atlantic gray seals experienced similar hunting pressures during this period, largely because of government-sponsored bounties to hunters. Bounties were established to control gray seal populations that were deemed to damage important commercial fisheries either directly (through feeding) or indirectly (as a vector for seal, or cod worm, a destructive parasite). Prior to bounty and commercial hunting, gray seals were locally important in subsistence harvests throughout the history of their contact with humans.

Some gray seal mortality has also been attributed to distemper virus outbreaks that caused extensive mortality in harbor seals. As a coastal species, gray seals are exposed to, and ingest, industrial and agricultural pollutants through the food chain. This may have an effect on their immune system, other aspects of health, and has been linked to reproductive declines in Baltic animals. Entanglement in fishing nets is another source of mortality. Interestingly, human over-exploitation of North Atlantic sharks may have had the effect of helping gray seal populations grow and recover by increasing survival, particularly of newly weaned pups and juveniles.

IUCN status Endangered (*macrorhynchus* subspecies), Least Concern (*grypus* subspecies).

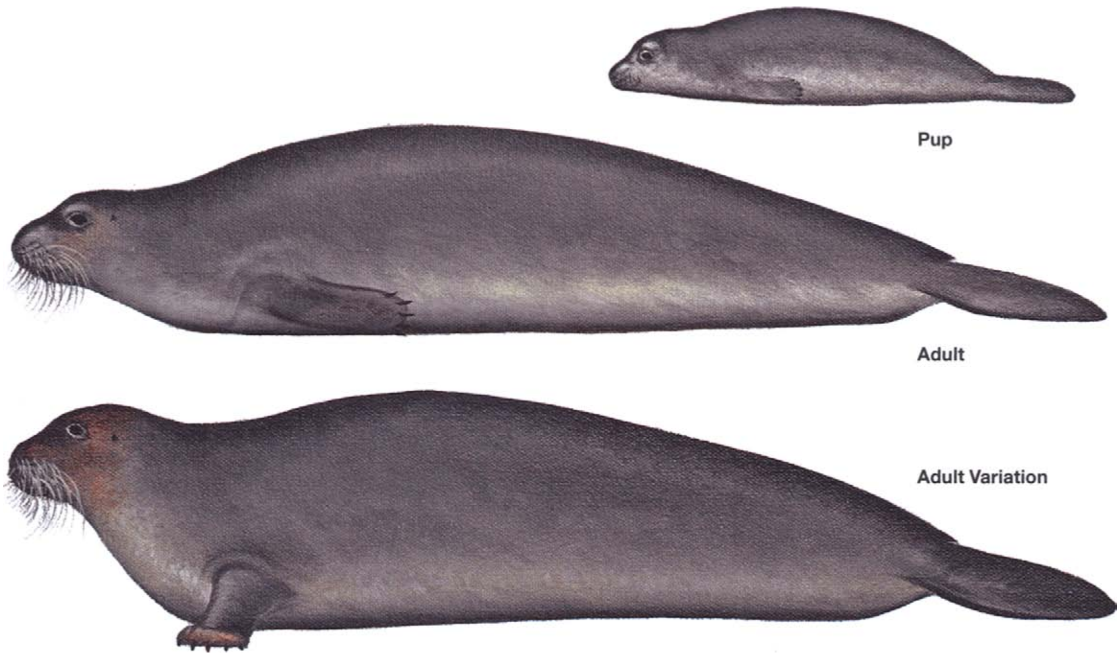
References Bonner 1981; Hall 2002; Lidgar et al. 2003; Sjoberg and Ball 2000; Twiss et al. 1994; Wiig 1986.

Mating gray seals showing the large size, dark coloration, and large muzzle of the male. PHOTO: G. CRESSWELL

Even though this juvenile gray seal has harbor seal-like markings, it has a proportionately larger muzzle and head, and more widely separated eyes and nostrils. PHOTO: G. CRESSWELL

A small molted gray seal pup. Gray seal eyes are set farther apart than the eyes on a harbor seal. PHOTO: A. FERLAND

Bearded Seal—*Erignathus barbatus*
(Erxleben, 1777)



Recently-used synonyms None.

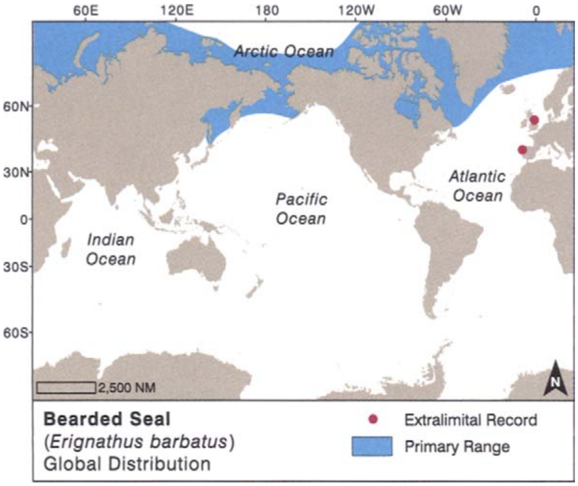
Common names En.–bearded seal; Sp.–*foca barbuda*; Fr.–*phoque barbu*.

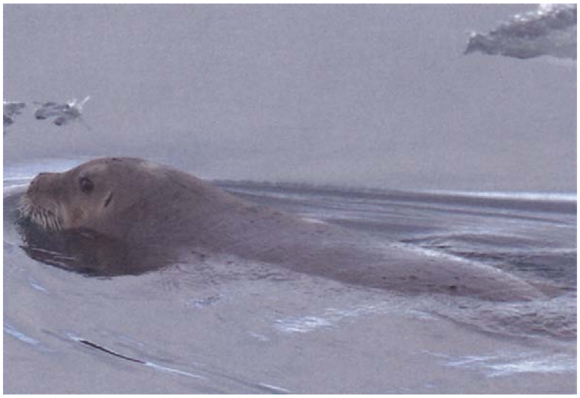
Taxonomic information Order Carnivora, Family Phocidae. Two subspecies are recognized: *E. b. barbatus* from the central Canadian Arctic, east to the central Russian Arctic, including Greenland, Iceland, Jan Mayen, and Svalbard, and south to Norway and Newfoundland, and *E. b. nauticus* from the central Canadian Arctic west, to central Arctic Russia, south to the Karaginsky Gulf, Russia, and Bristol Bay, Alaska, also including the Sea of Okhotsk, south to northern Japan.

Foreflippers with rounded ends are unique to this species. Notice also the rust color on the muzzle of this animal. The rust color can be more conspicuous and cover the head and neck. Svalbard. PHOTO: T. JACOBSEN/POLAR IMAGES

Species characteristics Bearded seals are large phocids with relatively small heads and short, rounded foreflippers. The head is small and somewhat narrow, for the size of the animal, and the eyes are relatively small and close-set. The muzzle is wide and fleshy, with rounded mystacial pads. The vibrissae are sufficiently conspicuous to have given rise to the common name, "bearded" seal. The abundant pale vibrissae are long, curved downwards, densely packed, and smooth, not beaded as in other Arctic phocids. When dry, the vibrissae curl inwards at the tips. The foreflippers are short, relatively broad, and strong, with robust claws. Unlike any other phocid, the bearded seal's foreflippers end in digits of about the same length, or with slightly longer middle digits. The result is a square, or slightly rounded end to the foreflippers. Also, unlike all other Arctic phocids, bearded seals have four retractable mammae instead of two.

Adults are slightly darker above than below. Body coloration varies considerably from light to dark gray, or tawny brown to dark brown. There can be rust coloration on the head, back of the neck and top of the foreflippers. The lanugo is shed in the uterus before birth and pups are born with a somewhat longer, dark brown to dark bluish-gray, wavy coat. There are pale areas on the muzzle, around





Bearded seals have a long, mostly plain body with no contrasting spots or color, a small head, and a relatively short muzzle. Svalbard. PHOTO: M. JØRGENSEN

the eyes, and sometimes on the crown and top of the back. A line of dark color runs from the top of the head between the eyes and along the bridge of the nose.

Adults range up to 2.5 m in length. Adult females are slightly longer than males. In the Bering Sea, males reach 262 kg and females 361 kg. Pups are, on average, about 1.3 m and 33.6 kg at birth.

The dental formula is I $^{3}/2$, C $^{1}/1$, PC $^{5}/5$.

Recognizable geographic forms There are two recognized subspecies of bearded seal whose ranges are given as meeting in central Arctic Canada, and central Arctic Russia. The Pacific subspecies may be slightly longer and heavier than the Atlantic, but the two subspecies are very similar, and no features have been identified that would permit separation in the field.

Can be confused with Bearded seals regularly share their range with seven other Arctic and subarctic phocids, including harbor, spotted, ringed, ribbon, harp, hooded, and gray seals. All of these have either spots, rings, bands, or a combination of these features. In the North Atlantic, the bearded seal is most likely to be mistaken for the similar-sized hooded seal when hauled-out, except when the distinctive coloration of the hooded seal can be seen.

Distribution Bearded seals have a circumpolar distribution in the Arctic, generally south of 80° N. They are subarctic in some areas, such as the lower Bering Sea, Sea of Okhotsk to northern Japan, and western North Atlantic, where they reach the Gulf of St. Lawrence.

Ecology and behavior Pups are born in the open on the surface of the pack ice, from mid-March to early May. After the breeding season, many seals migrate northward with the retreating ice, returning south again as the ice advances in fall and winter.

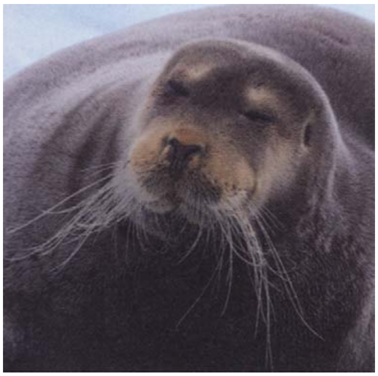
Bearded seals are solitary and rarely haul-out on the same ice floe together, and even then, maintain healthy distances from neighbors. Mother and pup pairs are an exception to this rule. At times, bearded seals seem to concentrate in an area, but this may be due to shifting winds and currents driving ice floes together or because of favorable feeding opportunities. Bearded seals are exceptionally wary and always haul-out and position themselves with their head very close to the water at the edge of an ice floe, along a crack, or by a hole.

In the water, bearded seals can be found “bottling,” or floating vertically, head-up, asleep. When startled, they bolt into the water and swim with strong strokes of the foreflippers with the head held up in a manner that looks like they are rising and surging through the surface of the

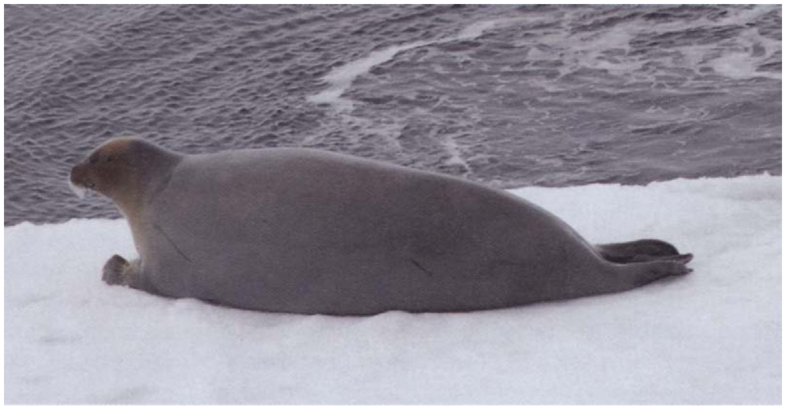
Adult bearded seals are often found alone, and when hauled-out with others, are usually spaced well apart. PHOTO: Y. WATANABE

A molting adult bearded seal showing the small head and short muzzle. The gray fur is the new coat. Svalbard. PHOTO: M. JØRGENSEN

A molting adult male bearded seal. Notice the rounded foreflipper and strong claws, and the penile opening between the umbilical scar and the hindflippers. Svalbard. PHOTO: M. JØRGENSEN



The densely packed vibrissae of the bearded seal curl when dry. Svalbard. PHOTO: T. JACOBSEN/POLAR IMAGES



A light gray adult bearded seal with rusty head and upper neck. Bering Sea. PHOTO: G. BRADY/NMFS

water. When in the water and disturbed by a passing ship, bearded seals will roll steeply forward to dive, raise the lower back and hindflippers in the air and slap the flippers on the surface. This is often done repeatedly as the seal swims away from the direction the ship is traveling.

They usually restrict themselves to areas of sea ice and stay in relatively shallow continental shelf areas of continuously moving ice, where open leads and polynyas regularly form. In some areas, they are known to haul-out on shore, ascend streams, or live a pelagic existence away from ice and land for long periods of time.

Bearded seals primarily feed on or near the bottom, and live in shallow areas overlying the continental shelf. They generally dive to depths of 200 m or less and frequently are found in much shallower areas. The longest dives recorded have been 20–25 minutes, with most dives lasting less than 10 minutes. They are quite vocal in the water and are known for their oscillating frequency-modulated songs that can last more than a minute and be heard in air, and for long distances underwater. Singing has largely been attributed to males, but it is likely that females sing as well. Besides humans, predators include polar bears, killer whales and Greenland sharks.

Feeding and prey Bearded seals feed on a large diversity of demersal fish species and invertebrates that live on and in the bottom. Different combinations of prey dominate feeding at different times of year and in different locations, and juveniles and adults have different prey preferences. In the Bering and Chukchi seas fishes taken include capelin, Arctic and saffron cod, long-snouted pricklebacks, sculpins, flatfishes, several snailfish species, and eelpouts. Invertebrates were dominated by several species each of crabs, clams, snails, amphipods, shrimps, marine worms, and octopuses.

Threats and status Native peoples of the Arctic have hunted bearded seals for subsistence for thousands of years. This practice continues to the present, with several thousand being taken annually throughout their circumpolar Arctic range. Bearded seals provide numerous products, including food for humans and sled dogs, oil for lamps, skins for clothing, boats and tent coverings, and leather for sinews, to name a few, and they are valuable in many other culturally important ways. The worldwide population is estimated at 450,000–500,000 with more than half of these thought to live in the Bering and

(Above) A newborn bearded seal from the southern Bering Sea. PHOTO: G. BRADY/NMFS
(Right) Bearded seal pup in May with a wet shaggy pelt and whitish patches on the muzzle and above the eyes. Bering Sea. PHOTO: K. FROST

An adult bearded seal nosing an older pup on the ice in May. Bering Sea. PHOTO: K. FROST

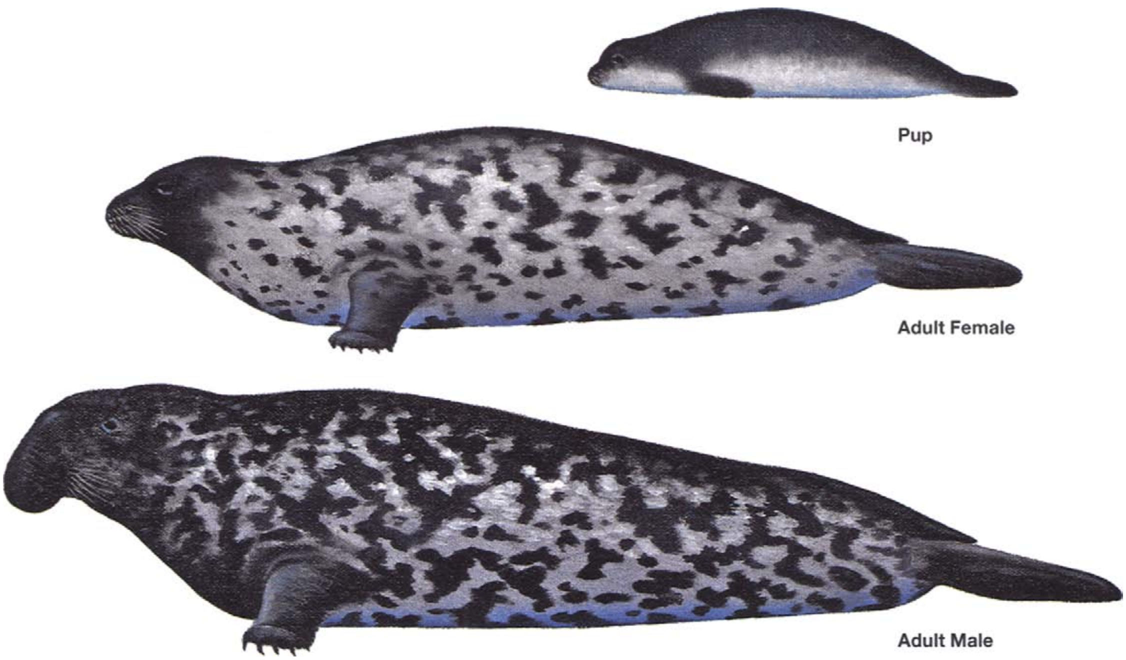
A large bearded seal pup in June. Notice the strong claws. Chukchi Sea. PHOTO: L. LOWRY

Chukchi seas. Commercial exploitation by Soviet whalers in the Sea of Okhotsk and Bering and Chukchi seas during the mid-20th century resulted in harvests of thousands to more than 10,000 animals per year, lasting several decades.

IUCN status Least Concern.

References Antonelis et al. 1994; Burns 1981; Kovacs 2002; Kovacs and Wiig 2000; Krafft et al. 2000; Lydersen et al. 1994.

Hooded Seal—*Cystophora cristata*
(Erxleben, 1777)



Recently-used synonyms None.

Common names En.–hooded seal; Sp.–*foca capuchina*; Fr.–*phoque a crete*.

Taxonomic information Order Carnivora, Family Phocidae.

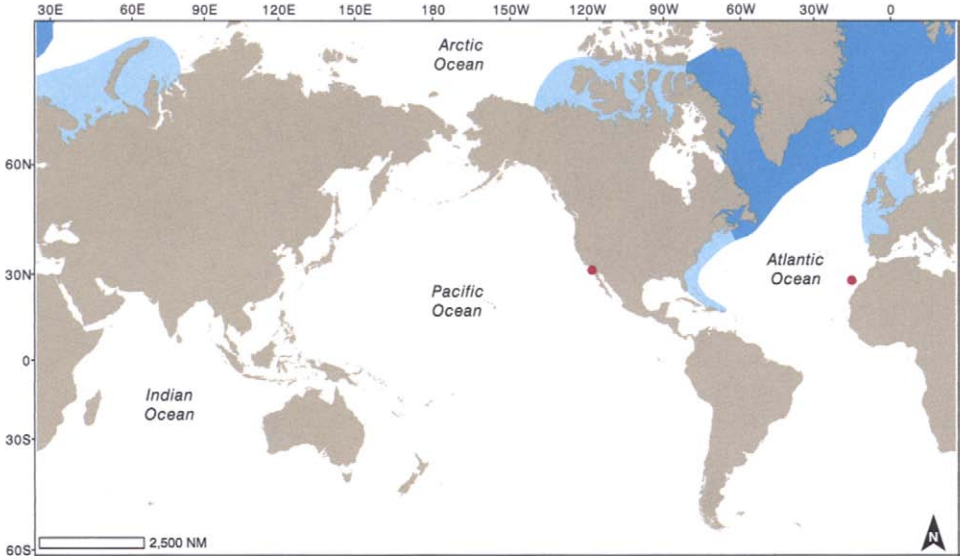
Species characteristics Hooded seals are large, sexually-dimorphic phocids. The muzzle is wide and droops slightly, overhanging the mouth in adult females and subadults. In adult males, there is an inflatable nasal cavity in the form of a black bladder. When flaccid, it hangs down in front of the mouth; when inflated, it forms a taught, bi-lobed, crescent-shaped hood that almost doubles the size of the head and substantially elevates the profile. Another secondary sexual characteristic of male hooded seals is that after partially inflating the hood they can close a nostril and extrude the elastic bright red nasal septum from the other nostril and inflate it like a balloon.

The flippers are relatively short, slightly pointed and angular, with a longer first digit. The vibrissae are beaded, relatively short, and inconspicuous; they are dark in pups and light in adults. Hooded seals have two mammae, typical of most northern phocids

Adults are silvery white, with numerous, small to large, irregularly shaped, dark blotches and clusters of blotches. The head to behind the eyes and jaws, and the tops of the flippers are blackish.

Pups, called "blue-backs", are born in a handsome coat of dark blue-gray above and creamy white below. The dark color continues onto the hindflippers and also extends downward to include the foreflippers. The face and muzzle are very dark, with almost black coloration extending behind the eyes. The pale color rises high on the flanks and neck, and encompasses the lower jaw. Blue-backs retain their coat until the following summer, when they molt at 14 months and start to develop adult markings as juveniles.

A hooded seal female and her blue-back pup in the foreground. In the backround notice the adult male with black hood inflated for display. PHOTO: IFAW/D. WHITE



Hooded Seal
(*Cystophora cristata*)
Global Distribution

Adult males reach lengths of 2.6 m and weights of 192–352 kg; females average about 2 m in length and weigh 145–300 kg. Pups are born at 87–115 cm and weigh 20–30 kg.

The dental formula is I $^{2}/1$, C $^{1}/1$, PC $^{5}/5$.

Recognizable geographic forms None.

Can be confused with Hooded seals share their range with five other phocids. Harp, harbor, ringed, bearded, and gray seals can be distinguished by pelage color, and head shape and size. Harp seals are smaller and uniquely marked. Bearded seals have no dark blotches, are larger, have a small head, densely-packed, downward-pointing, smooth vibrissae, and four mammae. Gray seals can have similar blotches but have a very different size and shape to their head and muzzle.

Distribution Hooded seals are found in the Arctic Ocean, and in high latitudes of the North Atlantic. They breed on pack ice and are associated with it for most of their lives, shifting their distribution with seasonal fluctuations. There are four major whelping or pupping areas: the Gulf of St. Lawrence, north of Newfoundland and east of Labrador, in the Davis Strait, and near Jan Mayen. Hooded seals can wander widely, and animals have beached as far south as Portugal in Europe, and from New England to Florida in North America. An exceptional journey was made by an animal found in Southern California. Presumably, it crossed the Canadian Arctic and Beaufort Sea, and then traveled down the Bering Sea and North Pacific to San Diego where it beached.

Ecology and behavior Hooded seals pup away from floe edges, on pack ice in March and early April. Females

A male hooded seal from Sable Island, Canada. The oversized, wide nose overhangs the mouth. PHOTO: R. BAIRD

Adult male hooded seal inflating his nasal septum “balloon” to begin displaying and vocalizing. PHOTO: IFAW/D. WHITE

Adult female hooded seal defending her "blue-back" pup. Females have a dark muzzle and face and many dark blotches of various sizes on the body. PHOTO: IFAW/F. BRUEMMER

Adult female hooded seal with "blue-back" pup. She is blood stained from recently giving birth. Note the band of dark color reaching the foreflipper on the pup. PHOTO: IFAW/D. WHITE

A "blue-back" hooded seal weaned pup. Note the short, wide, dark face. Cape Cod. PHOTO: CAPE COD STRANDING NETWORK

are usually widely-separated and aggressively defend their pups. Remarkably, pups are weaned in an average of only four days, the shortest time for any mammal. Males are territorial and patrol the ice edge, often hauling-out near females and forming trios. Bulls actively fight among themselves, and can inflict bloody wounds; they routinely display by inflating their black nasal bladders and extruding their nasal septum, shaking this bright red "balloon" violently in efforts to ward off competing males. They also vocalize at the same time, producing a loud "pinging" noise. Mating follows weaning of the pup.

The pack ice edge is home to hooded seals throughout the year and they migrate with it as it retreats north in summer and advances south in the fall. Aggregations form in the Denmark Strait east of Greenland and near Jan Mayen during the late spring molt, which begins after the pupping season. Following the molt, they disperse widely for the summer and winter, primarily living along the ice edge.

Hooded seals are deep divers and are capable of long dives. The maximum-recorded depth reached is over 1,000 m and the longest dive has been nearly one hour. Typical dives while foraging are to depths of 100–600 m and last around 15 minutes. Polar bears and killer whales are known hooded seal predators.

Feeding and prey Hooded seals typically fast during breeding and molting, but actively feed during much of the rest of the year. Their diet consists primarily of squids and fishes such as Greenland halibut, Atlantic and Arctic cod, several redfish species, herring, and capelin. Newly weaned pups feed on pelagic crustaceans prior to taking on the adult diet.

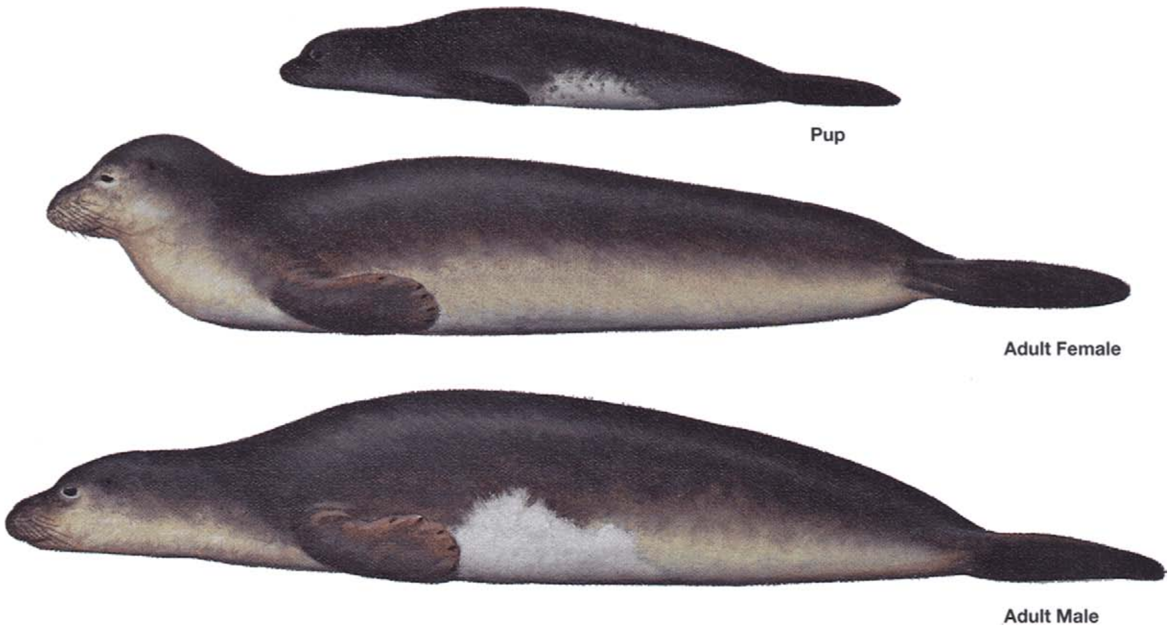
Threats and status The current worldwide population of hooded seals is estimated at 450,000–550,000. They were subjected to episodes of intense commercial hunting from the late 1800s to the late 1900s. Harvests were often conducted in association with harp seal harvests and commercial fisheries for Greenland sharks. Norway, the Soviet Union, Canada, and Greenland have been principally involved in the commercial harvests, which were primarily focused on newborns, because of their highly prized "blue-back" pelt. A permanent import ban on hooded seal pelts by the European Economic Community ended most of the commercial harvesting of this species, although Canada took approximately 26,000 as recently as 1996. The number of "takes" is presumed to have been higher than the reported number harvested due to the killing of females that aggressively defend their pups, and the loss of animals that are injured and escape to the water, only to die later.

There is a large annual by-catch of hooded seals in coastal net fisheries in Norway. Hooded seals are important in subsistence harvests on both coasts of central and southern Greenland, where they are used for food for humans and sled dogs.

IUCN status Least Concern.

References Bowen et al. 1985; Bowen et al. 1986; Kovacs and Lavigne 1986; Kovacs 2002; Lavigne and Kovacs 1988; Reeves and Ling 1981.

Mediterranean Monk Seal—*Monachus monachus*
(Hermann, 1779)



Recently-used synonyms None.

Common names En.–Mediterranean monk seal; Sp.–*foca monje del Mediterráneo*; Fr.–*phoque moine de Méditerranée*.

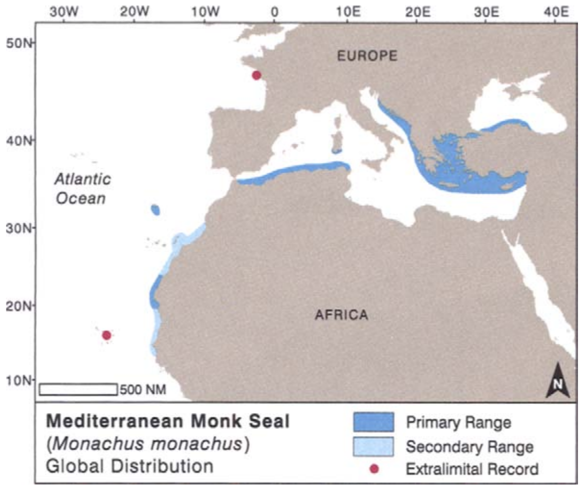
Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Adults are robust, with short flippers, a long fusiform body, and a moderately-sized head. The head and muzzle are somewhat flat and wide, with the eyes spaced widely apart. The mystacial pads are large, fleshy, and extend beyond the nostrils. The nostrils are in a sub-terminal position, pointed up, rather than in a terminal position facing forward, as is typical of most northern hemisphere phocids. The vibrissae of Mediterranean monk seals are smooth and not beaded.

Coloration is variable, with differences existing between adult males and females and between age classes. Variation also occurs within each age class, and has been proposed to be present between the now-isolated sub-populations. Adult males are dark brown to black over most of the body. they retain a pale area on the throat and upper neck. The back and hindflippers are frequently patterned with pale scratches and speckles which are scars from healed bite wounds from other seals. They can also have a concentrated, scratched area on the nape. The pale belly patch on the abdomen rises up as a wedge on both sides about half way to the top of the back.

Most adult females are brownish-gray to dark gray above and paler below, the colors separated by either a gradual blending or a sharp demarcation. The dark coloration is made paler by light tips to the hairs. Female

An adult female with a pup less than two months old. This female has a "hood" of dark coloration and a light "mask" around the eyes. The pup is in its lanugo coat. Cabo Blanco, Morocco/Mauritania. PHOTO: M. CEDENILLA/CBD-HABITAT



coloration is highly variable. They have a hood of darker color on the head. This "frontal hood" stops above the eyes but can have an extension down the muzzle to the nose creating a "pale mask" around the eyes. If the hood extends down the side of the head beyond the ear openings, it is called a "lateral hood". The lumbar area can have a pale, irregular "sash" from a concentration of scratches and scars, and localized depigmentation. They frequently have pale scratches on the back which are scars from bite wounds from other seals.

Juveniles and subadults can be a range of gray and brown tones above, and off-white to light gray below.

Pups are born in a brownish-black, woolly lanugo coat that is molted at 6–7 weeks to a juvenile color pattern. This pattern is comprised of a mixture of weakly developed countershaded coloration features and pup markings. Most pups have a large, irregular, light gray, ventral patch on the abdomen that can rise up on the sides at mid-abdomen, well behind the foreflippers. The pale ventral patch disappears at the second molt from youngster to juvenile pelage at about 7–9 months, when the animals essentially become fully countershaded. Interestingly, this belly patch reappears, later in life, on adult males.

Animals from the eastern Mediterranean are generally darker than those found in the Atlantic Ocean. Little is known about the adult and subadult molts; however, the related Hawaiian monk seal is known for its dramatic epidermal molt, in which hair is shed attached to layers of skin.

Adults are up to 2.8 m in length, and weigh 250–400 kg. In contrast to the Hawaiian monk seal, Mediterranean monk seal males may grow to be slightly heavier and longer than females. Newborns are 80–120 cm and 15–26 kg.

The dental formula is I $^{2}/_{2}$, C $^{1}/_{1}$, PC $^{5}/_{5}$.

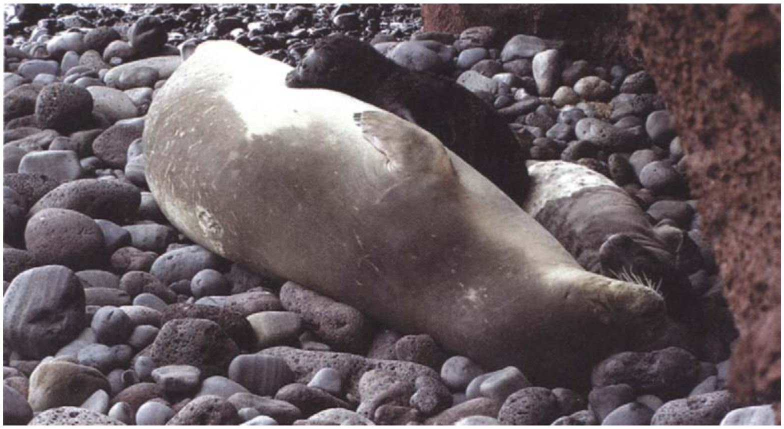
Recognizable geographic forms
None.

Can be confused with Mediterranean monk seals do not regularly share their range with any other pinniped. The nearest occurring species are eastern Atlantic Ocean populations of the more northerly distributed harbor and gray seals. As vagrants, these species, along with wandering hooded and bearded seals from the Arctic, have occurred in the Mediterranean monk seal's range. Mediterranean monk seals can be

Two male Mediterranean monk seals. Note the pale patches rising up the sides from the belly. Desertas Islands, Madeira. PHOTO: R. PIRES

A dark adult male Mediterranean monk seal. Cabo Blanco, Morocco/Mauritania. PHOTO: M. CEDENILLA/CBD-HABITAT

An adult male Mediterranean monk seal with scratches and scars, particularly on the neck, chest and hindflippers. A pale belly patch rises up the left side of the animal. Cabo Blanco, Morocco/Mauritania. PHOTO: M. HAYA/CBD-HABITAT



An adult Mediterranean monk seal resting by two younger pups in lanugo. Note the large belly patch on the pup on the right. Desertas Islands, Madeira. PHOTO: R. PIRES

A six month old Mediterranean monk seal from the Aegean released after rehabilitation. Eastern Mediterranean animals are usually darker overall than Atlantic animals. PHOTO: MONACHUS GUARDIAN

A young pup Mediterranean monk seal in dark lanugo with pale abdominal patch rising up on the side. Cabo Blanco, Morocco/Mauritania. PHOTO: M. HAYA/CBD-HABITAT

A juvenile Mediterranean monk seal showing its rounded head and a wide muzzle with nostrils set high on the nose. Cabo Blanco, Morocco/Mauritania PHOTO: M. CEDENILLA/CBD-HABITAT

readily distinguished from harbor, gray, and adult hooded seals by the lack of spots or blotches covering most or all of their body, distinctively wide and somewhat flattened head and muzzle, sub-terminal, upward-facing nostrils, smooth vibrissae, and four mammae.

Like Mediterranean monk seals, bearded seals have few to no spots, and share smooth vibrissae and four abdominal mammae as features in common with Mediterranean monk seals. However, bearded seals have a proportionately smaller head with much more densely packed, longer, and predominantly downward pointing vibrissae. The short, rounded foreflipper with a short first digit is also unique to the bearded seal and gives the end of the flipper a rounded edge. Mediterranean monk seals have typically proportioned foreflippers, with the first digit longer than all other digits.

Distribution Mediterranean monk seals are widely-distributed in the Mediterranean Sea, as well as the Aegean, Ionian, and Black seas, and the Sea of Marmara. Historically, they occurred nearly continuously throughout the region, but now are only found in small remnant aggregations. They occur in the eastern North Atlantic from the Strait of Gibraltar south and west to Mauritania at 19° N, with wanderers reaching Dakar, Senegal, at 15° N. They are offshore at Desertas Island in the Madeira Island group.

Although Mediterranean monk seals can still be seen on occasion throughout much of their former range, this is becoming increasingly rare. On land, they choose rocky coastlines, with a preference for sea caves and grottos that are generally inaccessible from land approaches, and sometimes have only submarine entrances. In West Africa, they will come ashore on open beaches.

Ecology and behavior This seal is considered non-migratory, with individuals spending most of their time within a very limited home range. They make extensive use of grottos and sea caves for hauling-out and breeding. The single pups are born across an extended pupping season that can last from May through at least November, and possibly January, with an October peak, but some authors speculate that pupping could occur year-round. Females are on an 11-month cycle of copulation to birth, and then wean their pups at 4 months, but can allow offspring to stay with them up to 4 years.

Mediterranean monk seals are among the least social of pinnipeds when ashore; they are presumed to be

Mother with a pup older than two months that has molted into the juvenile pelage. Note the scars on the back of the female and the "frontal hood" and pale face "mask" on both animals. Cabo Blanco. Morocco/Mauritania. PHOTO: M. CEDENILLA/ CBD-HABITAT

Two juveniles and a subadult Mediterranean monk seal. All have a pale "mask" and a "frontal hood" with dark color extending down the bridge of the nose and onto the muzzle. The subadult has extensive scarring on the back. Cabo Blanco. Morocco/Mauritania. PHOTO: M. CEDENILLA/CBD-HABITAT

most socially active in the water, where the only copulation ever witnessed was seen. Little information is available on diving, but most dives are thought to be shallow, less than 70 m, and short, less than 10 minutes in duration.

Feeding and prey The diet consists of a large variety of coastal fishes, octopus, and at least one type of ray. Large fish that cannot be swallowed whole are brought to the surface and shaken apart.

Threats and Status The Mediterranean monk seal is the most endangered pinniped species, with an estimated population of 350–450 animals. This small population is widely-scattered in isolated subpopulations from the North Atlantic to the eastern Mediterranean and Black seas, most of which are reproductively isolated from one another. There is a high risk of inbreeding depression and low genetic variability in these sub-populations, resulting from the species being so widely-distributed in small breeding groups.

The Mediterranean and Black seas, and adjacent North Atlantic are heavily fished. In many areas, monk seals are viewed as a pest species, and competitors for fish, and in some instances have been shot. They are also susceptible to entanglement in fishing nets, marine debris and discarded and lost nets and line. Human disturbance of animals at haulout sites and in foraging areas could also contribute to lower reproductive success. An outbreak of a phytoplankton-based paralytic toxin was the probable cause of a large-scale die-off in a colony along the Western Sahara coast. A morbillivirus may also have been a factor in this mortality event.

IUCN status Critically Endangered.

References Forcada et al. 1999; Gilmartin and Forcada 2002; Güçlüsoy et al. 2004; Kenyon 1981; Samaranch and Gonzalez 2000.

Hawaiian Monk Seal—*Monachus schauinslandi*

Matschie, 1905

Pup

Adult Female

Adult Male

Recently-used synonyms None.

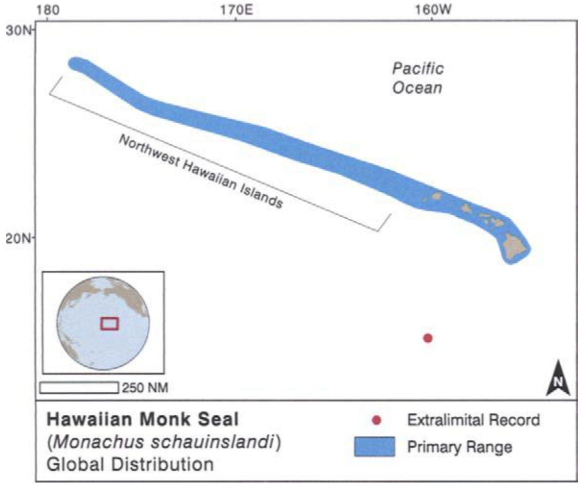
Common names En.–Hawaiian monk seal; Sp.–*foca monje del Hawaii*; Fr.–*phoque moine d'Hawai*.

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics In Hawaiian monk seals, females grow slightly longer, and are heavier than males. The long, fusiform body is robust, with relatively short fore- and hindflippers. The relatively small head is wide and somewhat flat, and the eyes are spaced fairly widely apart. The muzzle is also wide, "U" shaped, and somewhat flattened. The mystacial pads are large and fleshy, extending beyond the nostrils. The nostrils are in a sub-terminal position, pointed up, rather than in a terminal position facing forward, as is typical of most northern hemisphere phocids. The vibrissae of Hawaiian monk seals are smooth and not beaded. Hawaiian monk seal vibrissae vary from short to moderately long, and are black at the base, often having lighter yellowish-white tips. There can be a scattering of all-light vibrissae throughout. There are four functional mammae.

Just following the annual molt, most females and subadults are silvery to slate gray above, fading to cream or light silver gray below. During the course of the 11–12 months between molts the coat fades to dull brownish above and yellowish-tan below. Males and some females become completely dark brown to blackish as they age. There can be a variable amount of highlighting on the mystacial area and on both the upper and lower lips. Adults and juveniles can have a greenish cast from algal growth. Pups are born in a black woolly coat, which is molted completely by about 6 weeks. The first molt from the lanugo coat is a shedding of individual hairs, but each successive annual molt is a more dramatic epidermal

An adult male Hawaiian monk seal approaching a female from the water. Note the wide U-shaped muzzle of both animals. PHOTO: B. BECKER/NMFS



A healthy Hawaiian monk seal juvenile. Juveniles are grayish and somewhat countershaded. Monk seals have smooth black vibrissae. PHOTO: B. BECKER/NMFS

molt of hair and skin, which detaches in patches. Many animals have pale birthmarks that take the form of smallish irregular patches, which look like pale bleached areas on the darker pelage, and can occur anywhere on the body. If the pale bleached areas occur on the ends of flippers, the nails in those areas can be whitish.

Adults and some subadults have varying amounts of scars, particularly on the back and neck. Males can be heavily scarred on the lower jaw and neck, and some adult females become severely injured when mobbed by males attempting to mate with them. These injuries can include massive gashes and skin on the back torn away, that when healed develop into long, jagged, irregular scars. Injuries and scars from shark attacks are also regularly seen and include oval and semi-circular scars from tearing wounds and wounds formed by the penetration of individual teeth in rows.

Adult male Hawaiian monk seals reach lengths of about 2.1 m, and females reach lengths of about 2.4 m. Males weigh an average of 172 kg, and females weigh up to 272 kg. Pups are about 1 m and weigh about 16–18 kg at birth.

The dental formula is I $^{2}/2$, C $^{1}/1$, PC $^{5}/5$.

Recognizable geographic forms None.

Can be confused with No other pinnipeds regularly occur within the tropical and subtropical central North Pacific habitat of this seal. However, a northern elephant seal has been recorded at Midway Island. Adult northern elephant seals are much larger than Hawaiian monk seals, and only juveniles and small subadults could be confused with monk seals. The large body size and more rounded shape of the larger head and muzzle of northern elephant seals are diagnostic. Additionally, elephant seal nostrils are terminal and forward facing, and female northern elephant seals have only two abdominal mammae.

An adult female Hawaiian monk seal with wounds from having been mobbed by males. PHOTO: B. BECKER/NMFS

Adult male and juvenile Hawaiian monk seals basking. The juvenile has a growth of algae on its fur. Adult males accumulate scars on their body from fighting, as on this adult's neck and chest. PHOTO: B. BECKER/NMFS

This young Hawaiian monk seal pup in lanugo has natural pale birth marks on its ventral surface and left foreflipper. French Frigate Shoals, Hawaii. PHOTO: B. BECKER/NMFS

An adult female Hawaiian monk seal with a newborn. The pup's black lanugo will fade to brown before it molts to the juvenile pelage. French Frigate Shoals, Hawaii. PHOTO: B. BECKER/NMFS

A very large, molted pup showing how healthy pups look when weaned at the correct weight. PHOTO: B. BECKER/NMFS

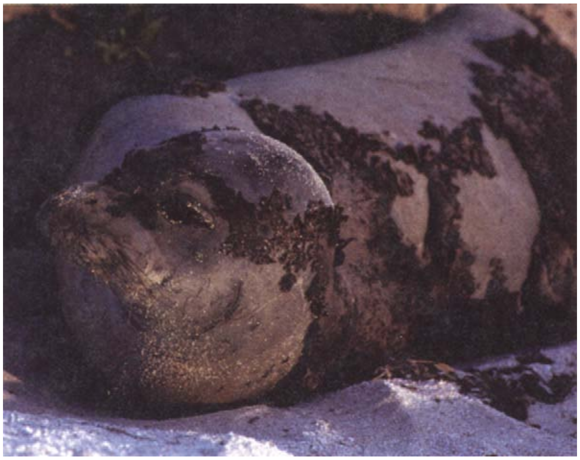
Many young monk seals are emaciated and juvenile mortality rates are up at some sites. PHOTO: B. BECKER/NMFS

Distribution Hawaiian monk seals are distributed throughout the northwestern chain of Hawaiian Islands from Nihoa Island to Kure Atoll. They are also now regularly seen on all of the main Hawaiian Islands, but particularly on Kauai. Some adult males involved in mobbing incidents with females have been translocated to the main Hawaiian Islands and Johnston Atoll, about 1,000 km south of the Hawaiian Archipelago. Hawaiian monk seals are considered non-migratory, and most are typically faithful to their atoll or island of birth. However, small numbers do relocate temporarily or permanently to nearby sites in the island chain. Long distance wanderers have been recorded at Palmyra Atoll and Wake Island.

Ecology and behavior On land, Hawaiian monk seals haul-out and breed on beaches of sand and coral rubble, and on rocky terraces. They sometimes leave the beach if vegetation is available for shade. The long breeding season lasts from late December to mid-August, although most pups are born between March and June. Males in this polygynous species patrol the water adjacent to rookeries, or haul-out beside females with pups. There are up to three times more breeding-age males than females at some colonies; this contributes to mobbing of estrous females, which are often severely injured and killed in these incidents.

When approached by another seal or human on land, Hawaiian monk seals often roll to present their underside to the intruder, arch their back, raise a flipper in the air, and open their mouth. They are generally solitary, both on land and at sea. Even when seals gather together on land, they are not generally gregarious and only mothers and pups regularly make physical contact.

Evidence suggests that foraging activities and prey preferences can vary considerably by location, age and sex of the seal, and season. They are known to forage diurnally and nocturnally in the shallow waters surrounding islands and sea mounts, and within atolls. Their movements and habitat at sea are not well known, but recent work with satellite tags, dive recorders, and video camera tags, or "critter cams", on adult and subadult males has shown that at French Frigate Shoals they frequently venture far offshore to deep, outer slopes of islands and reefs, and to neighboring seamounts and banks, where they appear to feed on the bottom. They also travel to deep ocean areas, also presumably to forage. In contrast, seals at Pearl and Hermes Reef forage almost entirely within or around this atoll. Most dives that have been



Hawaiian monk seals go through a dramatic epidermal molt once a year. Molting seals are frequently seen resting on beaches until the molt is mostly finished. PHOTO: B. BECKER/NMFS

A juvenile Hawaiian monk seal with a yellow tag in its hindflippers. Notice the weak countershading, pale lower jaw, and pale front and sides of the muzzle. PHOTO: K. ABERNATHY

A juvenile female Hawaiian monk seal entangled in lost or discarded netting and floats. Marine debris entanglement is a significant source of injury and mortality for this species. PHOTO: B. BECKER/NMFS

recorded have been relatively shallow ones of 100 meters or less, with a record of one subadult male diving to at least 500 meters, which was the maximum the device could record.

Feeding and prey Hawaiian monk seals consume over 40 species of prey. Species from many families of reef fish, octopus, squid and crustaceans have been identified from analysis of scats and spews collected from beaches. Some of the most common varieties were various representatives of the fish families Labridae, Holocentridae, Balistidae, and Scaridae, and many varieties of eels. Some of the octopus and squid species taken are found over reef environments, while others are from offshore and pelagic midwater habitats.

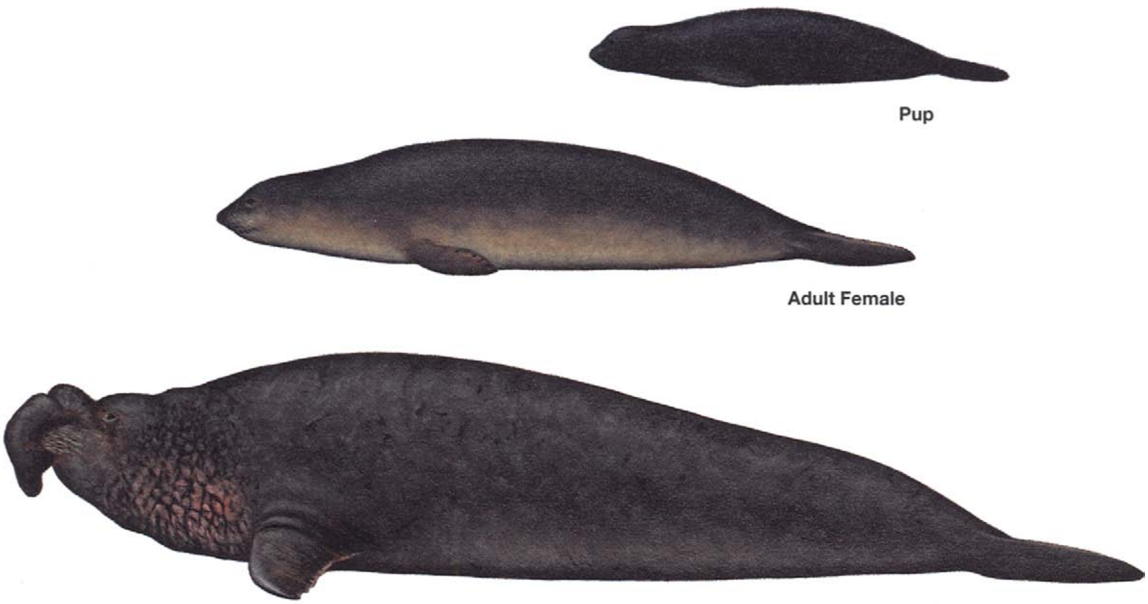
Threats and status Unlike the situation for the Mediterranean monk seal, the vast majority of Hawaiian monk seals live in protected areas, isolated from most direct human contact. Despite this, and as a direct result of 19th and early 20th century exploitation, the species is critically endangered, numbering about 1,400 animals. Recovery of the species has been affected to an unknown degree by military activities such as development and occupation of bases on several islands, and dumping of waste that started before World War II. Also, development of several fisheries in Northwestern Hawaiian Island waters has led to conflicts from entanglements and animals returning to haulouts with long-line hooks in their mouths. The effect of these fisheries on the ecosystem and prey of monk seals is poorly known and hotly debated.

Marine debris, particularly lost and discarded fishing gear, has been shown to be a significant source of mortality for monk seals. Efforts have been underway to remove this debris from breeding beaches for many years, and more recently from waters surrounding these sites. Large predatory shark species regularly occur at, and seasonally congregate in large numbers in the Northwestern Hawaiian Islands, to prey upon fledgling albatrosses, as well as seals. While the role of shark predation is not completely understood, actions have been taken to reduce shark numbers around certain monk seal breeding beaches in order to reduce mortality on newborn and juvenile seals.

IUCN status Endangered.

References Gilmartin and Forcada 2002; Gilmartin et al. 1993; Kenyon 1981; Lavigne 1999; Ragen and Lavigne 1999.

Northern Elephant Seal —*Mirounga angustirostris*
(Gill, 1866)



Recently-used synonyms None.

Common names En.–northern elephant seal; Sp.–*foca elephante del norte*; Fr.–*elephant de mer boréal*.

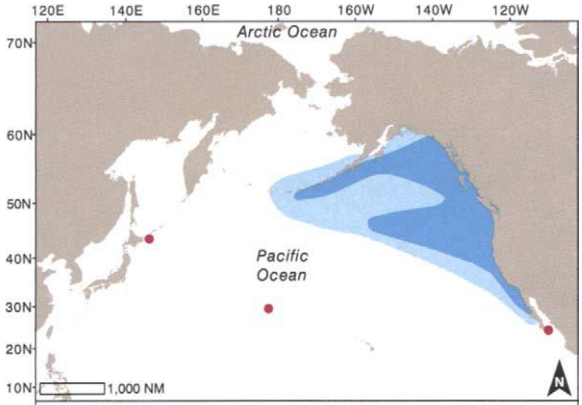
Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Northern elephant seals are huge and imposing. Significant sexual dimorphism exists in size and secondary sexual characteristics. In both sexes, the body is long and robust, and the neck very thick. The eyes are large, widely-spaced, and have a forward orientation that is especially noticeable in females and younger animals. The vibrissae are beaded, short to medium length, and black. In addition to the mystacial clusters, there are one to two rhinal vibrissae on the bridge of the nose, and several in prominent supra-orbital patches above and slightly behind each eye. Each foreflipper digit bears a large blackish-brown nail. The nails on the hindflippers rarely emerge, but there is a vestigial nail beneath a small opening located above the end of each hindflipper digit.

In females, young subadult males, and juveniles the head, muzzle, and lower jaw are all proportionately large and conspicuously broad. The mystacial area and nose are thick, full, and rounded across the top and on the sides. In profile, the bridge of the nose forms an arc ending in the terminally placed nostrils, and there is a downward droop to the end of the nose.

Adult males are unmistakable because of their great size, heavily scarred and cornified chest and neck, and large inflatable fleshy nose, called a proboscis. When

Northern elephant seal bulls are unmistakable. This is a large fully grown animal with a well-developed cornified chest "shield" and a long proboscis that droops into his mouth as he vocalizes. PHOTO: P. COLLA/OCEANLIGHT



Northern Elephant Seal
(Mirounga angustirostris)
Global Distribution

Extralimital Record
Primary Range
Secondary Range

relaxed, the proboscis hangs down in front of the mouth and resembles a shortened elephant trunk, thus the species' common name. The chest shield is made up of thickened, creased, hardened, nearly hairless skin, and accumulated scars. The chest shield and neck become increasingly pink over a large area as the male ages. In old bulls the chest shield can completely ring the neck. Fighting, which occurs when bulls are ashore during the breeding season, adds more red coloration from raw open wounds and patches of dry crusted blood caked on the shield. Wounds and scars accumulate all over the back, sides, and head of males during their lives, and as these heal, the scars become tan to lighter gray on the darker pelage. The proboscis can be bloody and ragged from fighting, and is also often pink and scarred. As subadult males grow, their proboscis lengthens so that it may extend 15–25 cm below the lower lip. A male ashore, asleep on his chest and chin, is readily identified as an older bull when his proboscis is long enough to touch the ground and be bent under or off to the side. In addition to their much longer and larger body size, males also have larger canines that are both considerably longer and thicker than those of adult females.

Northern elephant seal coloration varies from uniformly dark charcoal gray or dark brown to light gray or tan, with coloration fading as time progresses from the end of the last annual molt. With the exception of adult males, most northern elephant seals are lightly to moderately countershaded, being darker above and paler below. Adult males are typically dark brown to charcoal overall, with the already-noted coloration of chest shield, neck, proboscis and body scarring. Northern elephant seals are multicolored and ragged looking during their annual molt, when they shed their fur and epidermis together in patches, starting in the axillary region and progressing around the body. During this time they have varying amounts of darker more richly-colored new fur appearing as the faded duller fur is lost.

A prostrate northern elephant seal bull. This male is large but does not have fully developed secondary sexual characteristics. A juvenile California sea lion sits in the foreground. Cedros Island, Mexico. PHOTO: M. WEBBER

Black, smooth, vibrissae on a large subadult male northern elephant seal. Año Nuevo Point, California. PHOTO: M. WEBBER

An adult male northern elephant seal with a long proboscis. San Benitos Islands, Mexico. PHOTO: M. WEBBER

Pups are born in a long woolly black lanugo coat that is shed without the epidermis starting at about 3 weeks and usually lasting several weeks until after the pup is weaned. After molting, the newly-weaned juvenile's coat is made up of short hairs like those found on adults, and it is countershaded dark gray above and silver gray below.

Sexual dimorphism is significant in this species, with males being three to four times heavier, and nearly 1.5 times the length of adult females. Adult males reach 4.2 m in length and a maximum weight of 2,500 kg. Mean length is 3.8 m and mean weight is 1,844 kg. Maximum weight is seen when the bulls are newly arrived for the breeding season after a summer and fall largely spent feeding. The mean length of adult females is 2.7 m, and they can reach a length of 2.8 m.

Mean mass is 488 kg, with a maximum recorded of 710 kg, both values are from shortly after females give birth. Newborn pups are about 1.2 m long and weigh 30–40 kg.

Body weight declines dramatically due to the demands of fasting during the breeding season. Adult females can lose almost half their mass during lactation, when they take their single pup from birth to weaning in approximately 28 days during which time it can more than quadruple its birth weight. The situation is similar for breeding males, which also lose about half their mass while ashore for periods that may exceed 90 days.

The dental formula is: I $^{2}/_{1}$, C $^{1}/_{1}$, PC $^{5}/_{5}$.

Adult male and female northern elephant seals. The male has a heavily-cornified chest shield that wraps around the back of the neck, a heavily-scarred proboscis, and pale coloration on the head and around the eyes. PHOTO: T. A. JEFFERSON

Recognizable geographic forms None.

Can be confused with The great size of northern elephant seal bulls makes them unmistakable. The massive head and the large fleshy proboscis are unique features. Only one other phocid, the harbor seal, regularly shares the range of the northern elephant seal, and it is much smaller, being only as large as a juvenile northern elephant seal and has a spotted coat. Even female and subadult male elephant seals can be distinguished from other vagrant seals within their range by a combination of features including: large body size, large size and shape of the head and muzzle, pelage coloration and the lack of spots, blotches or bands. The prominent, all-black, vibrissae, and the large eyes are also distinctive.

Molting subadult male northern elephant seals. San Miguel Island, California. PHOTO: M. WEBBER

Distribution Northern elephant seals are found in the eastern and central North Pacific. Breeding takes place on offshore islands and at mainland localities from central Baja California to northern California. Northern elephant seals migrate to and from their rookeries twice a year, returning to breed from December to March, and again to molt for several weeks, at different times, depending on sex and age. They also molt at additional coastal sites, as far north as southern Oregon. Their post-breeding and post-molt migrations take most seals north and west to oceanic areas of the North Pacific and Gulf of Alaska twice a year. Adult males tend to travel further north and west than adult females. Wanderers have been found as far away as Japan and Midway Island.

Ecology and behavior Northern elephant seals are highly polygynous, but not territorial. Male competition for access to females establishes a hierarchy on the rookery. There is much male-male fighting, vocalizing, and displaying during the breeding season, when bulls may be ashore for months at a time. One of the most impressive displays occurs when a male rears up on his hindquarters, thrusts $^{1}/_{2}$–$^{2}/_{3}$ of his body upward, and produces a distinctive clap-threat vocalization as a challenge to other bulls. The vocalization is a loud rolling, resonant, metallic series of backfire-like sounds.

Females give birth within a few days of coming ashore, from late December to March, and wean their pups in 28 days on average. Females have a throaty sputtering growl, made with the mouth wide open as a threat gesture. Females and pups have a warbling scream that they use to call to each other, and in the case of the pup, when disturbed. Mother and pup form a strong bond immediately after birth, and females aggressively bite other pups that approach them, occasionally killing them with bites to the head. Bulls also cause pup mortality by crushing them as they charge through mothers and pups to chase off or fight approaching males. Occasionally, they suffocate pups by stopping on top of them and not moving off soon enough.

A large northern elephant seal pup in lanugo and its mother who has become thin from lactating while fasting. San Benitos Island, Mexico. PHOTO: M. WEBBER

An adult female with her large, unmolted pup in brown lanugo. San Benitos Islands, Mexico. PHOTO: M. WEBBER

A large, wet, fully-molted weaned pup. San Benitos Island, Mexico. PHOTO: M. WEBBER

Great white sharks and killer whales are predators of northern elephant seals. Recent work at the Farallon Islands off central California has revealed that large great white sharks aggregate around the islands in the fall when juvenile elephant seals return for their annual molt. Seals that swim at or near the surface as they are approaching or departing the islands are particularly vulnerable to ambush attacks by fast-rising sharks that patrol near the bottom in 7–10 meter deep waters.

Northern elephant seals hold the record as the deepest-diving pinniped. Time-depth recording devices have documented dives to an astounding 1580 m by an adult male. They also have extreme breath-holding ability and have been recorded to dive for as long as 77 minutes. Rest intervals at the surface are usually short, lasting only several minutes between routine dives that last 20–30 minutes and reach 300 to 800 m in depth. After leaving the rookeries, these seals routinely spend over 90% of their time underwater, helping explain why they are infrequently seen at sea.

Feeding and prey The diet of northern elephant seals includes fifty-three species of prey. More than half of these species are squid. Other prey includes fishes, such as Pacific whiting, several species of rockfish, and a variety of small sharks and rays. They have also been reported to feed on pelagic red crabs. The habitat of 70% of their prey is open ocean and includes species from surface, mid- and deep water zones.

Threats and status The northern elephant seal was hunted to the brink of extinction in a surge of commercial exploitation in the late 1800s. Much speculation exists on the numbers of animals that survived this population bottleneck. Some estimates are as low as 50 animals or fewer. Fortunately, for the species, their pelagic nature and the fact that most seals spend 80% or more of their lives at sea, and that they do not all return to their rookeries at the same time, ensured that enough seals were at sea to support continuation of the species when sealers undertook wholesale slaughters at rookery sites. Following a slow recovery in the early 1900s, northern elephant seals began to re-colonize former sites, a process that continued throughout the 1980s; by 1991 the population was estimated to have reached more than 120,000. The current estimate of 150,000 suggests that the population is continuing to increase, although there has not been a recent range-wide survey to confirm this figure.

Northern elephant seals are fully protected in Mexico and the US. Incidental take in fisheries is low. Most of the prey of the northern elephant seal is either of low commercial value or minimally harvested in fisheries. If the population continues to expand there will likely be new rookeries on mainland beaches, and there will be additional challenges to keep conflicts with humans and domestic animals to a minimum. The risk of transfer of diseases, such as morbillibivirus from other species to northern elephant seals is unknown.

IUCN status Least Concern.

References Cooper and Stewart 1983; Hindell 2002; McGinnis and Schusterman 1981; Stewart and Huber 1993; Stewart et al. 1994; Stewart and DeLong 1995.

Southern Elephant Seal —*Mirounga leonina*

(Linnaeus, 1758)

Recently-used synonyms None.

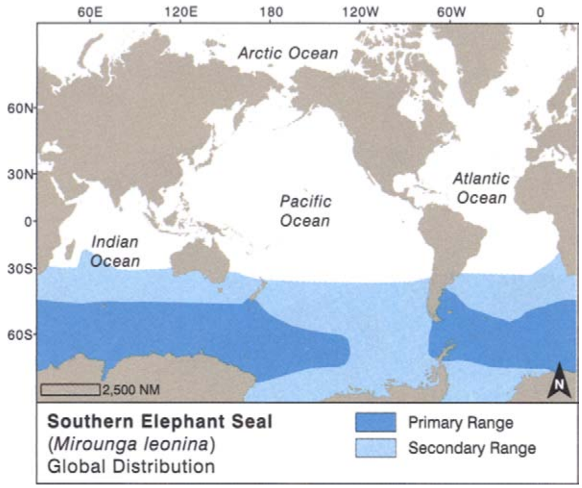
Common names En.–southern elephant seal; Sp.–*foca elephante del sur*; Fr.–*éléphant de mer austral*.

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics The southern elephant seal is the largest pinniped species. In both sexes, the body is robust and the neck is very thick. The head, muzzle, and lower jaw are broad. The mystacial area and nose are fleshy and blunt, and the bridge of the nose angles down slightly to the nostrils on females and young subadult males. The eyes are large, widely-spaced, and have a forward orientation that is especially noticeable in females and young animals. The vibrissae are beaded, short to medium length, and black. In addition to the mystacial clusters, there are one to two rhinal vibrissae on the bridge of the nose, and several in prominent supra-orbital patches above and slightly behind each eye. Each foreflipper digit bears a large blackish-brown nail. The nails on the hindflippers rarely emerge, but there is a vestigial nail beneath a small opening located above the end of each hindflipper digit.

Adult males are unmistakable. The long and enlarged nose, the proboscis, is inflatable. When relaxed, it hangs down in front of the mouth. Curiously, the proboscis is shorter in the southern than in the northern elephant seal, even though the former has a larger body. The proboscis is said to enlarge somewhat during the breeding season. Bulls also develop a chest shield of thickened, creased and heavily scarred skin. The chest shield on southern elephant seals is also not as developed as those on northern elephant seals. There is a varying amount of scarring on the rest of the body, and the proboscis is often heavily torn and scarred. Many bulls become pale in the face, proboscis, and head with increasing age. Bulls are longer and heavier than adult females and also have longer and thicker canines.

Two southern elephant seal bulls about to fight. Saint Andrew's Bay, South Georgia.
PHOTO: M. JØRGENSEN



Adult southern elephant seals have an unspotted pelage of light to dark gray, or tan to dark brown. There is a slight difference between dorsal and ventral coloration, except in newly molted pups which are somewhat more countershaded. Adult females can be tan, gray, or light brown, and are lightly countershaded. Their coloration fades as time progresses from last annual molt. Southern elephant seals also become stained rusty orange and brown, from lying in their own excrement on beaches, in muddy wallows, and tussock grass areas.

A mud-stained southern elephant seal bull. PHOTO: L. CUNNINGHAM

During the annual epidermal molt, they look ragged and multicolored, as they slough patches of faded and soiled fur with skin attached to reveal the new, clean, dark silver gray fur coming in underneath. The molt begins in the axillary region, between the hindflippers, around the tail, and progresses around the body. Pups are born in a long woolly black lanugo coat that is shed at about 3 weeks of age, to reveal a silver gray countershaded coat that is yellowish-gray ventrally.

Adult males typically reach 4.5 m and a maximum of 5.8 m in length weigh 1,500–3,000 kg with a maximum weight of about 3,700 kg. The literature contains numerous accounts of much larger males, with maximum lengths of 6–7 m, but these dimensions usually include hindflippers, whereas the standard length measurements in use today are from tip of nose to tip of tail. Adult females are similar in size and weight to northern elephant seal females, weighing 350–600 kg, with exceptionally large females reaching 800 kg. Newborn pups are about 1.3 m and 40–50 kg.

The dental formula is I $^{2}/_{1}$, C $^{1}/_{1}$, PC $^{5}/_{5}$.

Recognizable geographic forms None.

Can be confused with The massive head and the large fleshy proboscis make southern elephant seal bulls virtually unmistakable. Three of the four other phocids that occur within the southern elephant seal's range: Weddell, Ross, and leopard seals, can be separated from any age southern elephant seal by coloration and the presence of spots, blotches of color, or streaks. With the exception of crabeater seals, all three other species are noticeably countershaded as adults, whereas southern elephant seals have subtle countershading as subadults and adults. Crabeater seals are relatively thin with a narrow head, smaller eyes, a relatively long muzzle, subterminal nostrils, and proportionately longer and pointed foreflippers.

The head of female and subadult elephant seals is proportionately large and broad and the muzzle is broad, massive and somewhat blunt, with more forward facing

An adult male southern elephant seal bull with an inflated proboscis. Grytvikken, South Georgia. PHOTO: M. JØRGENSEN

Two subadult male southern elephant seals spar while ashore molting. South Shetland Islands. PHOTO: M. JØRGENSEN nostrils. The vibrissae of elephant seals are black, relatively long, whereas they are inconspicuous and pale all other Antarctic phocids.

Distribution Southern elephant seals have a nearly circumpolar distribution in the Southern Hemisphere. Although they reach the Antarctic continent, and even very high latitude locations such as Ross Island, they are most common north of the seasonally shifting pack ice, especially in subantarctic waters where most rookeries and haulouts are located. Notable exceptions include the northern breeding colonies at Peninsula Valdez in Argentina, and on the Falkland Islands. Also, some pups are born on the Antarctic continent. Southern elephant seals prefer sandy and cobble beaches, but will haul-out on ice, snow, and rocky terraces, and regularly rest above the beach in tussock grass and other vegetation, and in mud wallows. At sea, females and males disperse to different feeding grounds. Wandering and vagrant southern elephant seals reach southern Africa, southern Australia, New Zealand and Brazil. An Indian Ocean record at Oman on the Arabian Peninsula represents the northernmost record.

Ecology and behavior Southern elephant seals spend a large percentage of their lives at sea far from land, and only return to land to give birth, breed, and molt. At sea, they travel great distances from their rookeries and predominantly feed between the Subantarctic Convergence and the northern edge of the pack ice, south of the Antarctic Convergence. Adult males venture further south than females, and are known to forage at the outer edge of the Antarctic continental shelf.

They are prodigious divers and routinely reach the same depths as their northern counterparts. Dive depth and duration vary during the year and between the sexes, but normally range from 300 to 500 m deep and from 20 to just over 30 minutes in duration. A maximum depth of 1430 m was recorded for a female, following her return to sea after the molt. Another post-molt female dove for an astonishing 120 minutes, which is by far the longest dive ever recorded for a pinniped.

Southern elephant seals are highly polygynous with males establishing dominance hierarchies on beaches to monopolize access to groups or harems of females. Adult males return first in August, and most of them are ashore by mid-September to establish their status in the breeding hierarchy through displays, vocalizing and violent fighting. One of the male's most impressive displays is achieved by rearing up on his hindquarters and lifting almost two-thirds of his bulk straight up to fight with a peer or issue vocal challenges to nearby bulls.

Pregnant females arrive from September to October, and usually give birth within five days of their return. Pups are nursed for an average of 23 days, and abruptly weaned when the female departs to sea. Females come into estrus about four days before they wean their pup and mate, starting a new reproductive cycle before completing their current effort. Females first return to mate somewhere between 3–6 years of age. Pups remain on the breeding beaches for 8–10 weeks, during which time they complete the molt of their lanugo coat before departing to sea.

Vocalizations include a loud booming call made by adult males during the breeding season, variously called a bubbling roar, a harsh rattling sound, and a low-pitched

A very large southern elephant seal bull, pushing into an adult female in an attempt to mate gives perspective to the degree of sexual dimorphism. Saint Andrew's Bay, South Georgia. PHOTO: M. JØRGENSEN

The same large, older southern elephant seal bull as shown above. Note the width and large size of the proboscis with two deep lateral creases. PHOTO: M. JØRGENSEN

Phocidae

Southern Elephant Seal

A young southern elephant seal pup at a rookery. Saint Andrew's Bay, South Georgia. PHOTO: M. JØRGENSEN

A weaned and fully molted southern elephant seal pup. South Georgia. PHOTO: M. WEBBER

A large, nearly weaned southern elephant seal pup nurses from its thinning mother. Saint Andrew's Bay, South Georgia. PHOTO: M. JØRGENSEN

series of pulses with little variation in frequency. Adult females have a high-pitched, yodeling call, which they use when distressed, and to call their pups. They will also utter a low pitch, sputtering growl. Pups call to their mothers with a sharp bark or yap, which is also used when interacting with other seals.

Feeding and prey Prey consists of approximately 75% squid and 25% fish. Antarctic *Notothenia* fishes are thought to be important prey when these seals are near the Antarctic continental shelf. Most feeding by females occurs in deep ocean areas at midwater depths. Adult males pass through female feeding areas on their way south to the outer edge of the Antarctic continental shelf where their diving activity suggests they pursue more benthic prey.

Threats and status The worldwide population of southern elephant seals is currently estimated at 650,000. Colonies in the South Atlantic, which include the largest breeding aggregation at South Georgia, are stable or growing, while those in the Southern Indian and Pacific Oceans have decreased by up to 50%. The reasons for these declines, which began in the 1950s and 1960s and are ongoing, are not understood.

Southern elephant seals were hunted by aboriginal and native peoples in Australia and South America. More recently, they were subjected to intensive commercial harvests starting in the early 19th Century and not ending until 1964 at South Georgia. They were prized for their large quantity of blubber that could be rendered to fine, valuable oil.

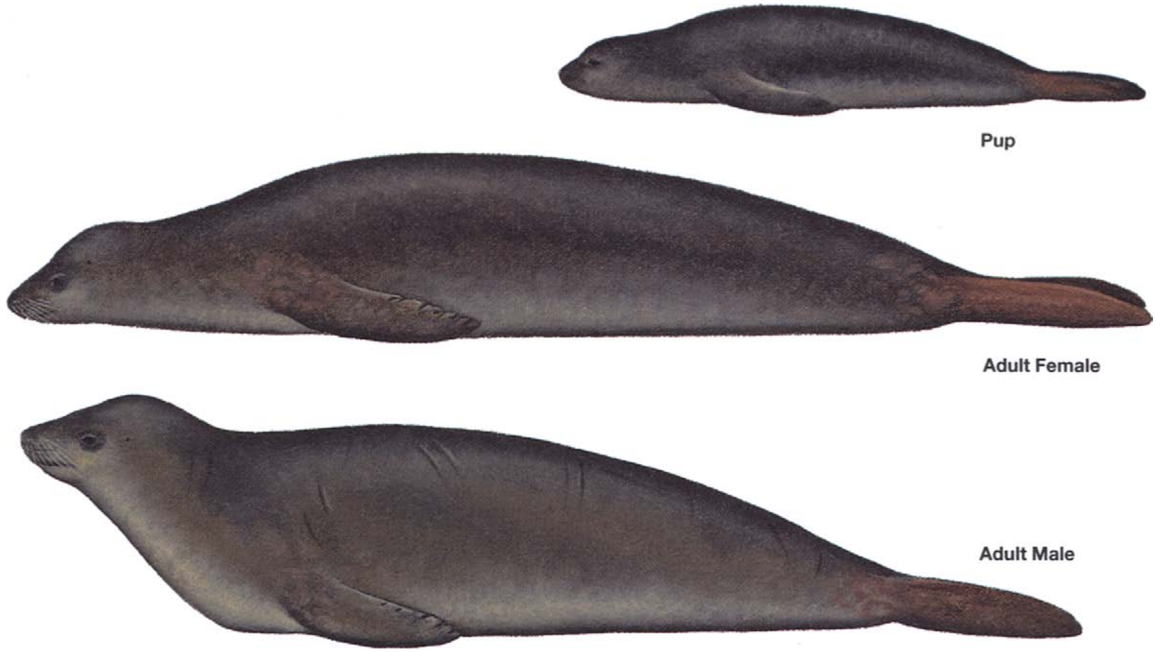
There are few threats and conflicts today, as southern elephant seals live far from human population centers and have minimal interactions with commercial fisheries.

IUCN status Least Concern.

References Hindell 1991; Hindell 2002; Laws 1994; Ling and Bryden 1981.

Crabeater Seal—*Lobodon carcinophaga*

(Hombron and Jacquinot, 1842)



Recently-used synonyms *Lobodon carcinophagus.*

Common names En.–crabeater seal; Sp.–*foca cangrejera*; Fr.–*phoque crabier*.

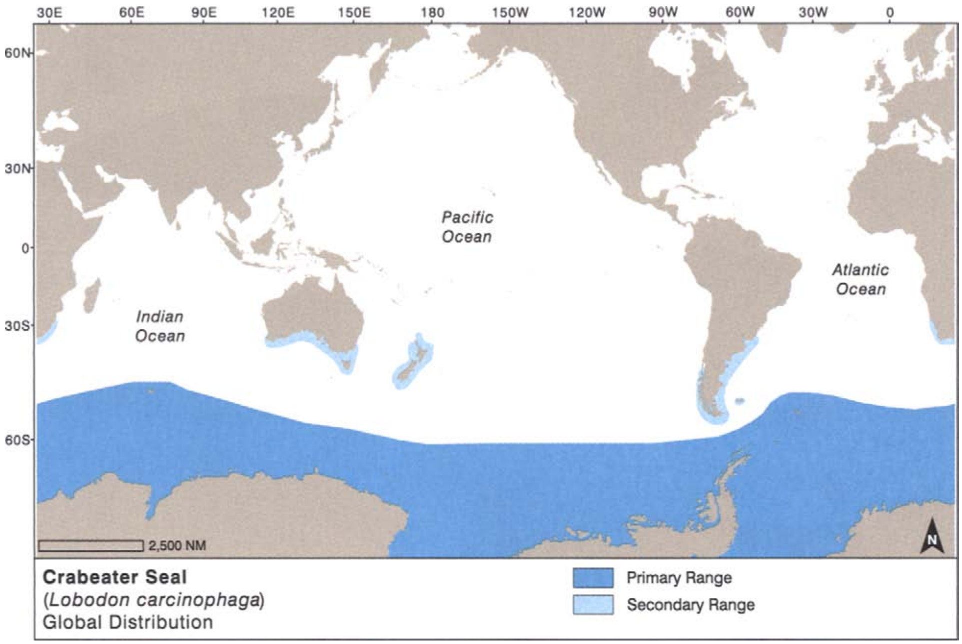
Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics The head and muzzle are moderately long and slender relative to the animal's length. The eyes are set well apart and the head tapers to the base of the straight muzzle, forming a slight forehead in profile. The nostrils are on top of the muzzle, just back from the end, and in profile look slightly enlarged. This gives the end of the muzzle a slight tipped-up appearance. The tipped-up appearance is enhanced by the crabeater's tendency to raise the end of the muzzle to the level of the eye or higher when disturbed. The line of the mouth is virtually straight from the gape to the end of the muzzle. The vibrissae are short, pale to clear, and inconspicuous.

The foreflippers are long, wide, and somewhat sickle-shaped. The first digit tapers to a pointed end, and is similar to those of otariids, but the foreflipper is fully furred. Crabeater seals can spread the digits of the foreflippers while swimming and stretching, greatly enlarging the surface area. Many crabeaters bear long dark scars, either singly or as a parallel pair, that have been attributed to attacks by leopard seals. Many older males have numerous smaller scars and injuries to the face and sides of the mouth and head, presumably from intraspecific fighting.

The coat of a freshly molted crabeater has a rich sheen, and can be light to dark shades of colors ranging from silvery gray to tawny brown. Irregular patch-

Crabeater seals often haul-out in groups. Three animals are in an alert position. Note the animal with dark irregular blotches. PHOTO: P. A. OLSON



es of spots and rings can be found on the shoulders, sides, tops of the flippers, and around the insertion of the flippers. These markings produce a reticulated or web-like pattern on the sides of many crabeaters between their fore- and hindflippers. The flippers can be so heavily marked with spots and rings that they appear darker than the rest of the body. As time progresses from the molt, crabeaters fade dramatically, becoming light tan, pale gray, or whitish. As these seals become older they become paler overall, and some look faded all year long. Pups are born with a soft woolly coat that is grayish-brown in color and has been described as light, coffee-with-cream brown, with darker coloring on the flippers. Molt begins in about 2–3 weeks and the pup sheds into a subadult pelage similar to that of the adult.

Adults reach 2.6 m in length and weigh an estimated 200–300 kg, although little data are available on this species. Neonates are thought to be at least 1.1 m and 20–40 kg.

The dental formula is I $^{2}/2$, C $^{1}/1$, PC $^{5}/5$. All of the post-canine teeth are ornate, with multiple accessory cusps. Upper and lower teeth interlock to form a network for straining krill from the seawater. A ridge of bone on each mandible fills the gap in the mouth behind the last upper postcanine teeth and helps prevent the loss of krill from the back of the mouth when feeding.

Recognizable geographic forms None.

Can be confused with Crabeater seals are most likely to be confused with leopard, Weddell, Ross, or young elephant seals. Leopard seals have a much larger, almost reptilian-looking head, with a very broad muzzle, and proportionately longer foreflippers. Weddell seals have a small round head, close-set eyes, a short, narrow muzzle and a proportionately long and heavy-set body with short foreflippers and distinctive spots. Ross seals have a wide head with a short muzzle, giving the snout a

Notice the up-turned end of the muzzle on this crabeater seal in a lead. McMurdo Sound. PHOTO: R. L. PITMAN

Crabeater seals are the only Antarctic phocids that regularly travel in groups at sea. PHOTO: D. WALKER

This adult female has many scars attributable to leopard seal attacks. Gerlache Strait, Antarctic Peninsula. PHOTO: M. WEBBER

An adult male crabeater seal that is molting. Note the relatively long, pointed fore-flippers.Cuverville Island, Antarctic Peninsula. PHOTO: M. JØRGENSEN

Adult male crabeater seals accumulate a large number of wounds and scars on the face, neck and upper body, from fighting with other males. PHOTO: (TOP) M. N. NORMAN, (BOTTOM) M. JØRGENSEN

blunt appearance. The foreflippers are proportionately about the same length as in crabeater seals. They also have irregular dark streaks originating from the head, lower jaw, and thick neck that extend down the sides of the body.

The presence of long scars and sets of parallel scars are much more common and readily visible on the pale, relatively unmarked pelage of crabeaters than on the other Antarctic phocids. Of all the Antarctic phocids, only crabeaters occur routinely in closely associated groups in the water or on ice floes. Young southern elephant seals of similar size are gray to brownish, lack any markings, and have large wide heads with large eyes and prominent dark vibrissae.

Distribution Crabeater seals are circumpolar in the Antarctic and tied to seasonal fluctuations of the pack ice. They can be found up to the coast of Antarctica, as far south as McMurdo Sound, during late summer ice break-up, and as vagrants as far north as New Zealand and the southern coasts of Africa, Australia, and South America. Crabeaters have been known to wander far inland and die in the dry valleys adjacent to McMurdo Sound.

Ecology and behavior Pups are born from September to December, and weaned in approximately 3 weeks. There are no specific rookeries; females haul-out on ice singly to give birth. Adult males attach themselves to female/pup pairs and stay with the female until her estrus 1–2 weeks after the pup is weaned. Mating has not been witnessed and presumably occurs in the water. Females are reported to bite males around the mouth and flippers and this may account for the abundant small scars on the faces of older males. Mortality is high in the first year and may reach 80%. Much of this mortality is attributed to leopard seal predation, and up to 78% of crabeaters that survive through their first year have injuries and scars from leopard seal attacks. Leopard seal attacks appear to fall off dramatically after crabeaters reach one year of age.

Crabeaters are frequently encountered alone or in small groups on the ice or in the water. However, much larger groups of up to 1,000 have been observed hauled-out together. They will swim together in herds estimated to be up to 500 animals, breathing and diving almost synchronously. The molt is in January and February. They have a pattern of feeding from dusk until dawn, and hauling-out in the middle of the day. A large proportion of the animals in an area routinely haul-out during the annual molt. Crabeaters frequently use their foreflippers for propulsion, and surface and roll forward to begin a dive. They are known for their ability to move rapidly on ice, with sinuous serpentine motions of the back, aided by the flippers. When agitated, their response is to arch their back and raise their neck and head in an alert posture.

Recent research has revealed that crabeater seals can dive to 430 m and stay submerged for 11 minutes, although most feeding dives were to 20–30 m; and

A rare photo of an adult female crabeater seal and young pup in lanugo. PHOTO: M. N. NORMAN

A profile view of a juvenile crabeater seal hauled-out on Petermann Island, Antarctic Peninsula. PHOTO: M. JØRGENSEN

Adult female crabeater seals lack scars on the face and neck. The red stain is from crabeater feces, and results from foraging on krill. Gerlache Strait, Antarctic Peninsula. PHOTO: M. WEBBER

Crabeater seals have moderately long pointed foreflippers with a long first digit, and a moderately long head and muzzle. Andvord Island, Antarctic Peninsula. PHOTO: M. JØRGENSEN

shorter. Foraging occurs primarily from dusk to dawn, and instrumented seals have been recorded to regularly dive continuously for periods up to 16 hours. Dives at dusk and dawn are deeper than at night, and indicate that crabeater feeding reflects the daily vertical migrations of krill.

Feeding and prey Crabeater seals feed primarily on Antarctic krill, *Euphausia superba*, and 95% of their diet may be made up of this species. Small amounts of fish and squid are also part of the diet.

Threats and status Crabeater seals are probably the most abundant seal species, and the most numerous large mammal on earth. Population estimates range from 2–75 million animals. There is no recent population estimate available, but the most widely-used estimates are of 10–15 million animals.

A mass die-off was reported from an area near a base on the Antarctic Peninsula in 1955. About 3,000 animals were trapped in areas 5–25 km from the nearest open water and most died over a 2–3 month period. None of the animals examined appeared to be starving, and numerous abortions of fetuses were noted. A disease outbreak was suspected, but never identified. In the 1980s, a study of archived samples revealed antibodies to a distemper-like virus in crabeater seals from this die-off.

Several brief episodes of commercial harvesting ended when they were determined to be economically unsuccessful. Commercial harvest of krill may pose a threat to crabeater seals if conducted on a large scale. There are currently no direct threats from human activity throughout most of the species' normal range. The effect of global climate change on the formation and extent of antarctic pack ice, and crabeater seal prey, poses an unknown threat to this ice-dependent species. Crabeater seals are protected by the Antarctic Treaty and the Convention for the Conservation of Antarctic Seals.

IUCN status Least Concern.

References Adam 2005; Bengtson 2002; Erickson and Hanson 1990; Kooyman 1981; Laws et al. 2003.

Ross Seal—*Ommatophoca rossii*

Gray, 1844

Pup

Adult

Recently-used synonyms *Ommatophoca rossi.*

Common names En.–Ross seal Sp.–*foca de Ross*; Fr.–*phoque de Ross*.

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Ross seals are typically countershaded, blending along the sides. The coloration is described as ranging from dark brown to dark gray and black. Most striking are a series of dark streaks, unique to this pinniped, originating from the masked face and dark lower jaw that extend down the neck and sides parallel to each other. There may also be spots, particularly on the sides, where the dark coloration of the back merges with the light color of the undersides.

Coloration becomes duller with more brown and tan tones in late summer before the molt. The epidermal molt occurs in January and possibly February, and involves shedding small pieces of skin with the fur. Scars are often seen on the neck, possibly from intraspecific fighting, and a small percentage of animals have scars from wounds believed to be from leopard seal or killer whale attacks. Pups are born in a two-toned lanugo that is dark brown to blackish above and lighter gray, yellowish to silver below.

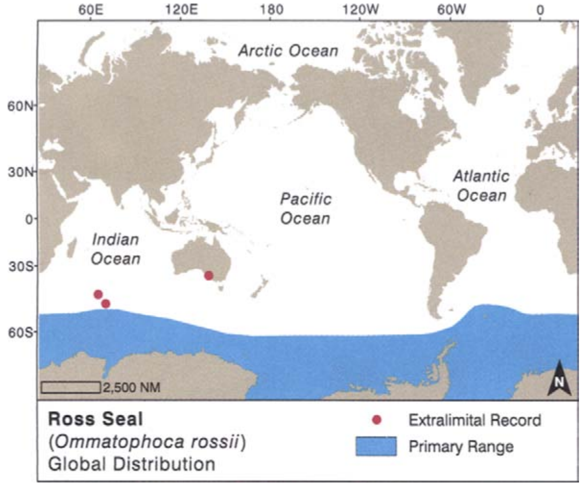
The head and neck are thick and wide, while the rest of the body appears proportionately short and slender. The muzzle and mouth are short and wide, giving the end of the head a blunt appearance. The vibrissae are sparse, short, and inconspicuous. The eyes are proportionately larger than in any other seal and set widely apart.

The foreflippers are proportionately long, with short claws as is typical of all four Antarctic phocid species. The first digit is very long and robust and the rest of the digits are successively shorter, the length tapering rapidly to create a pointed flipper that is similar in profile to the foreflipper of a sea lion. The hindflippers are long, to $^1/5$ or more of the standard length and are proportionately the longest of any phocid seal. The first and fifth digits of the hindflippers are very long, and much thicker than the other digits.

When disturbed, Ross seals lift their head and neck to the position of the foreflippers, and point the muzzle skyward in a characteristic and unique "singing" position. This position is also used for in-air vocalizations.

At maturity, Ross seals are the smallest of the four Antarctic phocids. Based on a small sample of measured

A Ross seal in the "singing" position. Notice how the back is slightly arched and the hindflippers pushed down and forward. This animal has inconspicuous stripes on the neck. PHOTO: M. CAMERON/MNFS



A Ross seal with an open mouth and bulging neck, possibly in preparation for singing. The dark areas below the eye are wet from tears. PHOTO: M. CAMERON/NMFS

A singing Ross seal is recorded by researchers. Note the strongly developed countershading, the streaked and spotted sides, and the curving neck stripes. PHOTO: J. THOMAS

animals, Ross seals reach at least 2.4 m and 204 kg. Females are slightly larger than males. It is estimated that pups are about 1 m and 16 kg at birth.

The dental formula is I $^{2}/2$, C $^{1}/1$, PC $^{5}/5$.

Recognizable geographic forms None.

Can be confused with Of the four other phocids that share the Ross seal's range: Weddell, crabeater, leopard, and southern elephant seals, the Weddell is most similar in appearance. When compared to Weddell seals, Ross seals are shorter, and much smaller in the torso, but have a proportionately much wider neck and head, and have irregular dark streaks on the sides of the neck and body, and proportionately longer foreflippers.

Distribution Ross seals have a circumpolar distribution in the Antarctic. They are usually found in dense consolidated pack ice, but can also be found on smooth ice floes in more open areas. Results of recent tagging efforts have revealed that Ross seals migrate north out of the pack ice zone into open water to forage. Vagrants have been reported from Kerguelen, Heard Island, and South Australia.

Ecology and behavior Pups are born in November and December, with a peak from early to mid-November. Weaning takes place at about one month, although little is known of the relationship between mother and pup. Nursing-age pups have been seen swimming between ice floes. Mating is thought to occur in the water, but has not been observed. When hauled-out, Ross seals are generally encountered alone. Occasionally, a small number of individuals may be found in the same area, but they are usually widely-spaced apart. Ross seals may haul-out more often from morning to late afternoon. During the period of the molt, they may be out of the water for longer periods of time.

Few behaviors have been noted, except for the interesting habit of raising up the head and neck and opening the mouth when approached by a human. This has been described as the "singing posture," but seems to more often serve as an aggressive or defensive posture, from which chugging and trill vocalizations are produced when an animal is approached. Vocalizations are also made from other positions and while they are in the water, and the species' repertoire includes many calls that have been variously described to include pulsed chugs, clucks, loud cries, trills, and tonal siren calls.

Little is known of the activities of Ross seals in the water, although recent work has revealed that dives average 100 m in depth and 6 minutes in duration.

Feeding and prey The diet of Ross seals consists primarily of cephalopods, but also includes fish and krill.

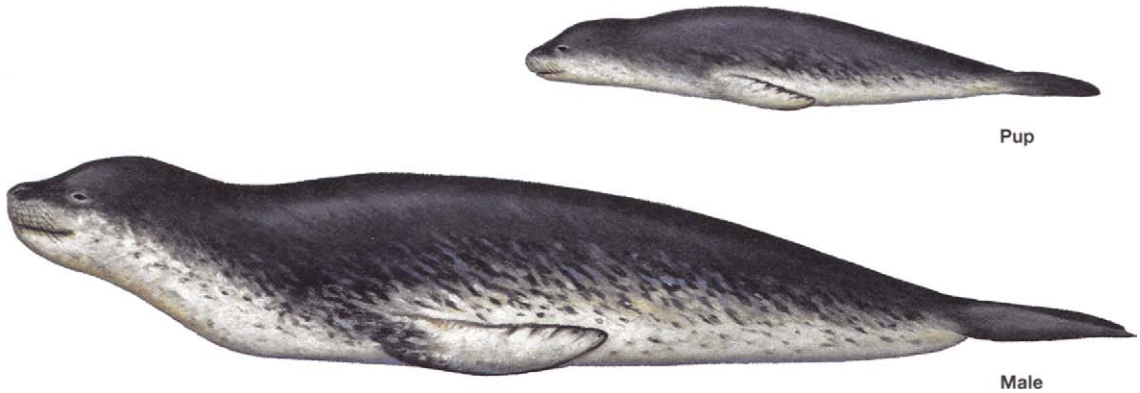
Four views of a molting Ross seal, sex unknown. The old fur is being replaced by richly colored, new pelage. This animal has a dark face with broad streaks that are different on each side. Note the large, unusually-shaped head, bulging eyes, short muzzle, thick neck, and medium length foreflippers. PHOTOS: P. A. OLSON

Threats and status Ross seals typically haul-out in dense consolidated pack ice that can usually only be reached by icebreakers. Small numbers have been collected for commercial purposes, scientific studies and museums, but otherwise interactions with humans have been few. Ross seals are protected by the Antarctic Treaty and the Convention for the Conservation of Antarctic Seals. When wandering outside the pack ice zone, they could come in contact with commercial fishing operations, but there are no reports of interactions to date. The Ross seal is the rarest phocid in Antarctica. No detailed surveys have been conducted recently, but the population is thought to be around 130,000.

IUCN status Least Concern.

References Erickson and Hanson 1990; Ray 1981; Skinner and Klages 1994; Thomas 2002.

Leopard Seal—*Hydrurga leptonyx*
(Blainville, 1820)



Recently-used synonyms None.

Common names En.–leopard seal; Sp.–*foca leopardo*; Fr.–*léopard de mer*.

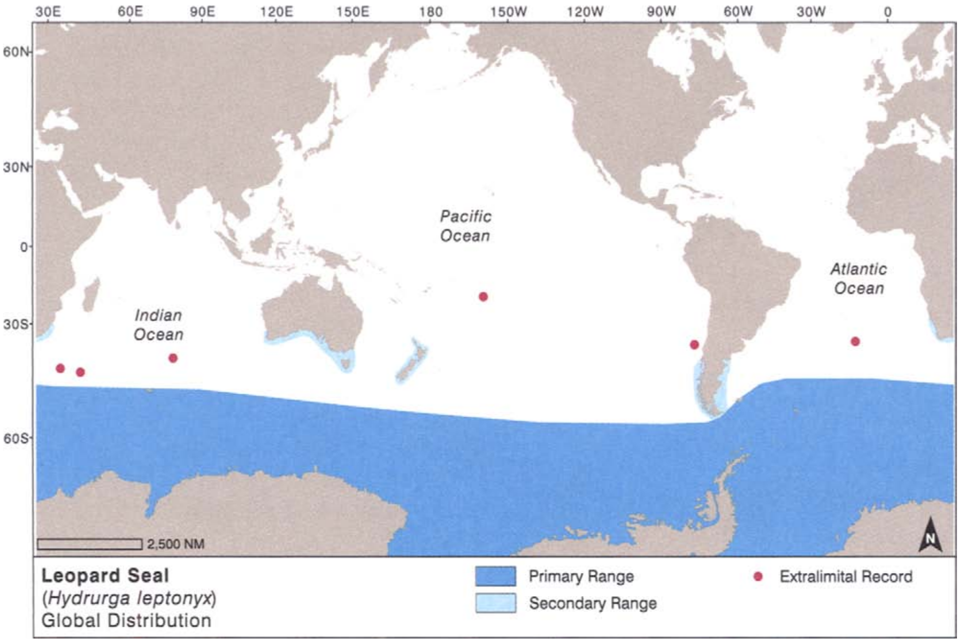
Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Leopard seals have a sinuous body and massive head and jaws. Because of the shape of the head, they appear almost reptilian. Females grow slightly longer and heavier, but not so much larger that the sexes can be distinguished in the field based on size. The long body usually appears slender, and is thickest through the shoulders and upper chest. There is no trace of a forehead. The head is widest at the eyes, which appear small and set both far apart and well back from the end of the broad U-shaped muzzle. The nostrils are situated on top and just back from the end of the muzzle. The lower jaw is massive, both long and wide, and the throat and neck are thick. Leopard seals have an enormous gape, and the teeth, especially the canines, are conspicuously large. The vibrissae are clear to pale, generally quite short and inconspicuous. The foreflippers are long, wide and somewhat sickle-shaped, tapering to a rounded end, and similar to those of otariids, but fully furred. The first digit is long and wide, creating a thick strong leading edge to the flipper. Leopard seals can spread the digits of the foreflippers while swimming and stretching, greatly enlarging the surface area. The foreflippers are situated farther back on the body from the muzzle than on other antarctic phocids, creating the proportionately long neck of the leopard seal.

Leopard seals have a countershaded color pattern. They are dark gray above and light silvery gray below, the shades meeting and blending high on the sides of the torso and neck, where the light ventral coloration rises to just below the level of the eye. A swath of lighter color from the neck extends forward on the upper jaw above the mouth to the end of the muzzle, which highlights the line of the mouth. Leopard seals are spotted to varying degrees, most noticeably on the sides, neck, and belly. Pups have essentially the same markings in the same proportions as adults, although their coat is softer, longer and thicker. Dense constellations of spots may occur without any pattern or symmetry. One area where dense clusters of spots normally occur is around the insertions of the foreflippers.

Adult males are 2.8 to 3.3 m long and weigh up to 300 kg. Adult


Adult leopard seals have a very large head with a long, wide muzzle and powerful jaws. Neko Harbour, Antarctic Peninsula. PHOTO: M. JØRGENSEN



females are 2.9 to 3.6 m, with very large animals possibly reaching 3.8 m, and can weigh 260 to upwards of 500 kg. Pups are 1 to1.6 m in length and weigh 30 to 35 kg at birth.

The dental formula is I $^2/_2$, C $^1/_1$, PC $^5/_5$. The canine teeth are very long and sharply pointed. The post-canine teeth are ornate with several large lobes, and resemble those of crabeater seals.

Recognizable geographic forms None.

Can be confused with Seen well, the distinguishing features of the leopard seal: large head and muzzle, long neck and very long foreflippers, long thin body, irregular spotting pattern, and usually strong countershaded coloration, are unmistakable. At a distance, however, they most likely would be confused with crabeater seals. Both Weddell and Ross seals have much smaller heads, and very short and blunt muzzles, with proportionately shorter foreflippers that are situated farther forward on the body than on the leopard seal.

Crabeater seals are shorter, with a proportionately smaller head and shorter muzzle that is demarcated by a small angular forehead, and are generally lighter in color, with minimal or no countershading. Also, they often have long scars, and usually have small numbers of spots concentrated on the shoulders, flanks, tops of the foreflippers, and around the insertions of the flippers.

Distribution Leopard seals are widely-distributed in Antarctic and subantarctic waters of the Southern Hemisphere, from the coast of the continent north throughout the pack ice and at most subantarctic islands. Vagrants regularly reach warm temperate latitudes. They haul-out on ice and land, often preferring ice floes near shore, when available.

A leopard seal showing the typical countershaded coloration of the species. A mixture of light and dark spots in irregular constellations are scattered on the body. PHOTO: D. WALKER

Leopard seals wander widely outside the Antarctic. Otago Harbour, New Zealand. PHOTO: K. WESTERSKOV/NATURAL IMAGES

This large adult female leopard seal is strikingly countershaded. PHOTO: M. WEBBER

An adult female leopard seal. Females have mammae located just posterior to the umbilical scar, and lack a penile opening. PHOTO: M. JØRGENSEN

A large adult male leopard seal. The very long foreflippers paired with the large head, are key features of this species. Argentine Islands, Antarctic Peninsula. PHOTO: M. JØRGENSEN

The very long foreflippers of a leopard seal. The first digit provides a strong cutting edge. PHOTO: M. WEBBER

Ecology and behavior Pups are born on the ice from early November to late December and the period may be as long as early October to early January. Births at South Georgia occur from late August to the middle of September. Pups are probably weaned at 4 weeks, and female estrus occurs at or shortly after weaning. Unlike crabeater seals, male leopard seals do not haul-out with female/pup pairs. Mating is believed to occur in the water.

At sea and on the ice, leopard seals tend to be solitary. They float at the surface, and crane their neck high to view objects of interest in the air, and will hide around ice floes while underwater, stalking prey. Leopard seals can submerge by sinking, which is typical of most phocids (which use their hindflippers for propulsion), or by rolling forward, the more typical method of otariids (which use their foreflippers for propulsion). Leopard seals are fast, powerful, agile swimmers. Swimming is most often accomplished with long, powerful, coordinated sweeps of the foreflippers, rather than the side-to-side strokes of the hindflippers typical of most phocids. Leopard seals mostly sleep or are otherwise inactive when out of the water, but will move in a serpentine slithering manner across ice, and toboggan like penguins. They are curious and unafraid of humans and small boats and will approach, occasionally brush against, and even mouth small boats.

Explorers and scientists from the heroic age of exploration to the present occasionally report being stalked by leopard seals swimming along the ice edge or leads, where people are working and walking. Leopard seals have lunged at ankles and, rarely, briefly grabbed people. They will closely approach human divers and appear to be very curious during these encounters. On one occasion, a leopard seal dragged and held a snorkeler underwater long enough to drown the person. Despite being a top predator, leopard seals themselves are prey for killer whales.

Feeding and prey Leopard seals are probably best known for their habits of preying upon penguins. Their diet is actually quite varied and changes with seasonal and local abundance of prey. Leopard seals will consume krill, fish, squid, penguins, a variety of other types of seabirds, and young seals, including phocids, such as young crabeater and southern elephant seals and otariids, such as young fur seals. They will also occasionally scavenge from carcasses of whales.

Most prey is caught in the water, but they will also sometimes take penguins while hauled-out. Penguins are regularly held in the teeth by one end and slung in an arc with a rapid snap of the head and neck to be smashed, and torn open at the surface. Smaller pieces are then swallowed. The loud crack produced when a leopard seal slaps a penguin on the surface has been reported to

The very long foreflippers of leopard seals are often pale to different degrees. PHOTO: M. JØRGENSEN

The band of light color above the jaw line on the large head and thick muzzle is unique to the leopard seal. Cooper Bay, Antarctic Peninsula. PHOTO: M. JØRGENSEN

Leopard seals usually attack penguins in the water and smash them on the surface to break them into smaller pieces. Port Lockroy, Antarctic Peninsula. PHOTO: M. JØRGENSEN

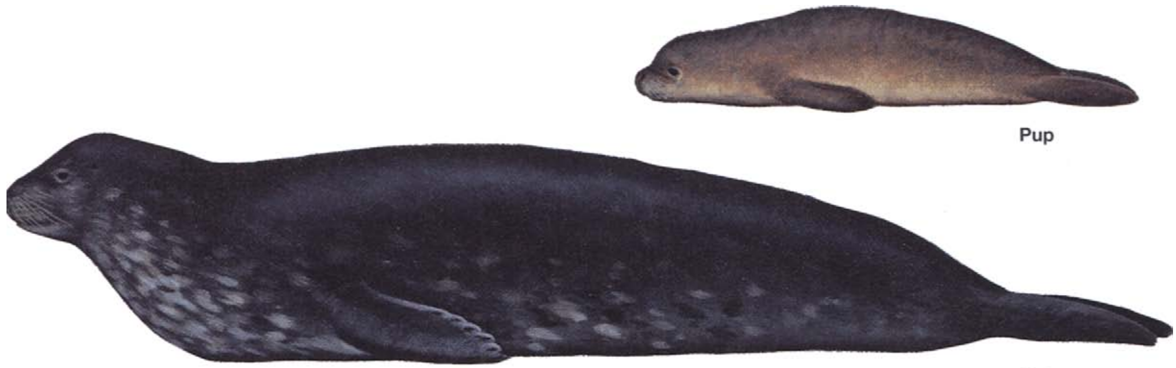
be audible in air for more than a kilometer. Young, newly fledged naïve penguins are most vulnerable, but adult birds are taken as well. Leopard seals patrol and regularly station themselves just off penguin rookeries and wait to ambush and chase penguins transiting to and from these colonies.

Threats and status The leopard seal is not listed as endangered or threatened. The population is estimated to be 220,000 to 400,000, with highest densities occurring in pack ice with large brash ice blocks and cake ice floes that are 2 to 20 meters in diameter. Leopard seals are protected by the Antarctic Treaty and the Convention for the Conservation of Antarctic Seals. There are currently no threats from human activity throughout most of the species' normal range. The effect of global climate change on the formation and extent of Antarctic pack ice, and leopard seal prey, poses an unknown threat to this ice-dependent species.

IUCN status Least Concern.

References Erickson and Hanson 1990; Hiruki et al. 1999; Hofman 1979; Kooyman 1981; Rogers and Bryden 1997; Rogers 2002.

Weddell Seal—*Leptonychotes weddellii*
(Lesson, 1826)



Recently-used synonyms *Leptonychotes weddelli.*

Common names En.–Weddell seal; Sp.–*foca de Weddell*; Fr.–*phoque de Weddell.*

Taxonomic information Order Carnivora, Family Phocidae.

Species characteristics Weddell seals are long, heavy-bodied phocids. The chest and abdomen of the fusiform body are long and thick. The neck is short and the head is small and rounded. The eyes are forward facing and large. The muzzle is short and somewhat narrow with a sparse number of inconspicuous, short vibrissae. Taken together, the head and muzzle shape, large eyes, and upturned mouth line impart a feline appearance to the face. Weddell seal foreflippers are proportionately short, relatively narrow, and owing to the short neck, originate in the forward third of the body.

In freshly molted pelage, adult Weddell seals are generally dark gray above with silver to light gray highlights, and pale gray to off-white below. There is a variable amount of light and dark spotting, streaking, and blotching. These markings are fewer or absent on the top of the back, and become heavier on the sides and ventral surface, where the markings can fuse into irregular shapes. Dorsal color fades from a rich, very dark gray just after the molt, to a dull brownish-gray over the 11 to 12 months prior to the start of the next molt. The pelage on the end and sides of the muzzle has light gray to whitish highlights, and sometimes there are similar crescent-shaped highlights above and behind the eyes. Pups are born in a woolly silver-gray coat, with a darker swath along the mid-line of the back. This lanugo coat is molted for the adult pelage starting 1–4 weeks after birth, and the molt is usually completed in 2–3 weeks.

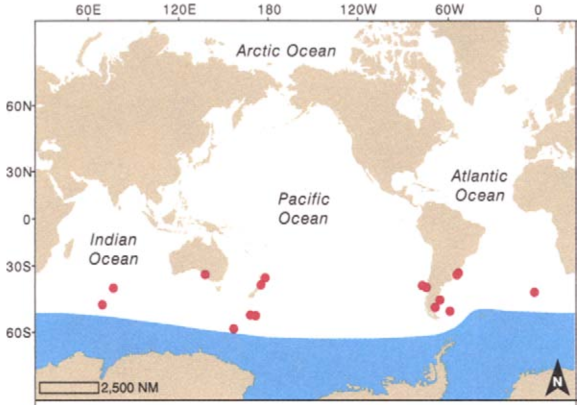
Adult males reach 2.9 m in length, females 3.3 m. Adults in their prime weigh 400 to 450 kg, with females somewhat heavier than males, but not enough to permit separation of the sexes in the field based on weight or length. Adult female weight fluctuates dramatically during the year with most weight loss occurring after birth and during lactation. Newborns are about 1.5 m long and average 29 kg.

Adult female with her molting pup, and a third seal at a hole in the fast ice. The markings on the female are typical for Weddell seals, and the pup is molting its lanugo. PHOTO: K. WESTERSKOV/NATURAL IMAGES

The dental formula is I $^{2}/_{2}$, C $^{1}/_{1}$, PC $^{5}/_{5}$. The second upper incisors and the upper canines are procumbent, or forward facing, a special adaptation used for rasping ice to keep breathing holes open.

Recognizable geographic forms None.

Can be confused with Four phocids share the Weddell seal's range. Of these, Ross and crabeater seals are the most similar, and leopard and southern elephant seals are more



Weddell Seal
(*Leptonychotes weddellii*)
Global Distribution

readily separated from Weddell seals. Ross seals differ in having a proportionately larger and wider head and neck, very small muzzle, and that taken together, impart a blunt profile to the face. They also have dark streaks on the neck, throat and sides, and proportionately longer foreflippers.

Crabeater seals have a longer head and muzzle, with an upturned appearance to the end of the muzzle. They are also paler dorsally and on their sides, with few or no spots. Also, Weddell seal foreflippers are shorter and set more forward on the body than those on crabeater and Ross seals.

Distribution Circumpolar and widespread in the Southern Hemisphere, Weddell seals occur in large numbers on fast ice, right up to the Antarctic continent. They also occur offshore in the pack ice zone north to the seasonally shifting limits of the Antarctic Convergence. Weddell seals are present at many subantarctic islands and islands along the Antarctic Peninsula that are seasonally ice-free. Vagrants have been recorded in many northern areas including South America, New Zealand and southern Australia.

Ecology and behavior Weddell seal pups are born from September through November and nursed for 7–8 weeks. Animals in lower latitudes pup earlier than animals living at higher latitudes. Males set up territories in the water around access holes in the ice used by females to enter and leave the water. The only copulation that has been observed occurred underwater. The behavior of animals breeding in the pack ice is not well-known.

Weddell seals are not very social when out of the water, avoiding physical contact most of the time. When in the fast ice habitat, they tend to congregate in groups along recurrent cracks, leads, and near access holes to the water. There is debate over whether or not this species is migratory. Some individuals remain in residence year-round in the fast ice at latitudes as high as 78° S in McMurdo Sound. Others, particularly newly weaned and subadult animals, move north from the continent and spend the winter in the pack ice.

Weddell seals are prodigious divers reaching over 600 m, and have the capability of undertaking 82 minute dives. Deep dives are regularly used for foraging and long

A Weddell seal with one of its favorite prey species, the giant Antarctic toothfish. PHOTO: K. WESTERSKOV/NATURAL IMAGES

An adult Weddell seal. The small head; short forward-positioned foreflippers, short neck and long body characterize this species. The spots of many shapes and tones are also typical. Port Lockroy, Antarctic Peninsula. PHOTO: M. JØRGENSEN

Weddell and crabeater seals together. Notice the longer muzzle on the crabeater and proportionately small head of the Weddell. Weddell are always more spotted than crabeaters. PHOTO: K. ABERNATHY

A molting Weddell seal. A Weddell's foreflippers are shaped like those of the other Antarctic phocids, but are shorter and positioned closer to the head. Weddell's have short necks and long bodies between the flippers. PHOTO: M. WEBBER

A young pup Weddell seal in lanugo. PHOTO: K. WESTERSKOV /NATURAL IMAGES

The Weddell seal has a small head and short muzzle as seen on this juvenile. Paulett Island, Weddell Sea. PHOTO: M. WEBBER

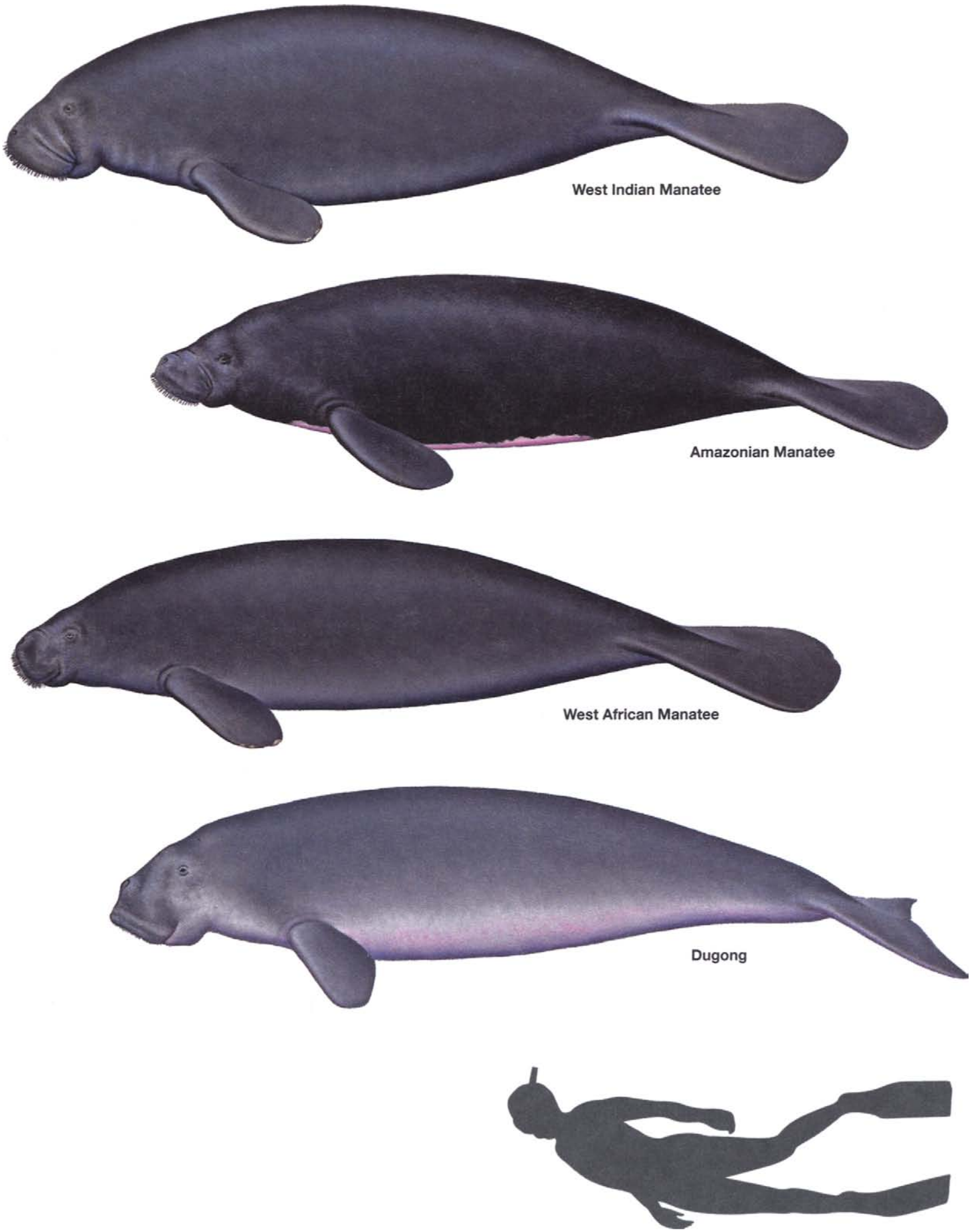
dives for searching for new breathing holes, cracks and leads. Seals living in fast ice, or facing freezing over of access holes and leads, abrade and grind the ice to maintain access to and from the water. They bite at the ice and then rapidly swing the head from side to side to rasp and grind away the ice with their teeth. Predators include killer whales and leopard seals.

Feeding and prey The diving abilities of this species are helpful in finding new breathing holes and obtaining important prey, such as the huge Antarctic toothfish. In addition to Antarctic toothfish, Weddell seals also take a variety of other *Nototheniid* fishes. Squid and other invertebrates are also taken as small percentages of the diet.

Threats and status Weddell seals served as an important source of food for men and dogs throughout the heroic period of Antarctic exploration. They continued to be taken to feed sled dogs into the 1980s. Local populations of seals no doubt suffered declines from these harvests, but in the case of the population in McMurdo Sound the population has recovered in the 20 years since the harvest ended. The population of Weddell seals has been variously estimated at 500,000 to one million or more. This is a widespread species and, as with other Antarctic seals inhabiting the pack ice, population assessments are very difficult and expensive to conduct and therefore infrequently undertaken. At present there are no immediate threats to the Weddell seal, and they are protected by the Antarctic Treaty and the Convention for the Conservation of Antarctic Seals.

IUCN status Least Concern.

References Burns and Kooyman 2001; Erickson and Hanson 1990; Kooyman 1981; Kooyman 1981; Testa and Siniff 1987; Testa et al. 1990, Thomas 2002.


West Indian Manatee
Amazonian Manatee
West African Manatee
Dugong

6. Sirenian and Other Species

Sea Otter

Marine Otter

Polar Bear

West Indian Manatee—*Trichechus manatus*

Linnaeus, 1758

Recently-used synonyms None.

Common names En.–West Indian manatee; Sp.–*manati* or *vaca marina*; Fr.–*lamantin des Caraibes*.

Taxonomic information Order Sirenia, Family Trichechidae. There are two subspecies recognized: the Florida manatee (*T. m. latirostris*) in the southeastern US and the Antillean manatee (*T. m. manatus*) from northern Mexico to northern South America, including islands of the Caribbean. Hybrids between West Indian and Amazonian manatees have been documented near the mouth of the Amazon River (and possibly also near the mouth of the Orinoco River).

Species characteristics West Indian manatees are rotund, with broad backs, and have long flexible forelimbs and rounded, paddle-like tails. The head is small, with no discernible neck, and the body exhibits numerous folds and fine wrinkles. The squarish, thickened snout has fleshy, mobile lips (with stout bristles on the upper lip) and two semi-circular nostrils at the front. The rostrum is strongly deflected downwards (29–52°—more so than in the other manatee species), which reflects the species' preference for feeding on submerged vegetation. The skin is very rough and thick, and has fine hairs sparsely distributed over its surface. Each flipper has 3–4 fingernails at the tip. The tail stock is not laterally compressed into a peduncle. The mammary glands of manatee females are located in the axillary region.

The color of the skin is generally gray to brown, sometimes with a green, red, white, or black tinge caused by algal and/or barnacle growth. The short hairs are colorless. Calves appear to be a darker shade of gray, almost black.

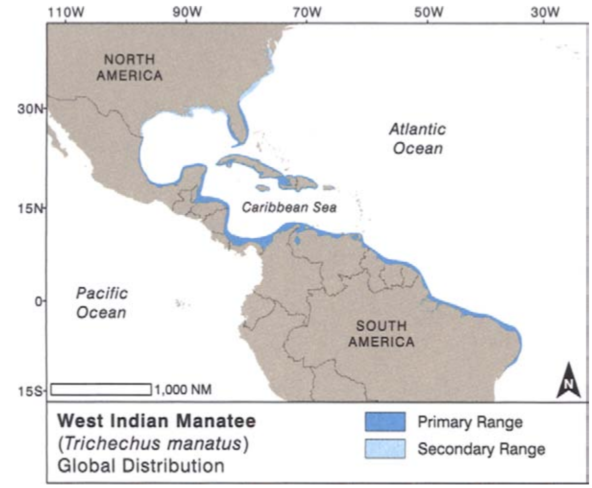
There are 5–7 pairs of bicuspid post-canines/molars in each jaw. When forward teeth are worn or lost, they are replaced from behind. At birth, each jaw also has 2 vestigial incisors, which are lost as the animal ages.

West Indian manatee adults are up to 3.5 m (4.0 m maximum) long and weigh up to 1,590 kg. Females tend to be a bit larger than males. Newborns measure about 120 cm and weigh about 30 kg.

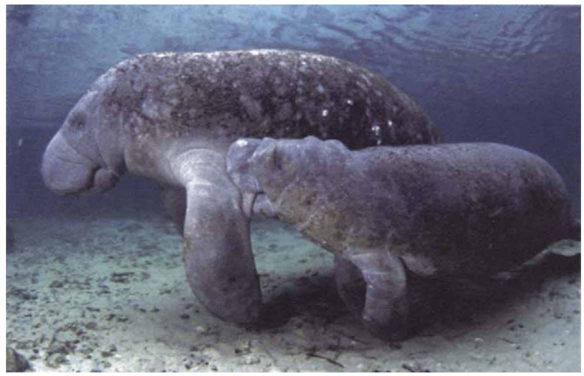
West Indian manatees (in this case a mother and calf) are found in very clear water in some areas of Florida. PHOTO: L. KEITH

Recognizable geographic forms The two subspecies are separated largely by their distribution and differences in skeletal morphology. Reliable methods of distinguishing them from external appearance are not known.

Can be confused with The West Indian manatee is the only sirenian throughout most of its range,



West Indian manatees underwater, showing the fleshy snout and rounded tail characteristic of the species. PHOTO: T. PUSSER



A West Indian manatee calf suckles from its mother in Florida waters. The teats are near the axillae in sirenians. PHOTO: T. PUSSER

with the exception of the area around the mouth of the Amazon River (and maybe the Orinoco as well). In this region, special care must be taken to distinguish it from the Amazonian manatee. Pay special attention to head shape (shorter and wider rostrum in the West Indian), body color (lighter, generally without white belly patches in the West Indian), skin texture (rougher in the West Indian), and presence/absence of nails on the flippers (present in the West Indian).

Distribution West Indian manatees are found in coastal marine, brackish, and freshwater areas of the southeastern US coast, tropical/subtropical Gulf of Mexico, Caribbean Sea, and Atlantic coast of northeastern South America. There are 2 subspecies: the Florida manatee (*T. m. latirostris*) from Texas to Virginia (occasionally to Rhode Island) in the northern Gulf of Mexico and southeast United States, and the Antillean manatee (*T. m. manatus*) from northern Mexico to central Brazil and the islands of the Caribbean. Increasing numbers of records of manatees in the US Gulf of Mexico, west of Florida, have been documented in recent years, probably due to both increases in public awareness and manatee dispersal. Extralimital records have been recorded from the Bahamas, the western Florida keys, and at Turneffe Atoll, Belize. Recently, a few West Indian manatees transplanted into the Panama Canal may have passed through the locks and made it to the Pacific side, but this is not part of their normal range.

Ecology and Behavior West Indian manatees are slow-moving and lethargic, and can be very difficult to observe, since they generally only expose the tip of the muzzle and possibly the upper back when they surface. They are seen mostly alone or in groups of up to six. However, some feeding groups may number up to about 20. For instance, during cold weather, large aggregations assemble near sources of warm water (such as power plant outfalls) in Florida, and these aggregations occasionally contain hundreds of animals. Mating groups of manatees clasp and touch each other, with much rolling and cavorting. Individual manatees are identified by scars and marks on the body (many of these inflicted as a result of boat collisions).

Most individuals in the southeastern US migrate between a summer range and a winter range further south in warmer waters. These movements, which are determined by water temperature changes, may span hundreds or even thousands of kilometers. However, the presence of warmwater sources (such as power plant outfalls) has encouraged some animals to delay their migration or even not to migrate. They tend to show strong fidelity among years to specific ranges. Within the species, there is strong population structure, with the Lesser Antilles apparently representing a barrier to gene flow. In the Florida manatee, four populations or management stocks are recognized (Atlantic Coast, Southwest, Upper St. John's River, and Northwest).

West Indian manatee females reach sexual maturity at about 3–4 years. They breed throughout the year, with a peak, at least in Florida, in the spring and sum-

In some freshwater spring areas of Florida, West Indian manatees gather in large numbers.
PHOTO: L. KEITH

West Indian manatees in Florida will aggregate in great numbers around the outfalls of power plants and other artificial sources of warm water in the winter months. PHOTO: L. KEITH

A West Indian manatee swims on its back, lifting its flippers and snout above the surface. PHOTO: L. KEITH

mer months (May–September). Generally, a single calf is born (twins occur sometimes—about 1–2% of births) after a gestation period of about 11–13 months. The calf is weaned typically at the age of about 1–2 years, but some females nurse their calves for up to 4 years. The lifespan is about 60–70 years.

Feeding and prey These animals are herbivores, feeding on a wide variety of aquatic plants, such as water hyacinths and marine seagrasses. At times in some areas, they also eat algae, parts of mangrove trees, floating and shoreline vegetation, and even fish that they remove from fishing nets.

Threats and status Although hunting was prevalent in the past, it only occasionally occurs (illegally) today in US waters. Human-caused threats include vessel collisions, incidental kills in fishing nets and lines, disturbance from boat traffic and other human activities, entrapment in flood control structures, pollution (especially from pesticides and herbicides in central America), ingestion of plastic debris, loss and degradation of habitat, and harassment by ecotourists. In addition, several natural mortality factors are important, and these include biological toxins (red tides), cold-related mortality, and apparently-high levels of perinatal mortality. The dependence of some manatees in Florida on warm water from power plant outfalls concerns many scientists, as the loss of these warm-water sources, even temporarily, could cause mass die-offs. Boat collisions are the number-one human-related cause of death (causing about 25% of manatee deaths) in Florida waters, where high-speed watercraft are extremely common and widespread. Abundance of the Florida manatee was estimated to be about 3,300 individuals. The Antillean manatee's numbers are unknown, but at least 400 have been counted on recent surveys in Belize and southern Mexico and about 500 are thought to exist in Brazilian waters. Some populations are growing, while many others are declining. Despite the species still facing significant threats, it is being actively managed in at least portions of its range. It is therefore probably facing much less danger of extinction than the other two manatee species.

IUCN status Vulnerable.

References Deutsch et al. 2003; Hartman 1979; Husar 1978; O'Shea et al. 1995; Reynolds and Powell 2002.

Amazonian Manatee—*Trichechus inunguis*

(Natterer, 1883)

Recently-used synonyms None.

Common names En.–Amazonian manatee; Sp.–*vaca marina*; Fr.–*lamantin de l'Amazone*. In Brazil, they are called *peixe-boi*.

Taxonomic information Order Sirenia, Family Trichechidae. Hybrids between West Indian and Amazonian manatees have been documented near the mouth of the Amazon River (and possibly also near the mouth of the Orinoco River).

Species characteristics Amazonian manatees are the smallest, most slender of the 3 species of manatees. They have the rounded, paddle-like tails characteristic of all manatees. The skin of adults and juveniles is smooth, rather than wrinkled as in their relatives (it has been described as 'rubbery'). The flippers are longer than in the other species and they lack nails, which is in contrast to the other two manatee species. There are thick bristles on the lip pads of both jaws, and the rostrum is longer, narrower, and less deflected downwards than in the West Indian manatee. The body has a sparse covering of fine hairs.

Amazonian manatees are black or dark gray; most have white or pink belly and chest patches with irregular shapes and very distinct borders (these only rarely occur in Florida manatees). However, not all individuals have the belly patches, and they may just have a slightly lighter ventrum.

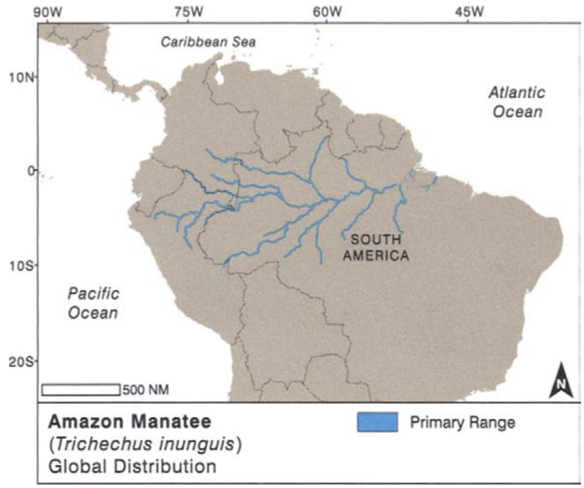
Five to seven functional post-canines/molars, and 2 vestigial incisors (the latter are resorbed after birth) are found in each jaw. Typical of manatees, teeth are replaced from the rear throughout life. The teeth are smaller than those of other manatee species.

Amazonian manatees reach lengths of about 2.8–3.0 m, and weights of up to 480 kg. There is no known sexual dimorphism in body size. Length at birth is not well-known, but is probably around 80–110 cm.

Recognizable geographic forms None.

Can be confused with Amazonian and West Indian manatees may co-occur in or near the mouth of the Amazon River (and possibly also near the mouth of the Orinoco River). Although they may be very difficult to distinguish when seen from a distance, in closer views, the size, shape, and coloration differences listed

Amazonian manatees are the most distinctive of the three manatee species. They are darker in color, with more distinct white belly patches, and they are generally more slender and smoother than the others. Brazil. PHOTO: D. PERRINE@/SEAPICS.COM



above should help in identification. Pay special attention to head shape (longer and narrower rostrum in the Amazonian), body color (darker, with frequent white belly patches in the Amazonian), skin texture (smoother in the Amazonian), and presence/absence of nails on the flippers (absent in the Amazonian).

Distribution The Amazonian manatee is an exclusively freshwater species. It is found in calm waters of the Amazon River and its tributaries and appended lakes in Brazil, Guyana, Colombia, Peru, and Ecuador. Apparently it does not occur in the Orinoco drainage. It occurs from near the headwaters of the rivers (although not in the fast-flowing and turbulent waters) to the Amazon estuary. It can be found in all three water types in the Amazon (i.e, black, white, and clear waters).

Ecology and behavior The Amazonian manatee remained poorly-known until more intensive studies of its biology began in the mid-1970s. It occurs singly or in feeding groups of up to 8 individuals, although animals in feeding aggregations generally show little social interaction. The large herds often seen in the past are a rarity today, although aggregations do form for mating. They are active both day and night (however, hunting disturbance may have caused some animals to become more nocturnal in their habits), and their activities are strongly influenced by the seasonal floods. As water levels rise, they move into the flooded forest and "varzea" areas to feed, and they return to the main river channels and perennial lakes during the dry season. Amazonian manatees may survive for long periods in pools separated from the main river during the dry season, and have developed impressive fasting abilities (documented up to 200 days) to survive these events. They are able to hold their breath for up to 20 minutes. Individuals may emit low-frequency sounds in and out of water.

Breeding may occur throughout the year, but there is a calving peak in February to May, when the water level in the river rises and food is plentiful and nutritious. A single calf is born after a gestation of about 12 months. Lactation lasts up to two years. The age at sexual maturity is not well known, but is thought to be between 6 and 10 years. Potential predators are sharks, caimans (crocodiles), and jaguars. The lifespan is thought to be around 60–70 years.

In nature, Amazonian manatees are generally very difficult to detect. They may hide away in weeds along the river banks, and remain quiescent during much of the day. These may be, at least partially, adaptations to avoid detection by hunters. Brazil. PHOTO: D. PERRINE@/SEAPICS.COM

Feeding and prey Amazonian manatees feed on at least 24 species of vascular aquatic plants, but they have also been observed to eat floating palm fruits. Emergent species are preferred, followed by floating, and finally submerged types. Some manatees may fast or eat dead plant material during the dry season. They consume about 8% of their body weight per day.

Threats and status Amazonian manatees have been hunted heavily throughout the Amazon basin since at least 1542. Between 1935 and 1954, a commercial fishery killed 80,000 to 140,000 Amazonian

This mother and calf Amazonian manatee show the white belly patches that characterize many adults in this species. Brazil. PHOTO: D. PERRINE@/SEAPICS.COM

manatees for their meat and hides (which were used to make leather). Manatees are still hunted (often illegally) in at least Peru, Colombia, Brazil, and Ecuador. Additional potential threats to their survival include incidental catch, pollution associated with mining and other industrial and agricultural practices, damming of rivers, and large-scale deforestation. Amazonian manatees apparently do not often get hit by boats (this is a major problem for the West Indian species). About 500–1,000 manatees were thought to occupy Amana Lake in Brazil in the early 1980s. There are no statistically-defensible estimates of overall abundance or population size. However, the population was undoubtedly seriously reduced by the commercial exploitation of the past, and is being further reduced by the current smaller-scale subsistence hunts. Legal protection occurs in most range countries, but enforcement is generally lax to non-existent. The Amazonian manatee is therefore in real danger of extinction in the next couple of decades.

IUCN status Vulnerable.

References Husar 1977; Reeves et al. 1996; Reynolds and Powell 2002; Rosas 1994.

West African Manatee—*Trichechus senegalensis*

Link, 1795

Recently-used synonyms None.

Common names En.–West African manatee; Sp.–*vaca marina*; Fr.–*lamantin d'Afrique*.

Taxonomic information Order Sirenia, Family Trichechidae.

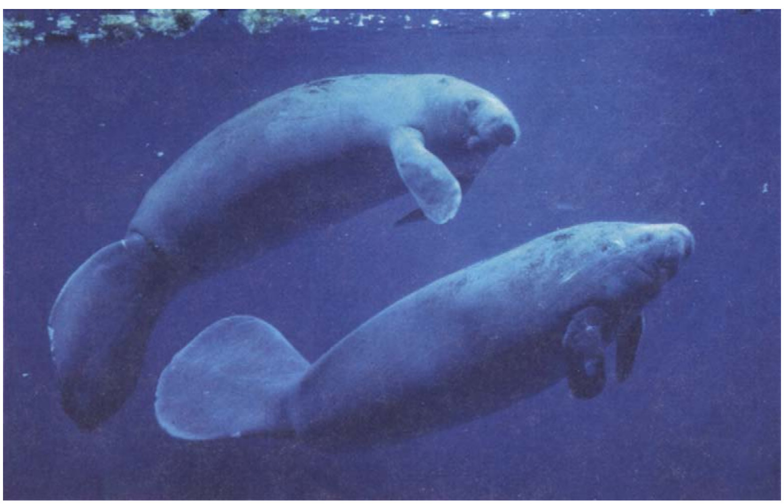
Species characteristics West African manatees are very similar in appearance to West Indian manatees, although they tend to be a bit more slender. They have rounded, paddle-like tails. The head shape is similar to that of the West Indian manatee, but the snout is blunter, and the small eyes protrude from their sockets more. Additionally, the rostrum is less deflected downwards than in the West Indian manatee. There are stiff bristles on the lips. As in other manatees, the flippers are paddle-like; there are 3–4 nails on the upper surface (although there are reports of animals with no nails). The skin is wrinkled, with a sparse covering of short hairs.

The bodies of West African manatees are dark grayish-brown; the sparse hairs found on the body are white. Individuals in coastal marine waters may have some barnacles growing on the surface.

There are 5–7 functional teeth (all molars) in each tooth row. These are replaced from the rear by newly-erupting teeth. Newborn animals have 2 vestigial incisors, which are later lost.

Adult West African manatees reach about 3.5 m in length (although there is a questionable report of an animal that was 4 m long) and to over 1,000 kg in weight. Newborns are presumably about 1.0–1.2 m long.

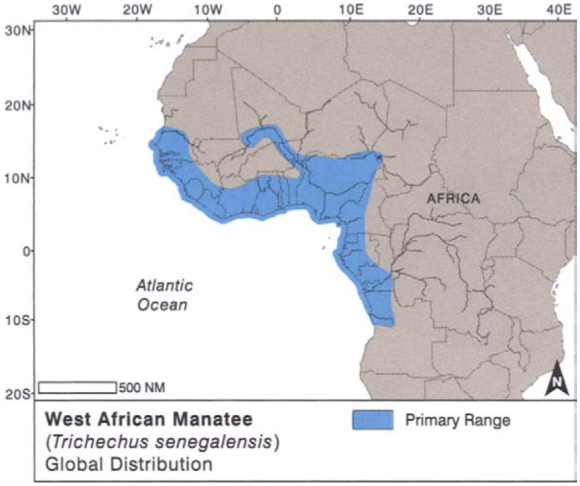
Recognizable geographic forms None.



West African manatees are very similar in appearance to their West Indian cousins. Although they have a tendency to be slightly more streamlined, captivity has fattened these ones. PHOTO: TOBA AQUARIUM

Can be confused with West African manatees should be easy to identify, as they are the only sirenians in their range, and the only marine mammals in most of the riverine waters that they occur in.

Distribution West African manatees are found in coastal marine waters, enclosed lagoons, the lower parts of rivers, and estuaries from the Senegal/Mauritania border to southern Angola. The species may also occur in the upper reaches of some rivers (e.g., the Niger, Benue, Congo, Ubangi, and Chari rivers in Mali and Chad) up to 2,000 km from the sea. Additionally, there are some reports of manatees in several lakes in the land-



locked country of Chad. They appear to prefer areas with abundant growth of mangroves and aquatic grasses.

Ecology and behavior Manatees are mostly solitary, but individuals are found together in mother/calf pairs and aggregations of up to 15 for feeding and reproductive purposes. The mating herds may exhibit much rolling and splashing, and tend to have several (male?) animals apparently pursuing a single female. Manatees sometimes rest in the middle of lagoons, along river banks, and underneath overhanging vegetation or roots, generally during the day. They tend to feed at night. The average breathing interval is slightly over 6 minutes, but they can hold their breath for at least 18 minutes. They migrate seasonally in rivers with large seasonal fluctuations in freshwater flow. Radiotagging studies show that West African manatees tend to be rather sedentary, but they do make some larger-scale movements (to at least 42 km). These animals may occasionally be eaten by crocodiles. There is little else known of their behavior.

There is some breeding year-round, but there also appear to be seasonal peaks between June and September in some areas, related to the rainfall and water levels. A single calf is born, generally in shallow lagoons. The limited evidence suggests the existence of strong population structure, with several different stocks in different parts of the species' range. The lifespan is not well known, but based on its close relatives, may be greater than 60 years.

Feeding and prey Aquatic vascular plants comprise much of the diet of West African manatees. They may also feed on mangrove leaves or plants on the banks of rivers or channels. Fish are sometimes taken from gillnets. Clams have been found in the stomachs of some animals.

Threats and status The folklore of the West African peoples contains many stories of manatees. Although never subjected to large-scale commercial hunting, like their congeners, West African manatees have been killed on a smaller scale for many decades throughout most, if not all, of their range. This is done mainly to obtain meat for food and also in some cases to reduce perceived interference with fisheries and agriculture. They are harpooned, captured in drop traps, and tangled in specialized nets. Manatees damage fishing gear and apparently invade flooded rice fields and eat rice, damaging the crops. Other potential threats include incidental mortality in fisheries, contaminants, boat collisions, ingestion of plastics, and damming of rivers. Manatee reserves exist in several West African countries, including the Ivory Coast, Cameroon, and Nigeria, although their effectiveness is often questionable. There are no estimates of abundance for any portion of the range, however it is quite clear that the West African manatee is the most highly-threatened of all the sirenians. Despite national protection in virtually all countries of origin, the species appears to be declining, and there is a very real chance that it will disappear in the next few decades.

IUCN status Vulnerable.

References Husar 1978; Marsh and Lefebvre 1994; Powell 1996; Reynolds and Powell 2002.

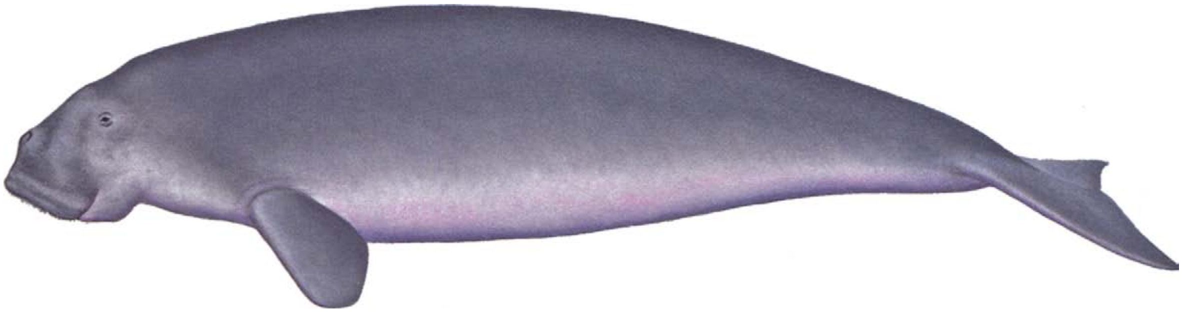
West African manatees in clear waters of their tank at a Japanese aquarium. In nature, they are usually found in water with significantly poorer visibility. PHOTO: TOBA AQUARIUM

Trichechidae

West African Manatee

Dugong—*Dugong dugon*

(Müller, 1776)



Common names En.–dugong; Sp.–*dugón*; Fr.–*dugong*.

Taxonomic information Order Sirenia, Family Dugongidae. Some biologists recognize two subspecies: *D. d. dugon* in the Indian and western Pacific oceans, and *D. d. hemrichii* in the Red Sea. These subspecies designations are not well-accepted, however, and most marine mammal researchers don't use them.

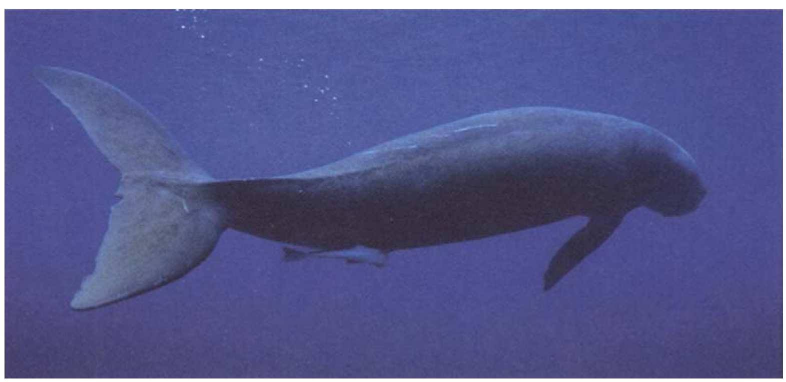
Species characteristics The dugong is unique among living sirenians in having whale-like flukes with a median notch, instead of the rounded tails possessed by manatees. They have been described as looking something like a cross between a dolphin and a walrus. In general, dugongs are more streamlined and cetacean-like than manatees, with a smooth, fusiform body. The tail stock in front of the flukes is laterally compressed into a peduncle. The paddle-shaped flippers have no nails. There is a downward deflection to the muzzle, which ends in a "rostral disk" with short, dense bristles. The nostrils are valve-like and are situated on the top and front of the animal's snout. The eyes are very small, and there are no external earflaps. The skin is generally smooth (not wrinkled, although there are folds) and is sprinkled with short hairs. The mammary glands of females are located in the axillae (armpits), unlike those of cetaceans.

Adult dugongs are brownish to slate gray on the back (generally appearing more brown when seen from above the surface), slightly lighter on the belly (which sometimes can have a pinkish hue). Older individuals may have a large unpigmented area on the back (these are called "scarbacks"). Calves are a slightly paler gray color than adults.

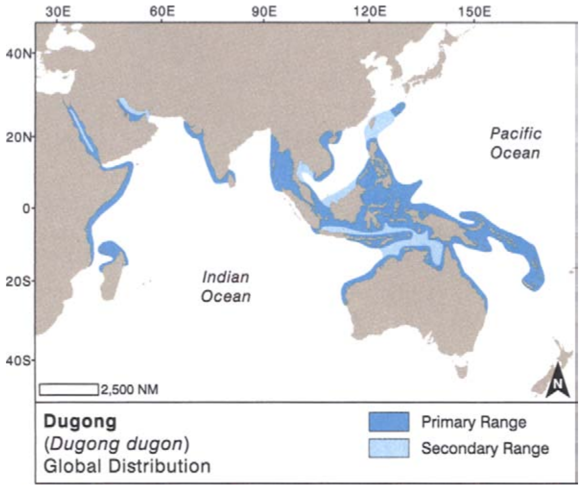
The dental formula is I $^{2}/_{3}$, C $^{0}/_{1}$, PM $^{3}/_{3}$, M $^{3}/_{3}$. The lower incisors and canines, and the inner pair of upper incisors, are vestigial. The outer pair of upper incisors of males and some females erupt from the gums, and are referred to as "tusks." However, they do not extend outside the closed mouth.

Maximum known size for dugongs is about 3.3 m and at least 400 kg (a specimen reported to be 4.06 m

Dugongs are truly creatures of the tropical oceans, and it is not uncommon to see them swimming in areas of coral reefs. Indonesia. PHOTO: B. KAHN



Of the four living species of sirenians, dugongs have the most cetacean-like appearance, with bilobed flukes, rather than the rounded paddles of manatees. Vanuatu. PHOTO: I. VISSER



A dugong swims near the bottom in very clear waters of Palau, showing its cetacean-like tail flukes. PHOTO: I. VISSER

This dugong is swimming off the Cocos-Keeling Islands of the southern Indian Ocean. Many of the species' distinctive characters can be seen here. PHOTO: K. WILLSHAW

and 1,016 kg is considered to be an error). There is not much difference in size between males and females. At birth, dugongs are between 1 and 1.5 m long and weigh about 20 kg.

Recognizable geographic forms None.

Can be confused with This is the only sirenian in the Indo–Pacific. There is some possibility of confusion with the finless porpoise or Irrawaddy/snubfin dolphins, but the single blowhole of the cetaceans and the double nostrils of the dugong will generally allow them to be easily distinguished. Also, pay attention to head and flipper shape (and dolphins of the genus *Orcaella* have a small dorsal fin). Dugongs also tend to move more slowly than most dolphins.

Distribution Dugongs are widely distributed in the Indo–Pacific region in coastal tropical and subtropical waters, covering some 37 countries. They are still present at the limits of their original range; however, there have been many reductions in their historical range. Dugongs appear to prefer shallow protected bays and channels, and the lee sides of large inshore islands, often in muddy waters. Although primarily coastal, dugongs do occur farther offshore in areas where the continental shelf is wide and protected, in water up to about 33 m deep. The range is discontinuous: it extends from southeast Africa north to the Red Sea; in the Persian Gulf; along western India to Sri Lanka; and throughout the Indo–Malay archipelago and the Pacific islands, to the Ryukyu Islands in the north and the central coasts of Australia in the south.

Ecology and behavior Dugongs occur mostly in small groups of up to 6 individuals. Herds as large as several hundred animals periodically form, although apparently not as often as in the past. Dives up to 8 minutes have been recorded, although most dives are much shorter.

The specific function of the tusks is not known. Although they are not known to migrate *per se*, and most movements are small-scale, dugongs do undertake large-scale movements of thousands of kilometers. They can move up to several hundred kilometers in just a few days. The social behavior of this species appears to be more complex than for the related manatees. Average swimming speed is about 10 km/hr. They may roll like a cetacean when traveling or deep diving. These animals are preyed upon by large sharks, killer whales, and crocodiles. The seagrass beds that dugongs rely on are vulnerable to human destruction and disturbance. The dugong has gained cultural significance to many of the peoples of the tropical Indo–Pacific, such as those of northern Australia and Papua New Guinea.

Although reproductive activity can occur throughout the year in most areas, there are calving peaks in June to September in at least some parts of the range. Not much is known about reproductive behavior in the dugong, but it is thought to be polygamous. Groups of males seem to compete to mate with a single estrus female. Females do not produce their first calf until at

When seen from above the surface, dugongs have a very low surfacing profile, and can be easily missed in anything but very calm seas. PHOTO: C. GARRIGUE

A dugong feeds at the bottom of the sea off Vanuatu. These animals feed on seagrasses and other vegetation generally found along the bottom in shallow, tropical seas. PHOTO: I. VISSER

least 10 years of age (sometimes as late as 17). The gestation period is about 13–14 months, and a single calf is born, with high investment in the calf. Calves are weaned at about 18 months, but may remain with the mother for several more months. Dugongs are very long-lived, to at least 73 years.

Feeding and prey Dugongs have a very specialized diet. Their food consists of various types of bottom vegetation, primarily seagrasses. Feeding trails in seagrass beds can be seen in dugong feeding areas exposed by the tides.

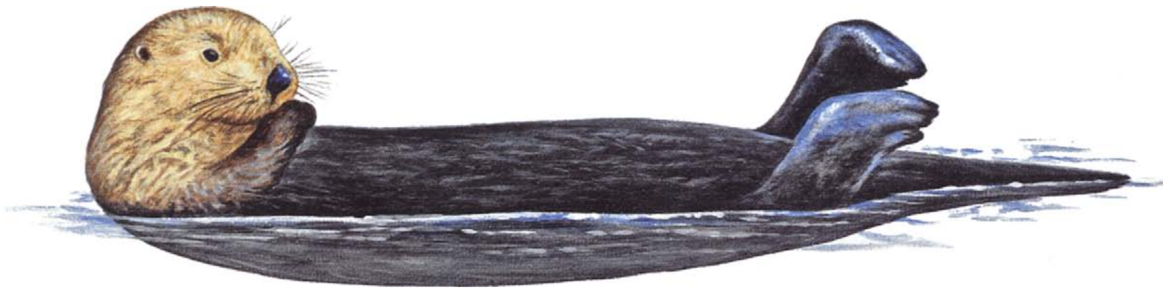
Threats and status Historically, dugongs were probably hunted nearly everywhere in their range for meat and oil, but now in most countries this practice is illegal (although it still commonly occurs). The hunting dates back about 4,000 years. Body parts are also used in traditional medicine and for amulets in some parts of southeast Asia. Legal hunting still occurs in Papua New Guinea and northern Australia, where it is managed to be sustainable. Dugongs are highly vulnerable to human impacts, due to their life history and dependence on easily-damaged coastal seagrass beds. Additional threats include loss of and damage to seagrass beds, incidental catches in fishing nets, and captures in shark nets set to protect bathing beaches. There are several natural threats as well: cyclones, storm surges, parasites, and predation. Dugongs are afforded legal protection in much of their range, although these laws are seldom enforced. In Australia, there is a rigorous system of management, which incorporates not only extensive research and the establishment of reserves, but also community involvement by indigenous peoples in the overall management scheme. There have been documented or presumed population declines in many areas of the range, and the species is considered to be at risk of extinction in East Africa, India/Sri Lanka, Japan, and Palau. Except in Australia, dugongs are probably mostly represented by relict populations, separated by areas of complete or near-total local extinction. Thus, Australia is seen as almost the only hope for the long-term survival of this species (although the Red Sea also appears to contain a reasonably healthy population). There were estimated to be about 100,000 dugongs worldwide in the 1980s; 85,000 are considered to occur in Australia alone. Along the Andaman Sea coast of Thailand, there are estimated to be at least 120 dugongs. About 7,300 are estimated to occur in the Persian (Arabian) Gulf. Few other regional abundance estimates are available.

IUCN Status Vulnerable.

References Husar 1978; Marsh 1981, 2002; Marsh and Lefebvre 1994; Marsh et al. 2002.

Sea Otter—*Enhydra lutris*

(Linneaus, 1758)



Recently-used synonyms None.

Common names En.–sea otter; Sp.–*nutria marina*; Fr.–*loutre de mer d'Amerique du nord.*

Taxonomic information Order Carnivora, Family Mustelidae. Three subspecies are currently recognized: *E. l. lutris* in the western North Pacific, *E. l. kenyoni* from the Aleutian Islands to Washington State, and *E. l. nereis* from central California to northern Mexico.

Species characteristics The sea otter is the most derived of the otters. The muzzle has a set of thick vibrissae. The large head has a blunt snout, and is connected to the body by a short, stocky neck. The forelimbs are short and similar to those of other otters, with a loose flap of skin under each that serves as a pocket to store food. The forepaws are very dexterous and sensitive. The hindlimbs are large and flattened like flippers; they are oriented backwards. Although the tail is relatively short (among otters), it is not noticeably tapered. It is flattened top to bottom into a paddle-like structure.

The pelage of sea otters is the densest of any mammal (more than 100,000 hairs/cm^2). A layer of sparse guard hairs overlays the dense underfur. Sea otters are completely covered with fur, except for the nose pad, inside the ear flaps, and the pads on the bottom of the feet. The color of the fur is dark reddish brown to black. Some individuals, especially older ones, may become grizzled, with the fur around the head, neck, and shoulders becoming almost white.

The dental formula is I $^3/_2$, C $^1/_1$, PM $^3/_3$, M $^1/_2$. Male sea otters reach lengths of 148 cm and weights of 45 kg. Females can be up to 140 cm and 32.5 kg. Newborns are about 0.6 m long and weigh about 1.8–1.9 kg.

***Pup*—**Size 0.6–1.1 m; fur is light buff in color and very fluffy; younger animals closely associated with mother.

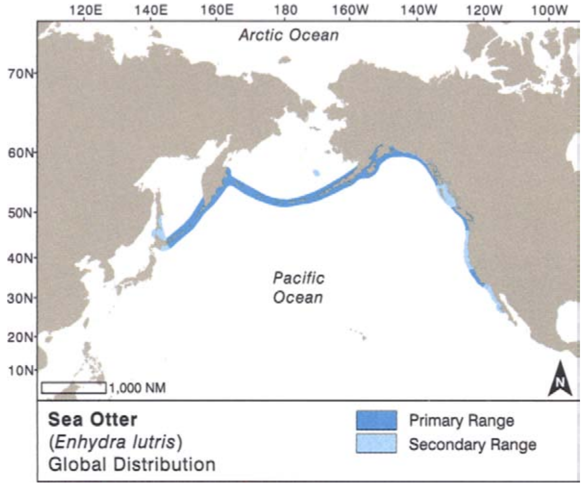
***Juvenile*—**Size 1.1–1.3 m; pelage more sleek, and dark brown to black in color; independent of mother at about 0.5 years.

***Adult*—**Adult size (> 1.3 m); pelage dark brown to black. Older individuals become grizzled around the head and shoulders (males more so than females). Females may have pinkish nose scars.

Recognizable geographic forms The different subspecies are generally not recognizable in the field from external differences.

Can be confused with The sea otter is the only truly marine otter in its range, although North American river otters (*Lontra canadensis*) and Eurasian otters (*Lutra lutra*) are often found in marine waters along the northwest

Two sea otters lie wrapped in kelp off the Monterey Peninsula. Otters rest in the kelp beds to avoid large waves and rough water. PHOTO: T. A. JEFFERSON



coast of North America and in the western North Pacific, respectively. River otters are smaller and more slender than sea otters, with longer tails. Also, river otters generally swim belly down even at the surface, while sea otters usually (but not always) swim along the surface on their backs.

Distribution Sea otters are found in shallow, nearshore waters of the North Pacific Rim, from the southern Kurile Islands, north along the Kamchatka Peninsula, then east along the Aleutian Islands to the Alaska Peninsula and Prince William Sound, and thence south to southern California (and occasionally as a vagrant to central Baja California, Mexico). Originally, their distribution was nearly continuous from Hokkaido, Japan, to central Baja California, Mexico. However, there are now 4 disjunct remnants: Kurile Islands to southeast Kamchatka Peninsula (classified as *E. l. lutris*); Commander Islands; Aleutian Islands to Prince William Sound, Alaska (these

A close-up of the head of a sea otter lifting its head high out of the water to look around in Monterey Bay, showing the small eyes and ears, and heavy whiskers characteristic of the species. PHOTO: D. FRANK

two groups are classified as *E. l. kenyoni*); and central/southern California (classified as *E. l. nereis*). In addition, there have been several reintroduction attempts (some successful, others not) along the west coast of North America. Southeast Alaska, British Columbia, and Washington State are three areas where reintroductions have been successful.

Ecology and behavior Sea otters can be seen singly or in groups (most often resting groups called rafts). Rafts in California tend to be small, between 2 and 12 animals, and rarely exceed 50 individuals. Those in Alaska are also generally small, but can contain up to 2,000 otters. They are thought to be capable of having a major influence on their prey populations, with cascading effects on coastal marine communities, especially where sea otter densities are high. Foraging generally occurs singly, although animals may aggregate in good feeding areas. Females with small pups may leave their pups on the surface while diving, and spend more time feeding at night to avoid eagle predation.

Sea otters are most often seen floating on their backs in and around kelp beds or in protected areas while resting. They bring their prey to the surface to feed on it. Rocks and other hard objects are used as tools to crack open shells of their prey, which they eat using their bellies as "dinner tables". They sometimes store tools in the skin flaps under the front limbs. They use their sense of smell in many aspects of their life, and can be difficult to approach from upwind (presumably because they can smell the intruder). When they enter a group, otters use a ritualized greeting that apparently involves scent recognition. Sea otters spend up to 10% of their time grooming their fur, which maintains its insulation properties. They are not deep divers, as marine mammals go, and most dives are to less than 60 m. However, they are capable of dives of over 100 m and up to about 7 minutes. Sea otters can haul-out onshore, and retain limited ability to walk around on shore and over rocks.

Sea otters are polygynous; males tend to defend large (average about 0.4 km^2) territories that encompass the home ranges of several females. Females aged 3 and above give birth to a single pup annually. Pupping occurs throughout the year, but peaks in April to June in Alaska, and December to February in California. During mating, the male bites the nose of the female to position himself; thus, females often have nose scars (these are useful to researchers in identification of individuals).

Feeding and prey Sea otters consume up to 25% of their body weight per day to maintain their high metabolic rate. They feed on or near the bottom in shallow waters (often in kelp beds). They have a diverse diet of over 150 prey items. Major prey are benthic invertebrates, such as abalones, sea urchins, and rock crabs. However, sea

This is a typical posture for sea otters resting at the surface. Sea otter pups will often ride on the mother's belly while nursing. Monterey Bay, California. PHOTO: K. WHITAKER

This sea otter is resting inside Moss Landing Harbor in central California. The extensive white head of this animal indicates that it is probably an adult male. PHOTO: T. A. JEFFERSON

A sea otter lies on its back at the surface in Monterey Bay. This is a characteristic posture when at the surface between dives. PHOTO: T. A. JEFFERSON

Otters are not often seen on land, but they do haul-out and can walk, although somewhat clumsily, on all fours. Elkhorn Slough, California. PHOTO: T. R. KIECKHEFER

otters also eat other shellfishes, cephalopods, and some near-bottom fishes in Asia and the Aleutian Islands. Diet is often highly variable among individuals.

Threats and status Historically, sea otters have been hunted by aboriginal peoples of the North Pacific for many centuries. Although the primitive methods sometimes were sustainable, there is evidence that some maritime peoples hunted otters to local extinction. Sea otters were commercially hunted heavily between 1750 and 1900 throughout their range for the North Pacific fur trade, and most likely less than 1,000 sea otters survived this carnage. In the 20th century the survivors thrived and increased under protection and intensive management efforts. However, recently there have been several disturbing declines in abundance. Populations in the Aleutian Islands of Alaska declined by about 80–90% in the 1990s, and this may have been at least partially related to killer whale predation. The decline is continuing, and it appears possible that otters may disappear from most or all of the Aleutians in the next 10 years or so. The California population declined by about 12% to just under 2,000 individuals in the mid- to late 1990s, and since then the numbers have increased to about 2,700. The reasons for the decline are unknown (although pollution, disease, fisheries, and food limitations have all been suggested). In Asia, sea otters have been much less intensively studied than in the rest of their range. There, they occupy most of their historic range, but abundance is thought to be reduced, and there is apparently frequent poaching in Russian waters. Globally, there were estimated to be about 100,000 sea otters in the 1990s, mostly in Alaskan waters. Current worldwide estimates of abundance are between 82,000 and 95,000. Overall, sea otters are not in danger of global extinction, as they were in the past, but problems persist. The main threats today include pollution, disease, by-catch, hunting by native peoples, poaching, habitat loss, and predation by killer whales and sharks.

IUCN status Endangered.

References Bodkin 2003; Estes 1980; Estes and Bodkin 2002; Estes et al. 1998; Kenyon 1981; Riedman 1990.

Marine Otter—*Lontra felina*

(Molina, 1782)

Recently-used synonyms *Lutra felina*.

Common names En.–marine otter or chungungo; Sp.–*nutria de mar* or *chungungo*; Fr.–*loutre de mer* or *loutre marine d'Amérique du Sud*.

Taxonomic information Order Carnivora, Family Mustelidae. As a result of recent molecular studies, most mammalogists now use the genus name *Lontra*, instead of *Lutra*, for the New World otters. Two subspecies have been designated, but their validity is doubtful.

Species characteristics Marine otters are very similar in general appearance to freshwater otters. The snout is blunt at the tip and the rhinarium (nose pad) is naked and relatively flat. The head slopes smoothly back from the nose. The ears are small and set far back on the head. The tail tapers to a point, typical of fresh-water otters, and is relatively short—about 30–36 cm long (about $^{1}/_{3}$ of the total length). The feet are of moderate size, with well-webbed digits, and strong claws. The ventral surface of the webs are partially furred. The coarse pelage is rough in appearance, and has a dense underfur and a set of long guard hairs (up to 20 mm long). The vibrissae of the upper lip and corner of the mouth are large.

Marine otters are dark brown above and on the sides, with a lighter fawn color below, especially on the throat. The muzzle, throat, and lips are not spotted, as in some other otter species. The nose pad is black, and its structure may be geographically variable (nose pad variations are used to distinguish different species within the otter subfamily). Juveniles are slightly lighter than adults.

The dental formula is I $^{3}/3$, C $^{1}/1$, PM $^{3\text{–}4}/3$, M $^{1}/2$, for a total of 36 teeth.

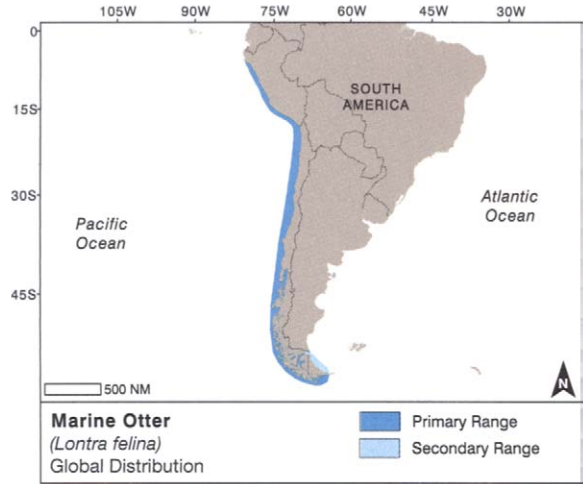
Marine otters are the smallest species of the genus *Lontra*. They attain total lengths (including the tail) of 0.87–1.15 m.

A chungungo eating a prey item on a rocky Chilean shoreline.
PHOTO: C. OLAVARRIA

Recognizable geographic forms None.

Can be confused with This is the only truly marine otter along the west and southwest coasts of South America, although there are southern river otters (*Lontra provocax*) along some parts of the coast and marine otters do enter rivers on occasion. However, marine otters tend to occur in exposed outer coast habitats, while river otters are often found in more protected inner waters (most live entirely in freshwater habitats). Also, river otters can be distinguished from marine otters by their larger size, darker color, finer fur, and more peaked nose pads.

Distribution These coastal otters are found in a narrow strip on open, wave-exposed rocky shores (to about 30 m inland) and adjacent waters (to about 150 m offshore) from the southern tip of Chile (Cape Horn, 56°S)



A marine otter hauled-out on rocks. Note the similarity in appearance to terrestrial otter species. PHOTO: J. MANGEL

to Chimbote, southern Peru (6°S). They were thought to have been extirpated from Argentina, but there still may be groups extant at Isla de los Estrados and in the Strait of Magellan. They are largely restricted to marine waters, but sometimes enter rivers.

Ecology and behavior Very little is known of the biology of the marine otter. They are found mostly singly or in pairs, but groups of 3 or more are sometimes seen. Marine otters are not known to be territorial, and they have overlapping home ranges. They are diurnally active, but their activities at night are not known. There is some evidence that marine otters at Chiloe Island, Chile, may have a narrower diet based on larger prey than at other nearby sites. Marine otters are more agile in the water than on land, although they are capable of climbing rocks. They sometimes float on their back, like sea otters. Hunting dives last an average of about 30 sec, although dives of over one minute have been recorded. They often occur around large rock outcroppings with caves, which are used for pupping, resting, feeding, and defecation. Predators of the marine otter are probably killer whales and sharks.

Marine otters are thought to be monogamous, sometimes tending toward polygamy. The reproductive season is not well-known, but much of the pupping may occur from January to March. The usual litter of 2 pups (ranging from 2–4) is born after a gestation period of 60–65 days. Pups remain with the mother for about 10 months.

A marine otter hauled-out near the entrance to a sea cave. Notice the coarse guard hairs around the neck. PHOTO: J. MANGEL

Feeding and prey Marine otters are opportunistic feeders, taking crabs, shrimps, mollusks, and fish. The diet in southern Chile is made-up of 52% crustaceans, 40% fish, and 8% mollusks. Prey size averages 95–185 g. They sometimes enter rivers to feed on freshwater prawns.

Marine otters are among the least adapted of the marine mammals to an oceanic existence. They spend much time ashore, and when in the water generally don't range far from land. PHOTO: J. MANGEL

Although most marine mammals are quite large, the marine otter manages to get by at about the same size as terrestrial otters. PHOTO: C. OLAVARRIA

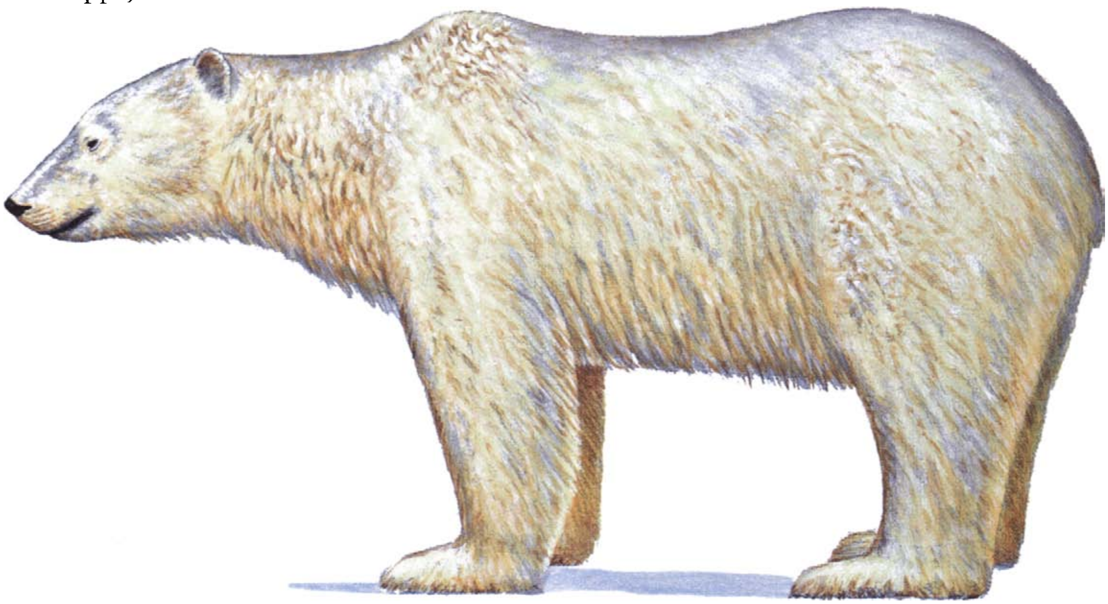
Threats and status The marine otter is rare and is considered to be threatened with extinction. Historically they were heavily involved in fur trading, but this does not happen much anymore. The main threats to their survival are remaining illegal hunting for fur, habitat destruction by urban and industrial development, mining, pollution, competition with fisheries, bycatch, and explosive use by fisheries. Invasive species and tourism may also be factors in some areas. There are no reliable estimates of global abundance for the species. About 750 are thought to occur in Peruvian waters, and the largest populations apparently occur in Chilean waters. But by some estimates the total population may be < 1,000 individuals. The species may already be extinct in Argentina.

IUCN status Endangered.

References Estes and Bodkin 2002; Lariviére 1998; Medina-Vogel et al. 2004; Ostfeld et al. 1989.

Polar Bear—*Ursus maritimus*

Phipps, 1774



Recently-used synonyms None.

Common names En.–polar bear; Sp.–*oso polar* or *oso blanco*; Fr.–*ours blanc*.

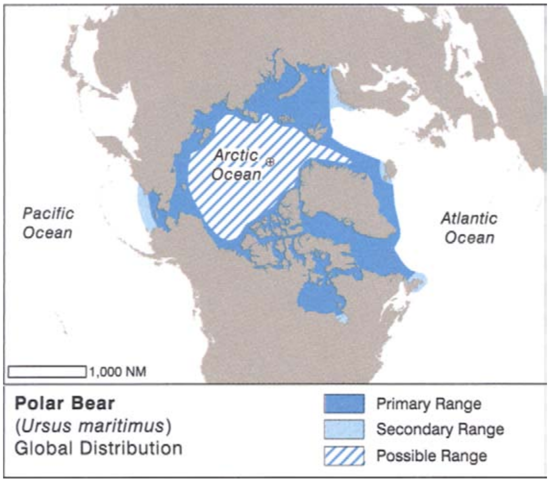
Taxonomic information Order Carnivora, Family Ursidae. Two subspecies are recognized: *U. m. maritimus* in the Atlantic Arctic and *U. m. marinus* in the Pacific Arctic, although there is some doubt about their validity.

Species characteristics The polar bear is not radically different from other bears in body form. It is similar in size to brown and grizzly bears (*Ursus arctos*), but is more slender, and has a longer neck and more elongated head. It also lacks an enlarged shoulder hump. The ears are small, an adaptation to the bitterly cold environment it lives in. Large, partially-webbed paws on the front limbs are used for swimming (hindlimbs are not used). There are five digits on each foot, each with a heavy, non-retractable claw. Polar bears are covered with fur on all but the nose and the pads on the bottoms of the feet. The guard hairs overlaying the underfur are up to 15 cm long, and they reach greater lengths on the forelegs in males. Females typically have four functional mammae.

Generally, the pelage of polar bears is white, but (depending on lighting and condition) it can appear yellow, light brown, or even light gray. The area around the mouth may be stained with blood after a recent meal. The nose, lips, eyes, and footpads are all black, as is the skin underneath the fur.

The dental formula is I $^{3}/3$, C $^{1}/1$, PM $^{2–4}/2–4$, M $^{2}/3$. The back cheek teeth are much smaller than those of other bears. Males may be up to 250 cm long and may weigh up to 800 kg, which is somewhat larger than females. Females reach lengths and weights of 200 cm and 350 kg, respectively. Pregnant females sometimes attain weights of up to 500 kg. Adult males are generally about twice as heavy as females. At birth, the tiny cubs weigh only about 0.6 kg.

A polar bear walking on land, showing the characteristic coloration and body shape of the species. As the only truly white bear, and the only one found regularly in Arctic coastal areas, the polar bear is usually easy to identify, even for novices. Svalbard. PHOTO: M. JØRGENSEN



There will generally be no identification problems with polar bears—the great white bear of the north is unmistakable. Spitsbergen. PHOTO: I. VISSER

Three polar bears provide a variety of views of the species. With the exception of their eyes, inner ears, noses, and lips, these animals are virtually all-white, providing them with excellent camouflage among the Arctic ice. PHOTO: M. JØRGENSEN

Recognizable geographic forms There is some slight geographic variation, but the subspecies are generally not recognizable in the field.

Can be confused with There should be no problem recognizing polar bears in most cases. In the few areas where grizzly/brown (*Ursus arctos*) and American black (*Ursus americanus*) bears are found within the polar bear's range, the much lighter color of the polar bear's fur will make it virtually unmistakable.

Distribution Polar bears have a circumpolar distribution in the Northern Hemisphere. Their southern limits fluctuate with the ice cover (they have been recorded as far south as the Pribilof Islands in the Pacific and Newfoundland in the Atlantic). The northernmost record is from around 88°N. Polar bears are generally associated with sea ice, but they have been seen swimming at sea many kilometers away from the nearest land of ice.

Ecology and behavior Polar bears tend to be solitary, but breeding pairs and females with up to 3 cubs may be seen together. They also aggregate in areas of high ringed seal density (their primary prey), and around refuse dumps. These bears can swim well, using their large webbed paws. They spend most of their time on ice, but sometimes spend significant periods of time on land. Polar bears in Hudson Bay and southeastern Baffin Island (where snow melts completely in summer), spend several months fasting on land before ice forms in the autumn. They have impressive fasting abilities, due to their fat storage capabilities. Those that have access to sea ice throughout the year tend not to fast. Polar bears typically hunt by waiting near a hole in the ice used by seals for breathing. They then pull the seal out onto to the ice when it surfaces and devour it. These bears have an excellent sense of smell, and do much of their hunting with the assistance of olfaction. They are the top marine predator in the Arctic ecosystem, and they get virtually all of their sustenance from the sea, although they rarely hunt in the water directly.

Polar bears make long migrations of 2,000–4,000 km across the ice, and may move over 100 km in the water. They are capable of moving quite fast on ice, up to 40–50 km/hr for short sprints. This large predator is potentially quite dangerous to people in the Arctic and does occasionally kill and eat humans.

Mating in polar bears occurs from April to June. Each male may mate with one or several females. Females breed for the first time at 4–5 years of age. In November to December, the pregnant female excavates a den, where typically 2 cubs (sometimes 3 and occasionally just 1) are born in December and January. Females show some fidelity to denning areas, but not necessarily to individual dens. The cubs are generally nursed for about 2.5 years. Polar bears can live to be in their early 30s. About 20 different populations are recognized.

A mother teaches her three cubs how to move among the ice floes, an essential life skill for polar bears, which obtain most of their food from the Arctic ice. Global warming and consequent melting of the ice is therefore a big concern for this species. Svalbard. PHOTO: M. JØRGENSEN

Feeding and prey The primary prey of polar bears consists of ringed seals, but they also take bearded, harp, and hooded seals, and rarely walruses and white whales. These bears sometimes also eat Arctic cod and other forms of animal and vegetable matter. They even scavenge on refuse at dumps in some areas.

A polar bear mother with three small cubs sniffs the air for approaching signs of danger. The only real threat to this species comes from humans and the changes in climate that we have caused. Svalbard. PHOTO: M. JØRGENSEN

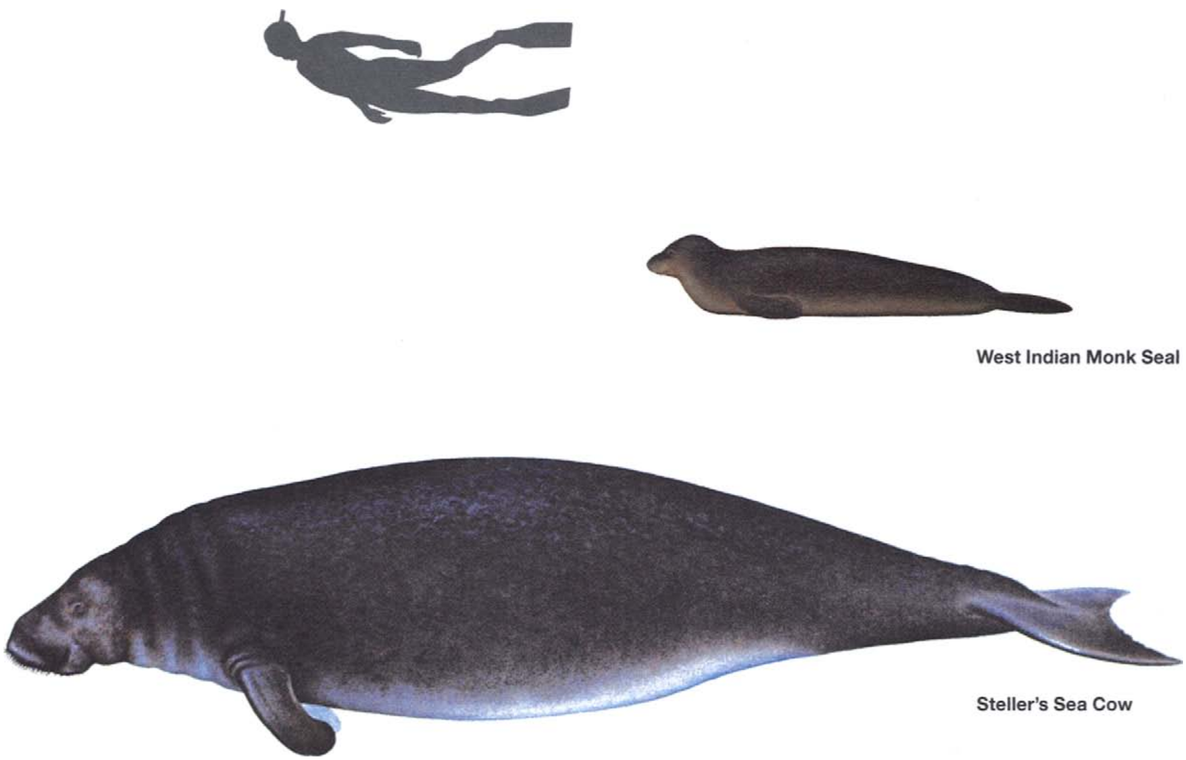
Threats and status Polar bears have been hunted by aboriginal peoples of the north for a long time, and are still killed by natives in at least Alaska, Canada, Greenland, and Siberia. About 800–900 per year are taken, and many of these hunts are carefully regulated to make sure they are sustainable. Thus, hunting is not the major threat to these animals. Other potential threats to the animals include pollution, global warming and ice breakup, and disturbance from oil and other mineral extraction operations. Issues related to environmental contamination have become increasingly worrisome in recent years, although exactly how contaminants affect the bears is still not well known (although some bears with high PCB levels have had both male and female reproductive organs). In addition, disturbance from ecotourism could be problematic in some areas, although such tourism has increased the public appreciation for these animals to be kept alive. For instance, in Churchill, Manitoba, Canada, there is a thriving bear-watching industry. Recently, a new threat has been identified—the changes in sea ice and associated impacts caused by global warming. In fact, there is some speculation that the global warming issue could threaten the future survival of the species. Total global abundance of the species was estimated to be about 22,000–27,000 bears in 1997.

Polar bears are most often seen and photographed on land. However, these bears are indeed marine mammals. Despite their seemingly incomplete adaptation to the marine environment, they are excellent swimmers, sometimes moving many kilometers from the nearest land or ice. Svalbard. PHOTO: M. JØRGENSEN

IUCN status Vulnerable.

References Amstrup and DeMaster 1988; DeMaster and Stirling 1981; Lentfer 1986; Stirling 1998, 2002.

7. Extinct Species



West Indian Monk Seal—*Monachus tropicalis*

(Gray, 1850)

Recently-used synonyms None.

Common names En.–West Indian monk seal or Caribbean monk seal; Sp.–*foca monja del Caribe*; Fr.–*le phoque moine de la Caribe*.

Taxonomic Information Order Carnivora, Suborder Pinnipedia, Family Phocidae.

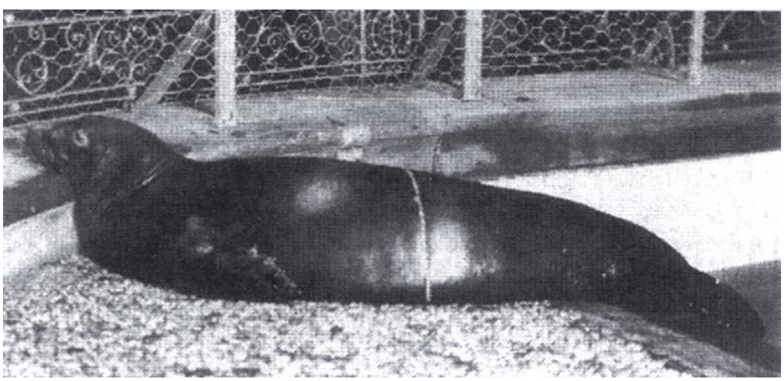
Species characteristics Coloration of adult West Indian monk seals was brown with a grayish tinge above, due to the tips of the hairs being lighter. The color became lighter on the sides, and transitioned to yellowish-white below. The end of the muzzle and lower lip, and the sides of the muzzle were yellowish white. Adult vibrissae were predominantly whitish and smooth with a few having darker bases, and still other short vibrissae were entirely dark. No difference was noted between the external coloration of males and females. Younger animals tended to be paler than adults, being more yellowish dorsally, with ochre tones ventrally, and a dusky central area at the end of the muzzle. Like Hawaiian monk seals, West Indian monk seals were said to occasionally have green algae growing on the pelage. Females had four abdominal mammae.

Newborn West Indian monk seals had a long, soft, glossy black lanugo coat that persisted for an unknown period of time. Generally, these seals were described as having very few scars from fighting, although one large adult male was observed with gashes and scars that resembled seams. The vibrissae of pups were uniformly dark.

Adult West Indian monk seals reached at least 2.4 m in length, (females may have been slightly larger than males). Hawaiian monk seals of comparable length to the largest reported for West Indian monk seals weigh 170–270 kg. Newborns were probably about 1 m and 16–18 kg.

The dental formula was: I $^{2}/_{2}$, C $^{1}/_{1}$, PC $^{5}/_{5}$.

Can be confused with No other pinniped species regularly inhabits the former range of the West Indian monk seal. Hooded, harbor, and less frequently, harp seals are known to stray occasionally as far south as the central east coast of Florida, near the edges of the West Indian monk seal's former range. A monk seal could easily be distinguished from all of the above by the following collection of features: their long unspotted and unbanded body, brownish dorsal and pale ventral coloration, broad flat head and muzzle, and smooth unbeaded vibrissae. California sea lions that have escaped from captivity have also been reported from the Gulf of Mexico, but otariid seals differ from monk seals by the presence of external ear pinnae, long oar-like fore flippers, and a long narrow head and dog-like muzzle.



A rare photograph, from around 1910, of a West Indian monk seal. This was one of three animals captured in 1909 and exhibited at the New York Aquarium. Its age and sex are unknown. Captured at Arrecifés Triángulos or Arrecife Alacrán, Mexico.
PHOTO: COURTESY OF THE DEPARTMENT OF MAMMALOGY ARCHIVES, AMERICAN MUSEUM OF NATURAL HISTORY.

Distribution This monk seal once inhabited most of the Caribbean Sea and Gulf of Mexico. One exception was the western and northern Gulf of Mexico, where historic records from Texas have been refuted, and prehistoric midden material was re-evaluated to have come from trading. In prehistoric times, the range of the West Indian monk seal may have reached north to South Carolina. The last stronghold of the species was Serranilla Bank, about half way between Jamaica and Honduras, where the final reported sighting occurred in 1952.

Ecology and behavior Observations made in the field and from animals collected in the 19th century provide evidence that pups were born from at least late fall to early winter. A long pupping season is known for both the Hawaiian and Mediterranean monk seals, which also live in sub-tropical habitats, and it is reasonable to assume this was also the case for the West Indian monk seal. The animals collected in December 1886 included newborn pups, and several females with term fetuses. Also, an animal described as recently weaned was encountered in the spring and a female with a large fetus was taken in July.

It can be inferred that the West Indian monk seal was a social species, possibly in the manner of the Hawaiian monk seal in that the large number collected in 1886 were all taken from three small cays in three days. Furthermore, the collectors describe finding females with term fetuses hauled out near one another, and in another case a pregnant female was hauled-out in the vicinity of a female suckling a pup. Hauled-out groups of 20–40 were observed and reference was made to groups of 100 or more in earlier times. An otherwise undescribed group of five animals hauled-out together included a large, scarred adult male. On another occasion, the collectors encountered a group whose composition and numbers were not given, but the seals were "huddled together." Young West Indian monk seals were also said to rest in pools of water, presumably for thermoregulation.

Several descriptions exist of the vocalizations of the West Indian monk seal. A young animal briefly held in captivity was said to grunt like a pig, and bark, growl and snarl like a dog. In another account, seals that were approached by hunters were said to "bark in a hoarse, gurgling, death-rattle tone."

Feeding and prey There is no information on food and feeding habits. The specimens collected in 1886 all had stomachs that had fluid only, or were empty. The assumption at the time was that the diet consisted of fish.

Threats and status The West Indian monk seal is now extinct. Extensive searches for West Indian monk seals have been conducted with no success. The last sightings were from Serranilla Bank in 1952. The seals were hunted heavily for oil after western discovery of the New World, and later, as the species become rare, large sums were paid for zoo and museum specimens. Forty-nine specimens were collected in December of 1886. J. A. Allen examined the skins of 17 of these animals, including adult males and females, immatures, and suckling pups in January of 1897, and this study represents the best description of the physical appearance of the species available. Additionally, the original field notes taken during another 19th-century collection were recently found and provide first-hand accounts of the behavior of this species in the wild.

IUCN Status Extinct.

References Adam and Garcia 2003; Gilmartin and Forcada 2002; LeBoeuf et al. 1986; Timm et al. 1997.

Steller's Sea Cow—*Hydrodamalis gigas*

(Zimmerman, 1780)

Recently-used synonyms None.

Common names En.–Steller's sea cow; Sp.–*vaca marina de Steller*; Fr.–*rhytine de Steller*.

Taxonomic information Order Sirenia, Family Dugongidae. Although classified with the dugong in the family Dugongidae, the Steller's sea cow was very distinctive and is generally placed in a separate subfamily.

Species characteristics The external morphology of the Steller's sea cow is not well-known, since the species was exterminated in 1768, before it could be studied in any detail. One thing is clear –this was a very large sirenian. It was rotund, especially in the summer, when feeding was good. It had a small head (only about 10% of body length) and horizontal flukes with a notch. The short, stubby forelimbs were about 67 cm long, with no nails or claws (and in fact, they lacked finger bones as well). The skin was rough on most of the body (so much so that people referred to it as like "bark"), although somewhat smoother on the back. It was very thick, up to at least 3 cm thick in places. There was a sparse covering of white hairs on the body, as well as stiff white bristles on the lips and foreflippers. The nostrils were round, and the eyes small and black. There were no external ear pinnae, only minute auditory openings. Steller's sea cow was brownish-black on the body, with a few white patches and streaks, especially on the undersides.

Functional teeth were completely absent, and grinding of food was done by keratinized masticatory plates inside the mouth. These were apparently white in color and "boat-shaped."

These massive animals grew to lengths of at least 7.52 m. The weights attained by these animals are not known, but have been estimated to be somewhere between 4 and 10 metric tons. They were, by far, the largest of the sirenians.

Can be confused with As the only sirenians in the northern North Pacific Ocean, and the only non-tropical sirenian, the Steller's sea cow would be difficult to confuse with any other marine mammal. It would have been more likely to confuse for a cetacean, but a good look would have been enough to resolve any such issues.

Distribution These animals lived only in the shallow, nearshore waters of the subarctic Bering Sea. They were found along the Bering and Commander Islands, and probably also occurred in the western Aleutian Islands. They were said to come very close to shore during high tide. A skull fragment from Monterey suggests that historically the species may have ranged farther south.

Ecology and behavior Steller's sea cows often congregated in small herds in shallow waters. Young were said to have been kept at the front of the group, surrounded by adults on the sides and from behind. While largely defenseless, the Steller's sea cow's huge size may have kept it safe from most enemies, except killer whales (and of course, humans). Seabirds often picked parasites from the animals' backs.

Not much is known of the behavior of this species. They spent most of their time feeding in kelp beds, near the islands. However, they apparently had difficulty submerging, due to their great buoyancy. They floated with their backs exposed and lifted their heads to breath every 4 to 5 minutes. They pulled themselves through the shallows with their short forelimbs, and used their flukes both vertically and horizontally to move through the water. Apparently, they sometimes slept on their backs. Animals were observed to stand-by injured conspecifics. They were thought to have been largely mute, with few sounds heard from them (although of course, no underwater recordings were made).

Virtually nothing is known about reproduction in this species, except that a single young was born, apparently mostly in the autumn. Copulation is said to have taken place in the early spring months, and gestation lasted more than 1 year.

Feeding and prey Steller's sea cows fed mostly on algae, especially kelp. They apparently only ate the leafy parts of the plants.

Threats and status Steller's sea cow was discovered in 1741, and after 27 years of relentless exploitation, it became extinct in 1768. It was hunted with harpoons from boats, and with spears and hooks from shore. It was highly prized for its meat, skin and blubber by fur traders in the North Pacific. The meat was used for food, the skin for shoes and boats, and the fat for food and lamp oil. It was thought by those who observed them that the population was larger than it actually was (pre-exploitation numbers were estimated at about 1,500 to 2,000 animals), and there was no restraint on the wasteful hunting. Later reports of sightings of this species have been convincingly refuted, and there is no doubt that it is long extinct, the first marine mammal species to be wiped out by human greed.

IUCN Status Extinct.

References Anderson 1995; Domning 1972; Forsten and Youngman 1982; Turvey and Risley 2006.

8. Dichotomous Identification Keys

General Notes on the Use of the Keys

The following general rules on the use of the keys should be kept in mind:

1. Use multiple features to make an identification and don't rely on a single feature.

2. Use the information in the key with more latitude when dealing with young or damaged specimens, or those from a very poorly-studied geographic region.

3. Feel free to jump to any place in the key to begin. For instance, if you are sure that the specimen you are working with is a toothed whale, jump to that part of the key (don't feel the need to go through each step of the key related to baleen whales).

4. If possible, try to have calipers, a ruler, or tape measure available to take measurements.

5. Always confirm your final identification by examining photos/illustrations, and comparing to appropriate descriptions in the species accounts.

6. Use geographical information as little as possible. Be aware that these are wide-ranging animals that sometimes wander far outside their normal ranges.

7. The keys (skull keys in particular) will be most useful to those with some previous experience with these animals.

A. Key to Identification of Cetaceans of the World, Based on External Appearance

1a. Double blowhole; no teeth present; baleen plates suspended from upper jaw

Mysticete, **Go to 2**

b. Single blowhole; teeth present (though sometimes not protruding from gums); no baleen plates

Odontocete, **Go to 14**

2a. Long ventral pleats absent (though 2–7 short creases or furrows may be found on throat)

Other baleen whale, **Go to 3**

b. Long ventral pleats present; dorsal fin present; upper jaw relatively flat viewed from the side and broad viewed from the top

Balaenopteridae, **Go to 5**

3a. 2–7 short creases or furrows on throat; upper jaw and mouthline flat to slightly arched; dorsal fin or hump present

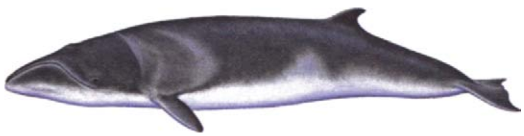
Caperea or *Eschrichtius,* **Go to 4**

b. No creases on chin or throat; no dorsal fin or hump; upper jaw and mouthline strongly arched viewed from the side and very narrow viewed from the top; long, narrow black baleen plates with fine black fringes

Balaena or *Eubalaena,* **Go to 11**

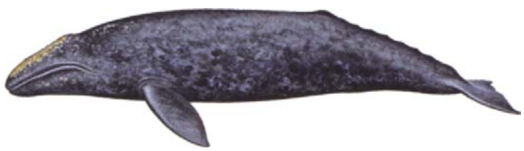
4a. 2 indistinct creases on throat; prominent falcate dorsal fin set about $^{2}/_{3}$ of the way back from tip of jaw; upper jaw arched when viewed from side; 213–230 yellowish white baleen plates in each side; maximum body length 7 m; Southern Hemisphere distribution only

Pygmy right whale *(Caperea marginata)*



b. 2–7 short furrows on throat; mouthline slightly arched; no dorsal fin, but small dorsal hump followed by 8–14 crenulations present; 130–180 white to yellowish baleen plates with coarse bristles per side; body mottled gray and usually covered with patches of reddish to yellowish whale lice and gray to white barnacles; maximum body length 15 m; North Pacific distribution only

Gray whale *(Eschrichtius robustus)*



5a. Ventral pleats end before navel

Minke or sei whale, **Go to 6**

b. Ventral pleats extend to or beyond navel

Humpback, Bryde's, blue, or fin whale, **Go to 8**

6a. 22–70 ventral pleats, longest ending before navel (often ending between flippers); 200–300 baleen plates with coarse bristles per side, less than 21 cm long, mostly white or yellowish white (sometimes with dark margin along outer edge); often conspicuous white bands on upper surface of flippers; from above, head sharply pointed; maximum body length 11 m

Minke whale, **Go to 7**

b. 32–65 ventral pleats, longest ending past flippers, but well short of navel; 219–402 pairs of black baleen plates with many fine whitish bristles, less than 80 cm long; flippers all dark; from side, snout slightly downturned at tip; maximum body length 18 m

Sei whale (*Balaenoptera borealis*)

7a. Usually, there is a brilliant white band running across each flipper (although occasionally the band may be very indistinct)

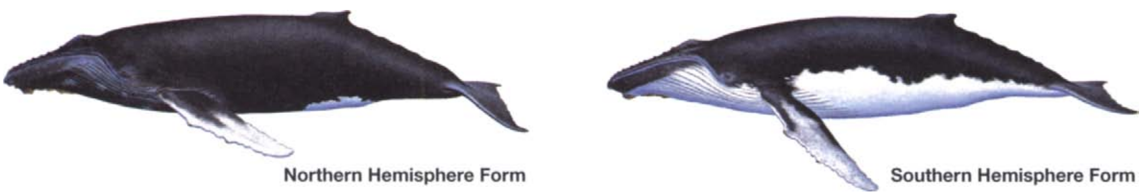
Common minke whale (*Balaenoptera acutorostrata*)

b. Usually, there is no white band across the flippers; distribution limited to the Southern Hemisphere

Antarctic minke whale (*Balaenoptera bonaerensis*)

8a. Flippers 1/4 to 1/3 of body length, with knobs on leading edge; flukes with irregular trailing edge; 14–35 broad conspicuous ventral pleats, longest extending at least to navel; top of head covered with knobs, one prominent cluster of knobs at tip of lower jaw; 270–400 black to olive brown baleen plates with gray bristles per side, less than 80 cm long; dorsal fin usually atop a hump; maximum body length 17 m

Humpback whale (Megaptera novaeangliae)



b. Flippers less than 1/5 of body length, lacking knobs; 40–100 fine ventral pleats; head lacking knobs

Bryde's, blue, Omura's, or fin whale, **Go to 9**[2]

9a. Three conspicuous ridges on rostrum; 40–70 ventral pleats extending to umbilicus; 250–370 slate gray baleen plates per side, with white to light gray fringes; head coloration symmetrical; maximum body length 16.5 m; tropical/subtropical distribution only

Bryde's whale *(Balaenoptera edeni/brydei)*

b. Only one prominent ridge on rostrum; 55–100 ventral pleats

Blue or fin whale, **Go to 10**

10a. Head broad and almost U-shaped from above; dorsal fin very small (about 1% of body length) and set far back on body; 260–400 black baleen plates with black bristles per side

[2] Due to uncertainties in the external appearance of Omura's whale, it is not possible to use this key for that species.

(all three sides of each plate roughly equal in length); head coloration symmetrical; body mottled gray, with white under flippers; maximum body length 33 m

Blue whale *(Balaenoptera musculus)*

b. From above, head V-shaped and pointed at tip; dorsal fin about 2.5% of body length; 260–480 gray baleen plates with white streaks per side (front 1/3 of baleen on right side all white); head coloration asymmetrical (left side gray, much of right side white); back dark, with light streaks; belly white; maximum body length 27 m

Fin whale *(Balaenoptera physalus)*

11a. Callosities (roughened areas of skin to which whale lice attach) present on head; 200–270 long (up to 2.8 m) baleen plates per side; body black, often with white ventral blotches; maximum body length over 18 m; temperate to subpolar distribution

Right whale (*Eubalaena spp.*), **Go to 12**

b. No callosities; white chin patch and often white band just before flukes; 230–360 long (some longer than 4 m) baleen plates per side; maximum body length 20 m; Arctic distribution only

Bowhead whale *(Balaena mysticetus)*

12a. Northern Hemisphere distribution

Northern right whale (*Eubalaena spp.*), **Go to 13**

b. Southern Hemisphere distribution

Southern right whale *(Eubalaena australis)*

13a. North Pacific distribution

North Pacific right whale *(Eubalaena japonica)*

b. North Atlantic distribution

North Atlantic right whale *(Eubalaena glacialis)*

14a. Upper jaw extending well past lower jaw; lower jaw very narrow

Sperm whale *sensu lato*, **Go to 15**

b. Upper jaw not extending much or at all past lower jaw; lower and upper jaws about same width

Other odontocete, **Go to 17**

15a. Body black to charcoal gray, with white lips and inside of mouth; head squarish and large, 1/4 to 1/3 of body length; short creases on throat; S-shaped blowhole at left side of front of head; low, rounded dorsal "hump" followed by a series of crenulations along the midline; 18–26 heavy, peg-like teeth in each side of lower jaw, fitting into sockets in upper jaw; body 4–18+ m

Sperm whale *(Physeter macrocephalus)*

b. Body less than 4 m; head not more than 15% of body length; blowhole set back from front of head; prominent dorsal fin; 8–16 long, thin, sharply-pointed teeth in each side of lower jaw, fitting into upper jaw sockets

Kogia sp., **Go to 16**

16a. Throat creases generally absent; dorsal fin shorter (< 5% of body length); distance from tip of snout to blowhole greater than 10.3% of total length; 12–16 (rarely 10–11) sharp teeth in each half of lower jaw

Pygmy sperm whale *(Kogia breviceps)*

b. Inconspicuous throat creases; dorsal fin taller (> 5% of body length); distance from tip of snout to blowhole less than 10.2% of total length; 7–12 (rarely up to 13) teeth in each side of lower jaw, sometimes 1–3 in each half of upper jaw

Dwarf sperm whale *(Kogia sima)*

17a. Two conspicuous creases on throat, forming a forward-pointing V; notch between flukes usually absent or indistinct; dorsal fin relatively short and set far back

Ziphiidae, **Go to 18**

b. No conspicuous creases on throat; prominent median notch in flukes

Delphinoidea or Platanistoidea, **Go to 27**

18a. Teeth in both upper and lower jaws (may be inconspicuous)

Tasmacetus or *Mesoplodon grayi,* **Go to 19**

b. Not more than 1–2 pairs of teeth in lower jaw only (even these not erupted in many individuals)

Other species, **Go to 20**

19a. Many teeth in both jaws (17–28 per tooth row); pair of tusks at tip of lower jaw that erupt only in males; maximum body length about 7 m; white ventral field extending onto sides in three areas of body; Southern Hemisphere distribution only

Shepherd's beaked whale *(Tasmacetus shepherdi)*

b. Small head; extremely long, narrow beak; white lower jaw and dark gray upper jaw; 2 small triangular teeth well behind tip of lower jaw in males; 17–22 pairs of vestigial teeth in upper jaw of both sexes

Gray's beaked whale *(Mesoplodon grayi)*

20a. One or two pairs of teeth at or near tip of lower jaw, erupted only in some adults; head either with indistinct beak, or with distinct beak and steep forehead

Other species, **Go to 21**

b. Usually one pair of teeth well behind tip of lower jaw, erupted only in adult males; small head; prominent beak with forehead rising at shallow angle; sometimes flippers fit into depressions on the body; scratches and scars often common on body; maximum body length 6.2 m

Mesoplodon sp.[3], **Go to 26**

21a. Two pairs of teeth in lower jaw, one pair at tip exposed outside closed mouth, second smaller pair behind first; long tube-like snout; rounded forehead rises from snout at a shallow angle

Berardius sp., **Go to 22**

[3] The species of the genus *Mesoplodon* are generally poorly-known. External morphology and pigmentation patterns have not been properly described for some of them, and it is generally not possible for non-experts to identify whales of this genus to species. Even for experts, examination of skulls or genetic evidence may be required to identify anything but mature males.

b. One pair of teeth at tip of lower jaw (exposed only in adult males)
Other species, **Go to 23**

22a. Maximum body length 12 m; Northern Hemisphere distribution only
Baird's beaked whale *(Berardius bairdii)*

b. Maximum body length 10 m; Southern Hemisphere distribution only
Arnoux's beaked whale *(Berardius arnuxii)*

23a. Beak indistinct; head small relative to body size; forehead slightly concave in front of blowhole; single pair of teeth directed forward and upward at tip of lower jaw (exposed only in adult males); mouthline upturned at gape; head light colored; maximum body length 7.0 m
Cuvier's beaked whale *(Ziphius cavirostris)*

b. Tube-like beak distinct; pronounced bulge to steep forehead; tall, pointed dorsal fin; maximum length about 10 m
Hyperoodon or *Indopacetus*, **Go to 24**

24a. Northern Hemisphere or tropical distribution
H. ampullatus or *Indopacetus*, **Go to 25**

b. Southern Hemisphere temperate/subpolar distribution only
Southern bottlenose whale *(Hyperoodon planifrons)*

25a. North Atlantic distribution only
Northern bottlenose whale *(Hyperoodon ampullatus)*

b. Warm temperate and tropical Pacific and Indian Ocean distribution

Longman's beaked whale *(Indopacetus pacificus)*

26a. Moderate beak, not sharply demarcated from forehead; white jaws; males with white "cap" or "beanie" in front of blowhole; adult males with large flattened tusk in the middle of each side of lower jaw, protruding above upper jaw when mouth is closed; known from North Pacific only (females and subadults require museum preparation for identification)

Hubbs' beaked whale *(Mesoplodon carlhubbsi)*

b. Mostly dark beak, possibly with white jaws; in adult males, tusks near middle of lower jaw barely breaking gumline; known from the Pacific and Indian oceans only (females and subadults require museum preparation for identification)

Ginkgo-toothed beaked whale *(Mesoplodon ginkgodens)*

c. White markings on beak and forehead absent; lower jaw usually light in color; tusks of males very large, located on bony prominences near corners of mouth, and oriented slightly forward; lower jaw massive (particularly in adult males), with high arching contour; forehead has concavity in front of blowhole (females and subadults require museum preparation for identification)

Blainville's beaked whale *(Mesoplodon densirostris)*

d. Flattened tusks of adult males near tip of lower jaw; jaws white in adults (females and subadults require museum preparation for identification)

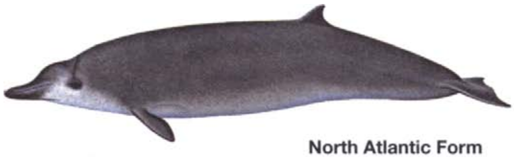
Hector's beaked whale *(Mesoplodon hectori)*

e. Small (maximum length about 4 m); dorsal fin small, triangular, and rounded at tip; color dark gray above fading to lighter below; small egg-shaped teeth located on prominences near the middle of the lower jaw in adult males; known only from eastern Pacific (females and subadults require museum preparation for identification)

Pygmy beaked whale *(Mesoplodon peruvianus)*

f. Pair of small oval teeth at tip of lower jaw of adult males; body gray with dark areas around eyes (females and subadults require museum preparation for identification)

True's beaked whale *(Mesoplodon mirus)*



North Atlantic Form

Southern Hemisphere Form

g. Two small flattened teeth near front of lower jaw of males; body dark gray above, light gray below; known only from Atlantic Ocean (females and subadults require museum preparation for identification)

Gervais' beaked whale *(Mesoplodon europaeus)*

h. White areas in head and neck area; large flattened tusk at top of each arch in lower jaw of adult males (protruding above upper jaw when mouth closed); known only from North Pacific Ocean, found in subarctic waters of North Pacific (females and subadults require museum preparation for identification)

Stejneger's beaked whale *(Mesoplodon stejnegeri)*

i. Adult males with white jaws and tusks on slightly raised prominences in middle of jaw; known mostly from South Pacific and Indian oceans (females and subadults require museum preparation for identification)

Andrews' beaked whale *(Mesoplodon bowdoini)*

j. Complex pattern of black, white, and gray; adult males with pair of tusks that grow outside of mouth from lower jaw, and wrap around upper jaw, preventing it from opening more than a few centimeters; known only from Southern Hemisphere (females and subadults require museum preparation for identification)

Strap-toothed beaked whale *(Mesoplodon layardii)*

k. Gray with lighter sides and belly; teeth of adult males protrude outside mouth in middle of lower jaw; vestigial teeth sometimes present in both jaws; known only from the temperate and subarctic North Atlantic (females and subadults require museum preparation for identification)

Sowerby's beaked whale *(Mesoplodon bidens)*

l. Color pattern apparently non-descript; tusks of males flattened and triangular, located just behind tip of lower jaw; known only from the eastern North Pacific (females and subadults require museum preparation for identification)

Perrin's beaked whale *(Mesoplodon perrini)*

m. Nothing is known of the external appearance of this species; tusks of males are massive and lean backwards at a 45° angle, they are spade-shaped with a prominent denticle at the tip (any specimens require museum preparation for identification)

Spade-toothed beaked whale *(Mesoplodon traversii)*

27a. Teeth blunt with expanded crowns, laterally compressed, and relatively small; beak extremely short or nonexistent

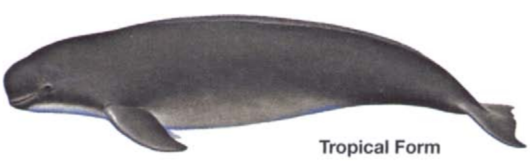
Phocoenidae, **Go to 28**

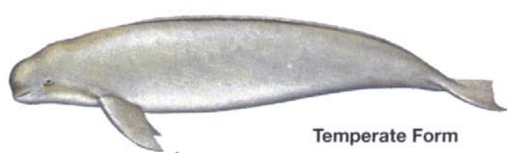
b. Teeth conical and sharply pointed, unless heavily worn (in cross section, circular or oval)

Platanistoidea, Mondontidae, or Delphinidae, **Go to 33**

28a. Body dark gray or black, with lighter belly; no dorsal fin; dorsal ridge present; 15–22 teeth in each tooth row; maximum size to 2.3 m; distribution limited to the Indo–Pacific area

Finless porpoise *(Neophocaena phocaenoides)*





b. Dorsal fin present

Other species, **Go to 29**

29a. Body dark charcoal gray to black; dorsal fin set far back on body, rising at a shallow angle from back, with long leading edge and convex trailing edge; 10–23 pairs of teeth in upper jaw, 14–23 in lower; maximum size to 2 m; distribution limited to coastal South America

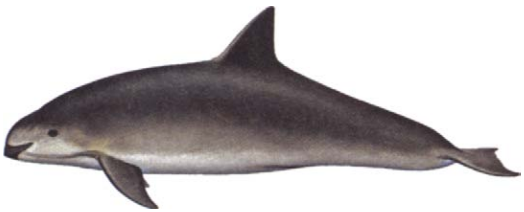
Burmeister's porpoise *(Phocoena spinipinnis)*

b. Dorsal fin upright and set near middle of back

Other species, **Go to 30**

30a. Body gray to brownish gray, with light belly, and dark lip patches and eye rings; flippers large; dorsal fin tall and slightly falcate; 16–22 teeth per side of each jaw; maximum size about 1.6 m; distribution limited to the Gulf of California, Mexico

Vaquita *(Phocoena sinus)*



b. Triangular dorsal fin; found outside the Gulf of California

Other species, **Go to 31**

31a. Body dark gray on back to white below; dark gape to flipper stripe; short, triangular, wide-based dorsal fin; 19–28 pairs of teeth in each jaw; maximum size to about 2 m; Northern Hemisphere distribution only

Harbor porpoise *(Phocoena phocoena)*

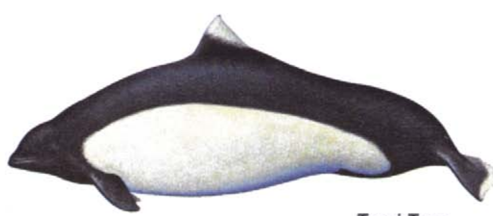
b. Color pattern sharply demarcated black and white

Other species, **Go to 32**

32a. Black body with striking large white patch on sides and belly; extremely robust, with small head and appendages; deepened caudal peduncle; dorsal fin triangular, with recurved tip; white or light gray trim on dorsal fin and flukes; 23–28 pairs of extremely small teeth per jaw; maximum size to 2.4 m; North Pacific distribution only

Dall's porpoise *(Phocoenoides dalli)*

Dalli-Type



Truei-Type

b. Body bicolored, black on dorsal half and white on ventral half; black lips; white "spectacle" surrounding eye; dorsal fin triangular to rounded; 17–23 pairs of teeth in upper jaw, 17–20 in lower; maximum size to about 2.3 m; distributed only in cold temperate waters of the Southern Hemisphere

Spectacled porpoise *(Phocoena dioptrica)*

33a. No dorsal fin or prominent dorsal ridge (there may be a slight dorsal ridge)

Monodontidae or *Lissodelphis*, **Go to 34**

b. Dorsal fin or prominent dorsal ridge present

Other species, **Go to 37**

34a. Slight dorsal ridge present, sometimes marked with nicks or cuts; jaws short and wide; forehead high and globose; flippers short, broad, and rounded; distribution limited to Arctic and subarctic areas

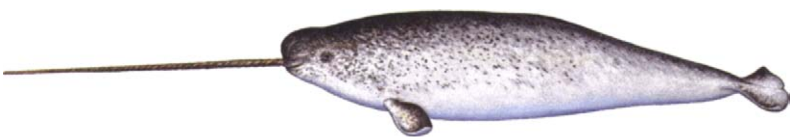
Monodontidae, **Go to 35**

b. No dorsal ridge present; body extremely slender; small flippers and flukes; beak short but distinct

Lissodelphis, **Go to 36**

35a. Body gray to brownish-gray, mottled; short flippers often upturned at tips; flukes with more or less convex trailing edge; only two teeth in upper jaw, unerupted except in adult males, in which the left tooth develops into a left-spiraled tusk up to 2.7 m long; maximum size up to 5 m (excluding tusk); distribution limited to high Arctic

Narwhal *(Monodon monoceros)*



b. Body white to dark gray; extremely stocky; melon bulbous; beak short; head and appendages small; "neck" often visible; 9 pairs of teeth in upper jaw, 8 in lower; maximum size 5.5 m

Beluga whale *(Delphinapterus leucas)*

36a. Body black with white lanceolate pattern on belly; 37–54 fine pointed teeth per side of each jaw; maximum body length 3.1 m; North Pacific distribution only

Northern right whale dolphin *(Lissodelphis borealis)*

b. Body black above and white below; flippers, beak, and forehead mostly white; 44–49 teeth in each tooth row; maximum size to at least 3 m; Southern Hemisphere distribution only

Southern right whale dolphin *(Lissodelphis peronii)*

37a. Jaws extremely long; flippers broad and more or less triangular; eyes small; low, broad-based dorsal fin or dorsal ridge; distributed in rivers and lakes, only rarely in estuaries

Platanistoidea, **Go to 38**

b. Prominent dorsal fin; distribution estuarine or marine

Delphinidae or *Pontoporia*, **Go to 41**

38a. Blowhole transverse and crescentic; body gray, often with pinkish cast; dorsal hump low and set two-thirds of the way from the snout tip; forehead steep; 23–35 teeth per tooth row; maximum size to 2.8 m; distribution limited to Amazon and Orinoco drainage basins of Brazil, Bolivia, Peru, Colombia, Ecuador, Guyana, and Venezuela

Boto *(Inia geoffrensis)*

b. Blowhole longitudinal

Other species, **Go to 39**

39a. Body bluish-gray above and white below; blowhole oval; beak upturned at tip; dorsal fin triangular with blunt tip; 31–36 teeth per tooth row; maximum size to 2.6 m; distribution limited to the Yangtze River of China

Baiji *(Lipotes vexillifer)*

b. Body gray with lighter or pinkish belly; blowhole slit-like; eyes extremely small; beak long, narrow when viewed from above, with interlocking teeth protruding outside closed mouth at front half; low dorsal ridge; 26–39 teeth in each row; maximum size to 2.5 m

South Asian River Dolphin, **Go to 40**

40a. Distribution limited to the Ganges and Brahmaputra River systems of India, Nepal, Bangladesh, and (possibly) Bhutan

Ganges River dolphin *(Platanista gangetica gangetica)*

b. Distribution limited to the Indus River system of Pakistan

Indus River dolphin *(Platanista gangetica minor)*

41a. Body dark gray with lighter belly; prominent triangular dorsal fin with rounded tip; flippers broad with curved leading edge and serrated trailing edge; eyes small; 50–62 teeth per tooth row; maximum size to 1.8 m; distribution limited to coastal and estuarine waters of Argentina, Uruguay, and Brazil

Franciscana *(Pontoporia blainvillei)*

b. Flippers without serrated trailing edges; eyes not particularly small

Delphinidae, **Go to 42**

42a. Head blunt with no prominent beak

Blackfish or other species, **Go to 43**

b. Head with prominent beak

Long-beaked delphinids, **Go to 54**

43a. 2–7 pairs of teeth at front of lower jaw only (rarely 1–2 pairs in upper jaw), but teeth may be absent or extensively worn; forehead blunt with vertical crease; dorsal fin tall and dark; body gray to white, covered with scratches and splotches in adults; flippers long and sickle-shaped; maximum body length 4 m

Risso's dolphin *(Grampus griseus)*

b. Teeth (7 or more pairs) in both upper and lower jaws; forehead without vertical median crease

Other species, **Go to 44**

44a. Flippers broad and paddle-shaped with rounded tips

Blackfish and other species, **Go to 45**

b. Flippers long and slender with pointed or blunt tips

Other species, **Go to 50**

45a. Flippers large and paddle-shaped; dorsal fin tall and erect (up to 0.9 m in females and 1.8 m in males); striking black and white coloration, with white post-ocular patches, white lower jaw, white ventrolateral field, and light gray saddle patch behind dorsal fin; 10–14 large (to 2.5 cm in diameter) oval teeth in each tooth row; maximum body length 10 m

Killer whale *(Orcinus orca)*


Type A


Type C

b. Dorsal fin low and rounded or triangular; adults less than 3 m; greater than 12 teeth per tooth row

Other species, **Go to 46**

46a. Body gray with lighter belly; dorsal fin small and slightly falcate; forehead bluff; neck crease often present; 8–22 teeth per row; maximum size 2.8 m; distribution limited to coastal areas and rivers of southeast Asia and northern Australia

Orcaella sp., **Go to 75**

b. Color pattern with distinct lobes of light and dark; dorsal fin relatively large; no neck crease; 27–35 teeth per row; distribution limited to southern South America, southern Africa, New Zealand and the Kerguelen Islands

Cephalorhynchus sp., **Go to 47**

47a. Sides light gray; dark gray cape (very narrow just behind blowhole area); belly white, with "arms" that surround the urogenital area and extend up both sides; white throat patch; white axillary patches; dorsal fin moderately tall and triangular; 22–28 teeth in each row; maximum size 1.8 m; distribution limited to southwest coast of Africa

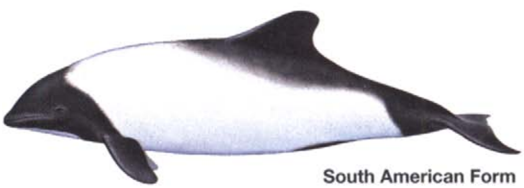
Heaviside's dolphin *(Cehalorhynchus heavisidii)*

b. Dorsal fin rounded

Other species, **Go to 48**

48a. Distinct black and white (or dark and light gray) color pattern, with black head and flippers, and black from the dorsal fin to the flukes; white chin patch; black genital patch; 28–35 teeth per row; maximum size 1.8 m; distribution limited to coastal and inshore waters of southeast South America and the Kerguelen Islands

Commerson's dolphin *(Cephalorhynchus commersonii)*


South American Form

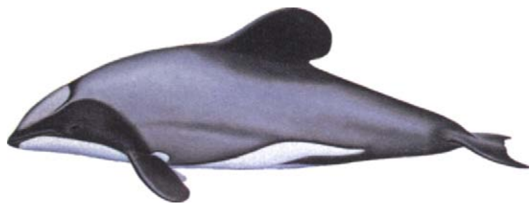

Kerguelen Form

b. Coloration largely various shades of gray

Other species, **Go to 49**

49a. Body mostly gray, with white belly and "arms" that extend up the sides on the tail stock (clearly demarcated by a dark gray line), and black dorsal fin, flippers, flukes, face, beak tip, and blowhole area; 24–31 teeth per row; maximum size to 1.7 m; distribution limited to coast of New Zealand

Hector's dolphin *(Cephalorhynchus hectori)*



b. Body gray with clearly demarcated white belly and chin; dark band between the flippers; white spots in axillae; 29–34 teeth in each row; maximum size to at least 1.7 m; distribution limited to west coast of South America, especially protected inshore waters of southern Chile

Chilean dolphin *(Cephalorhynchus eutropia)*

50a. Dorsal fin low and broad-based, located on forward third of back; head bulbous; body black to dark gray with light anchor-shaped patch on belly and often light gray saddle behind dorsal fin; often a light streak above and behind each eye; deepened tail stock; long sickle-shaped flippers; 7–13 pairs of teeth in front half only of each jaw

Globicephala sp., **Go to 51**

b. Dorsal fin near middle of back

Other species, **Go to 52**

51a. Flipper length 18–27% of body length, with prominent "elbow;" 8–13 teeth in each tooth row; maximum size to 6.7 m; distribution limited mostly to cold temperate regions of North Atlantic and Southern Hemisphere

Long-finned pilot whale *(Globicephala melas)*

b. Flipper length 14–19% of body length; 7–9 pairs of teeth in each tooth row; maximum body length 7.2 m; distribution limited to tropical and warm temperate waters

Short-finned pilot whale *(Globicephala macrorhynchus)*

52a. Flipper with distinct hump on leading edge; body predominantly black; no beak; 7–12 large teeth in each half of both jaws, circular in cross-section; maximum body length 6 m

False killer whale *(Pseudorca crassidens)*

b. Body black or dark gray with white lips; white to light gray patch on belly; flipper lacks hump on leading edge; 8–25 teeth in each tooth row

Other species, **Go to 53**

53a. Less than 15 (8–13) teeth in each half of both jaws; flippers slightly rounded at tip; indistinct dorsal cape; head rounded from above and side; maximum body length 2.6 m

Pygmy killer whale *(Feresa attenuata)*

b. More than 15 (20–25) teeth per side of each jaw; flippers sharply pointed at tip; face often has triangular dark mask; indistinct cape that dips low below dorsal fin; head triangular from above; extremely short, indistinct beak may be present in younger animals; maximum body length 2.8 m

Melon-headed whale *(Peponocephala electra)*

54a. Head long and conical; beak runs smoothly into forehead, with no crease; body dark gray to black above and white below, with many scratches and splotches; narrow dorsal cape; flippers large; 19–28 slightly wrinkled teeth in each half of both jaws; maximum body length 2.8 m

Rough-toothed dolphin *(Steno bredanensis)*

b. Beak distinct from forehead (however, there may not be a prominent crease between beak and melon)

Other species, **Go to 55**

55a. Beak very short and well-defined (less than 2.5% of body length); body stocky

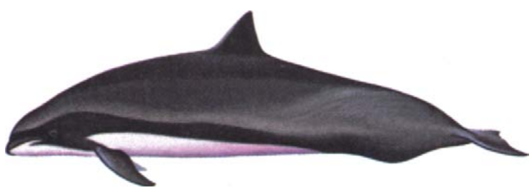
Lagenodelphis or *Lagenorhynchus,* **Go to 56**

b. Beak moderate to long (greater than 3% of body length)

Other species, **Go to 62**

56a. Flippers, flukes, and dorsal fin small; broad dark stripe from eye to anus area (muted in some animals); dorsal fin slightly recurved and uniformly dark; extremely short, but well-defined beak; grooves on palate; 38–44 teeth in each side of each jaw; maximum length at least 2.7 m

Fraser's dolphin *(Lagenodelphis hosei)*

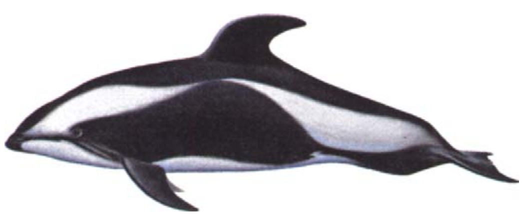


b. Dorsal fin large; no palatal grooves

Lagenorhynchus sp., **Go to 57**

57a. Body sharply demarcated black and white, with distinct white hourglass pattern on side, and white belly; dorsal fin strongly falcate; 26–35 teeth in each row; maximum size to about 2 m; distribution limited to colder waters of circumpolar Antarctic currents

Hourglass dolphin *(Lagenorhynchus cruciger)*



b. Color pattern complex with light gray patches on sides

Other species, **Go to 58**

58a. Body mostly black to dark gray, with white to light gray patches on the sides, and white belly and beak; dorsal fin large and falcate; 22–28 teeth in each row; maximum size to 3.1 m; distribution limited to cold waters of North Atlantic

White-beaked dolphin *(Lagenorhynchus albirostris)*

b. Prominent light gray flank

Other species, **Go to 59**

59a. Back dark gray, belly white, and sides light gray with white (below the dorsal fin) and yellowish-brown (on the tail stock) patches; black eye ring; extremely deepened tail stock; 30–40 teeth in each row; maximum length 2.8 m; distribution limited to cold waters of the North Atlantic

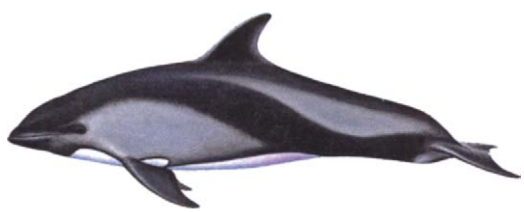
Atlantic white-sided dolphin *(Lagenorhynchus acutus)*

b. Large light gray lateral patch and gray stripes on tail stock with extensions running forward to thoracic area

Other species, **Go to 60**

60a. Black to dark gray above, white below, with light gray patches on sides; face, beak, melon, and most of the chin grayish-black; body relatively robust; up to at least 37 teeth in each row; maximum size to about 2.5 m; known distribution limited to southern South America and around Palmerston Atoll (although the latter is probably extralimital)

Peale's dolphin *(Lagenorhynchus australis)*

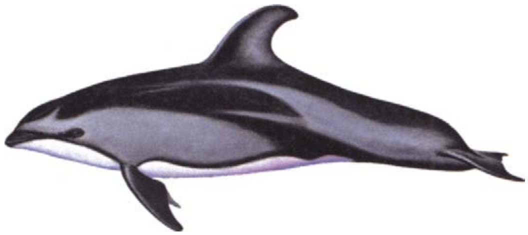


b. Much of face and lower jaw white to light gray; dorsal fin bicolored

Other species, **Go to 61**

61a. Appendages relatively large; dorsal fin bicolored and falcate (sometimes extremely hooked); back dark gray with light "suspender stripes" from forehead to tail stock, white belly, light gray flank patches (black lines separate belly from sides); 23–36 pairs of teeth in each jaw; maximum body length 2.5 m; distribution limited to North Pacific

Pacific white-sided dolphin *(Lagenorhynchus obliquidens)*



b. Belly white, back dark, flank patch light gray (no black line separates flank patch and belly); dorsal fin and flippers bicolored; 27–36 teeth in each tooth row; maximum length to at least 2.1 m; distribution limited to Southern Hemisphere (known mostly from South America, southern Africa, and New Zealand)

Dusky dolphin *(Lagenorhynchus obscurus)*

62a. Less than 39 teeth per tooth row

Tursiops, Sotalia, or *Sousa,* **Go to 63**

b. Greater than 39 teeth per row

Delphinus or *Stenella*, **Go to 67**

63a. Moderately robust; 18–29 teeth in each half of the jaws (teeth may be extensively worn or missing); body to 3.8 m; moderately long robust snout set off by distinct crease; color dark to light gray dorsally, fading to white or even pink on belly

Bottlenose dolphin (*Tursiops* sp.), **Go to 64**

b. 26 or more teeth in each tooth row; indistinct crease between melon and beak

Sotalia or *Sousa*, **Go to 65**

64a. Beak relatively short and stubby; generally no spotting on belly; spinal blaze often indistinct; 18–27 pairs of teeth; maximum size up to 3.8 m; distributed worldwide

Common bottlenose dolphin *(Tursiops truncatus)*

Offshore Ecotype

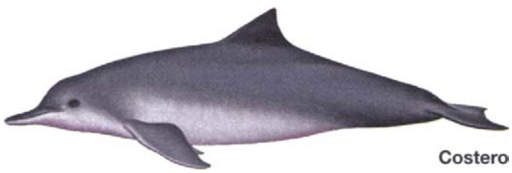
Atlantic Coastal Ecotype

b. Beak relatively long and slender; generally with black spotting on the belly; often a spinal blaze below the dorsal fin; 21–29 paris of teeth; maximum size 2.7 m; distributed only in the Indo–Pacific

Indo–Pacific bottlenose dolphin *(Tursiops aduncus)*

65a. Back dark gray and belly light; beak long without distinct crease; low triangular to slightly falcate dorsal fin; 26–36 teeth in each tooth row; maximum size to 2.2 m; distribution limited to coasts, rivers, and lakes of the east coast of South America from Panama to southern Brazil, including the Amazon and Orinoco drainage basins

South American dolphins *(Sotalia fluviatilis or S. guianensis)*



Costero

Tucuxi

b. Body gray with bluish, cream, or pink tinge, and light belly; base of dorsal fin of adults often expanded to form longitudinal ridge, especially west of Bay of Bengal; beak long, crease indistinct; 26–39 teeth in each tooth row; maximum size to 2.8 m

Humpback dolphin (*Sousa* sp.), **Go to 66**

66a. Distribution limited to Indo–Pacific, from the southern tip of Africa to Australia and eastern China

Indo–Pacific humpback dolphin *(Sousa chinensis)*

Chinensis-type

Plumbea-type

b. Distribution limited to Atlantic Ocean off West Africa

Atlantic humpback dolphin *(Sousa teuszii)*

67a. Dorsal fin erect to slightly falcate; back dark and belly white; tan to buff thoracic patch and light gray streaked tail stock form an hourglass pattern that crosses below dorsal fin; cape forms a distinctive "V" below dorsal fin; chin to flipper stripe; maximum size 2.7 m; 40–67 teeth in each row; palate with two deep longitudinal grooves

Common dolphin (*Delphinus* sp.), **Go to 68**

b. No hourglass pattern on side; palatal grooves, if present, shallow

Stenella sp., **Go to 69**

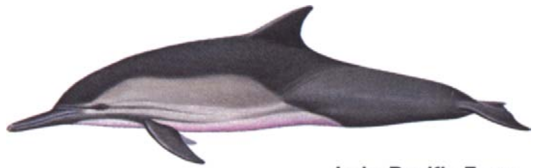
68a. Body relatively stocky; beak shorter; slope of forehead relatively steep; flipper stripe narrow and not approaching gape; often light patches on flippers and dorsal fin; anus stripe faint or absent

Short-beaked common dolphin *(Delphinus delphis)*

b. Body relatively slender; beak longer; slope of forehead relatively shallow; flipper stripe wide and often contacting gape; light patches on flippers and dorsal fin generally absent; anus stripe may be distinct

Long-beaked common dolphin *(Delphinus capensis)*

Standard Form



Indo-Pacific Form

69a. Color pattern black to dark gray on back, white on belly, prominent black stripes from eye to anus and eye to flipper; light gray spinal blaze extending to below dorsal fin (not always present); shallow palatal grooves often present; 40–55 teeth in each row; maximum size 2.6 m

Striped dolphin *(Stenella coeruleoalba)*

b. Generally, no eye to anus stripe; distribution limited to tropical and warm temperate waters

Other species, **Go to 70**

70a. Light to heavy spotting present on dorsum of adults (on some individuals, spots may appear absent); no palatal grooves

Spotted dolphin, **Go to 71**

b. No spotting on dorsum of adults; cape dips to lowest point at level of dorsal fin; eye-to-flipper stripe; shallow palatal grooves often present

S. clymene or *S. longirostris*, **Go to 73**

71a. Body moderately robust, dark gray above, with white belly; light spinal blaze; slight to heavy spotting on adults (occasionally spotting nearly absent); maximum size 2.3 m; 30–42 teeth per row; distribution limited to warm waters of the Atlantic Ocean

Atlantic spotted dolphin *(Stenella frontalis)*

b. Dorsal fin narrow and falcate; dark cape that sweeps to lowest point on side in front of dorsal fin; dark gape to flipper stripe; beak tip and lips white; adults with light to extensive spotting and gray bellies (spotting sometimes absent); 34–48 teeth in each half of each jaw; maximum size 2.6 m

Pantropical spotted dolphin (*Stenella attenuata*), **Go to 72**

72a. Body and beak relatively robust; heavy spotting that nearly obliterates cape; known distribution limited to within 185 km of the coast in the eastern tropical Pacific

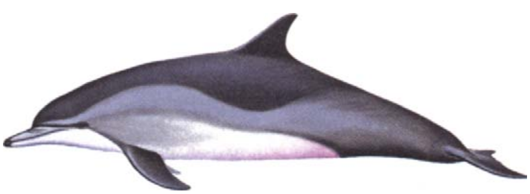
Coastal pantropical spotted dolphin (*S. a. graffmani*)

b. Body and beak slender; spotting slight to moderate; maximum body length 2.4 m; distributed more than 30 km from shore in eastern tropical Pacific and found in oceanic waters worldwide

Offshore pantropical spotted dolphin (*S. a. attenuata*)

73a. Body color three-part (dark gray cape, light gray flanks, white belly); cape dips in two places (above eye, and below dorsal fin); snout light gray with dark tip, dark lips, and dark line from tip to apex of melon; often, dark "moustache" on top of beak; more robust than spinner dolphins; 39–52 teeth in each tooth row; maximum size about 2.0 m; distribution limited to tropical Atlantic Ocean

Clymene dolphin *(Stenella clymene)*

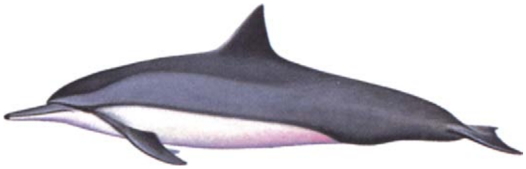


b. Dorsal fin slightly falcate to canted forward; beak exceedingly long and slender; 40–62 very fine sharply pointed teeth per tooth row; maximum size 2.4 m

Spinner dolphin (*Stenella longirostris*), **Go to 74**

74a. Color pattern three-part (white belly, light gray sides, dark gray cape); dorsal fin falcate to erect; body more robust than in other forms; post-anal hump of adult males nearly absent; distribution pantropical, except eastern tropical Pacific

Gray's spinner dolphin *(S. l. longirostris)*



b. Pigmentation monotone gray, with light patches around genital area and axillae; dorsal fin triangular to canted forward (extremely canted in adult males); adult males with deepened tail stock and enlarged post-anal hump; maximum size 2 m; known distribution limited to the eastern tropical Pacific east of 145°W

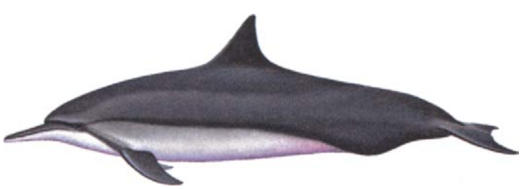
Eastern spinner dolphin *(S. l. orientalis)*

c. Pigmentation monotone gray; apparently, no light patches around genital area and axillae; dorsal fin triangular to canted forward (extremely canted in adult males); adult males with deepened tail stock and enlarged post-anal hump; to 2.2 m long; known distribution limited to 80 km offshore from southern Mexico to Panama in the eastern tropical Pacific

Central American spinner dolphin *(S. l. centroamericana)*

d. Body slightly more robust than above two forms; color pattern largely bipartite, with dark dorsal cape, and white belly and lower sides; dorsal fin slightly falcate to slightly canted (tending towards canted in adult males); post-anal hump of adult males small to moderate; distribution limited to offshore eastern tropical Pacific

Whitebelly spinner dolphin (hybrid *S. l. longirostris* X *S. l. orientalis*)



e. Body very small (<1.6 m), with a relatively large head and flippers; dorsal fin not canted; post-anal hump small or absent; tripartite color pattern; distribution limited to the Indo–Pacific, from northern Australia to southeast Asia

Dwarf spinner dolphin *(S. l. roseiventris)*

75a. Dorsal groove present; color pattern bipartite; white ventral field extends onto underside of flippers; distribution limited to East Asia (eastern India to southern Vietnam and central Indonesia)

Irrawaddy dolphin *(Orcaella brevirostris)*

b. No dorsal groove; color pattern subtly tripartite; no extension of white ventral field onto underside of flippers; distribution limited to Australia and Papua New Guinea

Australian snubfin dolphin *(Orcaella heinsohni)*

B. Key to Identification of Cetaceans of the World, Based on Skull Morphology

Notes on the use of this key *This key is intended to allow the user to identify a skull of any cetacean, even if the area of origin is not known (therefore we do not use geographic information as primary features in the key). Although it is intended primarily for adult skulls, it may be useful for identifying skulls of subadults in some cases as well.*

For some parts, this key is based on incomplete information, and thus may not always be reliable. It is presented here because of the lack of other suitable materials for identifying cetacean skulls. Skulls from subadult mammals often do not show the species' diagnostic characters, and geographic variation may yield it unreliable when examining skulls from certain areas. Clearly, a damaged skull may not be possible to identify to species, no matter what aids are used. So, while it will not be possible to identify every cetacean skull with this key, we hope that it will aid readers in identifying a large majority of them. We urge users to contact us to let us know how it can be improved.

1a. Teeth and alveoli absent; skull bilaterally symmetrical; lower jaw lacking bony symphysis; posterior portion of mandible not hollowed; maxillae extend posteriorly underneath frontal; size always large (adult skull >1.5 m)

Mysticeti, **Go to 2**

b. Teeth or alveoli present (although they may not emerge from jaw bones in some beaked whales); skull generally asymmetrical; lower jaw possessing bony symphysis; posterior non-tooth-bearing portion of mandible hollowed-out to form thin-walled "pan bone"; maxillae and premaxillae extend posteriorly over the frontal; skull generally much smaller (<1.5 m, except in *Physeter*)

Odontoceti, **Go to 11**

2a. Rostrum strongly arched from lateral view (>20° between basicranium and base of rostrum); base of rostrum narrow (< 1/3 cranial width); mandibles strongly bowed out

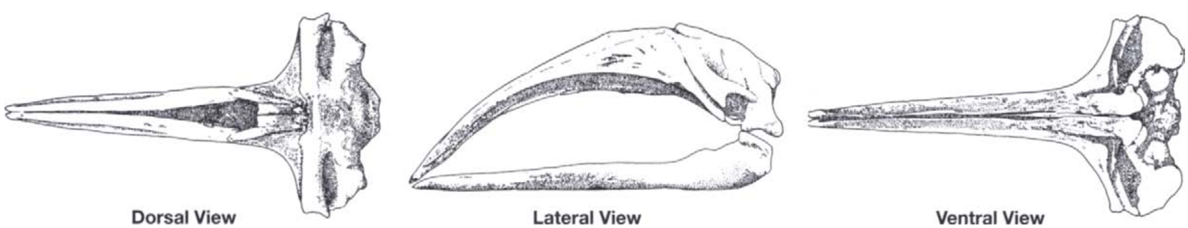
Balaenidae, **Go to 3**

b. Rostrum slightly arched or flat from laterial view (<18° between basicranium and base of rostrum); base of rostrum wide (>1/2 cranial width); mandibles only slightly bowed

Neobalaenidae, Eschrichtiidae, or Balaenopteridae, **Go to 4**

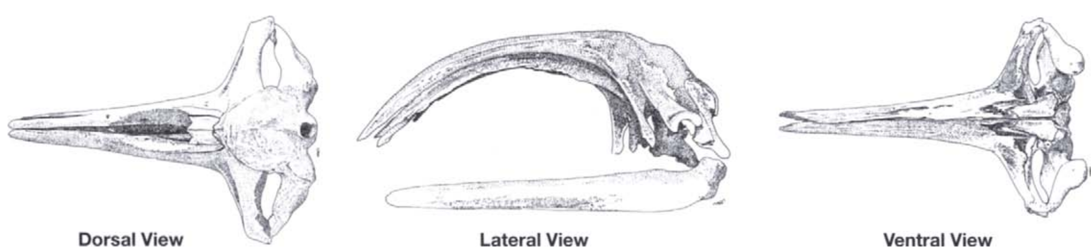
3a. In lateral view, skull has a continuous curve from occipital condyles to tip of rostrum; occipital shield does not overhang temporal fossae; nasals long (about 3 times their width); high latitude Northern Hemisphere distribution only

Bowhead whale (*Balaena mysticetus*)



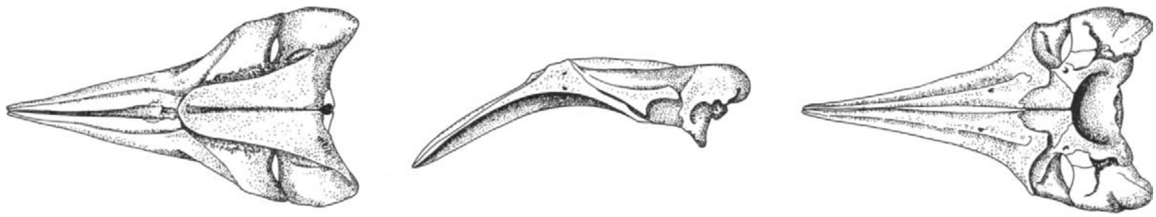
b. In lateral view, skull has a distinct angled apex between rostral and cranial bones; occipital shield overhangs temporal fossae; nasals relatively short (about twice their width)

Right whale (*Eubalaena* sp.)



4a. Rostrum moderately arched in lateral view (>14° between basicranium and base of rostrum); large anteriorly-thrust occipital shield (extending forward to base of rostrum); overall posterior margin of cranium strongly concave when viewed from above; high latitude Southern Hemisphere distribution only

Pygmy right whale (*Caperea marginata*)



Dorsal View | Lateral View | Ventral View

b. Rostrum only slightly arched in lateral view (<13° between basicranium and base of rostrum); no prominent occipital shield (occipital only extends forward up to 75% of length of brain case); overall posterior margin of cranium convex or relatively straight

Eschrichtiidae or Balaenopteridae, **Go to 5**

5a. Nasals large (nearly 1/2 length of post-rostral cranium); paired occipital tuberosities on posterior portion of cranium; rostrum relatively arched (>8° between basicranium and base of rostrum); North Pacific distribution only

Gray whale (*Eschrichtius robustus*)

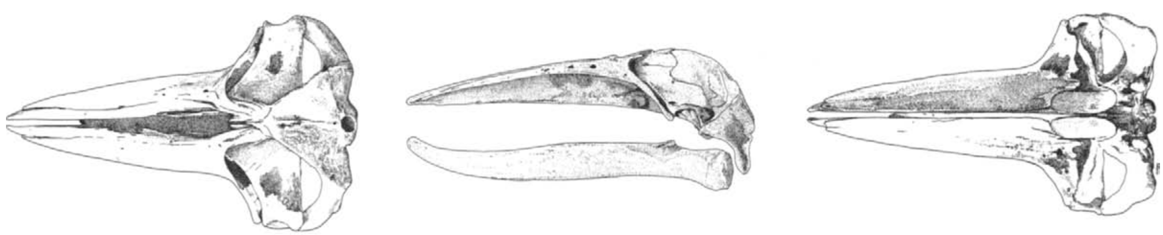
Dorsal View | Lateral View | Ventral View

b. Nasals smaller (< 1/4 length of post-rostral cranium); occipital tuberosities absent; rostrum relatively flat (<7° between basicranium and base of rostrum)

Balaenopteridae, **Go to 6**

6a. Base of rostrum about 1/2 cranial width; anterior margin of squamosal rounded or U-shaped

Humpback whale (*Megaptera novaeangliae*)



Dorsal View | Lateral View | Ventral View

b. Base of rostrum at least 2/3 cranial width; anterior margin of squamosal pointed or V-shaped

Balaenoptera sp, **Go to 7**

7a. Rostrum U-shaped and somewhat rounded at tip; rostral borders parallel along proximal half; from above, occipital length <1/5 CBL

Blue whale (*Balaenoptera musculus*)

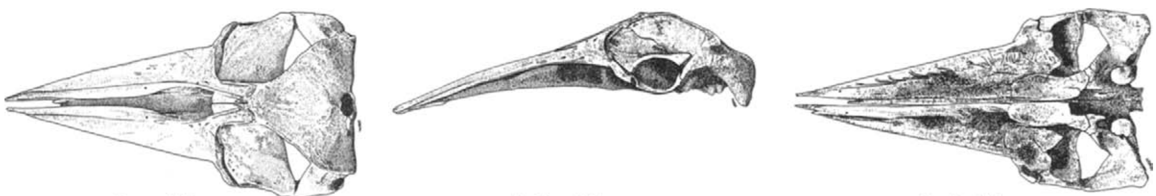
Dorsal View | Lateral View | Ventral View

b. Rostrum V-shaped and pointed; rostral borders convergent throughout their length; from above, occipital length >1/5 CBL

Minke, Omura's, Bryde's, sei, or fin whale, **Go to 8**

8a. CBL of adults <2.0 m

Minke or Omura's whales (*Balaenoptera acutorostrata/bonaerensis/omurai*)



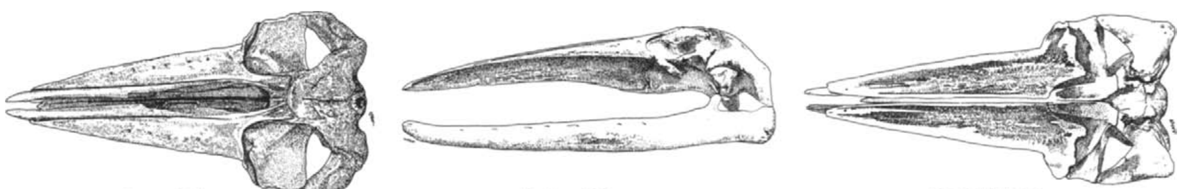
Dorsal View | Lateral View | Ventral View

b. CBL of adults >2.0 m

Fin whale, sei whale or Bryde's whale, **Go to 9**

9a. Nasals small—length (measured along their suture) less than 1/2 length of nasofrontal process; vomer widely expanded at its posterior end

Fin whale (*Balaenoptera physalus*)



Dorsal View | Lateral View | Ventral View

b. Nasals relatively large—length more than 1/2 length of nasofrontal process; vomer not expanded at its posterior end

Sei or Bryde's whale, **Go to 10**

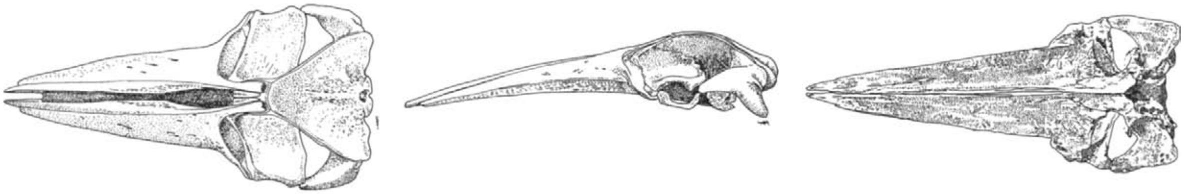
10a. Anterior edge of nasals concave or straight; rostrum relatively flat in lateral view; from below, palatines do not extend far back and basicranial part of skull exposed behind palatines much longer than broad

Bryde's whale (*Balaenoptera edeni/brydei*)

Dorsal View | Lateral View | Ventral View

b. Anterior edge of nasals convex; rostrum tip may be downturned in lateral view; from below, basicranial part of skull exposed behind palatines squarish to broader than long

Sei whale (*Balaenoptera borealis*)



Dorsal View Lateral View Ventral View

11a. Anterior cranial region basin-like, or with elevated maxillary ridges on vertex; functional teeth generally restricted to lower jaw; lack of distinct ventral cranial hiatus (opening for cranial nerves VII to XI) around the periotics

Physeteroidea or Ziphioidea, **Go to 12**

b. Anterior cranial region not basin-like, nor with elevated maxillary ridges (except in some river dolphins); teeth in both upper and lower jaws (except *Monodon* and *Grampus*); cranial hiatus present

Delphinoidea or Platanistoidea, **Go to 20**

12a. Nares extremely assymmetrical (left naris at least twice as large as the right); rostrum much wider than deep; one or both nasal bones lacking; no strongly elevated vertex; lateral furrow of tympanic bullae absent

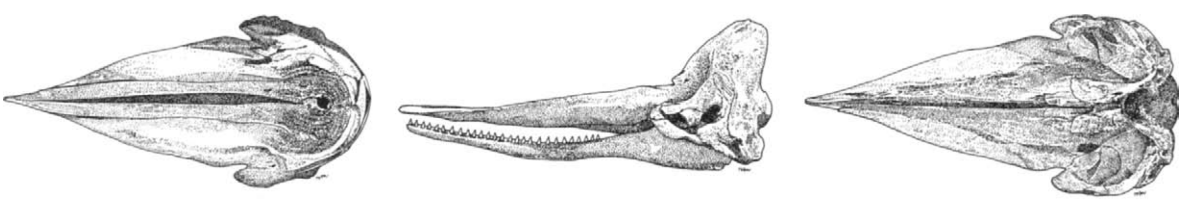
Physeteroidea, **Go to 13**

b. Nares similar in size; rostrum nearly as deep as wide; two nasal bones present; vertex (including nasals, as well as portions of maxillae and premaxillae) strongly elevated; lateral furrow of tympanic bullae present

Ziphiidae, **Go to 15**

13a. Rostrum long (>60% of CBL); apex of rostrum composed of only premaxillae; zygomatic arches complete; >17 pairs of teeth; mandibular symphysis long (>30% of mandibular length); jugal present; one nasal bone present

Sperm whale (*Physeter macrocephalus*)



Dorsal View Lateral View Ventral View

b. Rostrum short (<60% of CBL); apex of rostrum composed of maxillae, premaxillae, and vomer; zygomatic arches incomplete; <17 pairs of teeth; mandibular symphysis short (< 30% of mandibular length); jugal absent; nasal bones absent

Kogiidae, **Go to 14**

14a. Adult skull relatively large (CBL >35 cm); rostrum relatively long (generally >35% of CBL); typically 12–16 pairs of teeth (sometimes 10 or 11) only in lower jaw; teeth curved (but not strongly hooked)

Pygmy sperm whale (*Kogia breviceps*)

Dorsal View Lateral View Ventral View

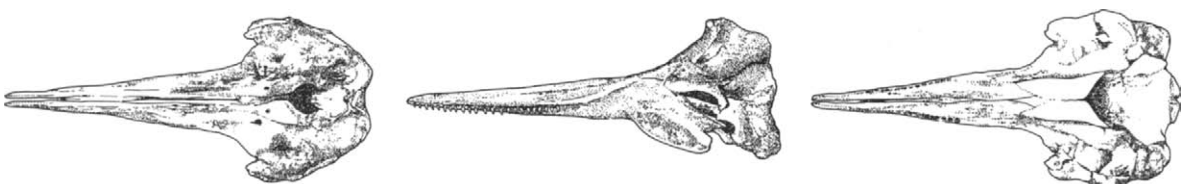
b. Adult skull relatively small (CBL <35 cm); rostrum relatively short (generally <35% of CBL); typically 8–11 pairs of teeth (sometimes 12 or 13) in lower jaw, and occasionally up to 3 vestigial pairs in upper jaw; teeth strongly hooked

Dwarf sperm whale (*Kogia sima*)

Dorsal View Lateral View Ventral View

15a. Numerous teeth (17–29 pairs) in both upper and lower jaws; Southern Hemisphere distribution only

Shepherd's beaked whale (*Tasmacetus shepherdi*)



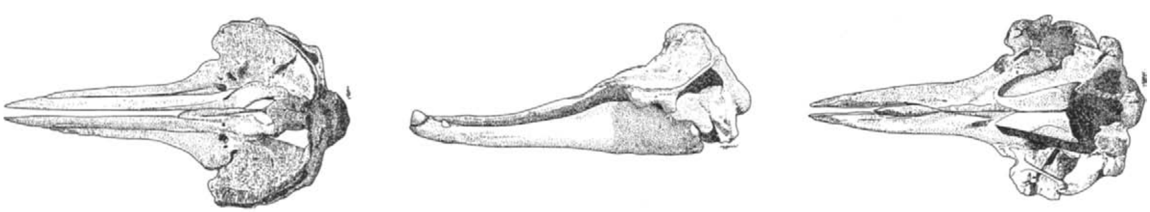
Dorsal View Lateral View Ventral View

b. No teeth in upper jaw

Berardius, Hyperoodon, Ziphius, Mesoplodon or *Indopacetus*, **Go to 16**

16a. Two pairs of mandibular teeth

Baird's/Arnoux's beaked whale (*Berardius* sp.)



Dorsal View Lateral View Ventral View

b. No more than one pair of mandibular teeth (occasionally extra rudimentary teeth present)

Mesoplodon, Indopacetus, Ziphius or *Hyperoodon*, **Go to 17**

17a. Enlarged maxillary crests present (may be relatively small in females)

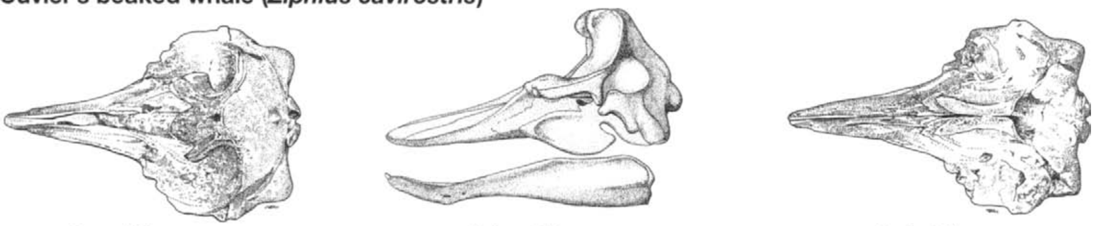
Dorsal View | Lateral View | Ventral View

b. No enlarged maxillary crests

Mesoplodon, Indopacetus or *Ziphius*, **Go to 18**

18a. On vertex, enlarged nasals extend forward past premaxillaries and overhang external bony nares; teeth conical and located at tips of mandibles

Cuvier's beaked whale (*Ziphius cavirostris*)



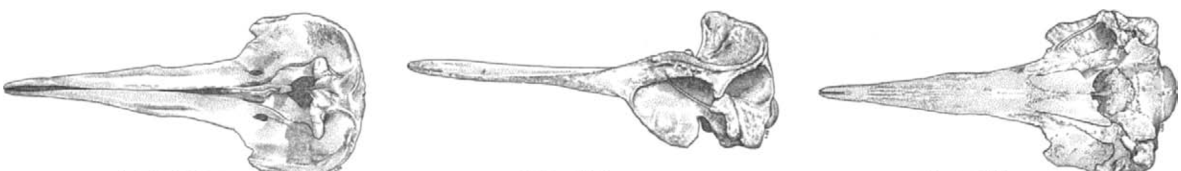
Dorsal View | Lateral View | Ventral View

b. On vertex, premaxillaries extend forward past nasals; teeth (if present) flattened (except in *Indopacetus*, *M. peruvianus*, and *M. mirus*) and often (but not always) located well back from tip of mandibles

Indopacetus/Mesoplodon spp., **Go to 19**

19a. In the lateral extension of the maxillary over the orbit, there is a deep groove, about half as long as the orbit; at midlength of the rostrum, there is a lateral swelling caused by the maxillae not coverging for a short distance; apical teeth in lower jaw are nearly conical

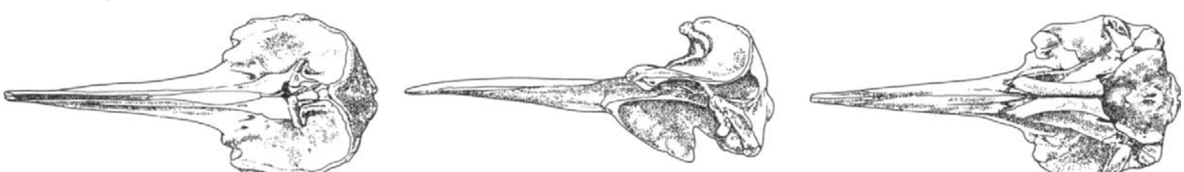
Longman's beaked whale (*Indopacetus pacificus*)



Dorsal View | Lateral View | Ventral View

b. No groove in the maxillary over the orbit; no lateral swelling of the rostrum; teeth generally highly flattened

Mesoplodont beaked whale (*Mesoplodon* sp.[4])



Dorsal View | Lateral View | Ventral View

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[4] The species of the genus *Mesoplodon* are generally poorly-known. Intraspecific variation in skull morphology has not been adequately described for all of them, and it is generally not possible for non-experts to identify whales of this genus to species reliably. Even for experts, detailed measurements of skulls or genetic evidence may be required. However, see the following website: http://www.nmnh.si.edu/vert/mammals/beaked_whales/pages/main_menu.htm

20a. Mandibular symphysis very long (>40% mandibular length); tympanic bullae convex in outer lateral view; distributed only in rivers and coastal waters of Asia and South America

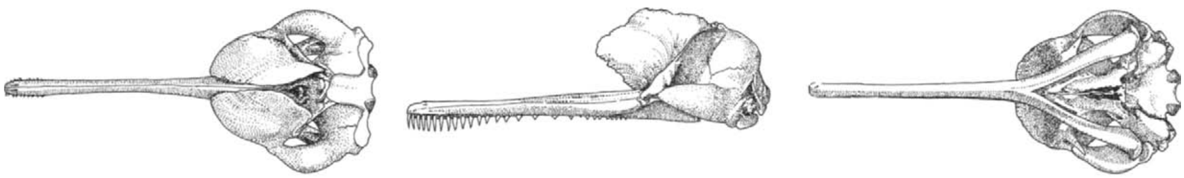
Platanistoidea, **Go to 21**

b. Mandibular symphysis relatively short (<40% mandibular length); tympanic bullae concave in outer lateral view

Delphinoidea, **Go to 24**

21a. Large, pneumatized maxillary crests present and overhanging anterior face of cranium; distributed only in the Indian subcontinent

South Asian River dolphin (*Platanista gangetica*)



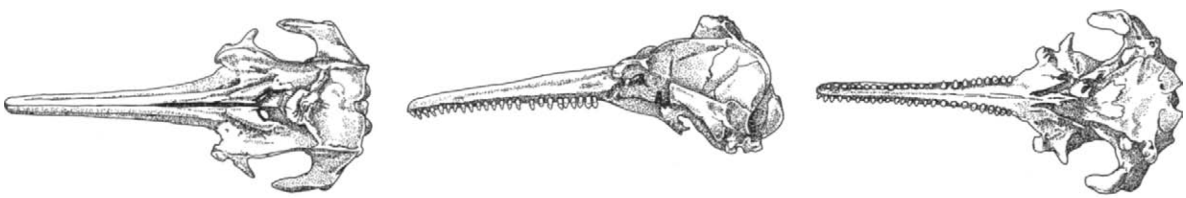
Dorsal View **Lateral View** **Ventral View**

b. Maxillary crests absent or relatively small; distributed only in China or South America

Inia, Lipotes, or *Pontoporia*, **Go to 22**

22a. Heterodont dentition; posterior teeth with lateral flanges; zygomatic arches incomplete; distributed only in the Amazon/Orinoco River systems

Amazon River dolphin (*Inia geoffrensis*)



Dorsal View **Lateral View** **Ventral View**

b. Homodont dentition; zygomatic arches complete or with only small gap (<5 mm); distributed only in China or coastal waters of eastern South America

Lipotes or *Pontoporia*, **Go to 23**

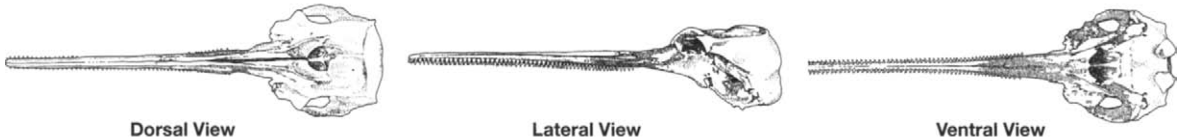
23a. Mandibular symphysis 50% or less of length of mandible; area of bony nares moderately assymetrical; tooth counts <45 in each tooth row; distinct "pinch" at base of rostrum; distributed only in China

Baiji (*Lipotes vexillifer*)

Dorsal View **Lateral View** **Ventral View**

b. Mandibular symphysis >50% length of mandible; area of bony nares relatively symmetrical; tooth counts >45 in each tooth row; no "pinch" at base of rostrum; distributed only in eastern South America

Franciscana (*Pontoporia blainvillei*)



24a. Teeth spade-shaped or peg-like; rounded bony bosses on premaxillae anterior to nares; premaxillae do not contact nasals

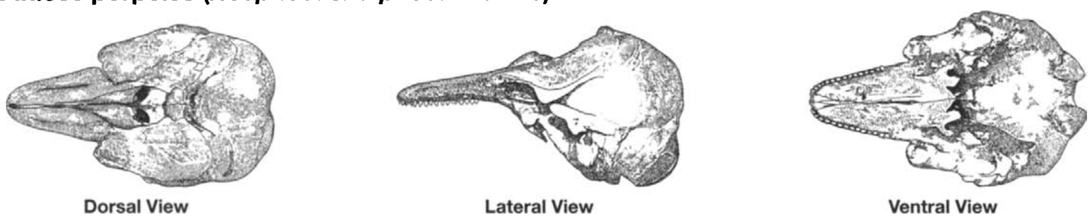
Phocoenidae, **Go to 25**

b. Teeth generally conical (except in *Orcaella*); no bosses anterior to nares (except in *Cephalorhynchus*, in which they have sharpened ridges); right premaxilla in contact with right nasal

Other Delphinoidea, **Go to 30**

25a. Rostrum short and wide (length/width ratio <1.28) and rounded at the tip; antorbital notches present and relatively deep (>2 mm); premaxillae level with maxillae in distal quarter of rostrum; distributed only in the Indo–Pacific

Finless porpoise (*Neophocaena phocaenoides*)



b. Rostrum relatively long and narrow (length/width ratio >1.25) and relatively pointed at the tip; antorbital notches absent or very shallow (<2 mm); premaxillae elevated above maxillae (visible in lateral view)

Phocoenoides or *Phocoena*, **Go to 26**

26a. Face of cranium high and nearly vertical, with strong development of supraoccipital crest; frontal not visible where it meets supraoccipital (in dorsal view)

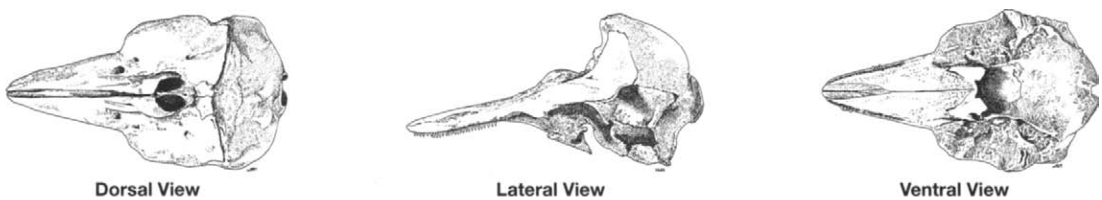
Phocoenoides dalli or *Phocoena dioptrica*, **Go to 27**

b. Face of cranium low and strongly diagonal, with weak development of supraoccipital crest; frontal on at least one side visible where it meets supraoccipital (in dorsal view)

Phocoena spp., **Go to 28**

27a. Teeth very small and peg-like; tooth counts >23 per row; premaxillary bosses with vertical or near-vertical lateral margins; distributed only in the North Pacific

Dall's porpoise (*Phocoenoides dalli*)



b. Teeth relatively large; tooth counts generally <23 per row (sometimes up to 26); premaxillary bosses with strong vertical overhang; distributed only in the Southern Hemisphere

Spectacled porpoise (*Phocoena dioptrica*)

Dorsal View Lateral View Ventral View

28a. Adult skull small (CBL <245 mm); rostrum short (length/width ratio <1.4); posterior margin of palate usually U-shaped; distributed only in the northern Gulf of California

Vaquita (*Phocoena sinus*)

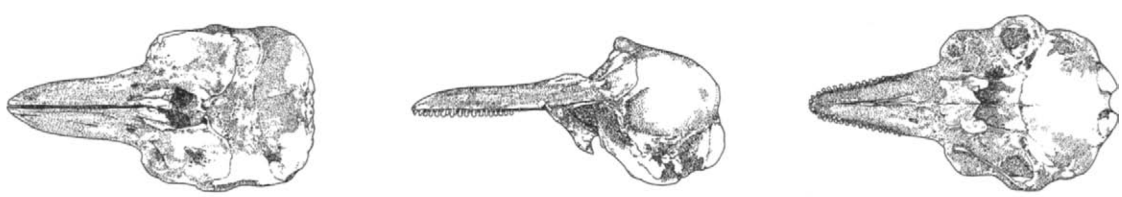
Dorsal View Lateral View Ventral View

b. Adult skull relatively large (CBL >245 mm); rostrum long (length/width ratio >1.4); posterior margin of palate usually W-shaped

Other species, **Go to 29**

29a. Rostrum relatively short (length/width ratio <1.8); distributed only in the coastal waters of South America

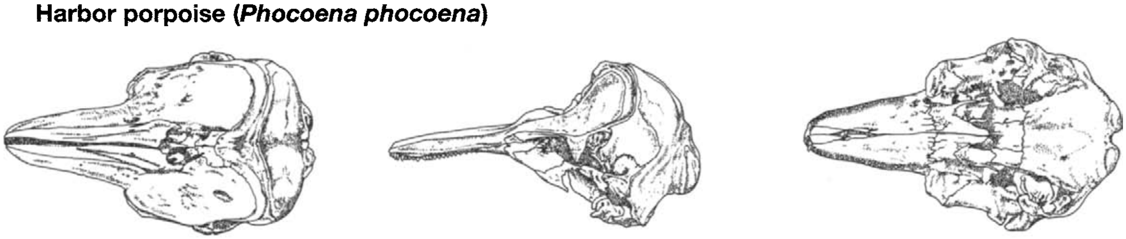
Burmeister's porpoise (*Phocoena spinipinnis*)



Dorsal View Lateral View Ventral View

b. Rostrum relatively long (length/width ratio >1.8); distributed only in the Northern Hemisphere

Harbor porpoise (*Phocoena phocoena*)



Dorsal View Lateral View Ventral View

30a. In profile, facial plane very flat or convex, with little or no rise in area of nares; spiracular plate slightly rugose; distributed only in high latitudes of the Northern Hemisphere

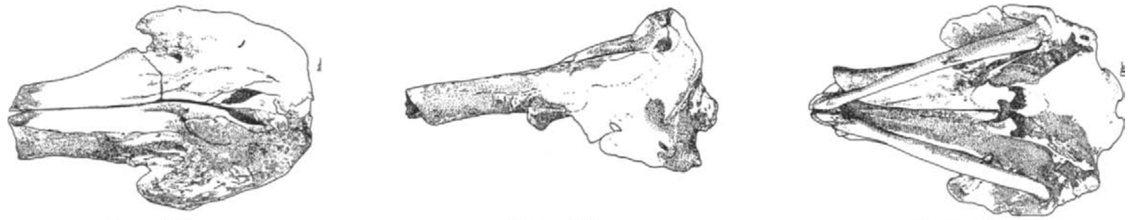
Monodontidae, **Go to 31**

b. In profile, facial plane concave and cranium rising dramatically in area of nares (except in *Grampus*); spiracular plate relatively smooth

Delphinidae, **Go to 32**

31a. Facial profile flat; no teeth in lower jaw; upper jaw teeth number no more than 2, including a long forward-directed and spiraled tusk in some animals

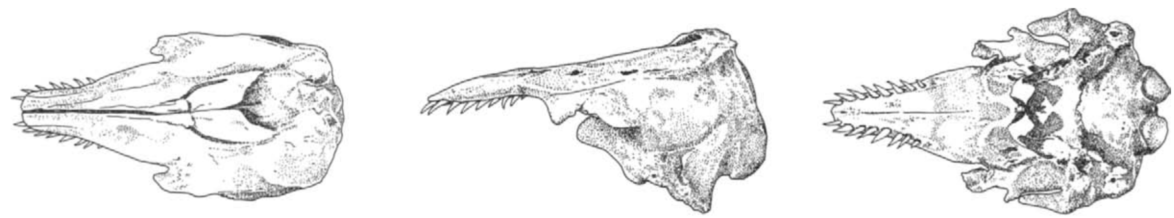
Narwhal (*Monodon monoceros*)



Dorsal View | Lateral View | Ventral View

b. Facial profile slightly convex, with downturned tip of rostum; 8–9 teeth present in each row of both upper and lower jaws

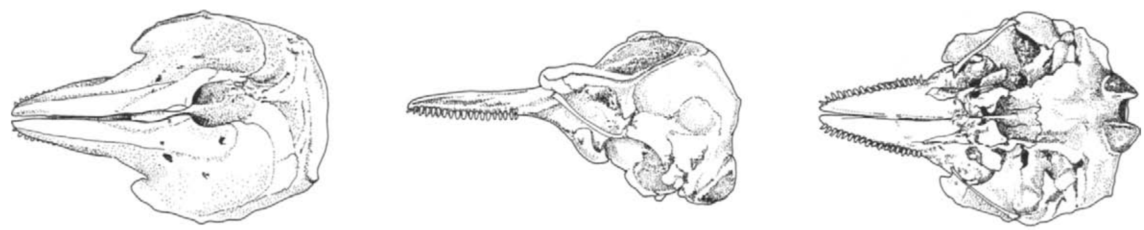
Beluga whale (*Delphinapterus leucas*)



Dorsal View | Lateral View | Ventral View

32a. Rostrum very short (<45% of CBL); teeth peg-like, with slightly expanded crowns; tympanoperiotic bones attached to cranium by a triangular ventral pad on zygomatic arch; distributed only in the coastal waters of the Indo–Pacific

Irrawaddy/Australian snubfin dolphin (*Orcaella* sp.)



Dorsal View | Lateral View | Ventral View

b. Rostrum may be relatively long (>45% of CBL); teeth conical (generally pointed), without expanded crowns; tympanoperiotic bones attached to cranium by a cavity formed by squamosal, exoccipital and basioccipital bones

Other Delphinidae, **Go to 33**

33a. Mandibular symphysis long (generally >25% mandibular length); margins of rostrum somewhat concave throughout most of their length, when viewed from above

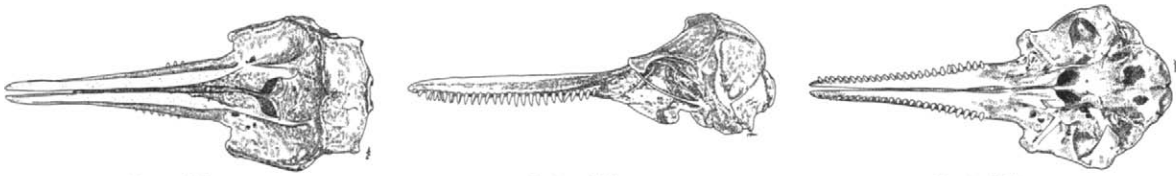
Other species, **Go to 34**

b. Mandibular symphysis short (<25% mandibular length); margins of rostrum convex, or concave only along middle of their length

Globicephalinae or Delphininae, **Go to 37**

34a. Teeth with shallow vertical wrinkles; 19–28 teeth in each row; constriction at base of rostrum; orbits very large; prominent cylindrical ridge at 45° angle on ventral aspect of frontal; pterygoids only slightly separated

Rough-toothed dolphin (*Steno bredanensis*)



Dorsal View Lateral View Ventral View

b. Teeth smooth (no wrinkles); 26–39 teeth in each row; orbits relatively small; no prominent ridge on ventral aspect of frontal; pterygoids widely separated; distributed only in Indo–Pacific, West African, and South American waters

Sousa/Sotalia, **Go to 35**

35a. Skull relatively small (adult CBL <400 mm); rostral margins relatively straight; distributed only in Central and South America

Tucuxi/costero (*Sotalia* sp.)

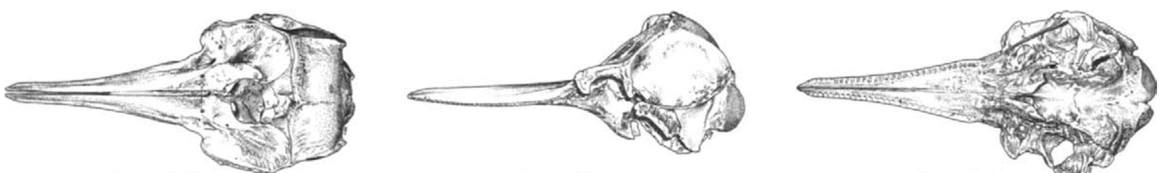
Dorsal View Lateral View Ventral View

b. Skull relatively large (adult CBL >405 mm); rostral margins strongly concave distributed only in the Indo–Pacific and West Africa

Sousa, **Go to 36**

36a. Relatively high tooth counts (>31 teeth per row); rostrum relatively long (generally >60% of CBL); distributed only in the Indo–Pacific

Indo–Pacific humpback dolphin (*Sousa chinensis*)



Dorsal View Lateral View Ventral View

b. Relatively low tooth counts (<32 teeth per row); rostrum relatively short (generally <60% of CBL); distributed only in West Africa

Atlantic humpback dolphin (*Sousa teuszii*)

Dorsal View Lateral View Ventral View

37a. Less than 27 teeth per toothrow

Globicephalinae, *Tursiops*, or *Grampus,* **Go to 38**

b. Greater than 27 teeth per toothrow

Lagenodelphis, *Delphinus*, *Lagenorhynchus*, or *Stenella,* **Go to 46**

38a. 2–7 pairs of teeth present near tip of lower jaw only (uncommonly 1–2 pairs in upper jaw); lateral margins of rostrum concave along middle part of their length

Risso's dolphin (*Grampus griseus*)

b. At least 7 teeth present in each toothrow of both upper and lower jaws; lateral margins of rostrum generally convex

Globicephalinae or *Tursiops*, **Go to 39**

39a. Greater than 15 teeth per toothrow

Tursiops or *Peponocephala,* **Go to 40**

b. Less than 15 teeth per toothrow

Globicephala, *Feresa*, *Pseudorca*, or *Orcinus,* **Go to 42**

40a. Rostrum relatively wide (length/breadth ratio <2); antorbital notches very deep; teeth absent in posterior 25% of upper jaw; 20–26 teeth per row

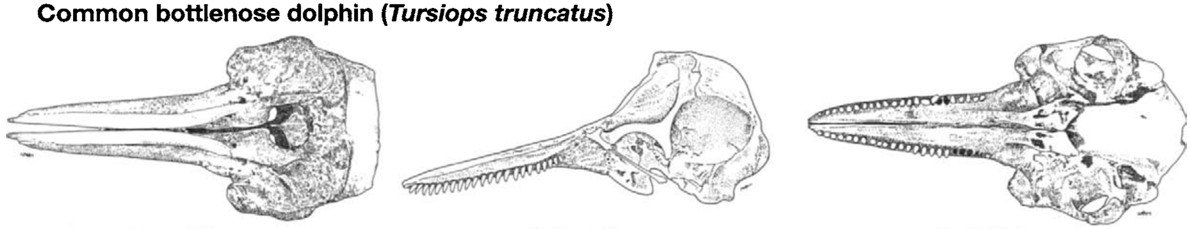
Melon-headed whale (*Peponocephala electra*)

b. Rostrum relatively narrow (length/breadth ratio >2); antorbital notches relatively shallow; teeth present in posterior 25% of upper jaw; 18–26 teeth per row

Bottlenose dolphin *Tursiops sp.*, **Go to 41**

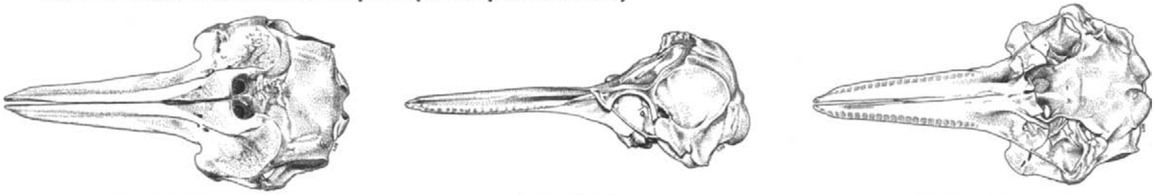
41a. From lateral view or dorsal view, no obvious premaxillary convexity; premaxillary "pinch"; tip of rostrum to apex of premaxilla convexity divided by length of rostrum <0.6; tooth counts 18–27

Common bottlenose dolphin (*Tursiops truncatus*)



b. From lateral view, premaxillary convexity and from dorsal view, premaxillary "pinch" obvious; tip of rostrum to apex of premaxilla convexity divided by length of rostrum > 0.6; tooth counts 21–29 distributed only in the Indo–Pacific

Indo–Pacific bottlenose dolphin (*Tursiops aduncus*)



Dorsal View | Lateral View | Ventral View

42a. 7–9 teeth present only in anterior half of rostrum; rostrum wide (length/breadth ratio generally < 1.3)

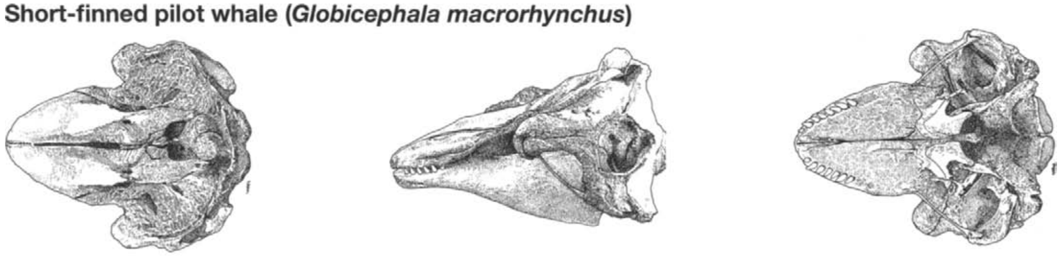
Globicephala, **Go to 43**

b. Teeth present in both anterior and posterior halves of rostrum; rostrum relatively narrow (length/breadth ratio generally > 1.3)

Feresa, *Pseudorca*, or *Orcinus*, **Go to 44**

43a. Rostrum very wide; premaxilla expanded and completely covering maxilla along anterior half of rostrum (or leaving only a very small portion visible in dorsal view)

Short-finned pilot whale (*Globicephala macrorhynchus*)



Dorsal View | Lateral View | Ventral View

b. Rostrum relatively narrow; premaxilla not completely covering maxilla along anterior half of rostrum (at least a 1 cm portion of maxilla visible in dorsal view)

Long-finned pilot whale (*Globicephala melas*)

Dorsal View | Lateral View | Ventral View

44a. Teeth relatively slender (generally < 10 mm in diameter); adult CBL < 50 cm; 8–13 teeth in anterior 2/3 of rostral tooth row only

Pygmy killer whale (*Feresa attenuata*)

Dorsal View | Lateral View | Ventral View

b. Teeth relatively robust (generally >10 mm in diameter); adult CBL >50 cm; teeth present in posterior 1/3 of rostral tooth rows

Pseudorca or *Orcinus*, **Go to 45**

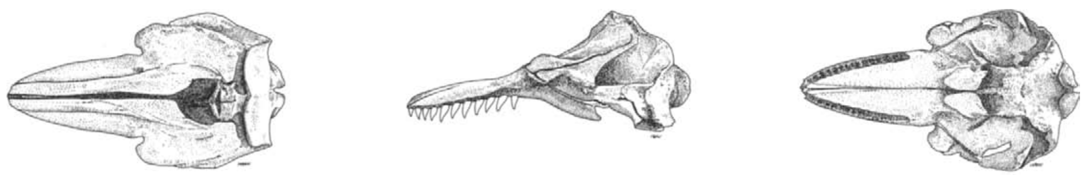
45a. Teeth round in cross-section (greatest diameter of largest teeth generally <23 mm); adult CBL<78 cm; 7–12 teeth in each row; width across premaxillae >50% of rostral basal width

False killer whale (*Pseudorca crassidens*)

Dorsal View | Lateral View | Ventral View

b. Teeth oval in cross-section (greatest diameter of largest teeth generally >23 mm); adult CBL >78 cm; 10–14 teeth in each row; width across premaxillae <50% of rostral basal width

Killer whale (*Orcinus orca*)



Dorsal View | Lateral View | Ventral View

46a. Deep palatal grooves present (>3 mm at midlength of rostrum)

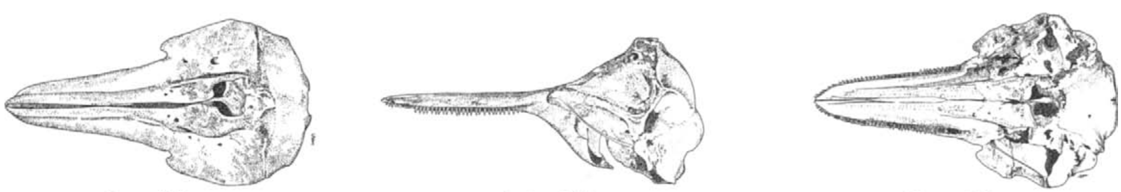
Lagenodelphis or *Delphinus*, **Go to 47**

b. Palatal grooves shallow (<3 mm at midlength of rostrum) or non-existent

Cephalorhynchus, *Lissodelphis*, *Lagenorhynchus* or *Stenella*, **Go to 49**

47a. Rostrum relatively wide (length/breadth ratio <2.4); <45 teeth per row

Fraser's dolphin (*Lagenodelphis hosei*)



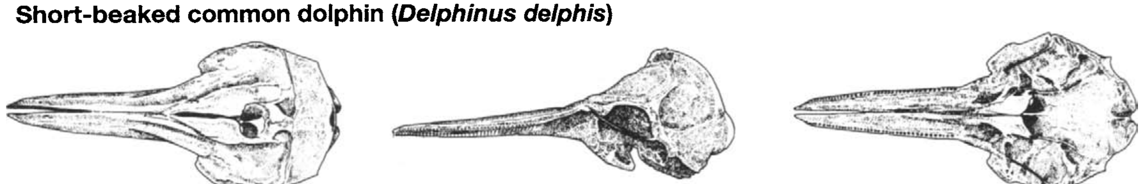
Dorsal View | Lateral View | Ventral View

b. Rostrum relatively narrow (length/breadth ratio >2.5); >40 teeth/row

Delphinus, **Go to 48**

48a. Rostrum relatively short and wide (<275 mm long; length/breadth ratio <3.2; rostrum lenth/zygomatic width ratio 1.25–1.62); 41–54 teeth in each row; trapezoid-shaped palatal ridge with no "pinch"

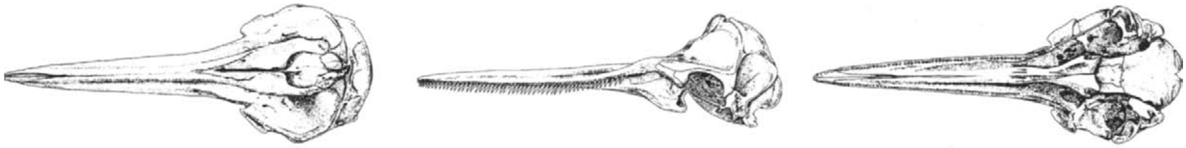
Short-beaked common dolphin (*Delphinus delphis*)



Dorsal View | Lateral View | Ventral View

b. Rostrum relatively long and slender (>275 mm; length/breadth ratio >3.2; rostrum length/zygomatic width ratio 1.46–2.06); 47–67 teeth in each row; lanceolate-shaped palatal ridge with distinct “pinch”

Long-beaked common dolphin (*Delphinus capensis*)



Dorsal View | Lateral View | Ventral View

49a. Rostrum relatively narrow (width at base generally <25% CBL, length/breadth ratio > 2.1); >30 teeth per tooth row

Stenella or *Lissodelphis*, **Go to 50**

b. Rostrum relatively wide (width at base generally >25% CBL, length/breadth ratio <2.2); <40 teeth per tooth row

Cephalorhynchus or *Lagenorhynchus*, **Go to 55**

50a. Premaxillaries converge and meet or nearly meet along dorsal aspect of rostrum; orbits relatively deep; distal portions of mandibles more robust; rostrum relatively long and narrow (length generally >2.3 times its width at base)

Stenella, **Go to 51**

b. Premaxillaries remain widely separated along dorsal aspect of rostrum (starting at base and moving toward tip); orbits relatively shallow; distal portions of mandibles very narrow; rostrum relatively short and wide (length about 2.2 times its width at base); distributed only in the North Pacific and Southern Hemisphere

Right whale dolphins (*Lissodelphis* spp.)

Dorsal View | Lateral View | Ventral View

51a. Mandibular symphysis relatively long (usually >17% of mandible length); mandible arcuate; <49 teeth/row; temporal fossa relatively large (length >14% CBL); distal half of rostrum rounded on dorsal surface; no palatal grooves; tooth rows converge throughout their length

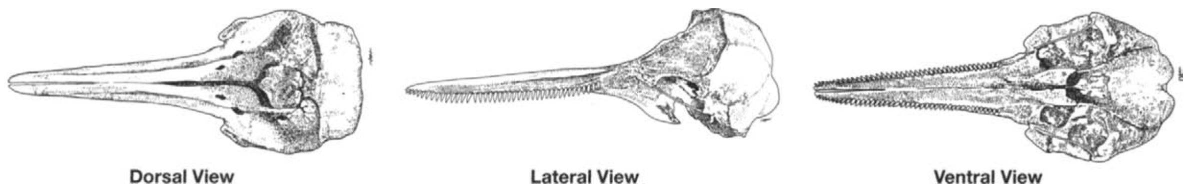
S. attenuata or *S. frontalis*, **Go to 52**

b. Mandibular symphysis relatively short (usually <17% of mandible length); mandible sigmoid; >38 teeth/row (usually >40); temporal fossa relatively small (length <17% CBL); distal half of rostrum flattened on dorsal surface; shallow palatal grooves sometimes present; central portions of tooth rows parallel or nearly so

S. longirostris, *S. coeruleoalba*, or *S. clymene*, **Go to 53**

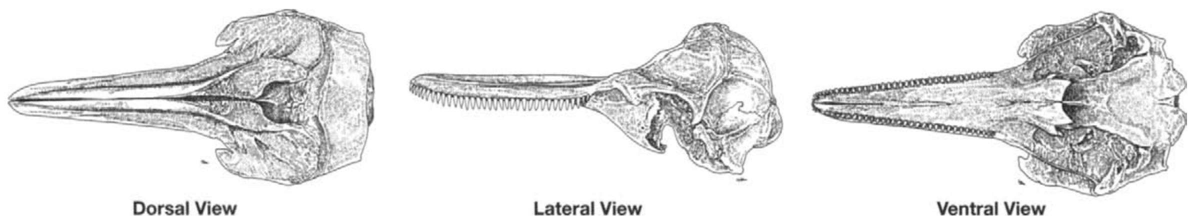
52a. >42 teeth/row; teeth relatively small (<3.2 mm in diameter); rostrum narrow distally (width at 3/4 length <13% length)

Pantropical spotted dolphin (*Stenella attenuata*)



b. <34 teeth/row; teeth relatively large (>4.1 mm in diameter); rostrum broad distally (width at 3/4 length >16% length); distributed only in the Atlantic Ocean

Atlantic spotted dolphin (*Stenella frontalis*)

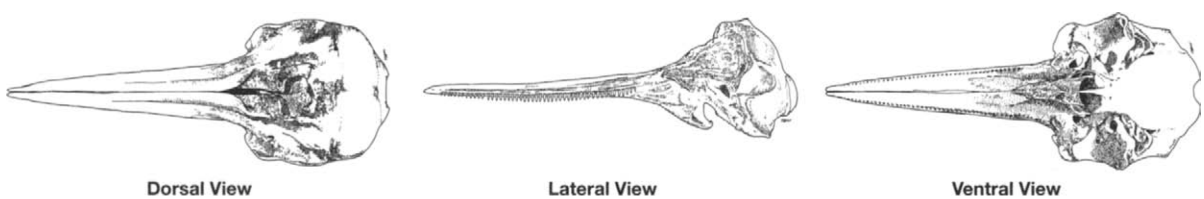


c. 34–42 teeth/row; teeth 3.2–4.1 mm in diameter; rostrum width at 3/4 length 13–16% length

Use discriminant function in Perrin et al. (1987)

53a. Rostrum relatively long and slender (>61% CBL; length/breadth ratio >3); 40–62 teeth/row; preorbital width <158 mm

Spinner dolphin (*Stenella longirostris*)

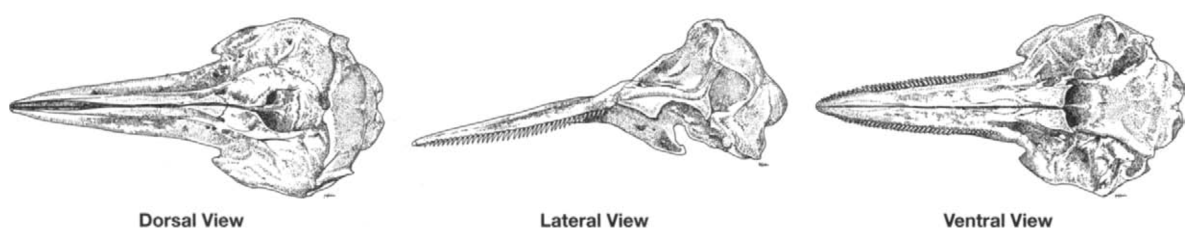


b. Rostrum relatively short and wide (<62% CBL; length/breadth ratio <3); <56 teeth/row; preorbital width >149 mm

S. coeruleoalba or *S. clymene*, **Go to 54**

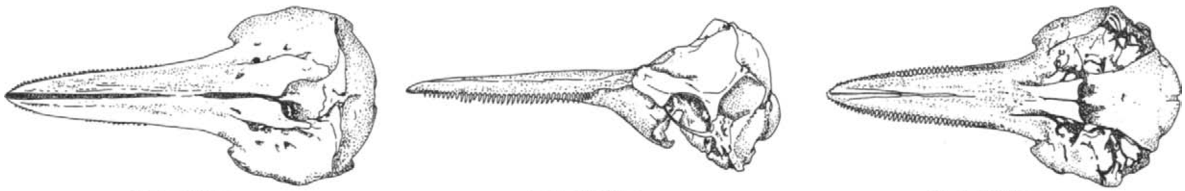
54a. Adult skull relatively large (CBL >420 mm); 40–55 teeth/row; palatal grooves usually shallow (0.5 mm or less at 1/2 length of rostrum); upper toothrow >212 mm; preorbital width >177 mm; often a raised area on premaxillae near base of rostrum (visible in lateral view)

Striped dolphin (*Stenella coeruleoalba*)



b. Adult skull relatively small (CBL <415 mm); 39–52 teeth/row; palatal grooves usually distinct and relatively deep (0.5 mm or more at 1/2 length of rostrum); upper toothrow <212 mm; preorbital width <175 mm; rostrum relatively flat when viewed from lateral aspect; distributed only in the Atlantic Ocean

Clymene dolphin (*Stenella clymene*)



Dorsal View Lateral View Ventral View

55a. Skull relatively large (adult CBL generally >350 mm); pterygoids in contact along at least a portion of posterior half; zygomatic processes robust

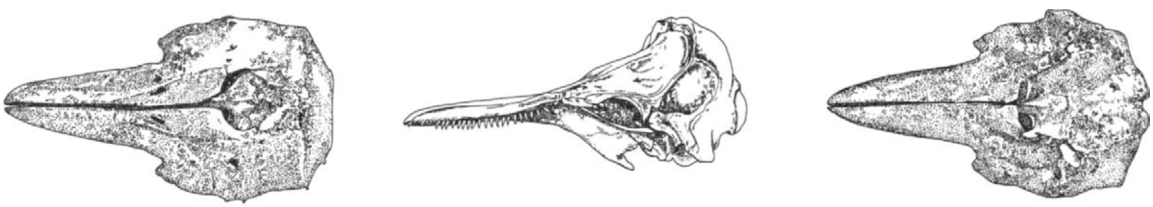
Lagenorhynchus, **Go to 56**

b. Skull relatively small (adult CBL generally <350 mm); pterygoids separated along entire posterior half; zygomatic processes slender (longer than high); distributed only in coastal waters of the Southern Hemisphere

Cephalorhynchus, **Go to 61**

56a. Rostrum very wide at base (>30% of CBL); upper tooth counts <29; distributed only in the North Atlantic Ocean

White-beaked dolphin (*Lagenorhynchus albirostris*)



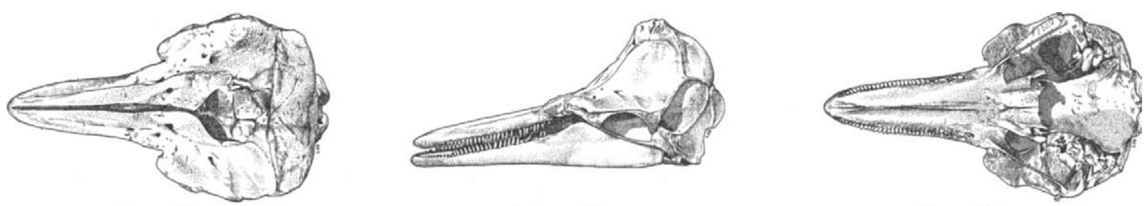
Dorsal View Lateral View Ventral View

b. Rostrum relatively narrow at base (<31% of CBL); upper tooth counts generally >28

Other species of *Lagenorhynchus*, **Go to 57**

57a. Length of lacrimal >12% of CBL; upper tooth counts generally >35; distributed only in the North Atlantic Ocean

Atlantic white-sided dolphin (*Lagenorhynchus acutus*)



Dorsal View Lateral View Ventral View

b. Length of lacrimal <12% of CBL; upper tooth counts <37 per row

Other species of *Lagenorhynchus*, **Go to 58**

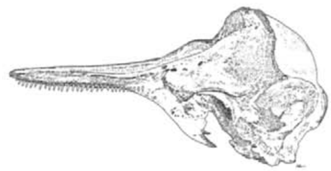
58a. Height of mandible >18% CBL; distributed only in the high latitudes of the Southern Hemisphere

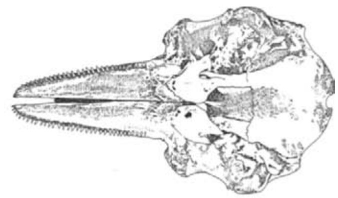
L. cruciger or *L. australis*, **Go to 59**

b. Height of mandible <18% CBL
L. obscurus or *L. obliquidens*, **Go to 60**

59a. Width of external nares <15% CBL; width of rostrum at base generally <26% CBL
Peale's dolphin (*Lagenorhynchus australis*)

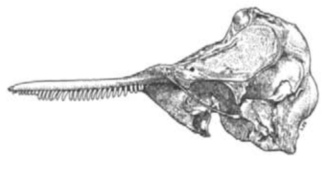

Dorsal View

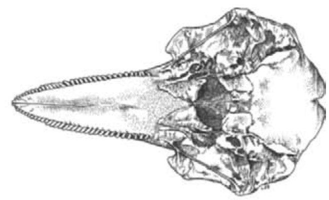

Lateral View


Ventral View

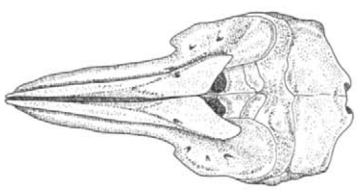
b. Width of external nares >15% CBL; width of rostrum at base >26% CBL
Hourglass dolphin (*Lagenorhynchus cruciger*)

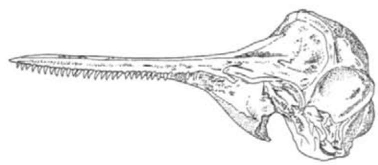

Dorsal View

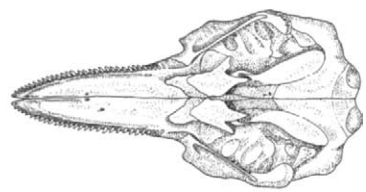

Lateral View


Ventral View

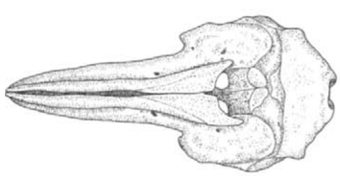
60a. Preorbital width >165 mm; distributed only in the North Pacific Ocean
Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)

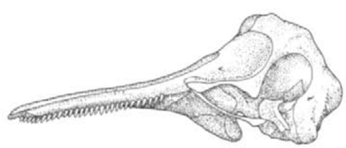

Dorsal View

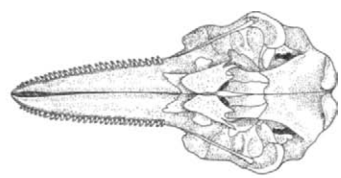

Lateral View


Ventral View

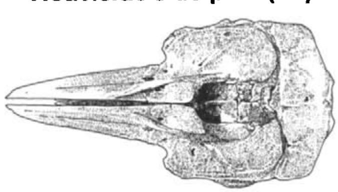
b. Preorbital width <165 mm; distributed only in the Southern Hemisphere
Dusky dolphin (*Lagenorhynchus obscurus*)

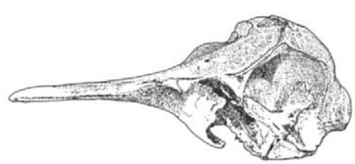

Dorsal View

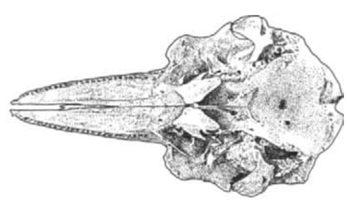

Lateral View


Ventral View

61a. Pterygoids separated by a finger-like projection of the palatines; <116 total teeth; distribution limited to southwestern Africa
Heaviside's dolphin (*Cephalorhynchus heavisidii*)


Dorsal View


Lateral View


Ventral View

b. No finger-like projection of the palatines; >116 total teeth; distributed only in New Zealand, South America and the Kerguelen Islands

Other species of *Cephalorhynchus*, **Go to 62**

62a. CBL generally >300 mm; length of rostrum >50% CBL; left premaxilla extends posterior to the midpoint of the nares; distributed only on the west coast of South America

Chilean dolphin (*Cephalorhynchus eutropia*)

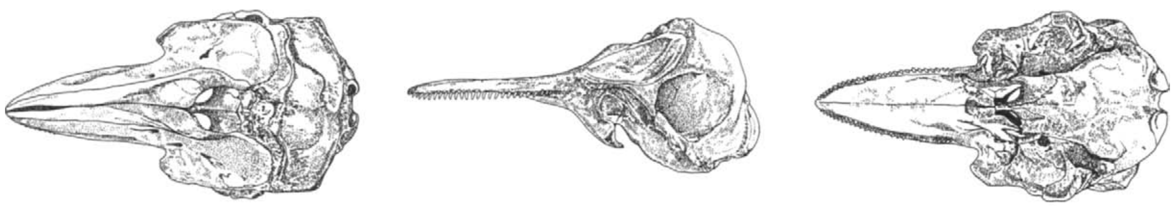
Dorsal View Lateral View Ventral View

b. CBL generally <300 mm; length of rostrum <50% CBL; left premaxilla does not extend posterior to the midpoint of the nares

Cephalorhynchus hectori or *C. commersonii*, **Go to 63**

63a. Area of nasals combined <650 mm^2; distributed only in New Zealand

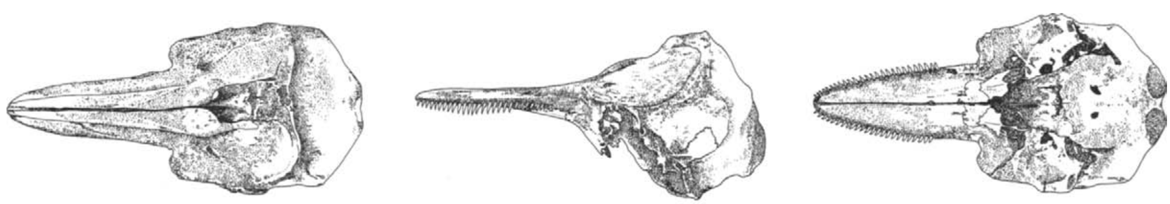
Hector's dolphin (*Cephalorhynchus hectori*)



Dorsal View Lateral View Ventral View

b. Area of nasals combined >650 mm^2; distributed only in southern South America and the Kerguelen Islands

Commerson's dolphin (*Cephalorhynchus commersonii*)



Dorsal View Lateral View Ventral View

C. Key to Identification of Pinnipeds of the World, Based on External Appearance

1a. Tail attached to body by web of skin; muzzle very short with broad and flat end; nearly all vibrissae on the end (as opposed to the sides) of the muzzle; 2 massive upper canine teeth enlarged to form tusks that project up to 1 m out of the mouth (except in infants, or when broken off or worn in adults); only 3 post-canine teeth in each tooth row; distribution limited to high latitudes of the Northern Hemisphere

Walrus (*Odobenus rosmarus*)

b. Short free tail; muzzle generally tapering and somewhat pointed; nearly all vibrissae on the sides of the muzzle; upper canines never enlarged to form tusks that project out of the mouth; 5–6 post-canines in each row

Phocidae or Otariidae, **Go to 2**

2a. External ear pinnae present; all flippers incompletely furred, with only a sparse growth of short hair on top; claws on foreflippers vestigial or absent; 3 claws on each hindflipper on the 3 central digits; long terminal flaps beyond the claws on the digits of the hindflippers; hindflippers can rotate under the body (permitting walking); skin light in color; first 2 upper incisors with transverse grooves

Otariidae, **Go to 3**

b. No external ear pinnae; all flippers completely furred on top and bottom; 5 usually-prominent claws (except in *Hydrurga*, in which they are small), 1 on each digit of both foreflippers; hindflippers cannot be rotated under the body (thus cannot walk on land); 5 or no claws visible near the end of each digit on the hindflippers; no long flaps of skin beyond claws on hindflipper digits; skin dark in color; upper incisors not grooved transversely

Phocidae, **Go to 16**

3a. Dense underfur present; guard hairs (outer visible fur) long, giving a thick woolly appearance; terminal flaps on hindflipper digits all approximately equal in length and shape; relatively long prominent ear pinnae

Fur seal, **Go to 4**

b. Fur short and stiff; hindflipper digits unequal in length, with the hallux and the 5th digit longer (the hallux is longer and wider) than digits 2–4; ear pinnae relatively short and lying close alongside head

Sea lion, **Go to 12**

4a. Fur on the foreflippers stops abruptly at the wrist, with the top of the foreflippers entirely naked; hindflippers long, about $^1/_4$ standard length; very long terminal flaps beyond the claws on the hindflippers; muzzle very short; distribution limited to North Pacific and adjacent seas

Northern fur seal (*Callorhinus ursinus*)

b. Fur on top of foreflippers beyond the wrist (bend point when the animal is sitting upright); hindflippers about $^{1}/_{5}$ of standard length; terminal flaps beyond the claws on the hindflippers moderate in length; muzzle relatively long; distribution limited to Southern Hemisphere and warm temperate North Pacific

Arctocephalus sp.[5], **Go to 5**

5a. Muzzle short, with somewhat flattened end creating a pug appearance

Subantarctic, Antarctic, or Galapagos fur seal, **Go to 6**

b. Muzzle moderate to long (may not be possible to distinguish from 5a for females and subadults)

Other fur seal, **Go to 8**

6a. Adults with yellowish to orangish upper chest, neck, and face (to above the eyes); prominent crest of longer guard hairs on crown just behind the eyes

Subantarctic fur seal (*Arctocephalus tropicalis*)

[5] The "southern fur seals" (genus *Arctocephalus*) are all very similar in appearance and have overlapping distributions, and it may be very difficult for non-experts to identify them accurately. Also, some species (i.e., *A. gazella* and *A. tropicalis*) are known to hybridize, providing further challenges to identification. Skulls or genetic material may be required to positively identify some species and separate them from related forms.

b. Adults with moderate to no contrast in coloration on upper chest, neck, and face
Antarctic or Galapagos fur seal, **Go to 7**

7a. Adults medium-sized; silver gray with frosted guard hair tips; distribution Antarctica and subantarctic only
Antarctic fur seal (*Arctocephalus gazella*)

Adult Female/Adult Male

b. Adults small; generally minimal frosting on tips of guard hairs (if present usually not silver gray); distribution confined to Galapagos Archipelago
Galapagos fur seal (*Arctocephalus galapagoensis*)

Adult Female/Adult Male

8a. Small to moderate nose; nostrils facing ahead
Juan Fernandez or Guadalupe fur seal, **Go to 9**

b. Large bulbous nose; downward-facing nostrils (adult males)
Other fur seal, **Go to 10**

9a. Distribution confined to area around Juan Fernandez Archipelago, off the coast of Chile
Juan Fernandez fur seal (*Arctocephalus philippii*)

Adult Female/Adult Male

b. Distribution confined to eastern North Pacific, from about Guadalupe Island north to central California

Guadalupe fur seal (*Arctocephalus townsendi*)

10a. Distribution confined to coastal South America, from Peru, south to Cape Horn, and north to Brazil and the Falkland Islands

South American fur seal (*Arctocephalus australis*)

b. Distribution limited to New Zealand, southern Australia and adjacent subantarctic islands and waters, or South Africa

Cape, Australian or New Zealand fur seal, **Go to 11**

11a. Very large, robust build; head massive; distribution limited to southwestern and southern Africa and southeastern Australia, including Tasmania

Cape or Australian fur seal (*Arctocephalus pusillus*)

b. Medium size; moderate build and head size; distribution limited to New Zealand and adjacent subantarctic islands, and southwestern Australia

New Zealand fur seal (*Arctocephalus forsteri*)

12a. No distinct mane on adult males; head of moderate-size, with relatively long dog-like muzzle; bulging sagittal crest on adult male; distribution limited to the temperate eastern North Pacific or area around the Galapagos Islands and adjacent waters

California or Galapagos sea lion (*Zalophus* spp.)

b. Heavy mane on adult males; head massive with blunt broad muzzle that is usually relatively short (the latter not so for adult male Australian sea lion)

Other sea lions, **Go to 13**

13a. Both sexes massive in size; wide diastema (gap) between 4th and 5th post-canine teeth; distribution limited to temperate and subpolar rim of North Pacific

Steller sea lion (*Eumetopias jubatus*)

b. Both sexes moderate in size; no wide diastema between 4th and 5th post-canines; distribution limited to Southern Hemisphere

Other sea lions, **Go to 14**

14a. Extremely heavy (thick) mane of very long guard hairs; very short broad muzzle; massive (deep and wide) lower jaw; distribution along coastal South America, from Peru on the west coast, south to Cape Horn, and north to Brazil on the east coast, including the Falkland Islands

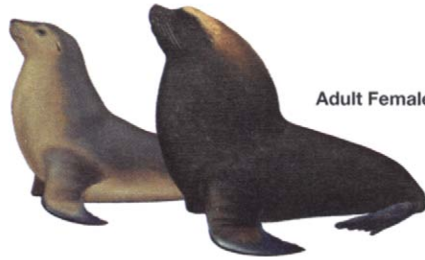
South American sea lion (*Otaria flavescens*)

b. Moderate mane of medium-length guard hairs; muzzle blunt, but moderate in length; distribution limited to New Zealand and adjacent subantarctic islands, or southern to southwestern Australia

Australian or New Zealand sea lion, **Go to 15**

15a. Adult males with mane extending up onto the top of the head and relatively flat-topped muzzle; generally brownish, with yellowish back of neck and crown; females often strikingly bicolored, dark above, pale below, with pale color on the face and over the eyes; distribution limited to southern and southwestern Australia in coastal waters

Australian sea lion (*Neophoca cinerea*)



Adult Female/Adult Male

b. Adult males with mane that stops at nape (head seems disproportionately small because of this); muzzle usually slightly convex in silhouette; color blackish-brown; distribution limited to southern New Zealand and adjacent subantarctic islands

New Zealand sea lion (*Phocarctos hookeri*)

Adult Female/Adult Male

16a. Vibrissae smooth in outline

Bearded, monk, or elephant seal, **Go to 17**

b. Vibrissae beaded (sometimes only weakly) in outline

Other seal, **Go to 22**

17a. Foreflippers square to rounded, with equal length digits, or digits 2–4 slightly longer; vibrissae very densely packed, so as to obscure mouthline

Bearded seal (*Erignathus barbatus*)

Adult Male

Adult Female

b. Foreflippers pointed, with first digit longer and digits 2–5 becoming shorter; vibrissae with sparse to moderate density

Monk or elephant seal, **Go to 18**

18a. Adults medium-sized; muzzle and head moderate in size and somewhat flattened; nostrils pointing slightly upwards; males without enlarged nose; females with 4 mammary teats

Monk seal (*Monachus* sp.), **Go to 19**

b. Adults very large; muzzle and head very broad and deep; nostrils point ahead or down; adult males with large inflatable proboscis; females with 2 mammary teats

Elephant seal (*Mirounga* spp.), **Go to 21**

19a. Distribution limited to the Pacific Ocean (generally the northwestern Hawaiian Islands)

Hawaiian monk seal (*Monachus schauinslandi*)

b. Distribution limited to the North Atlantic Ocean and surrounding seas (Mediterranean, Black, and Caribbean seas, and Gulf of Mexico)

Mediterranean or Caribbean monk seal, **Go to 20**

20a. Distribution limited to portions of the Mediterranean Sea, Black Sea, and West African coast)

Mediterranean monk seal (*Monachus monachus*)

b. Formerly found in the Caribbean Sea and Gulf of Mexico (now considered extinct)

West Indian monk seal (*Monachus tropicalis*)

21a. Proboscis of adult males relatively large; distribution limited to temperate eastern and central North Pacific

Northern elephant seal (*Mirounga angustirostris*)

b. Proboscis of males relatively small; distribution circumpolar in polar to temperate waters of the Southern Hemisphere

Southern elephant seal (*Mirounga leonina*)

22a. Distribution limited to Southern Hemisphere

"Antarctic seal", **Go to 23**

b. Distribution limited to Northern Hemisphere

Other seal, **Go to 26**

23a. Head and muzzle short and wide; foreflippers about 1/5 or less of standard length; post-canine teeth relatively simple

Weddell or Ross seal, **Go to 24**

b. Head and muzzle long and narrow; foreflippers long, at least 1/4 standard length; post-canines ornate and multi-cusped

Leopard or Crabeater seal, **Go to 25**

24a. Adults very long (2.5–3.3 m) and massive, with a relatively small head; numerous blotches of light and dark, particularly on sides and belly

Weddell seal (*Leptonychotes weddellii*)

b. Adults generally < 2.5 m; long streaks of color on face, neck, chest, and extending onto the sides; head more normal in size, neck appears thick and enlarged

Ross seal (*Ommatophoca rossii*)

25a. Head and jaws massive and reptilean in appearance; body long (to 3.3 m), and serpent-like, thickest at shoulders; foreflippers very long, almost 1/3 standard length; foreflipper claws very small

Leopard seal (*Hydrurga leptonyx*)

b. Head and jaws long, but tapering, with a somewhat flattened muzzle (dorso-ventrally); body moderately robust, more filled out; foreflippers long, but only to about 1/4 standard length; foreflipper claws more normal in size

Crabeater seal (*Lobodon carcinophagus*)

26a. Distribution limited to Lake Baikal or the Caspian Sea, far from oceanic areas

Baikal or Caspian seal (*Pusa* sp.), **Go to 27**

b. Distribution oceanic or in lakes or rivers near oceanic areas

Other seal, **Go to 28**

27a. Distribution limited to Lake Baikal and connecting rivers

Baikal seal (*Pusa sibirica*)

b. Distribution limited to the Caspian Sea and connecting rivers

Caspian seal (*Pusa caspica*)

28a. Pelage markings consist of bands or broad swaths of light or dark color

Ribbon or Harp seal, **Go to 29**

b. Pelage markings consist of spots, rings, or blotches

Other seal, **Go to 30**

29a. Body orange-brown to black; lighter color bands encircling each foreflipper, around neck, and around abdomen; distribution limited to Bering Sea, Sea of Okhotsk, and adjacent Arctic Ocean

Ribbon Seal (*Histriophoca fasciata*)

b. Body generally silvery-white, with some animals sooty gray and others with scattered blotches; body marked with a broad swath of black on each side, meeting (generally) over the shoulders to roughly form a "V" pattern[6]

Harp seal (*Pagophilus groenlandicus*)

30a. Pelage markings consist of irregular, small to large, dark brown to black or sometimes tan blotches; distribution limited to North Atlantic and adjacent Arctic areas

Hooded or gray seal, **Go to 31**

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[6] Some harp seals never develop the harp pattern and remain blotched as adults. These blotched animals can be separated from gray seals, based on their smaller size, clearly demarcated and shorter muzzle, and closer-set nostrils; and from hooded seals, based on their longer, but thinner, head and muzzle and lack of a hood pattern on the head.

b. Pelage markings consist primarily of round to oval smaller spots or rings around spots, or a combination of the above

Other seal, **Go to 32**

31a. Head broad and short with short muzzle on females, and large fleshy nasal bladder (with overhanging nostrils) on males; head dark in both sexes from merged blotches, creating hooded appearance

Hooded seal (*Cystophora cristata*)


Adult Male


Adult Female

b. Head and muzzle very long and somewhat narrow; in silhouette, nose is rounded outwards (convex) in males and straight to slightly rounded in females; adult males dark brown to gray black with lighter (tan) blotches

Gray seal (*Halichoerus grypus*)


Adult Male


Adult Female

32a. Pelage pattern with few or no spots that are not encircled by a lighter outer ring

Ringed seal (*Pusa hispida*)


Adult Variation


Adult Variation

b. Pelage pattern consists mostly of small round to oval spots with few or no rings

Largha or harbor seal (*Phoca* sp.), **Go to 33**

33a. Often no, or occasionally a few, rings; spotting more even from top to bottom; face generally dark, like the back; distribution limited to North Pacific and adjacent Arctic areas

Spotted seal (*Phoca largha*)


Adult Variation


Adult Variation

b. Usually a moderate number of light rings around spots; more heavily spotted above than below; face generally light, unlike the back

Harbor seal (*Phoca vitulina*)


Adult Variation


Adult Variation

D. Key to Identification of Pinnipeds of the World, Based on Skull Morphology

1a. Tympanic bullae flat, small, and angular; supraorbital processes present on the frontal bones in most species (except Odobenidae); frontals penetrating anteriorly slightly to moderately between nasals on the midline; antorbital processes present

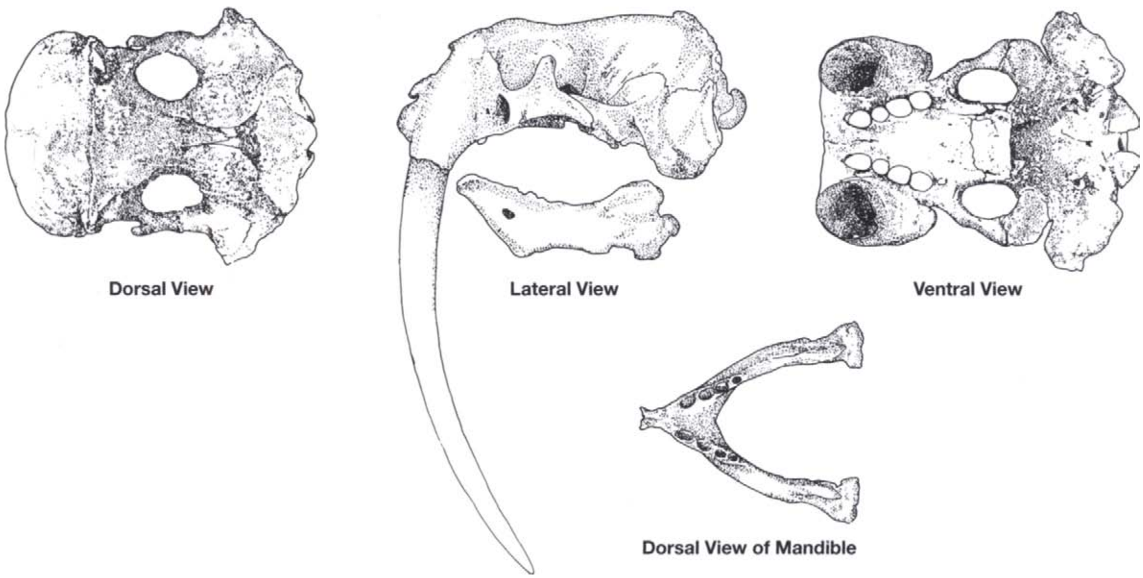
Otarioidea, **Go to 2**

b. Tympanic bullae inflated and rounded; supraorbital processes absent; nasals narrow and penetrating deeply back between frontals on midline; antorbital processes absent

Phocidae, **Go to 9**

2a. Upper canines massive, enlarged to form tusks; no supraorbital processes; frontals and nasals make a relatively straight point of contact; no grooves on upper incisors; only 3 post-canines on each side; mandibular symphysis exhibiting bony fusion; distributed only in the Northern Hemisphere

Walrus (*Odobenus rosmarus*)

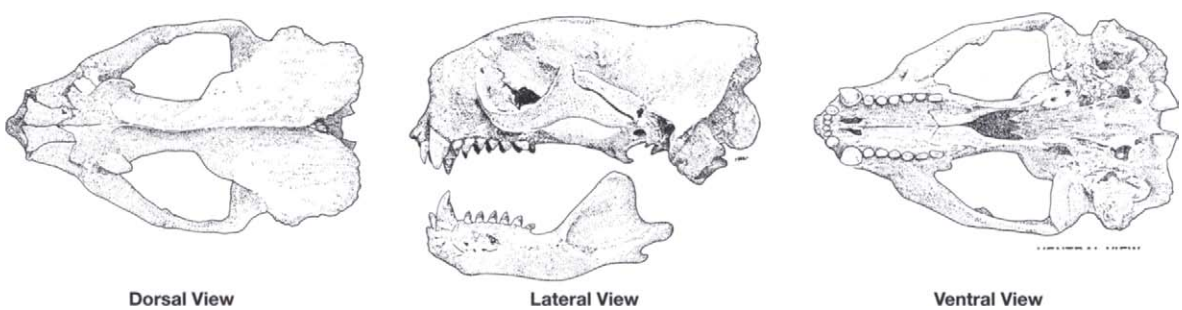


b. Upper canines not enlarged into tusks; supraorbital processes present; frontals and nasals make a W-shape at their point of contact; 2 lower incisors on each side; transverse groove on first 2 upper incisors; 5-6 post-canines on each side; mandibular symphysis not fused

Otariidae, **Go to 3**

3a. Facial angle < 125°; distributed only in the Northern Hemisphere

Northern fur seal (*Callorhinus ursinus*)



b. Facial angle > 125°
Other species, **Go to 4**

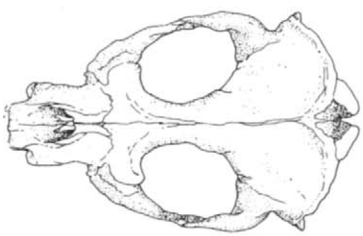
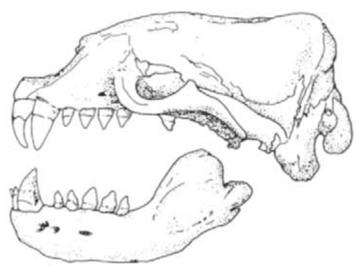
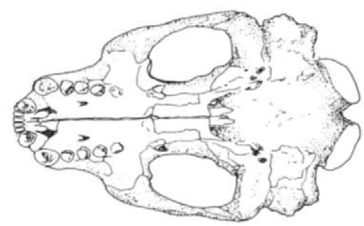
4a. Very long palate, extending posterior to orbitemporal; distributed only in South America
South American sea lion (*Otaria flavescens*)



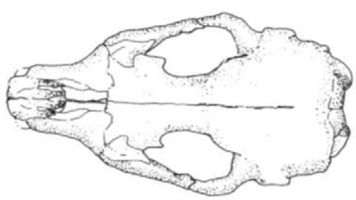
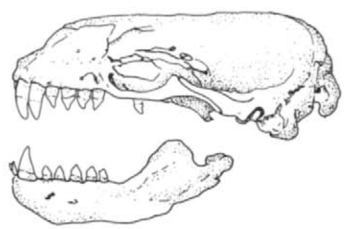
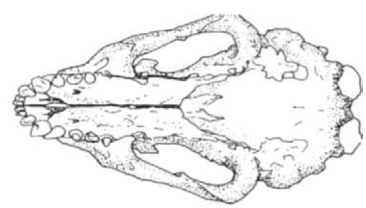
Dorsal View | Lateral View | Ventral View

b. Palate much shorter, not extending posterior to orbitemporal
Other species, **Go to 5**

5a. Large diastema (gap) between 4th and 5th post-canines (width of about 2 teeth); distributed only in the North Pacific
Steller sea lion (*Eumetopias jubatus*)

Male
Dorsal View | Lateral View | Ventral View

Female
Dorsal View | Lateral View | Ventral View

b. No diastema (or very reduced gap) between 4th and 5th post-canines
Other species, **Go to 6**

6a. Tympanic bullae with caudal extensions (approximately cylindrical in old individuals); distributed only in the region around New Zealand

New Zealand sea lion (*Phocarctos hookeri)*

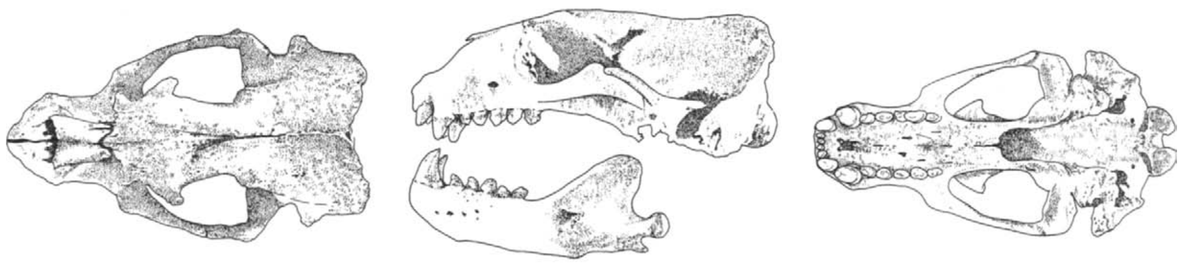
Dorsal View | Lateral View | Ventral View

b. Tympanic bullae of irregular form, without caudal extensions

Other species, **Go to 7**

7a. Anterior process of orbitotemporal very broad; distributed only in the area of southern Australia

Australian sea lion *(Neophoca cinerea)*



Dorsal View | Lateral View | Ventral View

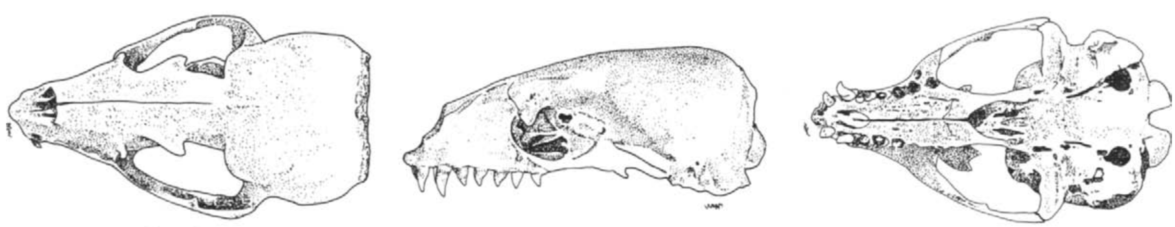
b. Anterior process of orbitotemporal relatively narrow

Other species, **Go to 8**

8a. Facial part of cranium lengthened; nasals relatively long and narrow; distributed only in North Pacific and equatorial waters of the Pacific

California, Japan, or Galapagos sea lion *(Zalophus* spp.)

Male
Dorsal View | Lateral View | Ventral View



Female
Dorsal View | Lateral View | Ventral View

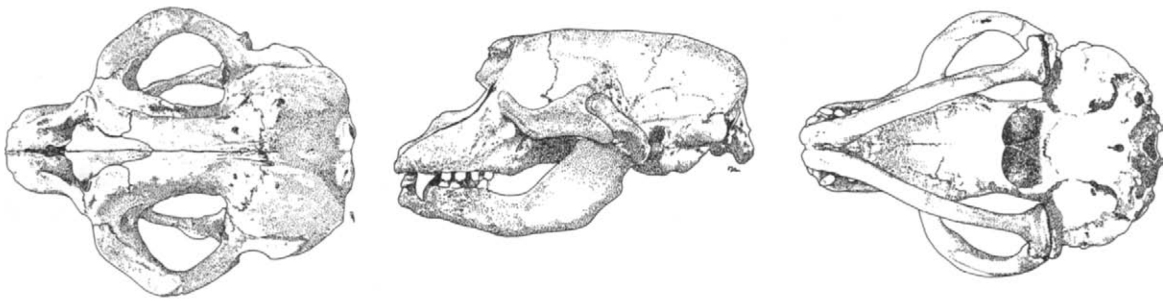
b. Short, broad cranium; short facial part; nasals widening distinctly anteriorly

Southern fur seal *(Arctocephalus* sp.)

Dorsal View Lateral View Ventral View

9a. Zygomatic arches heavy and extremely stout; nasals covered over $^{1}/_{3}$ of their length; distributed only in high latitudes of the North Atlantic

Hooded seal (*Cystophora cristata)*



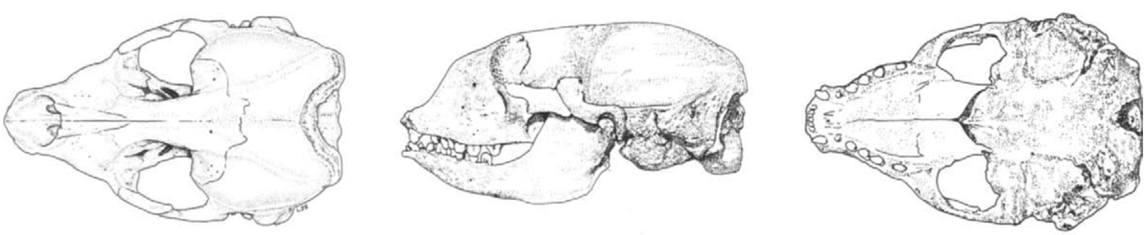
Dorsal View Lateral View Ventral View

b. Zygomatic arches relatively slender; nasals not or only slightly projecting

Other species, **Go to 10**

10a. Dorsal profile of cranium highly arched; jugals short and broad; distributed only in high latitudes of the Northern Hemisphere

Bearded seal (*Erignathus barbatus)*



Dorsal View Lateral View Ventral View

b. Dorsal profile of cranium not at all or only slightly arched; jugals relatively long and narrow

Other species, **Go to 11**

11a. Three upper incisors in each upper tooth row; distributed only in high latitudes of the Northern Hemisphere

Halichoerus/Phoca, **Go to 12**

b. Two upper incisors in each upper tooth row

Other species, **Go to 13**

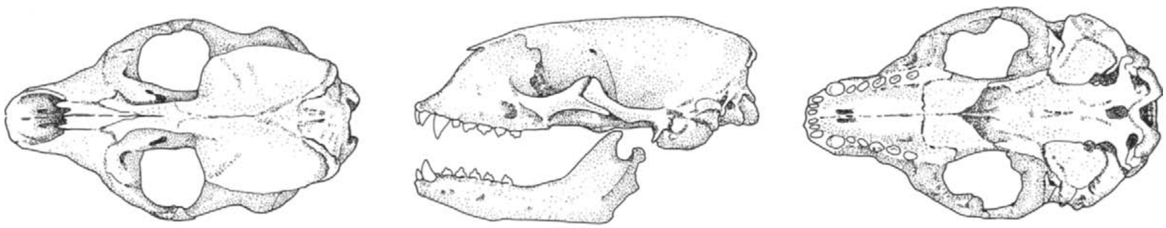
12a. Muzzle long, high, and wide; naso-frontal area elevated; premaxillae extend back to reach nasals; distributed only in high latitudes of the North Atlantic

Gray seal (*Halichoerus grypus)*

Dorsal View Lateral View Ventral View

b. Muzzle relatively short and low; naso-frontal area less elevated; premaxillae do not extend back as far

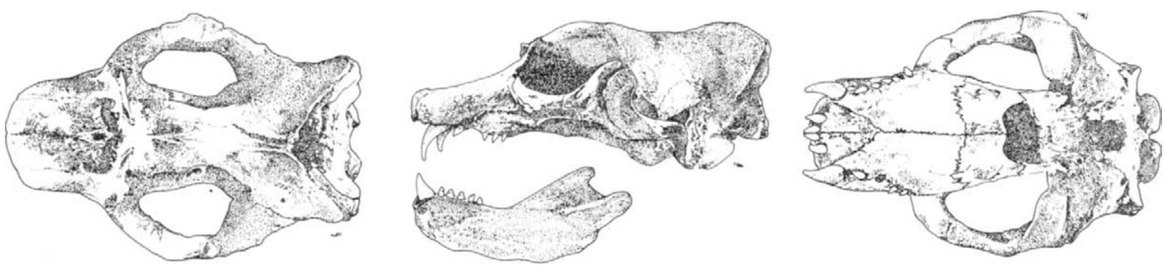
Harbor or spotted seals (*Phoca* sp.)



Dorsal View Lateral View Ventral View

13a. Muzzle low and long, generally with concave upper margin; distributed only in the mid- to high latitudes of the North Pacific and Southern Hemisphere

Elephant seal (*Mirounga* sp.)



Dorsal View Lateral View Ventral View

b. Muzzle relatively high and with straight or convex upper margin

Other species, **Go to 14**

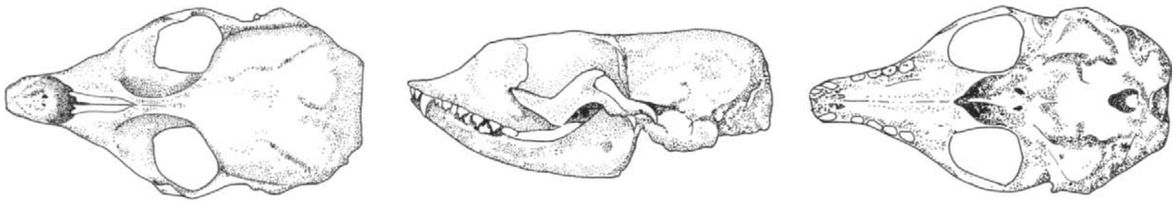
14a. Lateral swelling of mastoid process forms an oblique ridge at an angle of ca. 60° with the long axis of the mastoid bone

Pusa/Histriophoca/Pagophilus, **Go to 15**

b. Ridge of mastoid process absent

Other species, **Go to 17**

15a. Interorbital area extremely reduced and narrow (interorbital width < 7 mm)
Ringed, Caspian, and Baikal seal (*Pusa* sp.)



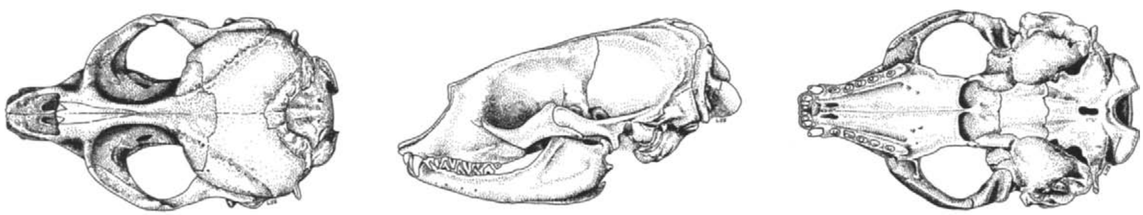
Dorsal View **Lateral View** **Ventral View**

b. Interorbital area relatively broad (interorbital width generally > 7 mm)
Histriophoca /Pagophilus, **Go to 16**

16a. Alveolar edge of premaxillae arched in horizontal and vertical planes; posterior palate short and very broad; distributed only in the North Pacific and adjacent Arctic waters
Ribbon seal (*Histriophoca fasciata)*

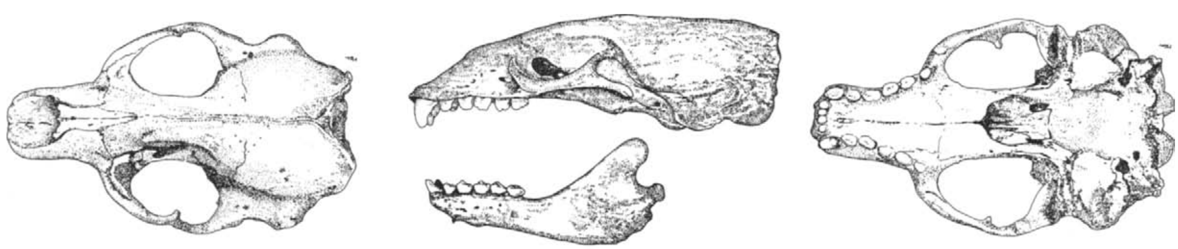
Dorsal View **Lateral View** **Ventral View**

b. Alveolar edge of premaxillae straight or only slightly arched; posterior palate relatively long and narrow; distributed only in the North Atlantic and adjacent Arctic waters
Harp seal (*Pagophilus groenlandicus)*



Dorsal View **Lateral View** **Ventral View**

17a. Nasal processes of premaxillae broadly in contact with nasals; post-canines wide and heavy (crushing type); distributed only tropical and warm temperate regions
Monk seal (*Monachus* sp.)



Dorsal View **Lateral View** **Ventral View**

b. Nasal processes of premaxillae barely touching or not touching nasals; post-canines not crushing type; distributed only in high latitude areas of the Southern Hemisphere

Lobodontini, **Go to 18**

18a. Highly specialized cheek teeth, with well-developed accessory cusps; muzzle long; occiput high

Lobodon/Hydrurga, **Go to 19**

b. Cheek teeth reduced, with small or absent accessory cusps; muzzle relatively short; occiput relatively low

Leptonychotes/Ommatophoca, **Go to 20**

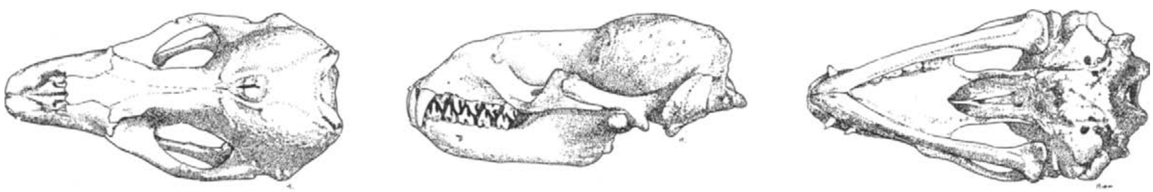
19a. Post-canines with 4–5 cusps

Crabeater seal (*Lobodon carcinophagus*)

Dorsal View **Lateral View** **Ventral View**

b. Post-canines tricuspid

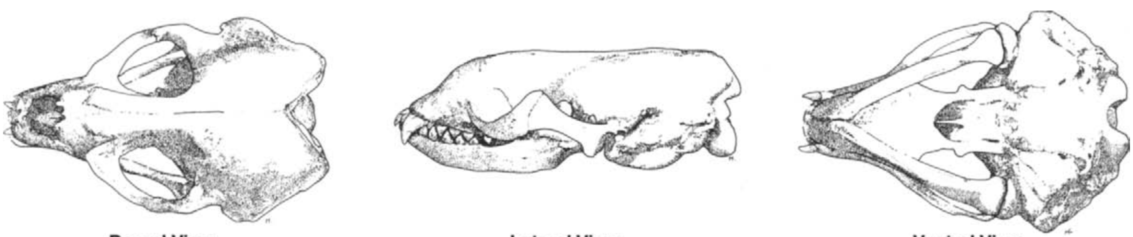
Leopard seal (*Hydrurga leptonyx*)



Dorsal View **Lateral View** **Ventral View**

20a. Upper incisors of unequal size (inner ones much smaller than outer ones); upper incisors and canines with oblique roots; orbits of normal size

Weddell seal (*Leptonychotes weddellii*)



Dorsal View **Lateral View** **Ventral View**

b. Upper incisors all of similar size, with vertical orientation; orbits extremely large

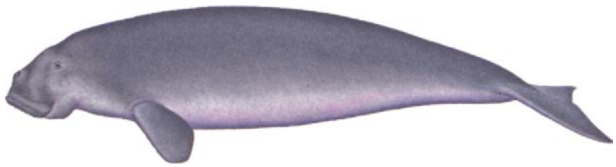
Ross seal (*Ommatophoca rossii*)

Dorsal View **Lateral View** **Ventral View**

E. Key to Identification of Sirenians of the World, Based on External Appearance and Distribution

1a. Tail split into flukes, with a median notch; tail stock laterally compressed; nostrils on top of snout; incisors (tusks) present; distribution limited to the Indo-Pacific region

Dugong (*Dugong dugon*)



b. Tail rounded and paddle-like; tail stock not laterally compressed; nostrils at front of snout; incisors not present in adults; distribution limited to Atlantic Ocean and surrounding seas and rivers

Manatee (*Trichechus* sp.), **Go to 2**

2a. No nails on flippers; skin of non-calves unwrinkled; light patches on belly and chest; maximum length 3 m; distribution limited to Amazon River and its tributaries

Amazonian manatee (*Trichechus inunguis*)

b. Nails present on flippers; skin wrinkled; generally, no light ventral patches; occurrence near the Amazon River limited to vicinity of river mouth

West Indian or West African manatee, **Go to 3**

3a. Distribution limited to coastal and inland waters of West Africa

West African manatee (*Trichechus senegalensis*)

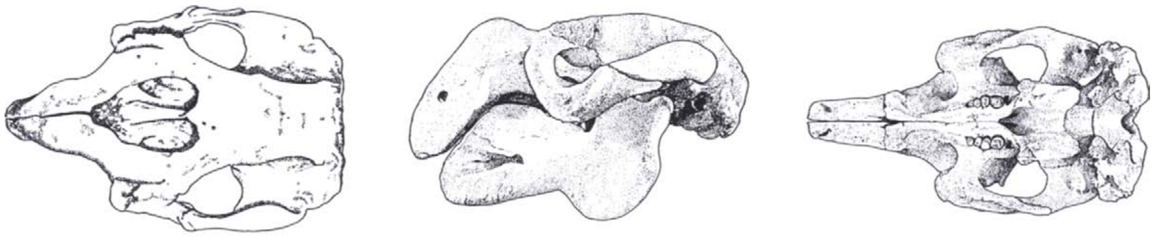
b. Distribution limited to waters of the southeastern United States, Gulf of Mexico, Caribbean Sea, and northeastern coast of South America

West Indian manatee (*Trichechus manatus*)

F. Key to Identification of Sirenians of the World, Based on Skull Morphology

1a. Rostrum relatively long and strongly deflected (generally > 60°); outer pair of upper incisors enlarged into tusks

Dugong (*Dugong dugon*)



Dorsal View Lateral View Ventral View

b. Rostrum relatively short and less strongly deflected (15–52°); incisors vestigial and generally lost in adults (no tusks)

Manatee (*Trichechus* sp.), **Go to 2**

2a. Skull relatively narrow and elongate; rostrum long and narrow; temporal crests laterally overhanging; zygomatic arches at angle of 25° laterally from long axis of skull

Amazonian manatee (*Trichechus inunguis*)

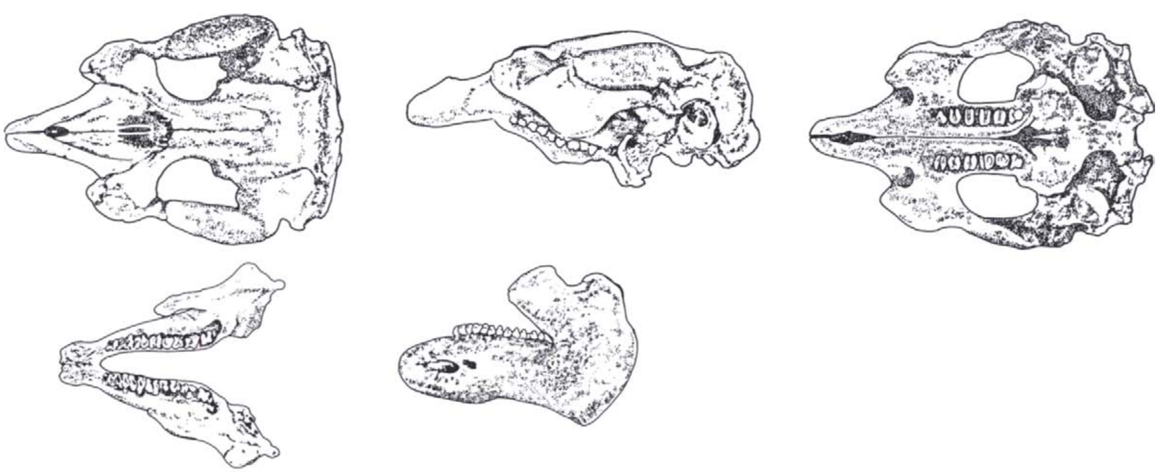
Dorsal View Lateral View Ventral View

b. Skull relatively broad; rostrum shorter and wider; temporal crests usually rise above level of skull roof; zygomatic arches at angle of 35-40° laterally from long axis of skull

West Indian or West African manatee, **Go to 3**

3a. Rostral deflection 15–40°; nasal bones usually absent; anterior border of frontals usually smooth; distribution limited to Western Africa

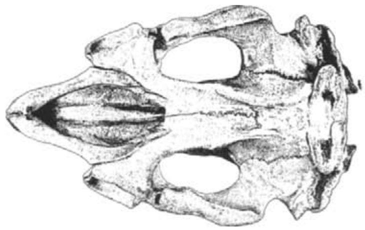
West African manatee (*Trichechus senegalensis*)



Dorsal View Lateral View Ventral View

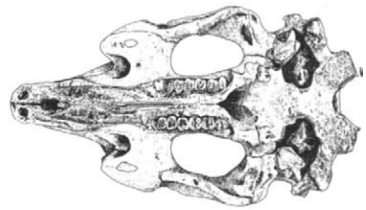
b. Rostral deflection 29–52°; nasal bones usually present; anterior border of frontals usually jagged; distribution limited to western Atlantic Ocean

West Indian manatee (*Trichechus manatus*)



Dorsal View

Lateral View



Ventral View

9. Summaries of Characters for Similar Species

A. Summary of Identifying Features for Large Beaked Whale Species

Species	Distribution	Max. Known Length (m)	Beak Length	Forehead	Mouthline	Erupted Tusks	Coloration
B. bairdii	Cool temp. N. Pacific	11.1	Long	Steep	Straight	Two pairs, tri-angular/peg-like	Non-descript
B. arnuxii	Circumglobal, S. Hemis.	9.3	Long	Steep	Straight	Two pairs, tri-angular/peg-like	Non-descript
H. ampullatus	Cool temp., North Atlantic	10.0	Moderately long	Steep	Straight	Single pair, conical	Grayish-brown, non-descript
H. planifrons	Circumglobal, cool S. Hemis.	7.5	Moderatelyy long	Steep	Straight	Single pair, conical	Grayish-brown, to yellowish
Z. cavirostris	Cosmopolitan	7.0	Short	Shallow	Curved at rear	Single pair, conical	Head and much of back whitish
T. shepherdi	Cool temp. S. Hemis.	7.0	Long	Moderately Steep	Straight	One pair of tusks, +17–28 pairs of teeth	Unique, with white belly ex-tending to sides
I. pacificus	Tropical Indo-Pacific	6.5	Moderate	Moderately steep	Straight	Single pair, oval	Brownish-gray, dark band behind head

B. Summary of Identifying Features for *Mesoplodon* Beaked Whale Species

Species	Distribution	Maximum Known Length (m)	Beak Length	Mouthline Male	Mouthline Female	Erupted Tusks	Tusk Position	Coloration
M. densirostris	Circumglobal, warm waters	4.7	Moderate arched	Strongly (massive)	Arched	Large and flat, rise above upper jaw	Middle of jaw	Non-descript; paired scratches common on male
M. grayi	Circumglobal, S. Hemis.	5.6	Long	Straight	Straight	Small, triangular	Middle of jaw	White beak and lower jaw in both sexes
M. ginkgodens	Indo-Pacific, tropical–temperate waters	5.3	Moderate	Slightly arched	Slightly arched	Small	Middle of jaw	Non-descript, scratches rare on male, beak often white
M. hectori	Circumglobal, S. Hemis.	4.3	Long	Straight	Straight	Flattened triangular	Just behind tip	White beak in males, non-descript in fems.
M. perrini	Eastern N. Pacific?	4.4	Short	Straight	Straight	Flattened, triangular	Just behind tip	Non-descript
M. carlhubbsi	Temperate N. Pacific	5.3	Short	Arched to strongly arched	Slightly arched	Large and flat, rise above upper jaw	Middle of jaw	Unique. White rostrum; white "beanie" on male
M. peruvianus	Eastern Pacific and New Zealand	3.9	Short	Straight	Straight	Small and egg-shaped	Middle of Jaw	Two morphs; male black with white chevron on back
M. bidens	Temperate N. Atlantic	5.5	Long	Slightly arched	Slightly arched	Small, flattened	2/3 back from tip	Non-descript
M. europaeus	Atlantic	4.8	Short	Straight	Straight	Triangular, flattened	1/3 back from tip	Non-descript
M. mirus	N. Atlantic/ S. Indian Ocean	5.4	Short	Straight	Straight	Small and oval	Tip of the jaw	White tail stock and dorsal surface in SH
M. layardii	Circumglobal, cool temper-ate S. Hemis	6.2	Long	Straight	Straight	Very long, curving over upper jaw	Middle of jaw, angled back	Unique. White beak, dark head, light thorax
M. bowdoini	Circumglobal S. Hemis.?	4.4	Short	Arched to strongly arched	Slightly arched?	Large and flat, rise above upper jaw	Middle of jaw	Front half of beak white
M. stejnegeri	Cool N. Pacific	5.7	Short	Arched	Arched	Large and flat, rise above upper jaw	Middle of jaw	Relatively non-descript; white striations on flukes; dark head
M. traversii	S. Hemis.	4.5-5.5?	Unknown	Unknown	Unknown	Long, curving up and back with denticle	Middle of jaw	Unknown

C. Summary of Identifying Features for Similar-Appearing Blackfish Genera

Genus	Maximum Length (m)	Head Size	Flippers Shape	Dorsal Fin	Teeth	Coloration	Group Size	Behavior
Peponocephala	2.8	Rounded, but triangular from above	Acutely pointed tips	Falcate, with wider base	20–25 small slender teeth	Indistinct cape dips low; white lips; face mask	Large (often 100-500)	Tends to be energetic
Feresa	2.6	Bulbous (rounded from above	Rounded tips	Falcate, with wider base	8–13 moderate size teeth	Cape more distinct, dips only slightly; white lips	Rel. small (usually) <50	Tends to be somewhat sluggish
Pseudorca	6.0	Bulbous (slender from above	Rounded tips, with hump on leading edge	Falcate and slender along entire height	7–12 large, stout teeth	Light gray patch on chest; lips generally dark	Variable, but most often 10–60	Variable, but most often quite lively

D. Summary of Identifying Features for Similar-Appearing Long-Beaked Marine Dolphins

Species	Distribution	Max. Length (m)	Teeth per Tooth Row	Body Shape	Beak	Dorsal Fin	Cape	Belly Color	Facial Stripes
D. delphis	Atlantic/ Pacific	2.4	41–54	Mod. robust	Moderately long and slender	Slightly falcate	Hourglass shape	White	Chin to flipper
D. capensis	Coastal all oceans	2.6	48–67	Mod. slender	Long and slender	Slightly falcate	Hourglass shape	White	Lower jaw/ gape to flipper
S. longirostris	Pantropical	2.4	45–62	Slender	Very long and slender	Triangular to canted	Variable	White to gray	Eye to flipper
S. clymene	Tropical Atlantic	2.0	39–52	Moderate	Moderately long and slender	Slightly falcate	Dips below dorsal fin	White	Eye to flipper and "moustache"
S. coeruleoalba	Panglobal	2.6	40–55	Mod. to robust .	Long and moderate	Slightly falcate	Distinct spinal blaze	White	Multiple
S. attenuta	Pantropical	2.6	34–48	Slender	Long and slender	Narrow and falcate	Dips below dorsal fin	White to gray	Gape to flipper
S. frontalis	Tropical Atlantic	2.3	30–42	Moderate	Moderately long and slender	Tall and slightly falcate	Present, with spinal blaze	White with dark spots	Faint face to flipper
T. truncatus	Cosmo-politan	3.8	18–27	Robust	Moderate to short and stocky	Wide-based and slightly falcate	Usually faint	White	Faint face to flipper
T. aduncus	Coastal Indo-Pacific	2.7	23–29	Moderate	Moderately long and slender	Tall and slightly falcate	Present, with spinal blaze	White with dark spots	Face to flipper

10. Glossary of Technical Terms

albino—An individual with a specific genetic condition that causes the eyes and skin to be unpigmented.

allopatric—Complete geographic separation of species or geographic forms.

ambergris—A substance that forms in the gut of sperm whales, which is used for some products (e.g., in candles, cosmetics, and medications).

amphipod—A type of invertebrate crustacean that is a food source for some whales.

ancestral—A pre-existing character or condition. Also known as primitive.

anterior—Forward, in the direction of the snout tip, referring to the front (head area) of an animal.

antitropical—A distribution pattern in the higher latitude waters of both hemispheres, but absent along the equator.

antorbital—The area in front of the orbits of the skull, as in antorbital notches.

archaeocete—Extinct group of ancient whales.

archipelago—An oceanic group of islands of common origin.

artisanal hunting—Hunting conducted from shore-based operations using low-technology methods, and resulting in limited local distribution of products.

axilla—Armpit, or in the case of marine mammals, "flipper-pit." Plural = axillae.

balaenopterid—A term used by marine mammal biologists to refer to the any or all of the species of rorqual whales in the family Balaenopteridae.

baleen—Plates of keratin hanging from the inside of the upper jaw of mysticetes, used instead of teeth to capture prey. Also called "whalebone."

barnacle—A type of sessile (mooring) crustacean that is found living on the surface of some marine mammals.

beak—The elongated rostrum of some cetaceans.

benthic—Organisms living on or in the sea floor; demersal.

bicuspid—Teeth with two cone shaped prominences on the surface (cusps).

blackfish—Non-taxonomic grouping of predominantly dark small cetaceans, possessing blunt heads. Includes the killer, pilot, false killer, and melon-headed whales. Some people may include the Risso's dolphin as well.

blaze—A streak-like marking on the body of an animal.

blow—The spout of water vapor that results from the exhalation of whales.

blowhole(s)—Nasal opening(s) on the top of the head of cetaceans. They are paired in mysticetes, and single in odontocetes. Sometimes called the spiracle in older literature.

blubber—The specialized layer of fat just under the skin of most marine mammals, which serves several functions (e.g., insulation, thermoregulation, and streamlining).

boss—A raised protruberance on the skull.

bowriding—The act of riding on the pressure wave in front of the bow of a ship, commonly performed by dolphins and some porpoises. Also called bow-wave riding.

breach—A complete or nearly-complete leap from the water, resulting in a splash.

bubble-net—A circle of bubbles blown around a prey patch by humpback whales, to corral and aid in capture of the prey.

bycatch—The part of the catch consisting of non-target organisms.

bull—An adult male cetacean, pinniped, or sirenian.

calf—A young cetacean or sirenian.

callosities—Areas of roughened skin on the heads of right whales, to which whale lice and barnacles attach.

calving—The process of giving birth by cetaceans or sirenians.

canines—The set of long, sharp teeth on either side of the front of the upper and lower jaws (abbreviated C in dental formulas).

canted—Oriented forward or curved toward the head; the opposite of falcate.

cape—A darker region on the back of many species of dolphins and small whales, generally with a distinct margin. Also called the dorsal cape.

cephalopod—A group of marine molluscs, including the squids, cuttlefishes, and octopuses which form the prey of many species of marine mammals.

chevron—Light-colored, V-shaped marking on the back or side of an animal.

circumglobal—Ranging completely around the globe.

circumpolar—Ranging completely around either polar area (i.e., the Antarctic or Arctic).

circumtropical—Occurring around the tropical regions of the world; pantropical.

click—A pulsed vocalization produced by toothed whales, and used for echolocation.

continental shelf—The oceanic margin of the continents, characterized by a relatively flat bottom. Generally defined as the area out to approximately 200 m depth.

continental slope—The oceanic region of steep drop-off just beyond the continental shelf. Generally defined as the area of depths of approximately 200-2000 m.

convergence—A similarity between or among organisms that is not a result of having a common ancestor.

cookie-cutter shark—A type of small shark that takes bites out of marine mammals, often leaving a round scar (generally non-fatal).

copepod—A type of small crustacean fed on by some whales.

cosmopolitan—Having a broad, wide-ranging distribution over much of the earth.

countershading—Cryptic coloring with the upper surface dark and the lower surface light.

cow—An adult female cetacean, pinniped, or sirenian.

cranial hiatus—opening in the base of skull near the tympanoperiotic bones, in which cranial nerves VII-XI emerge.

cranium—The main part of the skull, exclusive of the lower jaw bones (mandibles).

crustacean—Member of a subphylum of mostly aquatic arthropods, which are food for many marine mammal species.

cub—A young bear.

deep scattering layer (DSL)—A dense aggregation of largely light-sensitive aquatic organisms (mostly fish and various invertebrate species) that migrates vertically in the water column each day (towards the surface in darkness and deeper in brightness).

demersal—Found on or near the bottom of the sea; benthic.

dental formula—A convenient way of designating the kind and number of mammalian teeth. Note that this does not apply to cetaceans, which have undifferentiated teeth.

denticles—Small bumps along the edges of the flippers and dorsal fins/ridges of some small cetaceans.

dentition—Teeth.

derived—A character is that is changed from the more primitive ancestral condition.

diatoms—Algae with glass-like walls. They are the basis of oceanic food webs, and also are found on the surfaces of some marine mammals.

diphyletic—Having two separate ancestors. Same as biphyletic.

distal—Closer to the outer part of the body, as opposed to proximal.

dorsal—Relating to the upper surface of an animal.

dorsal fin—The structure on the back of most cetaceans (not supported by bone). Some species only have a dorsal hump or ridge, others have no hint of a dorsal structure.

dorsal ridge—A low ridge of connective tissue along the upper surface of the back in some cetaceans, which replaces the dorsal fin.

dorsum—The dorsal or upper surface of an animal.

echolocation—The process of sending out sounds and using the returning echoes to locate objects; biological sonar.

ectoparasite—Parasite that lives on the external surface of an animal, such as barnacles.

epizootic—A disease that appears as new cases in a given animal population, during a given period, at a rate that substantially exceeds what is "expected" based on recent experience (the equivalent term for humans would be epidemic).

El Niño Southern Oscillation (ENSO)—A sporadic oceanographic event in the eastern Pacific Ocean in which prevailing currents change, resulting in changes in water temperature, upwelling, and precipitation patterns.

endemic—A species or group of species that is found only in a given area.

epipelagic—Associated with the surface layer of the oceans (< 200 m depth).

estrus—The period of sexual receptivity of a female mammal.

estuary—An area partly enclosed by land, where saltwater and freshwater meet.

euphausiids—Group of small crustaceans taken as prey by many marine mammals species. Also called krill.

extant—A group with all or some living members; as opposed to extinct.

extinct—A group that has no living representatives; as opposed to extant.

extirpate—To exterminate a species only from a specific part of its range.

extralimital—Outside the normal limits of an animal's distribution.

falcate—Sickle-shaped and curved toward the tail; recurved.

fast ice—Sea ice attached to land.

flipper—Flattened fore- or hindlimb of a marine mammal (supported by bone). The foreflipper is also called the pectoral fin.

flipper pockets—Shallow depressions on the body of beaked whales, into which the flippers sit, making them relatively flush against the body.

flukes—The horizontally flattened and blade-shaped tail of cetaceans or dugongs (not supported by bone); often called the tail flukes.

fluke notch—The indentation along the midline between the two fluke blades of most cetaceans.

fluke-slap—The act of slapping the flukes against the water's surface, creating a loud sound. Also sometimes called lobtailing.

fluke-up—To raise the tail flukes into the air upon diving.

foreflipper—The front flipper of a pinniped.

frontal bone—The major bone comprising the forehead.

fusiform—Torpedo-shaped, elongated with tapering ends.

gape—The corner of the mouth. Also, the widest opening of the mouth.

gestation—The period between fertilization and birth in mammals.

gillnet—A passive type of fishing net that uses a wall of net to ensnare or entangle the target animals.

guard hairs—The long, sparse outer layer of hairs of a pinniped or otter.

hallux—Digit #1 on the hindflipper of a pinniped (counting from the outside in).

haul-out—The act of bringing the body on to land, ice, or other substrate by a pinniped, otter, or very rarely, a sirenian. It is also used as a noun to describe the places where hauling-out occurs.

herd—A coordinated group of marine mammals (often used synonymously with school for dolphins, and pod for whales).

hindflipper—The rear flipper of a pinniped.

homodont—All teeth having the same basic structure; undifferentiated dentition (i.e., not divided into canines, incisors, premolars, molars, etc.).

hybrid—The offspring resulting from a cross between two species.

incidental catch—The part of the catch consisting of non-target organisms.

incisors—The front, cutting teeth between the canines (abbreviated I in dental formulas).

Indo-Pacific—The area of the Indian and western Pacific oceans.

inshore—Shallow waters inshore of the surf zone; most often used to refer to bays, channels, and other enclosed waters.

jug-handling—The posture used by most fur seals of lying at the surface with fore- and hindflippers curled into a loop.

junk—The modified melon of sperm whales.

keel—A deepening of the body, especially in the tail area of some cetaceans.

krill—A small shrimp-like crustacean that forms the major food of many baleen whales. Also called euphausiids.

lair—A shelter under snow and/or ice, with an opening to the water, used by some seals.

lanugo—The birth coat of fur of a pinniped (sometimes shed in the uterus).

lateral—Referring to the side of an animal; toward the periphery of the body.

leading edge—The anterior (forward-facing) edge of the appendage (dorsal fin, flippers, or flukes) of a marine mammal.

lek—A mating strategy in which males display to females on a particular ground or area.

longline—A type of fishing gear that uses baited hooks to catch the target species.

lunge feeding—A batch feeding method employed by some baleen whales, in which the animal lunges through swarms of small prey, taking in great mouthfuls of prey and water.

mandible—The lower jaw bone.

mane—A region of long fur around the neck of some male pinnipeds.

mass stranding—The simultaneous stranding of two or more animals (excluding mother and calf/pup) of the same species in the same area.

maxilla—One of the two major bones of the upper jaw, occurring on the distal side.

median notch—The cleave between the two fluke blades of most cetaceans.

median ridge—One or more raised ridges on the upper surface of the rostrum of some cetaceans.

melon—The fatty organ in the forehead of toothed whales believed to be used in echolocation.

mesonychid—Group of extinct ungulates were previously thought to be the ancestors of modern whales and dolphins.

mesopelagic—Associated with the middle layer of the oceans (200–1,000 m depth).

mesoplodont—A term used by marine mammal biologists to refer to the any or all of the species of beaked whales in the genus *Mesoplodon*.

migration—The large-scale, systematic movement of individuals from one location to another, usually on a seasonal basis.

molars—The grinding teeth at the back of the jaw (abbreviated M in dental formulas)

mollusk—A type of invertebrate, including clams, squids, and octopuses.

molt—The process of shedding the skin and fur, to be replaced by a new set.

monogamy—A social system in which individuals have only one mate per breeding season.

monophyletic—Having a single common ancestor.

monopecific—A taxonomic group that has only one species.

monotypic—A taxonomic group that has only one member.

morbillivirus—A serious pathogen that is contagious, and affects animals by suppressing their immune responses.

mottling—Patterns of spotting on the body; often (but not always) they take the form of enlongated spots.

muzzle—The projecting part of the head, including the mouth, nose, and jaws.

mysid—A shrimp-like invertebrate that is the food of some marine mammals.

mystacial area—The area around the vibrissae, or whiskers, in pinnipeds and otters.

nares (singular: naris)—The paired bony nasal openings of the skull.

nasal bones—The small bones around the nasal openings of the skull.

neonate—A newborn animal.

neritic—Referring to the shallow waters adjacent to shore; coastal or nearshore.

occipital condyles—The rounded areas on the occipital bone of the skull where the vertebral column attaches.

oceanic—The ocean region past the edge of the continental shelf (generally deeper than 200 m); the open sea.

osteology—The study of bones.

pachyostotic—A condition in which the bone is particularly dense and heavy.

pack ice—Sea ice that is not attached to land.

pagophilic—"Ice-loving," referring to species that inhabit ice.

palate—The roof of the mouth.

panarctic—Occurring around the entire Arctic region.

pantropical—Occurring globally around the tropics; circumtropical.

parasite—An organism that obtains a benefit from another organism while causing it harm.

parturition—The act of giving birth.

pectoral fin—Flattened forelimb of a cetacean or sirenian (supported by bone). Also often called the flipper.

peduncle (caudal)—The laterally compressed region between the dorsal fin and tail flukes of cetaceans and dugongs; a narrow tail stock.

pelage—Fur.

pelagic—Inhabiting the water column of the oceans past the inter-tidal zone.

perinatal—The period immediately following birth.

pinnae (ear) (singular: pinna)—The external ear flaps. They are reduced or absent in many species of marine mammals.

photo-identification—The method of study of marine mammals using photographs to identify individuals.

plankton—Small, passive drifting or weak-swimming organisms that occur in swarms.

pod—A social unit of cetaceans; generally a coordinated group of whales.

polar—Relating to the regions near the poles.

polygyny—A social system in which males have more than one mate per breeding season. This is the most common mating system of marine mammals.

population—A biological population is a group of interbreeding individuals of the same species, isolated from other such groups.

porpoising—The act of leaping out of the water while moving forward at speed.

post-anal hump/keel—A protuberance of connective tissue just behind the anus of some cetaceans.

post-canines—The set of all undifferentiated teeth behind the canines in pinnipeds (abbreviated PC in dental formulas).

posterior—Referring to the rear (tail area) part of an animal.

premaxilla—One of the two major bones of the upper jaw, occurring on the medial side.

premolars—The set of bicuspid teeth in front of the molars (abbreviated PM in dental formulas).

proboscis—A dangling enlargement of the nose.

promiscuity—A mating system in which males randomly associate with females for variable periods of time, and no long-term pair bonds are formed.

proximal—Closer to the center of the body, as opposed to distal.

pterapods—A group of invertebrates taken as prey by some marine mammals.

pup—A young pinniped or otter.

pupping—The process of giving birth by pinnipeds or otters.

purse seine—A type of fishing gear that uses a net to encircle schools of the target species; then the bottom is closed by drawing a cable, thereby effectively capturing the targets without entangling them.

rafting—The act of several individuals lying together at the surface.

rhinarium—The wet, naked surface around the nostrils of the nose in terrestrial and some marine mammals (e.g., pinnipeds, otters, and bears).

rookery—A terrestrial breeding area for pinnipeds; breeding colony.

rorqual—Whale of the family Balaenopteridae, which includes the blue, fine, sei, Bryde's, minke, and humpback whales.

rostral ridges—One or more ridges along the upper surface of the upper jaw in some baleen whales. Most species have just a single median ridge, but Bryde's whales have three.

rostrum—Beak or snout. Also refers to the upper jaw of the skull.

saddle—A light patch behind the dorsal fin of some cetaceans; often called saddle patch.

sagittal crest—A bony crest on the top of the skull in some pinnipeds, often resulting in an external bump on the forehead.

school—A coordinated group of cetaceans (often used synonymously with herd for dolphins), generally with long-term associations.

sexual dimorphism—A difference in the appearance of the sexes, generally with males larger than females, often accompanied by differences in body shape.

snoutriding—The act of riding on the pressure wave in front of the head of a whale, commonly performed by dolphins and some porpoises. Apparently analogous to bowriding.

sonar—The system of echolocation used by toothed whales; also a man-made echo-ranging system generally used in military applications.

spatulate—Spade-shaped. Often used to describe the teeth of porpoises.

species—A unique type of plant or animal, which is on a separate evolutionary pathway from other such units, and with negligible amount of gene flow between them. The species is the primary unit of biological evolution.

spermaceti—The oil found in the spermaceti organ of sperm whales.

sperm competition—A component of some polygynous mating systems in which males do not compete overtly, but rather multiple males mate with a female and the competition to inseminate her is undertaken by sperm.

spinal blaze—A light streaking of color invading the cape below the dorsal fin of some dolphins.

splashguard—Elevated area immediately in front of the blowholes of baleen whales.

spy-hop—The act of bringing the head vertically out of the water, performed by whales and dolphins.

standard length—The length of the body between the tip of the snout and the ends of the hindflippers for pinnipeds.

sternum—The breastbone.

stock—A biological population, generally defined for management purposes.

stranding—The act of coming on to land, either alive or dead, intentional or accidental, of cetaceans or sirenians.

subspecies—Geographical forms of a species that appear to be on separate evolutionary pathways from other such units, but with still some significant amounts of gene flow between them. The subspecies is the smallest unit used in formal taxonomy.

subtropical—Inhabiting the intermediate zone between the tropics and the temperate zones.

supraorbital processes—Small bony protruberances above the orbits on the skull.

sympatric—Having at least partially overlapping ranges of species or geographic forms.

symphysis (mandibular)—The articulation (or contact) of the two lower jaw bones of cetaceans.

systematics—The science of the evolutionary relationships of organisms.

tail stock—The region just ahead of the tail, connecting it to the rest of the body. Also called the peduncle, or caudal peduncle.

taxonomy—The science of classification of organisms using different groupings. From highest to lowest level of organization the groupings of interest to this guide (with examples for the bottlenose dolphin) are: Class (Mammalia), Order (Cetacea), Suborder (Odontoceti), Family (Delphinidae), Genus (*Tursiops*), and Species (*Tursiops truncatus*).

telescoping—The sliding, over the course of evolutionary history, of the cetacean skull bones to form their current configuration (different in mysticetes vs. odontocetes).

temperate—Inhabiting the mid-latitudes characterized by a mild, seasonally changing climate. The temperate zones are between 23°27'N and the Arctic Circle, and between 23°27'S and the Antarctic Circle.

territory—An area occupied exclusively by a single animal (or sometime a small group), and defended aggressively against others.

thorax—The front or top region of the body, behind the head.

throat grooves/creases/furrows—Grooves on the throat, characteristic of some groups of whales. In beaked whales, they are short and there is generally a single pair. In rorquals, they are long (extending to or past the navel) and there may be several hundred.

total length—The length of the body between the tip of the jaw and the notch in the tail flukes (for cetaceans), or the end of tail (for carnivores and sirenians).

trailing edge—The posterior (rearward-facing) edge of the appendage (dorsal fin, flippers, or flukes) of a marine mammal. The trailing edges of the dorsal fin and flukes of cetaceans are usually very thin and easily tattered.

trawl—An active type of fishing gear that is pulled through the water, and the target species are scooped up by the forward open end of the net, and funneled back to a closed end (cod end), where they are effectively captured.

tributary—A river or stream that flows into a larger river or stream.

tricuspid—Teeth with three cone shaped prominences on the surface (cusps).

tropical—Inhabiting the low latitudes between 23°27'N (Tropic of Cancer) and 23°27'S (Tropic of Capricorn), which are characterized by a warm, seasonally stable climate.

tubercles—Knob-like bumps on the bodies of some species of cetaceans.

tusks—Enlarged teeth (usually incisors or canines in species with differentiated teeth) that typically protrude outside the closed mouth. In walruses, they are massively-enlarged canines that extend downward outside the closed mouth in adults of both sexes. In some beaked whales, they are a single pair of protruding teeth, found only in adult males. In narwhals, there is generally a single, forward-spiraling tusk in subadult and adult males (rarely also in females). In dugongs, they are enlarged incisors that erupt after puberty; they are not visible outside the closed mouth.

tympanic bullae—One of the two major inner ear bones of mammals.

typanoperiotic bones—The ear bones, consisting of the tympanic bullae and periotic bones.

ultrasonic—Sounds above the human hearing range.

underfur—The short, numerous hairs underlying the guard hairs of pinnipeds and otters.

underslung—The condition of being shorter than the corresponding upper part.

upwelling—The transport of nutrient-rich waters to the surface off continental margins, caused by circulation and wind patterns.

urogential area—The region around the anal and genital slits in cetaceans.

vagrant—A wandering animal, outside the normal range.

vasoconstriction—The constriction of the blood vessels, causing a shunting of blood preferentially to other vessels.

vasocodilation—The dilation (opening-up) of the blood vessels, causing a shunting of blood preferentially from other vessels.

ventral—Relating to the lower surface of an animal.

ventral pleats—The long pleats extending from the tip of the jaw to as far back as the navel in balaenopterid whales. Also sometimes called throat grooves.

ventrum—The ventral or lower surface of an animal.

vertebrae—The bones of the vertebral column, consisting of five sections (cervical, thoracic, lumbar, sacral, and caudal). Some marine mammals do not have true sacral vertebrae.

vertex—The dorsal portion of the skull immediately behind the bony nares, strongly elevated in some species of odontocetes.

vestigial—Existing as a trace of something that is in the process of being evolutionarily lost.

vibrissae—Whiskers.

vocalization—A sound produced by animal through its vocal apparatus.

whalebone—A term for baleen, which is not often used anymore.

whale lice—Amphipod crustaceans (cyamids) found on the external surface of some whales.

zooplankton—Animal forms of plankton.

zygomatic arch—The bony arch of the cheekbone in marine mammals, generally composed of the jugal bone.

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Index—Common Names

Note: Locators in **bold** refer the opening page of species account.

Index—Scientific Names

Note: Locators in **bold** refer to the opening page of species account.

SEA TURTLE HANDLING AND RESUSCITATION REQUIREMENTS

IF YOU ENCOUNTER AN ENTANGLED, INJURED OR UNRESPONSIVE SEA TURTLE,
please immediately call the National Marine Fisheries Service Northeast Region Hotline:

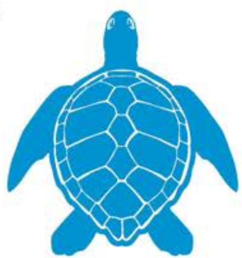
866-755-NOAA (6622)

Any sea turtle taken incidentally during fishing must be handled with care to prevent injury, observed for activity, and returned to the water according to the following procedures:

A A SEA TURTLE THAT IS ACTIVELY MOVING OR IS DEAD (THAT IS, IF MUSCLES ARE STIFF AND/OR THE FLESH HAS BEGUN TO ROT) MUST BE RELEASED OVER THE VESSEL'S STERN ONLY:

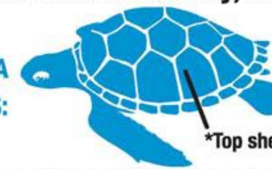
- When fishing gear is not in use,
- When the engine is in neutral, and
- In areas where the turtle is unlikely to be recaptured or injured by vessels.

OTHERWISE, YOU MUST CONSIDER THE TURTLE UNRESPONSIVE AND ATTEMPT RESUSCITATION AS DESCRIBED IN B.



You are strongly encouraged to read the full regulation, which can be found at 50 CFR 223.206(d)(1).

B YOU MUST ATTEMPT RESUSCITATION ON SEA TURTLES THAT ARE UNRESPONSIVE AS FOLLOWS:



1 Place the turtle top shell up* and elevate its hindquarters at least 6" (or 15-30°) for at least 4 hours and up to 24 hours.

- The amount of elevation depends on the turtle's size; larger turtles require greater elevation.
- In warm weather (over 60 °F), keep the turtle shaded and moist, preferably by placing a damp towel over the head, shell, and flippers. You must NOT place the turtle into a container of water.

2 Periodically rock the turtle gently side to side by holding the outer edge of the shell and lifting one side about 3", then alternate to the other side.

3 Periodically gently touch the eye and pinch the tail (reflex tests) to see if there is a response.

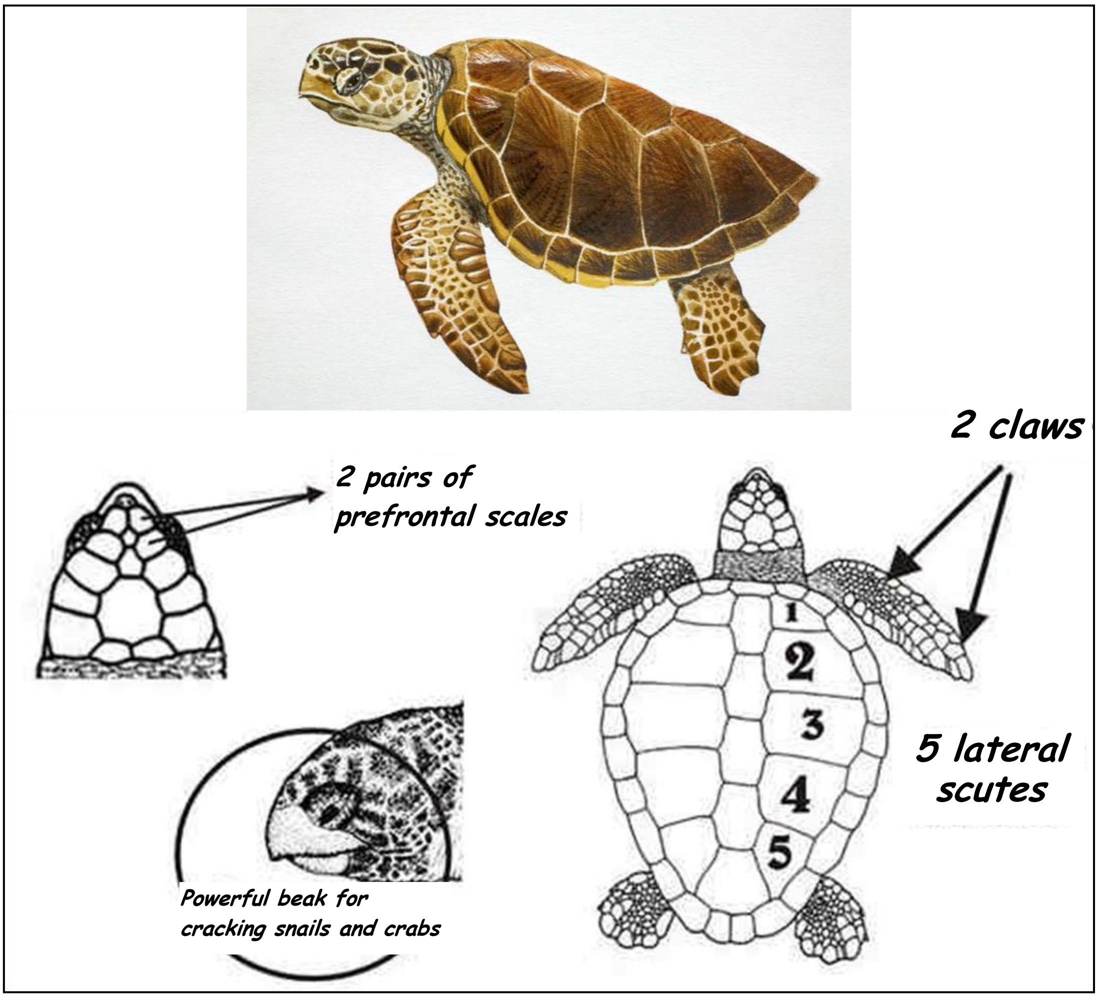
C IF THE TURTLE REVIVES AND BECOMES ACTIVE DURING RESUSCITATION EFFORTS, you must release it over the vessel's stern as described in A. If the turtle does not respond to the reflex test (as described in B 3) or move within 4 hours (up to 24 hours, if possible), you must return the turtle to the water in the same manner.

LOGGERHEAD (Caretta caretta)

Description

In adults, the carapace, viewed from above, is heart-shaped, lightly serrated on the posterior margin on juvenile individuals (Pritchard & Mortimer, 1999). It has a large head with two pairs of prefrontal scales and one interfrontal. The carapace is composed of five pairs of lateral scutes, five vertebral scutes and 25 to 27 marginal scutes. The relatively short front flippers have two claws on the leading edge. The carapace, head and members are brown in color; the plastron is yellowish in color. It weighs up to 180 kg; the head measures as much as 28 cm wide and the carapace as much as 105 cm long (Figure 10) (Pritchard & Mortimer, 1999).

Loggerhead (Caretta caretta)



Distribution and migration

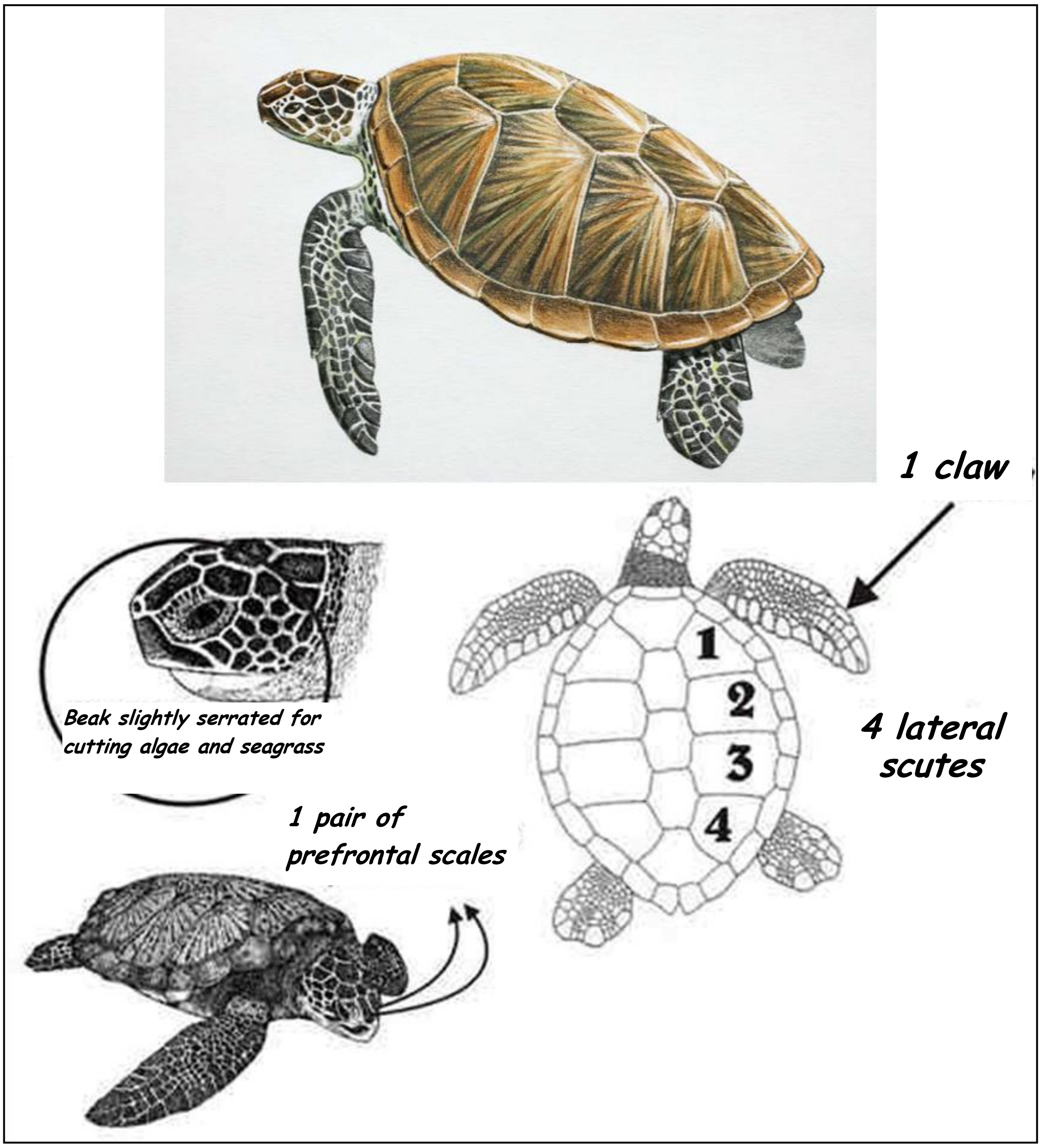
It is widely distributed in tropical and subtropical coastal waters between 15º and 20º C. It generally inhabits the coastal areas of warm and temperate seas, from the United States to Argentina, including the Gulf of Mexico and the Caribbean. The migratory routes are not clearly delineated, but they appear to follow the currents.

GREEN TURTLE (*Chelonia mydas*)

Description

Oval-shaped carapace, margin sometimes scalloped by not serrated (Pritchard & Mortimer, 1999). It has four pairs of lateral scutes, five vertebral scutes and 25 small marginal scutes. The head is relatively small, with a pair of prefrontal scales. The beak is slightly serrated. It has one claw visible on each flipper. The carapace on juveniles is a brilliant reddish-brown color; dark gray head and flippers, but centrally, like the plastron, they are light yellow. The may weigh up to 230 kg, the head measures 15 cm wide, and the carapace is up to 125 cm long (Figure 11) (Pritchard *et al.,* 1984; Pritchard & Mortimer, 1999).

Green turtle (Chelonia mydas)

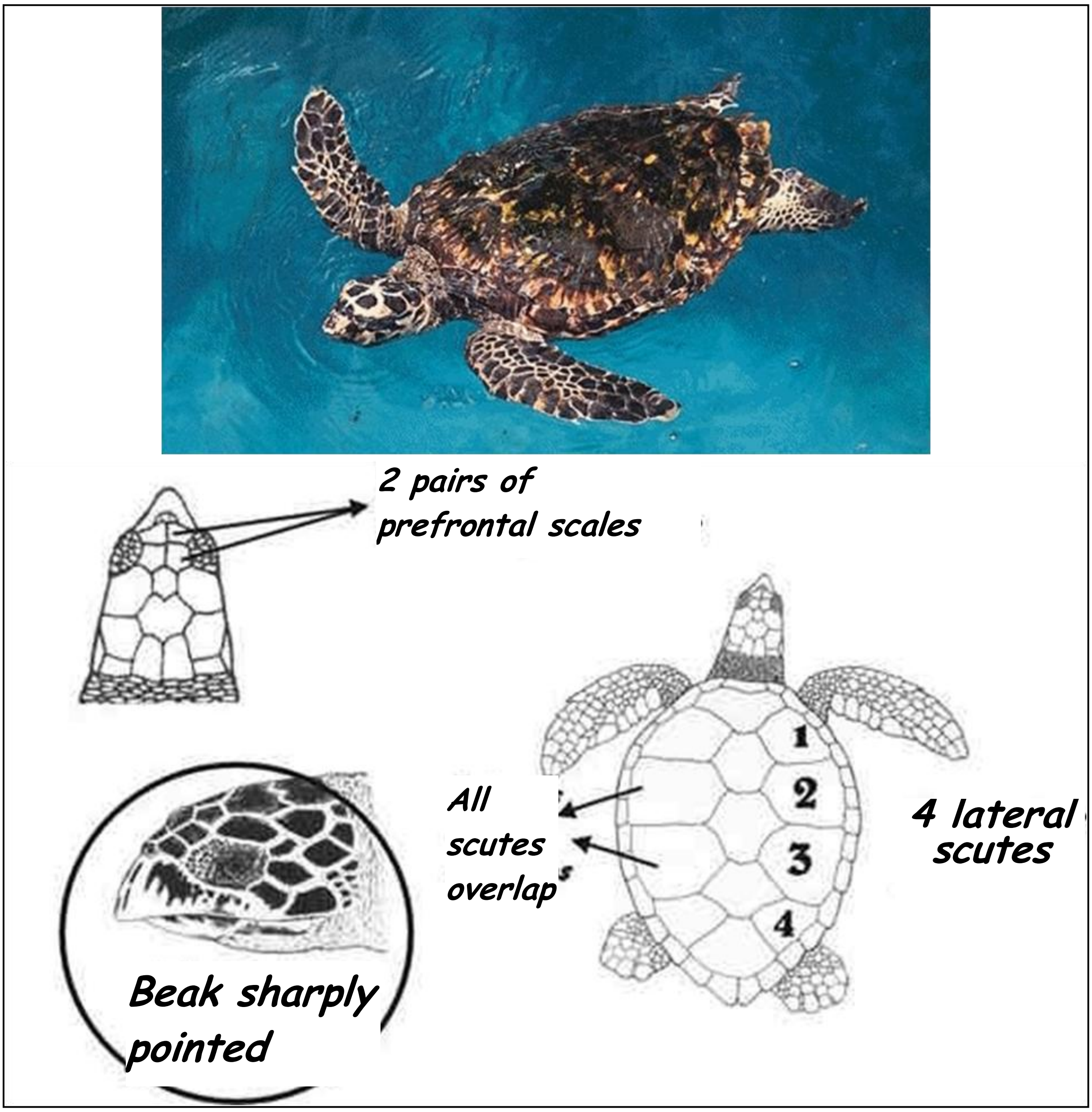


HAWKSBILL (Eretmochelys imbricata)

Description

Its carapace is oval, with a strongly serrated posterior margin; it is the only sea turtle that has overlapping (imbricate) scutes (Pritchard & Mortimer, 1999). It has four lateral scutes, five vertebral and 30 marginal. It has four prefrontal scales on its head and two claws on each flipper. It is dark brown in color with patches of reddish, orangish and yellowish coloring. The plastron is yellow. They weigh up to 80 kg, the head is up to 12 m wide and the carapace up to 90 cm long (Figure 12) (Pritchard *et al.,* 1984; Pritchard & Mortimer, 1999).

Hawksbill (Eretmochelys imbricata)

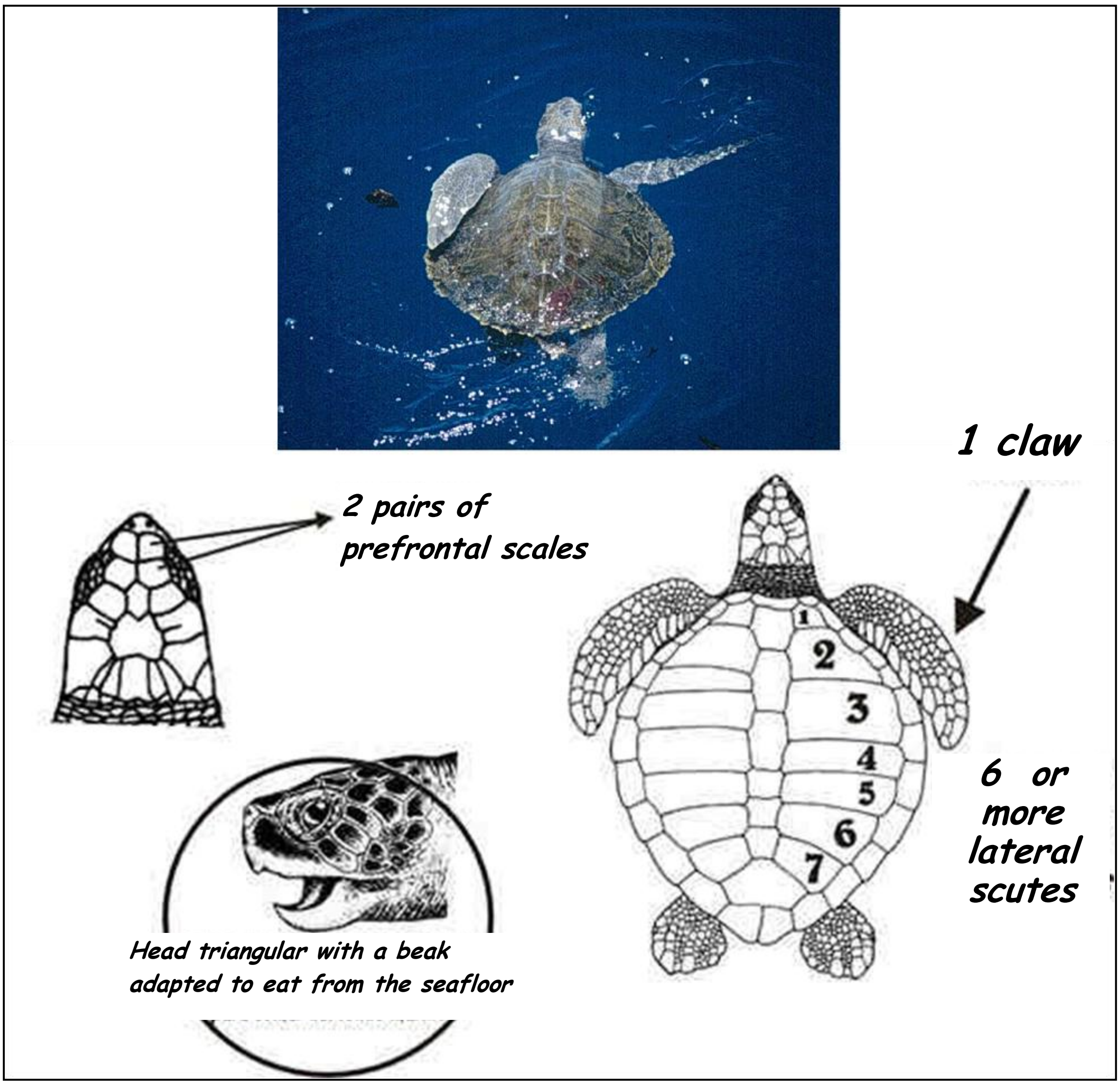


OLIVE RIDLEY (Lepidochelys olivacea)

Description

Its head is triangular. The carapace is wide, with 5 to 9 pairs of lateral scutes, 5 to 9 vertebral scutes and 12 to 14 pairs of marginal scutes. The dorsum is olive green to brown or gray-black, while the underside is light yellow (Pritchard & Mortimer, 1999). They weight up to 45 kg; the head measures up to 13 cm wide and the carapace up 70 cm long (Figure 14) (Pritchard *et al.,* 1984; Pritchard & Mortimer, 1999).

Olive ridley (Lepidochelys olivacea)

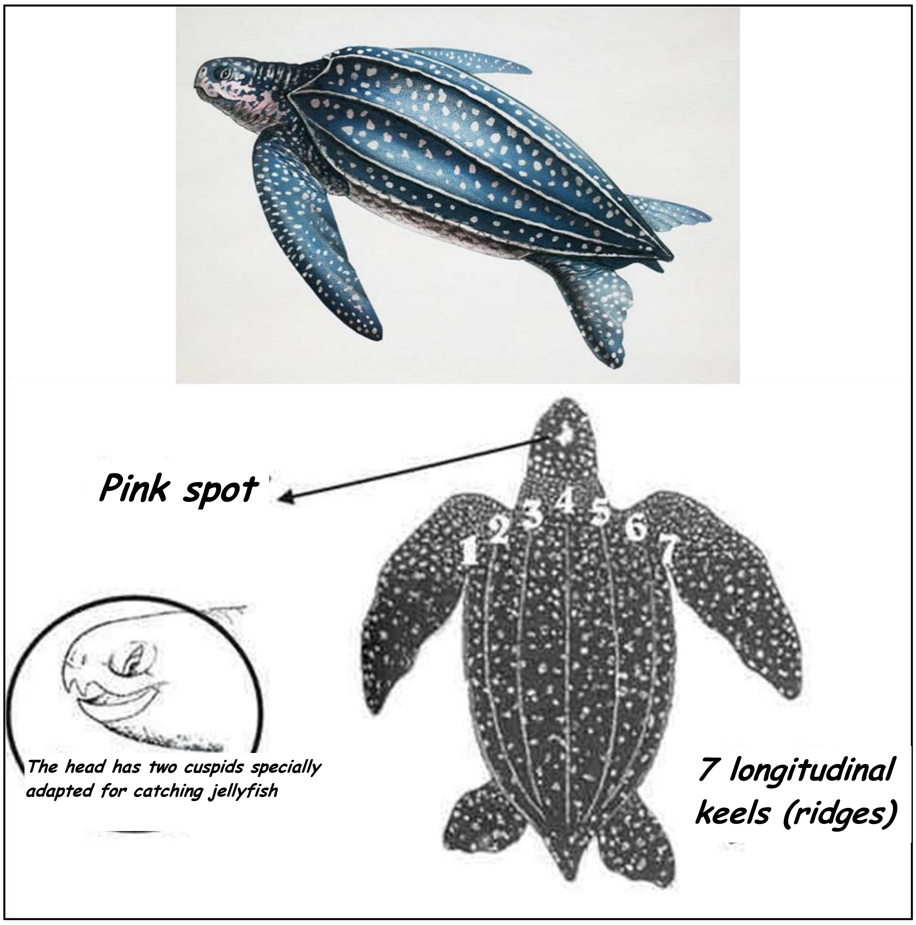


LEATHERBACK (Dermochelys coriacea)

Description

Scales, scutes and claws absent. The carapace is reduced in sized and formed by small bones. The surface of the carapace has the consistency of leather, several centimeters thick. It has seven prominent longitudinal keels (ridges) on the dorsum (Pritchard & Mortimer, 1999), which is black, with round white spots, while the plastron is predominately white. Front fins are paddle-shaped and well developed. They have a pinkish spot on the back of the head. They weigh up to 600 kg, the head measures up to 25 cm wide and the carapace up to 180 cm long (Figure 15) (Pritchard *et al.,* 1984; Pritchard & Mortimer, 1999).

Leatherback (Dermochelys coriácea)

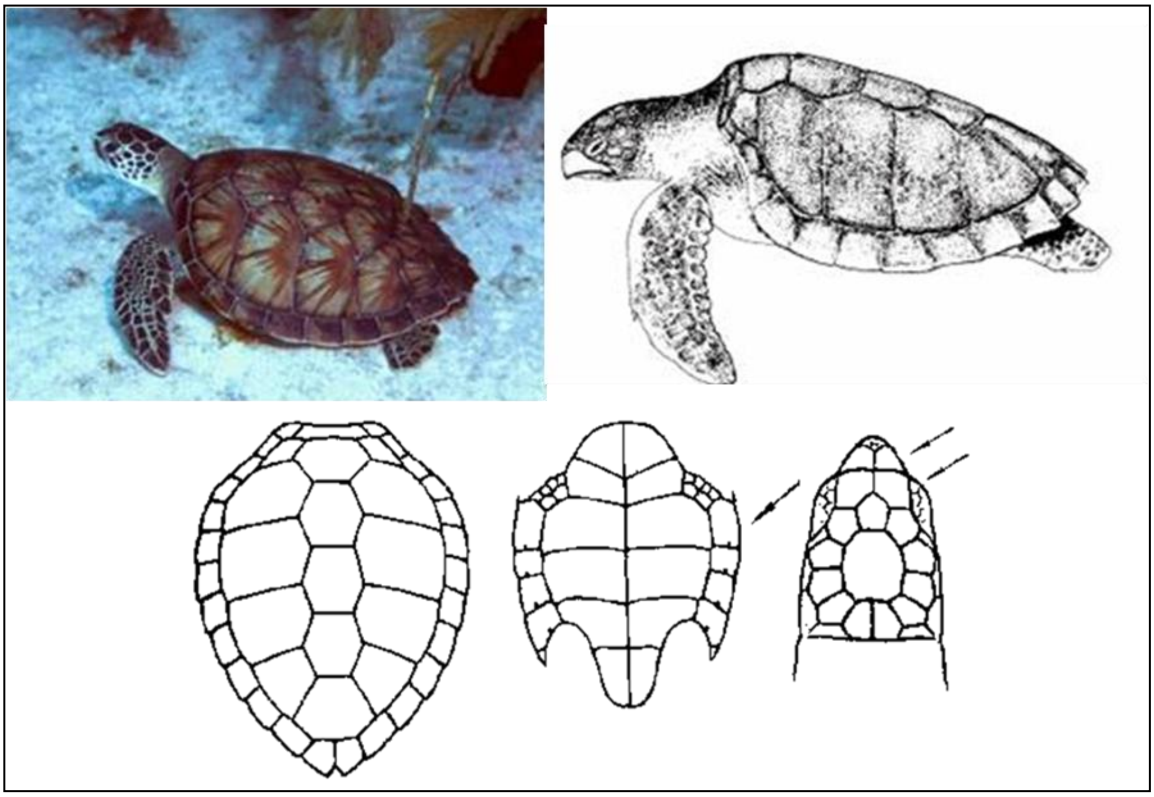


KEMP'S RIDLEY (Lepidochelys kempii)

Description

The carapace of this turtle measures up to 72 cm, a little wider than that of the olive ridley. The margin is slightly serrated. The head is relatively large and slightly triangular, measuring up to 13 cm wide. It has two claws on each flipper as a juvenile, while adults have only one. Juveniles are gray in color with a white plastron, adults light olive green with a yellow plastron. Typically weighs 35 to 50 kg (Figure 17) (Pritchard & Mortimer, 1999).

Kemp's ridley (Lepidochelys kempii)



Distribution and migration

It is found in the Gulf of Mexico, the eastern part of the United States, and sometimes in western Europe (Pritchard & Mortimer, 1999).

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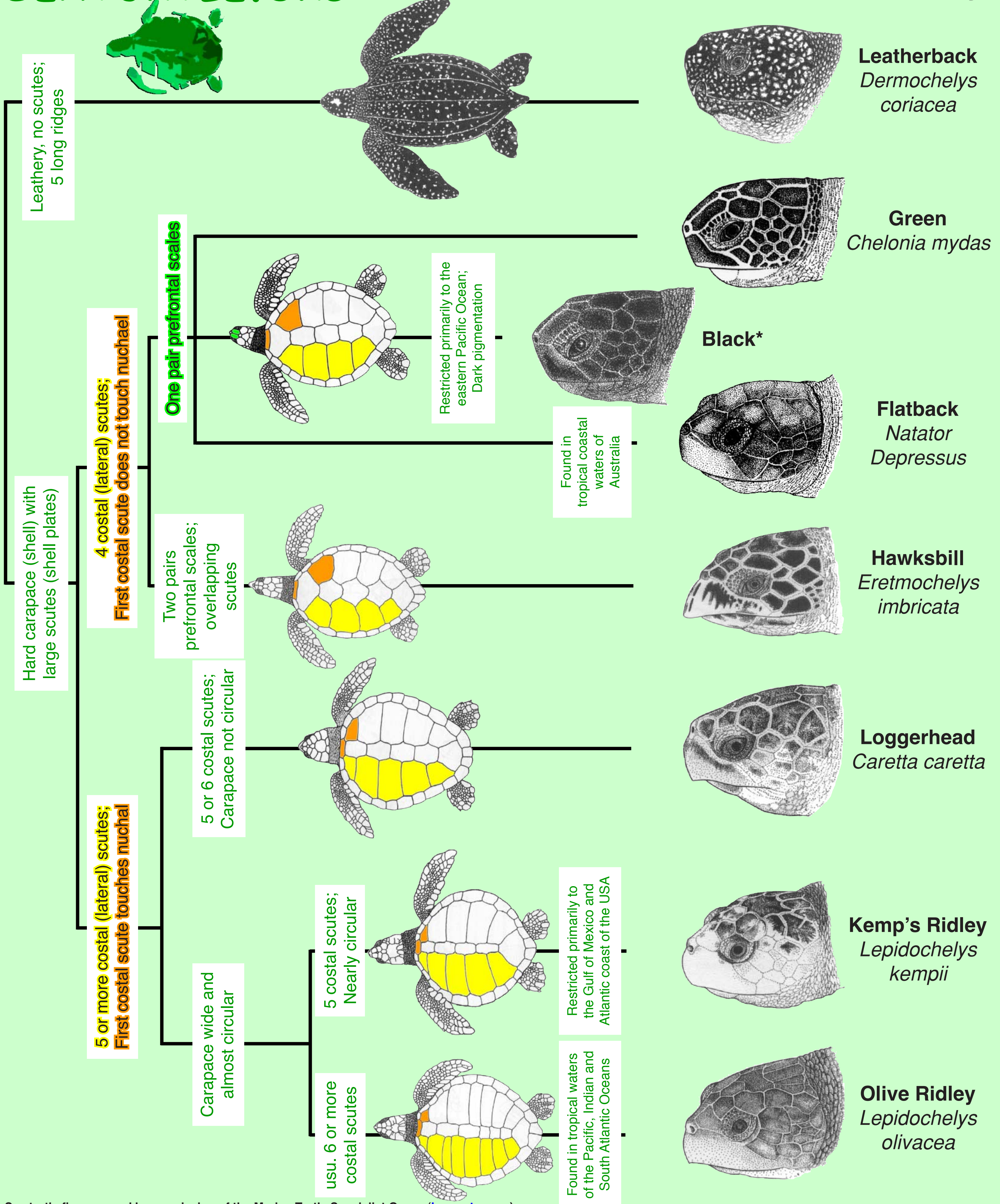
SEATURTLE.ORG

Environmental Management Plan

Sea Turtle Identification Key



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Source: Pritchard, P. C. H. and Mortimer, J. A. (1999) Taxonomy, External Morphology, and Species Identification. pp. 21-38. *In:* Eckert, K.L., K.A. Bjorndal, F.A. Abreu-Grobois, and M. Donnelly (Editors). 1999. *Research and Management Techniques for the Conservation of Sea Turtles.* IUCN/SSC Marine Turtle Specialist Group Publication No. 4. (for further details see http://www.iucn-mtsg.org/publications.htm) Illustrations by Tom McFarland

Species Descriptions

Common Name	Spanish Name	Scientific Name

Leatherback — **Baula, Tortuga Laúd, Tora** — ***Dermochelys coriacea***

Color	dark gray/black with white spots	**Carapace**	tapered; leathery with 5 ridges
Max Length	165 - 180 cm	**Plastron**	relatively small
Max Weight	400 - 500 kg	**Head**	tooth-like notch on either side of upper jaw; no scales

Range all oceans, subarctic to tropical; pelagic

Green Turtle — **Tortuga Verde, Tortuga Blanca** — ***Chelonia mydas***

Color	J: radiating streaks; A: brown, buff	**Carapace**	4 costal scutes
Max Length	120 cm	**Plastron**	yellowish; 4 inframarginal scutes
Max Weight	230 kg	**Head**	round face; serrated jaw; 1 pair elongate prefontal scales

Range all subtropical and tropical seas; bays and coastal waters

Black Turtle* — **Tortuga Negra, Prieta** — ***Chelonia* mydas**

Color	black or grayish with black markings	**Carapace**	4 costal scutes
Max Length	90 cm	**Plastron**	cream to gray; 4 inframarginal scutes
Max Weight	150 kg	**Head**	round face; serrated jaw; 1 pair elongate prefontal scales

Range East Pacific Ocean; bays and coastal waters

*The status of the Black turtle or east Pacific green turtle, sometime referred to as *Chelonia agassizii* or *C. mydas agassizii*, remains uncertain. Recent genetic evidence supports an Atlantic-Mediterranean vs. Indian-Pacific grouping, while morphological and behavioral data suggest an east Pacific species or subspecies.

Flatback Turtle — **Kikila, Tortuga Franca Oriental** — ***Natator depressus***

Color	olive grey	**Carapace**	4 costal scutes; broad and round; upturned margins
Max Length	100 cm	**Plastron**	yellowish; 4 inframarginal scutes
Max Weight	90 kg	**Head**	preoccular scale; wide; flat; triangular

Range tropical coastal Australia

Hawksbill Turtle — **Tortuga Carey** — ***Eretmochelys imbricata***

Color	amber and brown streaks	**Carapace**	4 costal scutes; (usually) overlapping scutes; oval
Max Length	90 cm	**Plastron**	cream with dark blotches front and rear; 4 inframarginal scutes
Max Weight	80 kg	**Head**	curved beak; distinct overbite; 2 pair prefrontal scales

Range all oceans; tropical waters; reef areas

Loggerhead — **Caguama, Amarilla, Cabezona, Tortuga Boba** — ***Caretta caretta***

Color	red brown to brown	**Carapace**	longer than wide; 5 or more costal scutes, first very small
Max Length	90 - 110 cm	**Plastron**	yellow to orange, 3 inframarginal scutes
Max Weight	100 - 180 kg	**Head**	large head; 4 or more prefontal scales

Range all oceans; primarily temperate waters; near shore, often associate with structures (i.e., wrecks, platforms)

Kemp's Ridley — **Tortuga Lora, Cotorra** — ***Lepidochelys kempii***

Color	gray to light olive green	**Carapace**	round; 5 (sometimes 6) costal scutes
Max Length	70 cm	**Plastron**	white to yellow; 4 inframarginal scutes with pores
Max Weight	40 - 50 kg	**Head**	triangular; relatively large; 2 pair prefrontal scales

Range Gulf of Mexico, eastern USA; coastal; < 16° N

Olive Ridley — **Tortuga Golfina, Tortuga Olivacea, Parlama** — ***Lepidochelys olivacea***

Color	gray to olive green	**Carapace**	nearly round; 6 - 9 costal scutes, number may be asymmetrical
Max Length	70 - 80 cm	**Plastron**	cream/white; 4 inframarginal scutes with pores
Max Weight	45 - 60 kg	**Head**	triangular; relatively large; 2 pair prefrontal scales

Range tropical waters of Pacific, Indian and South Atlantic Oceans; pelagic

Produced in cooperation with:

REEF

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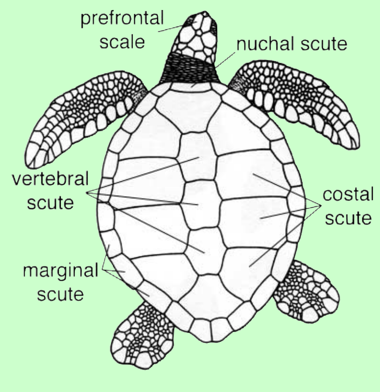

Appendix B: Survey Vessels

Go Discovery

Go Explorer

Go Pursuit

Westerly

Brooks McCall

Bella Marie

Appendix C: Vessel Port Calls

Vessel Port Calls

Date (YYYY-MM-DD)	Vessel	Time (UTC; HH:MM)	Depart / Arrival	Port Name	Reason (i.e., Repairs, Bunkering, Crew Change)
Lease OCS-A -0522					
2022-07-27	*Westerly*	10:50	Depart	Groton, CT	Transit to survey site.
2022-07-27	*Westerly*	21:30	Arrival	Groton, CT	Transit to port.
2022-07-28	*Westerly*	N/A	N/A	Groton, CT	Remained in port.
2022-07-31	*GO Explorer*	3:00	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Pick up spare equipment
2022-07-31	*GO Explorer*	20:00	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey area
2022-08-09	*GO Explorer*	06:40	Arrive	New Bedford Marine Commerce Terminal, New Bedford, MA	Crew Change
2022-08-09	*GO Explorer*	17:25	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey area
2022-08-11	*GO Explorer*	08:53	Arrive	New Bedford Marine Commerce Terminal, New Bedford, MA	Crew Change
2022-08-12	*GO Explorer*	00:25	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey area
2022-08-30	*GO Explorer*	06:15	Arrive	New Bedford Marine Commerce Terminal, New Bedford, MA	Equipment
2022-09-02	*GO Explorer*	01:10	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey
2022-09-03	*GO Explorer*	10:55	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Medical emergency
2022-09-07	*GO Explorer*	13:30	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to shelter
2022-09-22	*GO Explorer*	04:25	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Crew change
2022-09-27	*GO Explorer*	10:10	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey
2022-09-27	*GO Explorer*	11:30	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Equipment
2022-09-27	*GO Explorer*	12:25	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey
2022-10-01	*GO Explorer*	15:18	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Returned to port, weather
2022-10-05	*GO Explorer*	22:00	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-10-10	*GO Explorer*	22:24	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Returned to port, equipment
2022-10-10	*GO Explorer*	23:43	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-10-13	*GO Explorer*	9:29	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Returned to port, crew change
2022-10-16	*GO Explorer*	8:18	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-10-18	*GO Explorer*	17:26	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Returned to port, weather
2022-10-19	*GO Explorer*	17:54	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-11-03	*GO Explorer*	10:00	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Crew change
2022-11-04	*GO Explorer*	00:00	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-11-08	*GO Explorer*	22:25	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Equipment
2022-11-09	*GO Explorer*	15:55	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-11-12	*GO Explorer*	00:00	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Weather
2022-11-14	*GO Explorer*	17:02	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-11-16	*GO Explorer*	15:14	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to Port - Medical
2022-11-17	*GO Explorer*	16:55	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Weather patterns in Nantucket sound
2022-11-20	*GO Explorer*	14:26	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to Port -Medical
2022-11-22	*GO Explorer*	18:47	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to Lease Area
2022-12-03	*GO Explorer*	17:10	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Crew change
2022-12-04	*GO Explorer*	14:44	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-12-16	*GO Explorer*	07:12	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Crew change
2022-12-18	*GO Explorer*	05:09	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-12-22	*GO Explorer*	11:08	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port - Crew change
2022-12-27	*GO Explorer*	16:00	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2023-01-04	*GO Explorer*	03:00	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Crew change
2023-01-06	*GO Explorer*	00:48	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Heading offshore
2023-01-12	*GO Explorer*	23:50	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Weather
2023-01-18	*GO Explorer*	21:55	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Returning to the lease area
2023-01-26	*GO Explorer*	5:00	Arrive	McCallister Towing Yard; Fall River, MA	Returning to port
2023-01-27	*GO Explorer*	11:22	Depart	McCallister Towing Yard; Fall River, MA	Returning to the lease area
2023-01-31	*GO Explorer*	11:20	Arrival	McCallister Towing Yard; Fall River, MA	Demobilization
2022-07-28	*GO Discovery*	13:37	Arrive	New Bedford Marine Commerce Terminal, New Bedford, MA	Repairs
2022-07-29	*GO Discovery*	17:32	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to survey area
2022-08-04	*GO Discovery*	06:04	Arrive	New Bedford Marine Commerce Terminal, New Bedford, MA	Crew change
2022-07-27	*GO Pursuit*	05:27	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit back to the survey site
2022-08-08	*GO Pursuit*	17:58	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- crew change
2022-08-09	*GO Pursuit*	23:26	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit back to the survey site
2022-08-17	*GO Pursuit*	13:50	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- equipment
2022-08-17	*GO Pursuit*	14:37	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit to weather shelter
2022-08-19	*GO Pursuit*	21:25	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- equipment
2022-08-20	*GO Pursuit*	00:25	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit back to the survey site
2022-08-25	*GO Pursuit*	17:55	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- equipment
2022-08-27	*GO Pursuit*	01:15	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Transit back to the survey site
2022-08-27	*GO Pursuit*	23:45	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- COVID
2022-09-05	*GO Pursuit*	17:09	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-09-07	*GO Pursuit*	08:10	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Maintenance on walk in freezer
2022-09-10	*GO Pursuit*	22:57	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-09-13	*GO Pursuit*	04:00	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- Crew change
2022-09-14	*GO Pursuit*	00:05	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-09-19	*GO Pursuit*	22:05	Arrival	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to port- Crew change
2022-09-27	*GO Pursuit*	12:00	Depart	New Bedford Marine Commerce Terminal, New Bedford, MA	Return to lease area
2022-10-01	*GO Pursuit*	12:36	Arrival	New Bedford Marine Commerce Terminal - New Bedford, MA	Weather
2022-10-05	*GO Pursuit*	20:52	Depart	New Bedford Marine Commerce Terminal - New Bedford, MA	Returning to lease area
2022-10-08	*GO Pursuit*	22:57	Arrival	New Bedford Marine Commerce Terminal - New Bedford, MA	Damaged vessel equipment
2022-10-09	*GO Pursuit*	03:17	Depart	New Bedford Marine Commerce Terminal - New Bedford, MA	Returning to lease area
2022-10-11	*GO Pursuit*	08:00	Arrival	New Bedford Marine Commerce Terminal - New Bedford, MA	Crew change
2022-10-12	*GO Pursuit*	06:10	Depart	New Bedford Marine Commerce Terminal - New Bedford, MA	Returning to lease area
2022-10-18	*GO Pursuit*	17:30	Arrival	New Bedford Marine Commerce Terminal - New Bedford, MA	Picking up equipment
2022-10-18	*GO Pursuit*	19:51	Depart	New Bedford Marine Commerce Terminal - New Bedford, MA	Returning to lease area
2022-10-28	*GO Pursuit*	03:27	Arrival	New Bedford Marine Commerce Terminal - New Bedford, MA	Vessel maintenance
2022-10-28	*GO Pursuit*	22:00	Depart	New Bedford Marine Commerce Terminal - New Bedford, MA	Returning to lease area
2022-11-01	*GO Pursuit*	07:59	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Crew change
2022-11-02	*GO Pursuit*	00:14	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-11-08	*GO Pursuit*	15:05	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Picking up equipment
2022-11-14	*GO Pursuit*	17:22	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-11-20	*GO Pursuit*	18:40	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Crew change
2022-11-22	*GO Pursuit*	18:48	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-12-01	*GO Pursuit*	12:27	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port - crew change
2022-12-01	*GO Pursuit*	22:35	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-12-09	*GO Pursuit*	17:50	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port - crew change, weather, equipment
2022-12-20	*GO Pursuit*	03:35	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-12-22	*GO Pursuit*	23:30	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port - weather
2022-12-27	*GO Pursuit*	15:30	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to lease area
2022-12-31	*GO Pursuit*	23:23	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port - equipment
2023-01-02	*GO Pursuit*	05:30	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Returning to lease area
2023-01-04	*GO Pursuit*	00:42	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port-Crew Change
2023-01-07	*GO Pursuit*	01:56	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Returning to lease area
2023-01-12	*GO Pursuit*	23:55	Arrival	New Bedford Marine Commerce Terminal; New Bedford, MA	Return to port- End of project.
2022-11-05	*Brooks McCall*	06:04	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-07	*Brooks McCall*	11:13	Arrival	McCallister Towing dock, Fall River	Return to port - Crew change
2022-11-07	*Brooks McCall*	22:23	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-11	*Brooks McCall*	18:25	Arrival	McCallister Towing dock, Fall River	Return to port - Crew and equipment change
2022-11-13	*Brooks McCall*	17:33	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-16	*Brooks McCall*	12:25	Arrival	McCallister Towing dock, Fall River	Return to port - weather
2022-11-19	*Brooks McCall*	11:08	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-20	*Brooks McCall*	01:10	Arrival	McCallister Towing dock, Fall River	Return to port - weather
2022-11-21	*Brooks McCall*	09:58	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-21	*Brooks McCall*	23:20	Arrival	McCallister Towing dock, Fall River	Return to port - weather
2022-11-23	*Brooks McCall*	18:00	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-27	*Brooks McCall*	06:44	Arrival	McCallister Towing dock, Fall River	Return to port - Crew change
2022-11-28	*Brooks McCall*	20:40	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-11-30	*Brooks McCall*	18:45	Arrival	McCallister Towing dock, Fall River	Return to port
2022-12-02	*Brooks McCall*	01:05	Depart	McCallister Towing dock, Fall River	Return to lease area
2022-12-03	*Brooks McCall*	13:47	Arrival	Uncasville, CT	Return to port - weather
2022-12-04	*Brooks McCall*	11:50	Depart	Uncasville, CT	Return to lease area
2022-12-14	*Brooks McCall*	13:15	Arrival	Uncasville, CT	Return to port - crew change
2022-12-14	*Brooks McCall*	20:38	Depart	Uncasville, CT	Return to lease area
2022-12-15	*Brooks McCall*	22:20	Arrival	Uncasville, CT	Return to port - weather
2022-12-17	*Brooks McCall*	21:40	Depart	Uncasville, CT	Return to lease area
2022-12-22	*Brooks McCall*	20:15	Arrival	Uncasville, CT	Return to port - weather
2022-12-26	*Brooks McCall*	13:05	Depart	Uncasville, CT	Return to lease area
2022-12-30	*Brooks McCall*	15:25	Arrival	Uncasville, CT	Return to port - equipment and crew change
2022-12-30	*Brooks McCall*	22:00	Depart	Uncasville, CT	Briefly leave dock to allow barge access
2022-12-30	*Brooks McCall*	22:55	Arrival	Uncasville, CT	Return to port after allowing barge access
2022-12-31	*Brooks McCall*	12:55	Depart	Uncasville, CT	Vessel transit in port
2022-12-31	*Brooks McCall*	14:42	Arrival	Uncasville, CT	Return to port - equipment and crew change
2022-12-31	*Brooks McCall*	20:46	Depart	Uncasville, CT	Vessel transit in port
2022-12-31	*Brooks McCall*	21:31	Arrival	Uncasville, CT	Return to port - equipment and crew change
2023-01-02	*Brooks McCall*	19:55	Depart	Uncasville, CT	Moving away from the barge. Moving around.
2023-01-02	*Brooks McCall*	21:30	Arrival	Uncasville, CT	Wating for onsigners to arrive.
2023-01-03	*Brooks McCall*	00:51	Depart	Uncasville, CT	Moving to get way for a barge
2023-01-03	*Brooks McCall*	01:58	Arrival	Uncasville, CT	Waiting for day light to depart
2023-01-03	*Brooks McCall*	11:16	Depart	Uncasville, CT	Return to lease area
2023-01-07	*Brooks McCall*	12:45	Arrival	Uncasville, CT	To get spare parts for the USBL
2023-01-07	*Brooks McCall*	20:48	Depart	Uncasville, CT	Return to lease area
2023-01-11	*Brooks McCall*	22:00	Arrival	Uncasville, CT	Crew Change
2023-01-12	*Brooks McCall*	10:15	Depart	Uncasville, CT	Fuel
2023-01-12	*Brooks McCall*	11:19	Arrival	Fisher Island dock, CT	Fuel
2023-01-12	*Brooks McCall*	19:25	Depart	Fisher Island dock, CT	Return to lease area
2023-01-12	*Brooks McCall*	20:25	Arrival	Uncasville, CT	Crew change
2023-01-13	*Brooks McCall*	19:00	Depart	Uncasville, CT	Return to lease area
2023-01-19	*Brooks McCall*	12:47	Arrival	Uncasville, CT	Project demobilization
Lease OCS-A -0544					
2022-08-04	*GO Discovery*	23:48	Depart	New Bedford Marine Commerce Terminal; New Bedford, MA	Transit to lease area
2022-08-09	*GO Discovery*	23:42	Arrival	Bayonne Dry Dock, NJ	Crew change
2022-08-11	*GO Discovery*	10:00	Depart	Bayonne Dry Dock, NJ	Transit to lease area
2022-08-25	*GO Discovery*	10:02	Arrival	Bayonne Dry Dock, NJ	Crew change
2022-08-25	*GO Discovery*	22:00	Depart	Bayonne Dry Dock, NJ	Transit to lease area
2022-09-09	*GO Discovery*	18:00	Arrival	Sandy Hook Bay Marina, NJ	Return to port- Crew change
2022-09-09	*GO Discovery*	18:13	Depart	Sandy Hook Bay Marina, NJ	Transit to lease area- weather patterns
2022-09-15	*GO Discovery*	09:41	Arrival	Bayonne Dry Dock, NJ	Return to port- Crew change
2022-09-16	*GO Discovery*	14:50	Depart	Bayonne Dry Dock, NJ	Transit to lease area
2022-09-23	*GO Discovery*	18:13	Arrival	Reynolds dock, NY	Return to port- Crew change
2022-09-23	*GO Discovery*	19:22	Depart	Reynolds dock, NY	Transit to lease area
2022-10-06	*GO Discovery*	10:00	Arrival	Staten Island, NY	Crew change
2022-10-07	*GO Discovery*	15:04	Depart	Staten Island, NY	Returned to lease area
2022-10-14	*GO Discovery*	13:42	Arrival	Staten Island, NY	Crew change
2022-10-14	*GO Discovery*	14:19	Depart	Staten Island, NY	Returned to lease area
2022-10-27	*GO Discovery*	09:25	Arrival	Staten Island, NY	Crew change
2022-10-28	*GO Discovery*	18:58	Depart	Staten Island, NY	Returned to lease area
2022-11-17	*GO Discovery*	10:30	Arrival	Staten Island, NY	Crew change
2022-11-18	*GO Discovery*	01:00	Depart	Staten Island, NY	Transit to anchorage
2022-11-20	*GO Discovery*	17:05	Arrival	Staten Island, NY	Crew change
2022-11-20	*GO Discovery*	22:00	Depart	Staten Island, NY	Transit to anchorage
2022-11-26	*GO Discovery*	04:33	Arrival	Bayonne, NJ	Return to port - equipment

Date (YYYY-MM-DD)	Vessel	Time (UTC; HH:MM)	Depart / Arrival	Port Name	Reason (i.e., Repairs, Bunkering, Crew Change)
2022-11-26	*GO Discovery*	20:37	Depart	Bayonne, NJ	Return to lease area
2022-11-28	*GO Discovery*	12:55	Arrival	Staten Island, NY	Crew change
2022-11-28	*GO Discovery*	22:40	Depart	Staten Island, NY	Transit to anchorage
2022-12-07	*GO Discovery*	12:06	Arrival	Staten Island, NY	Return to port-Crew change
2022-12-07	*GO Discovery*	13:05	Depart	Staten Island, NY	Return to lease area
2022-12-09	*GO Discovery*	12:15	Arrival	Staten Island, NY	Return to port-Crew change
2022-12-09	*GO Discovery*	15:56	Depart	Staten Island, NY	Return to port-Crew change
2022-12-09	*GO Discovery*	16:36	Arrival	Bayonne, NJ	Return to port - provisions
2022-12-11	*GO Discovery*	05:48	Depart	Bayonne, NJ	Transit to anchorage
2022-12-15	*GO Discovery*	19:15	Arrival	Bayonne, NJ	Return to port - weather/ equipment
2022-12-17	*GO Discovery*	17:00	Depart	Bayonne, NJ	Return to lease area
2022-12-22	*GO Discovery*	21:00	Arrival	Bayonne, NJ	Return to port -weather
2022-12-26	*GO Discovery*	12:51	Depart	Bayonne, NJ	Return to lease area
2022-12-26	*GO Discovery*	17:35	Arrival	Brooklyn, NY	Return to port - equipment
2022-12-27	*GO Discovery*	15:05	Depart	Brooklyn, NY	Return to lease area
2022-12-30	*GO Discovery*	12:45	Arrival	Staten Island, NY	Return to port-Crew change
2023-04-17	*Brooks McCall*	14:00	Depart	Bridgeport, CT	Transit to Lease for surveying
2023-04-22	*Brooks McCall*	19:00	Arrival	GMD Brooklyn, NY	Transit to shelter (weather)
2023-04-25	*Brooks McCall*	16:30	Depart	Brooklyn, NY	Transit to Lease for surveying
2023-04-29	*Brooks McCall*	00:54	Arrival	Bridgeport, CT	Transit to shelter (weather)
2023-05-02	*Brooks MCCall*	16:46	Depart	Bridgeport, CT	Transit to Lease for surveying
2023-05-08	*Brooks MCCall*	15:40	Arrival	GMD Brooklyn	Crew change
2023-05-09	*Brooks MCCall*	07:40	Depart	GMD Brooklyn	Transit to Lease for surveying
2023-05-16	*Brooks MCCall*	02:35	Arrival	Bridgeport, CT	Crew change
2023-05-17	*Brooks MCCall*	09:50	Depart	Bridgeport, CT	Transit to Lease for surveying
2023-05-20	*Brooks MCCall*	03:40	Arrival	Bridgeport, CT	Transit to shelter (weather)
2023-05-22	*Brooks MCCall*	00:05	Depart	Bridgeport, CT	Transit to Lease for surveying
2023-05-30	*Brooks MCCall*	20:55	Arrival	Bridgeport, CT	Crew change
2023-06-02	*Brooks McCall*	02:00	Depart	Bridgeport, CT	Transit to Lease for surveying
2023-06-03	*Brooks McCall*	17:10	Arrival	GMD Brooklyn, NY	Transit to shelter (weather)
2023-06-04	*Brooks McCall*	13:18	Depart	GMD Brooklyn, NY	Transit to Lease for surveying
2023-06-12	*Brooks McCall*	08:00	Arrival	Bridgeport, CT	Crew change
2023-06-14	*Brooks McCall*	08:18	Depart	Bridgeport	Crew change
2023-06-21	*Brooks McCall*	15:45	Arrival	Bridgeport CT	Transit to shelter (weather)
2023-06-24	*Brooks McCall*	02:12	Depart	Bridgeport CT	Transit to Lease for surveying
2023-06-30	*Brooks McCall*	11:00	Arrival	Bridgeport CT	Resupply/Bunkering
2023-07-02	*Brooks McCall*	09:38	Depart	Bridgeport	Transit to Lease for surveying
2023-07-06	*Brooks McCall*	09:46	Arrival	GMD Brooklyn	Crew change
2023-07-06	*Brooks McCall*	16:10	Depart	GMD Brooklyn	Crew change
2023-07-13	*Brooks McCall*	18:41	Arrival	Staten Island	Crew change
2023-07-14	*Brooks McCall*	22:42	Depart	Staten Island	Transit to port
2023-07-15	*Brooks McCall*	10:32	Arrival	Bridgeport	Transit to port
2023-07-17	*Brooks McCall*	22:09	Depart	Bridgeport	Transit to Lease for surveying
2023-06-14	*Bella Marie*	11:44	Depart	Atlantic Highlands, NJ	Transit to port
2023-06-14	*Bella Marie*	15:00	Arrival	Guy Lombardo Marina, NY	Vessel/Equipment repairs
2023-06-16	*Bella Marie*	11:11	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-16	*Bella Marie*	18:11	Arrival	Guy Lombardo Marina, NY	Resupply/Bunkering
2023-06-19	*Bella Marie*	11:40	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-19	*Bella Marie*	20:34	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-20	*Bella Marie*	10:38	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-20	*Bella Marie*	11:43	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-23	*Bella Marie*	09:02	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-23	*Bella Marie*	11:36	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-24	*Bella Marie*	11:03	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-24	*Bella Marie*	14:00	Arrival	Guy Lombardo Marina, NY	Vessel/Equipment repairs
2023-06-24	*Bella Marie*	16:29	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-24	*Bella Marie*	17:30	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-25	*Bella Marie*	11:00	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-25	*Bella Marie*	21:00	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-26	*Bella Marie*	09:00	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-26	*Bella Marie*	19:08	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-28	*Bella Marie*	09:13	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-28	*Bella Marie*	10:49	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-29	*Bella Marie*	08:59	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-29	*Bella Marie*	19:18	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-06-30	*Bella Marie*	09:02	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-06-30	*Bella Marie*	18:17	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-01	*Bella Marie*	08:59	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-01	*Bella Marie*	19:06	Arrival	Guy Lombardo Marina, NY	Resupply/Bunkering
2023-07-02	*Bella Marie*	08:57	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-02	*Bella Marie*	13:06	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-03	*Bella Marie*	09:56	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-03	*Bella Marie*	20:18	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-04	*Bella Marie*	09:56	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-04	*Bella Marie*	19:32	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-04	*Bella Marie*	08:59	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-04	*Bella Marie*	19:40	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-06	*Bella Marie*	09:00	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-06	*Bella Marie*	18:28	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-07	*Bella Marie*	09:05	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-07	*Bella Marie*	19:11	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-08	*Bella Marie*	09:03	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-08	*Bella Marie*	18:51	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-09	*Bella Marie*	09:09	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-09	*Bella Marie*	19:32	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-10	*Bella Marie*	11:48	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-10	*Bella Marie*	19:08	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-11	*Bella Marie*	09:04	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-11	*Bella Marie*	19:25	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-12	*Bella Marie*	09:01	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-12	*Bella Marie*	18:39	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-13	*Bella Marie*	08:58	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-13	*Bella Marie*	15:11	Arrival	Guy Lombardo Marina, NY	Transit to port
2023-07-15	*Bella Marie*	09:00	Depart	Guy Lombardo Marina, NY	Transit to Lease for surveying
2023-07-15	*Bella Marie*	19:31	Arrival	Guy Lombardo Marina, NY	Transit to port

Appendix D: Protected Species Observers

PSO Information			
Lease Area	**VESSEL**	**PSO/ Names (Last, First)**	**Position (e.g. PSO, Lead PSO, etc.)**
OCS-A 0522	*Westerly*	Maldonado, Diana	Lead PSO
		Cowan, Malcolm	Lead PSO
OCS-A 0522	*Go Explorer*	Perez, Aaron	PSO
		Gutierrez, Daniela	PSO
		Jaimes, Fernando	PSO
		John, Darnell	PSO
		Lai Tan, Lyndon	Lead PSO
		Mohandeo, Ravie	PSO
		Osuna, Yosiris	PSO
		Azevedo, Camila	PSO
		Bravo, Esmeralda	PSO
		Diaz, Paola	PSO
		Dorado, Sam	PSO
		Ruiz, Arturo	Lead PSO
		Runyan, Leanna	PSO
		Weller, Robert	PSO
		Estrada, Hector	PSO
		Lopez, Miguel	PSO
		Penfield, Eren	Lead PSO
		Roberts, Britney	PSO
		O'Sullivan, Sean	PSO
		Alvarado, Edgar	Lead PSO
		Cabello, Diana	PSO
		Fuller, Emily	PSO
		Klein, Michelle	Lead PSO
		Minguer, Alejandra	PSO
		Ortega, Jimena	PSO
		Serrano, Itzel	Lead PSO
		Zavala, Andrea	PSO
		Olivares, Elsy	PSO
OCS-A 0522	*Go Discovery*	Ashcraft, Caylin	PSO
		Fisher, John	PSO
		Fuhr Ely, Gabriele	PSO
		Harris, Matthew	Lead
		Methany, Nicholas	PSO
		Mike, Romario	PSO
		Ramdoo, Tiffany	PSO
		Ramsarran, Celine	Lead PSO
		Santiago, Jaime	PSO
		Simancas, Jorge	PSO
		Twohy, Chelsea	PSO
OCS-A 0522	*Go Pursuit*	Ibrahim, Islam	Lead PSO
		Cowan, Malcolm	Lead PSO
		Alaman, Ricardo	Lead PSO
		Garcia, Marah	Lead PSO/PSO
		Santiago, Sancy	PSO
		Toxtle, Miguel	PSO
		Olivares, Elsy	PSO

PSO Information			
Lease Area	**VESSEL**	**PSO/ Names (Last, First)**	**Position (e.g. PSO, Lead PSO, etc.)**
OCS-A 0522	*Go Pursuit*	Dozier, Max	PSO
		Merkle, Shannon	PSO
		Yahn, Shelby	PSO
		Klein, Michelle	Lead PSO/PSO
		Abeytia, Flavio	PSO
		Bonfil, Neftali	PSO
		Danos, Laura	PSO
		Huizar, Heber	Lead PSO
		Ely, Gabriele	PSO
		Breton, Elizabeth	PSO
		Ramsarran, Celine	PSO
		Fuhr Ely, Gabriele	PSO
		Dalton, Tavis	PSO
		Mike, Romario	PSO
		Uribe, Amaranta	PSO
		Cardenas, Ana	PSO
		Danielski, Monica	PSO
		Hernandez, Valeria	Lead PSO/PSO
		Daniel, Francisco Ruz	PSO
		Dyachkov, Sergey	PSO
		Ramsaran, Keishan	Lead PSO
		O'Sullivan, Sean	PSO
		Ruz, Daniel	PSO
OCS-A 0522	*Brooks McCall*	Alvarado, Edgar	PSO
		Coronel, Cesar	PSO
		DeLeon, Grace	Lead PSO
		Parnell, ela	PSO
		Pena, Valeria	PSO
		Saunders, Devin	PSO
		Simancas, Jorge	Lead PSO
		Maharajh, Avinash	PSO
		Miranda, Sergio	PSO
		Mohammed, Kristal	PSO
		Bravo, Esmeralda	Lead PSO
		Gomez Ortiz, Brenda	PSO
		Pfiefer, MacKenzie	PSO
OCS-A 0544	*Go Discovery*	Ashcraft, Caylin	PSO
		Cowan, Malcolm	PSO
		Fisher, John	PSO
		Metheny, Nicholas	PSO
		Sandoval, Maria	PSO
		Simancas, Jorge	Lead PSO
		Rangel, Zuemy	PSO
		Jackson, Alicia	PSO
		Fuhr Ely, Gabriele	PSO
		Garcia, Marah	Lead PSO
		Lewis, Henry	PSO
		Ley, Rafael	PSO
		Muehlenweg, Ashley	Lead PSO/PSO

PSO Information			
Lease Area	**VESSEL**	**PSO/ Names (Last, First)**	**Position (e.g. PSO, Lead PSO, etc.)**
OCS-A 0544	*Go Discovery*	Patterson, Tania	Lead PSO
		Balderas, Yesenia	Lead PSO
		Dorantes, Lluvia	PSO
		Triana, Felipe	PSO
OCS-A 0544	*Brooks McCall*	Ruiz Villanueva, Arturo	Lead PSO
		Dalton, Tavis	PSO
		Peña Mendoza, Valeria	PSO
		De La Rosa, Leonardo Mario	PSO
		Salomón Hernández, Ana Betsabé	PSO
		Ortega Arana, Jimena	Lead PSO
		Cardenas, Ana	PSO
		Dyachkov, Sergey	PSO
		Steinbeisser, Myka	PSO
		Alwin, Alicia	PSO
		Szmidt, Paulina	PSO
OCS-A 0544	*Bell Marie*	Figueroa, Lorena	Lead PSO
		Reid, Connor	PSO

Appendix E: Night Monitoring Equipment

Morovision PVS-7 Gen 3 PINNACLE Goggle Delta Kit

SKU MVP-MVPVS7-3DP CID 20215

Review This Product

MSRP:$4,595.00
Your Price:$4,365.00
You Save:$230.00

Available: Call for availablity

Purchase PVS-7 Gen 3 PINNACLE Goggle Delta Kit

Quantity 1 Add to Cart

- Description
- Warranty

Morovision Night Vision proudly offers the PVS-7 Delta Generation 3 PINNACLE® Delta Kit. The PVS-7 goggle is standard issue goggle type supplied to the U.S. Military and its allies. Equipped with a factory new, high-performance, ITT Generation 3 PINNACLE® image intensifier tube, the PVS-7 PINNACLE® night vision goggle is designed for the most demanding of night time applications. Battle-proven technology includes Automatic Brightness Control which automatically adjusts the brightness of the image tube to achieve the highest quality image resolution under varying light conditions as well as protect the user and the system against inadvertent exposure to excessive light. In addition, a built-in infra-red illuminator with momentary or continuous switching function allows the user to operate under zero light

Figure F-1: Night vision goggles specifications

NIVISYS™ LLC
NIGHT VISION SYSTEMS

TACS-M™

Rev. 21 Jan 2013

Thermal Acquisition Clip-On System, Miniature

TACS-M shown here on a MUM-14.

SPECIFICATIONS*

Field of View	Boresight Accuracy	Magnification	F Number
20° circular (centered)	3 MOA	1X, optical unity	1.2
Sensor	**Spectral Response**	**Pitch**	**NEΔT**
320 x 240 VOx uncooled LWIR microbolometer	8-12μm	25μm	50mK
Display Brightness	**Polarity**	**Calibration**	**Display**
Adjustable	White hot/black hot	Manual	Kopin (RED)
Range (Clear)	**Range (Obscured)**	**Compatibility**	**Interface**
Detection: 300m Recognition: 260m	Detection: 250m Recognition: 210m	PVS-7, PVS-14, PVS-15, PVS-18, PVS-23, MUM-14	Standard quick connect
Battery Type	**Battery Life**	**Dimensions**	**Weight**
CR123, 3V Lithium, 1ea.	>3.0 hrs (23°C) 2.5 hrs (0°C)	(W x H x L) 38 x 64 x 89mm	166g with battery

*Specifications are subject to change without notice.

Export of the commodities described herein is strictly prohibited without a valid export license issued by the U.S. Department of State. Directorate of Defense Trade Controls as proscribed in the International Traffic in Arms Regulations (ITAR). Title 22 Code of Federal Regulation. Parts 120-130.

DISTRIBUTION: OSR 11-S-1578 Approved for public release: distribution unlimited. © 2011 Nivisys

DESCRIPTION

The Miniature Thermal Acquisition Clip-On System (TACS-M) provides the soldier with ultimate performance in technology. Low power consumption, optimal sensor technology, and high-performance optics all seamlessly integrate to provide state of the art long wave infrared (LWIR) technology.

When added to a standard image intensified system, TACS-M provides a second channel with LWIR capability, extending engagement capabilities through obscurants. The TACS-M unit along with Nivisys experience and expertise provides the best value solution for adding low light and no light performance to currently fielded night vision systems.

The unit's waterproof and rugged construction stands up to the harshest environments and features a red display for visual security. This multi-purpose surveillance tool uses the latest in miniature thermal sensor technology and a high resolution display to provide superior imagery in the smallest package available.

For more information on the TACS-M or other Nivisys products call (480) 970-3222 or visit us on the web at www.nivisys.com.

Made in USA

Nivisys, LLC • 400 S. Clark Drive, Suite 105 • Tempe, Arizona USA • 480.970.3222 • 480.970.3555(fax) • email: info@nivisys.com

Figure F-2: Thermal acquisition clip-on system specifications

Appendix F: Reticle Binocular Calibration Table

GO DISCOVERY							
Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
	Henry Lewis	191	222	5	18	<2	Bouy
	Marah Garcia Vital	1478	1666	3	8	<2	Fishing boat
	Rafael Escalante	3064	2963	3	9.6	<2	Recreational boat
	Henry Lewis	218	227	1	6	<2	Fishing Vessel
	Alicia Jackson	758	740	2	5	<2	Channel buoy
	Marah Garcia Vital	739	907	3	6	<2	Fishing boat
	Zuemy Rangel	1200	1000	3	9	<2	Fishing Vessel
	Henry Lewis	1300	1111	3	15	<2	Bouy
	Marah Garcia Vital	1478	1370	2	3	<2	Recreational boat
	Mily Sandoval	1575	1907	3	20	<2	Fishing boat
	Henry Lewis	2000	2037	4	16	<2	Fishing Vessel
	Marah Garcia Vital	739	703	2	5	<2	Fishing vessel
	Rafael Escalante	766	759	3	10	<2	Fishing Vessel
	Henry Lewis	1400	1111	4	15	<2	Fishing Vessel
	Gabriele Fuhr	1524	1852	4	14	<2	Fishing Vessel
	Marah Garcia Vital	739	685	3	14	<2	Fishing Vessel
	Mily Sandoval	503	685	3	9	<2	Fishing Vessel
	Henry Lewis	763	685	3	9	<2	Fishing Vessel
	Marah Garcia Vital	739	685	3	9	<2	Fishing Vessel
	Gabriele Fuhr	1524	1611	2	8	<2	Fishing Vessel
	Rafael Escalante	901	963	2	8	<2	Recreational boat
	Henry Lewis	119	111	2	13	<2	Bouy
	Tania Patterson	1550	1852	3	14	<2	Fishing Vessel
	Rafael Ley	N/A	N/A	N/A	N/A	N/A	Observer on night shift, no calibration obtained
	Ashley Muehlenweg	780	926	2	10	<2	Floating Barge
	Gabriele Fuhr Ely	258	174	2	10	<2	Channel Buoy
	Mily Sandoval	253	174	2	10	<2	Channel Buoy
	Tania Patterson	388	440	4	24	<2	Rock structure
	Rafael Ley	N/A	N/A	N/A	N/A	N/A	Observer on night shift, no calibration obtained
	Ashley Muehlenweg	1770	2240	4	28	<2	Channel Buoy
	Gabriele Fuhr Ely	1200	1537	3	22	<2	Ferry
	Mily Sandoval	1190	1611	4	24	<2	Buoy
	Yesenia B	1510	1362	3	6	<2	Sport boat as reference
	Ashley M	1570	1240	3	7	<2	Weather bouy
	Lluvia D	N/A	N/A	N/A	N/A	N/A	No reference d/t night shift
	Zuemy R	N/A	N/A	N/A	N/A	N/A	No reference d/t night shift
	Felipe T	N/A	N/A	N/A	N/A	N/A	No reference d/t night shift

GO EXPLORER							
Date	**Observer Name**	**Reticle Binocular Estimated Distance (m)**	**True Distance from Radar (m)**	**Sea State (Beaufort)**	**Wind Force (knots)**	**Swell (m)**	**Comments**
	Lyndon Lai Tan	1356	1400	N/A	N/A	<2	Fishing vessel
	Lyndon Lai Tan	767	720	N/A	N/A	<2	Fishing vessel
	Arturo Ruiz	638.3	650	3	12	<2	Fishing vessel
	Esmeralda Bravo	665	617	4	11	<2	Fishing vessel
	Arturo Ruiz	775.97	800	4	14	<2	Fishing vessel
	Esmeralda Bravo	751	740	3	8	<2	Fishing vessel
	Esmeralda Bravo	617	694	5	16	<2	Fishing vessel
	Arturo Ruiz	1369.83	1450	5	22	<2	Fishing vessel
	Esmeralda Bravo	1732	1852	5	20	<2	Fishing vessel
	Arturo Ruiz	2244.5	1700	3	12	<2	Fugro Explorer
	Esmeralda Bravo	959	926	3	14	<2	Fishing vessel
	Robert W	1357.42m	1400	2	12	<2	Fishing vessel
	Robert W	225.4m	2778	2	10	<2	Fishing vessel
	Sean O	3200	2000	4	16	<2	Go Pursuit vessel
	Sean O	600	800	3	16	<2	fishing boat
	Eren P	1500	1350	3	12	<2	Fishing boat
	Eren P	3200	2000	3	14	<2	fishing boat
	Itzel Serrano	325	370	3	12	<2	Fishing boat
	Emily	1900	1870	3	18	<2	charger vessel
	Itzel Serrano	700	750	3	16	<2	fishing boat
	Edgar Alvarado	310	350	3	16	<2	Go Pursuit vessel
	Alejandra Minguer	300	350	3	16	<2	Go Pursuit vessel
	Jimena Ortega	407	463	3	14	<2	Fishing boat
	Diana Cabello	2360	2389	3	12	<2	Buoy traffic
	Alejandra Minguer	460	492	1	6	<2	Fishing boat
	Hector Estrada	2340	2200	2	3	<2	Go Pursuit vessel
	Michelle Klein	1593	1667	5	18	<2	Go Pursuit vessel
	Alejandra Minguer	1000	926	3	15	<2	Go Pursuit vessel
	Hector Estrada	1470	1208	3	8	<2	Go Pursuit vessel
	Hector Estrada	1470	1208	3	8	<2	Go Pursuit vessel
	Michelle Klein	1250	1240	3	12	<2	Green channel marker
	Elsy Olivares	458	410	2	10	<2	Transit buoy
	Alejandra Minguer	200	220	2	21	<2	Fishing boat
	Hector Estrada	840	740	3	5	<2	Green channel marker
	Michelle Klein	2209	2482	4	12	<2	Fishing boat

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
	Elsy Olivares	2430	2110	4	15	<2	Dean Renauer vessel
	Alejandra Minguer	2380	2110	4	15	<2	Dean Renauer vessel
	Hector Estrada	920	964	3	18	<2	R/W Westerly boat
	Jimena Ortega	3695	3704	2	7	<2	Go Pursuit vessel
	Edgar Alvarado	1535	1560	3	10	<2	Go Pursuit vessel

GO PURSUIT

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
10/27/2022	Michelle Klein	4341	4018	4	20	<2	Fishing vessel
10/24/2022	Celine Ramsarran	7	197	3	8	<2	Fishing bouy
11/02/2022	Michelle Klein	2178	2222	6	25	2-4	Fishing boat
11/04/2022	Tavis Dalton	1900	2000	2	6	<2	Weather buoy
11/05/2022	Romario Mike						No reticle calibration was conducted.
11/05/2022	Amaranta Uribe						during daylight watches.
11/03/2022	Celine Ramsarran	2554	2300	3	5	1-2	Buoy
11/07/2022	Michelle Klein	800	850	3	12	<2	Buoy
11/07/2022	Celine Ramsarran	1000	1100	2	10	<2	Buoy
11/17/2022	Tavis Dalton	672	648	4	16	<2	Channel marker buoy
11/17/2022	Amaranta Uribe	196	231	4	13	<2	Channel marker buoy
11/17/2022	Celine Ramsarran	640	685	4	20	<2	Channel marker buoy
11/26/2022	Miguel Toxtle	637	629	4	20	2-4	Green channel buoy
11/27/2022	Celine Ramsarran	1380	1320	3	20	2-4	Channel marker buoy
11/28/2022	Valria Hernandez	959.8	945	4	18	<2	Marker buoy
11/30/2022	Monica Danielski	1402	1332	4	27	<2	Marker buoy
11/28/2022	Miguel Toxtle	276	242	4	18	<2	Marker buoy
12/22/2022	Valeria Hernandez	700	796	4	15	<2	
12/22/2022	Miguel Toxtle	780	796	4	15	<2	
12/27/2022	Valeria Hernandez	560	620	4	22	<2	
12/29/2022	Sergey Dyachkov	710	740	3	7	<2	
12/29/2022	Miguel Toxtle	1600	1670	3	9	<2	

Brooks McCall

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
							Brooks McCall remained docked
2023-04-20	Peña Mendoza, Valeria	1870	1852	B3	15	<2	Fujinon 7x50. Distance to NOAA Data Lighted Bouy
2023-04-22	Dalton, Tavis	1063	1110	B3	8	<2	Marker Buoy during transit
2023-04-22	Ruiz Villanueva, Arturo	420	352	B4	10	<2	Ferry
2023-04-22	Salomón Hernández, Ana Betsabé	1500	1426	B2	6	<2	Recreational vessel

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
2023-04-26	Salomón Hernández, Ana Betsabé	500	555	B4	21	<2	Bouy
2023-04-28	Ruiz Villanueva, Arturo	845	870	B5	11	<2	Tanker
2023-04-28	Dalton, Tavis	654	644	B5	11	<2	Tanker
2023-04-28	Peña Mendoza, Valeria	540	574	B5	11	<2	Tanker
2023-04-28	De La Rosa, Leonardo Mario	1656	1592	B4	18	<2	Marine traffic buoy
2023-05-05	De La Rosa, Leonardo Mario	2093	2250	B2	6	<2	Container vessel
2023-05-05	Ruiz Villanueva, Arturo	1690	1741	B3	8	<2	Small boat
2023-07-05	Dalton, Tavis	722	785	B3	8	<2	scout vessel
2023-07-05	Salomón Hernández, Ana Betsabé	379	402	B3	8	<2	scout vessel
2023-05-09	Dalton, Tavis	1214	1117	B2	6	<2	small recreation fishing vessel
2023-05-09	Peña Mendoza, Valeria	1290	1290	B2	7	<2	small recreation fishing vessel
2023-05-09	Ruiz Villanueva, Arturo	845	963	B3	10	<2	tug boat
2023-05-10	Peña Mendoza, Valeria	790	720	B2	1	<2	small recreation fishing vessel
2023-05-10	Salomón Hernández, Ana Betsabé	451	423	B2	1	<2	small recreation fishing vessel
2023-05-12	De La Rosa, Leonardo Mario	1690	1850	B2	6	<2	small recreation fishing vessel
2023-05-12	Peña Mendoza, Valeria	980	870	B3	10	<2	Gabriel support vessel
2023-05-15	Peña Mendoza, Valeria	300	260	B3	8	<2	Small fishing boat
2023-05-18	De La Rosa, Leonardo Mario	1680	1800	B2	9	<2	Marine traffic buoy
2023-05-18	Peña Mendoza, Valeria	730	740	B4	15	<2	Small fishing boat
2023-05-19	Dalton, Tavis	531	558	B4	13	<2	Capt Dave scout vessel
2023-05-19	Ruiz Villanueva, Arturo	338	370	B4	10	<2	Capt Dave scout vessel
2023-05-23	Peña Mendoza, Valeria	620	648	B2	8	<2	Small fishing boat
2023-05-23	Salomón Hernández, Ana Betsabé	555	531	B2	5	<2	Small fishing boat
2023-05-24	De La Rosa, Leonardo Mario	1680	1850	B3	9	<2	Cargo vessel
2023-05-27	Peña Mendoza, Valeria	510	518	B2	4	<2	R/V Proteus
2023-05-28	Ruiz Villanueva, Arturo	1690	1667	B1	2	<2	Fishing vessel
2023-05-28	Dalton, Tavis	1416	1324	B1	7	<2	Recreational fishing vessel
2023-06-02	De La Rosa, Leonardo Mario	840	800	B2	12	<2	Fishing vessel
2023-06-02	Peña Mendoza, Valeria	980	985	B2	7	<2	Small fishing boat
2023-06-07	Peña Mendoza, Valeria	880	814	B3	10	<2	Small fishing boat
2023-06-08	Dalton, Tavis	1214	1105	B3	9	<2	Vessel at anchor
2023-06-08	De La Rosa, Leo	840	900	B4	11	<2	Sport fishing boat
2023-06-09	Salomón Hernández, Ana Betsabé	1320	1277	B3	10	<2	Fishing boat
2023-06-10	Ruiz Villanueva, Arturo	423	463	B3	3	<2	Recreational vessel
2023-06-15	Ortega Arana, Jimena	3580	3704	B3	12	<2	Vessel in the area
2023-06-16	Dyachkov, Sergey	1560	1650	B3	14	<2	Vessel in the area
2023-06-17	Dalton, Tavis	945	931	B3	12	<2	Recreational fishing vessel
2023-06-17	Cardenas, Ana	350	350	B2	13	<2	Fishing boat

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
2023-06-18	Steinbeisser, Myka	1320	1400	B3	13	<2	Rec fishing boat
2023-06-19	Ortega Arana, Jimena	620	597	B3	15	<2	Tanker vessel
2023-06-19	Dalton, Tavis	570	623	B5	19	<2	Tanker vessel
2023-06-24	Dyachkov, Sergey	3300	3500	B3	14	<2	Tug boat
2023-06-25	Steinbeisser, Myka	770	700	B2	11	<2	Rec boat
2023-06-26	Cardenas, Ana	467	555.6	B2	6	<2	Party boat
2023-06-29	Dalton, Tavis	N/A	N/A	N/A	N/A	N/A	Unable to perform calibration due to the horizon is obstructed by haze
2023-06-29	Ortega Arana, Jimena	N/A	N/A	N/A	N/A	N/A	Unable to perform calibration due to the horizon is obstructed by haze
2023-06-30	Steinbeisser, Myka	N/A	N/A	N/A	N/A	N/A	Unable to perform calibration due to the horizon is obstructed by haze
2023-07-03	Ortega Arana, Jimena						Unable to perform calibration
2023-07-04	Ortega Arana, Jimena	230	298	B2	10	<2	Fishing boat
2023-07-07	Steinbeisser, Myka	700	650	B2	5	<2	Recreational boat
2023-07-08	Ortega Arana, Jimena	320	370	B2	14	<2	Recreational boat
2023-07-13	Cardenas, Ana	1400	1759	B3	11	<2	Container vessel
2023-07-13	Cardenas, Ana	350	444	B3	11	<2	Container vessel
2023-07-20	Ortega Arana, Jimena	740	759	B3	10	<2	Fishing boat
2023-07-20	Cardenas, Ana	350	425	B2	12	<2	Fishing boat
2023-07-20	Szmidt, Paulina	720	750	B2	6	<2	Sailing boat
2023-07-22	Alwin, Alicia	750	780	B3	9	<2	Fishing boat
2023-07-22	Steinbeisser, Myka	540	480	B3	10	<2	Fishing boat
2023-07-24	Ortega Arana, Jimena	398	388	B2	8	<2	Fishing boat
2023-07-24	Cardenas, Ana	280	259	B3	6	<2	Fishing party boat
2023-07-24	Szmidt, Paulina	350	370	B3	10	<2	Fishing boat
2023-07-24	Alwin, Alicia	280	300	B3	7	<2	Fishing boat
2023-07-26	Steinbeisser, Myka	900	870	B2	6	<2	Fishing boat

Bella Marie

Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
2023-06-25	Figueroa, Lorena	329	360	B2	8	<2	Traffic buoy
2023-06-25	Reid, Connor	730	762	B1	6	<2	Fishing vessel
N/A	Figueroa, Lorena	-	-		-	-	No objects to compare with while horizon visible
N/A	Reid, Connor	-	-		-	-	No objects to compare with while horizon visible
N/A	Figueroa, Lorena	658	685	B1	3	<2	Recreational fishing boat
N/A	Reid, Connor	-	-		-	-	No objects to compare with while horizon visible
N/A	Figueroa, Lorena	-	-		-	-	No objects to compare with while horizon visible
N/A	Reid, Connor	-	-		-	-	No objects to compare with while horizon visible
2023-07-16	Figueroa, Lorena	213	231	B1	5	<2	Recreational fishing vessel
2023-07-16	Reid, Connor	730	707	B1	6	<2	Recreational fishing vessel

Appendix G : Excel Data Sheets of Monitoring Effort and Detections of Protected Species During the Survey

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
Lease OCS-A -0522																							
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	10:50	11:00	41.31818	-71.98877	41.30075	-72.01178	3	2	N	<2	B1	>5	Clear	Severe	0.1	177	Transit	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:00	11:37	41.30075	-72.01178	41.26602	-72.16833	15	2	N	<2	B1	>5	Clear	Severe	9.3	257	Transit	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:37	11:52	41.26602	-72.16833	41.26568	-72.17292	35	1	N	<2	B2	>5	Clear	Severe	10	279	Silent	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:52	12:00	41.26568	-72.17292	41.26578	-72.17683	27	1	N	<2	B2	>5	Clear	Severe	3	281	Deploying/Retrieving	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:00	12:07	41.26578	-72.17683	41.26553	-72.17755	25	1	N	<2	B2	>5	Clear	Severe	4.8	282	Deploying/Retrieving	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:07	12:27	41.26553	-72.17755	41.26512	-72.17542	26	1	N	<2	B2	>5	Clear	Severe	0.3	174	Soft Start	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:27	12:28	41.26512	-72.17542	41.27245	-72.17807	25	2	N	<2	B2	>5	Clear	Severe	4	347	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:28	12:29	41.27245	-72.17807	41.27245	-72.17807	23	2	N	<2	B1	>5	Clear	Severe	3.9	354	Testing	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:29	13:00	41.27245	-72.17807	41.27533	-72.18057	23	2	N	<2	B1	>5	Clear	Severe	3.9	354	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	13:00	14:00	41.27533	-72.18057	41.26413	-72.18003	21	4	WNW	<2	B2	>5	Clear	Severe	4.2	174	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	14:00	15:00	41.26413	-72.18003	41.26957	-72.18065	28	6	WNW	<2	B2	>5	Clear	Severe	3.7	359	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	15:00	16:00	41.26957	-72.18065	41.28395	-72.18100	25	6	WSW	<2	B2	>5	Clear	Moderate	3.3	179	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	16:00	16:22	41.28395	-72.18100	41.26987	-72.18060	16	9	SW	<2	B3	>5	Clear	Moderate	4.1	16	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	16:22	17:00	41.26987	-72.18060	41.28992	-72.08343	24	9	SW	<2	B3	>5	Clear	Moderate	5.8	131	Transit	N/A
2022-07-27	*Westerly*	HRG	Visual	Maldonado, Diana; Braget, Ryan	RPS	17:00	18:00	41.28992	-72.08343	41.27358	-72.06575	17	12	SSW	<2	B3	>5	Clear	Moderate	4.6	6	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Shankle, Jeff	RPS	18:00	19:00	41.27358	-72.06575	41.28397	-72.07267	18	12	SSW	<2	B3	>5	Clear	Moderate	4.2	8	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	19:00	20:00	41.28397	-72.07267	41.27945	-72.06160	14	12	SSW	<2	B3	>5	Clear	Moderate	4.6	153	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	20:00	20:36	41.27945	-72.06160	41.26585	-72.06017	15	12	SSW	<2	B3	>5	Clear	Moderate	4.3	182	Full Power	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	20:36	20:56	41.26585	-72.06017	41.27115	-72.05023	18	12	SSW	<2	B3	>5	Cloudy	Moderate	4.5	57	Deploying/Retrieving	N/A
2022-07-27	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	20:56	21:00	41.27115	-72.05023	41.27770	-72.04020	14	12	SSW	<2	B3	>5	Cloudy	Moderate	7.2	65	Transit	N/A
2022-07-27	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	21:00	21:30	41.27770	-72.04020	41.31817	-71.98877	13	12	SSW	<2	B3	>5	Cloudy	Moderate	8.3	66	Transit	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	10:44	11:00	41.31820	-71.98877	41.30060	-72.02110	3	4	S	<2	B0	2-5	Fog	None	0	14	Transit	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	10:58	11:13	41.30060	-72.02110	41.29368	-72.06105	10	4	S	<2	B1	2-5	Fog	None	9.2	272	Silent	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:13	11:28	41.29368	-72.06105	41.29382	-72.06548	13	4	S	<2	B2	2-5	Fog	None	0.8	320	Deploying/Retrieving	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:28	11:48	41.29382	-72.06548	41.28940	-72.05697	14	4	S	<2	B2	2-5	Fog	None	3.4	95	Soft Start	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:48	11:51	41.28940	-72.05697	41.29255	-72.05735	14	4	S	<2	B2	2-5	Fog	None	3.7	67	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:51	11:52	41.29255	-72.05735	41.29647	-72.05965	14	4	S	<2	B2	2-5	Fog	None	4.7	350	Testing	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	11:52	12:00	41.29647	-72.05965	41.30445	-72.06438	15	4	S	<2	B2	2-5	Fog	None	4.4	349	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	12:00	13:00	41.30445	-72.06438	41.29307	-72.07938	5	6	SSW	<2	B2	2-5	Fog	None	4	1	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	13:00	14:00	41.29307	-72.07938	41.27162	-72.06653	13	7	SSW	<2	B2	2-5	Fog	Slight	3.8	221	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	14:00	15:00	41.27162	-72.06653	41.29715	-72.07978	18	8	S	<2	B2	2-5	Fog	Slight	4.1	193	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	15:00	16:00	41.29715	-72.07978	41.27313	-72.06590	13	9	S	<2	B2	2-5	Fog	Moderate	4.5	291	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	16:00	17:00	41.27313	-72.06590	41.28940	-72.04838	17	10	S	<2	B3	>5	Fog	Moderate	4	9	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	17:00	18:00	41.28940	-72.04838	41.29635	-72.06047	12	11	S	<2	B3	>5	Fog	Moderate	4.4	352	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	18:00	19:00	41.29635	-72.06047	41.28098	-72.06938	12	11	S	<2	B3	>5	Cloudy	Moderate	4.3	159	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	19:00	19:37	41.28098	-72.06938	41.29535	-72.08555	15	10	S	<2	B3	>5	Cloudy	Moderate	3.6	334	Full Power	N/A
2022-07-28	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	19:37	19:53	41.29535	-72.08555	41.30762	-72.07877	13	10	S	<2	B3	>5	Cloudy	Severe	4.2	353	Deploying/Retrieving	N/A
2022-07-28	*Westerly*	HRG	Visual	Shankle, Jeff; Braget, Ryan	RPS	19:53	20:00	41.30762	-72.07877	41.31225	-72.06837	9	10	S	<2	B3	>5	Cloudy	Severe	5.6	87	Transit	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	20:00	20:16	41.31225	-72.06837	41.31522	-72.07095	6	11	S	<2	B3	>5	Cloudy	Severe	6.5	74	Transit	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	20:16	20:55	41.31522	-72.07095	41.30677	-72.06173	6	11	S	<2	B3	>5	Cloudy	Severe	2.4	212	Silent	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	20:55	21:02	41.30677	-72.06173	41.30527	-72.04913	8	12	S	<2	B3	>5	Clear	Severe	6	107	Transit	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	21:02	21:06	41.30527	-72.04913	41.30502	-72.04377	10	12	S	<2	B3	>5	Clear	Severe	0.6	112	Deploying/Retrieving	N/A
2022-07-28	*Westerly*	HRG	Visual	Cowan, Malcolm; Braget, Ryan	RPS	21:06	21:36	41.30502	-72.04377	41.31817	-71.98877	10	12	S	<2	B3	>5	Clear	Severe	7	113	Transit	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:03	00:44	41.37613	-70.92530	41.32287	-71.00637	28.7	21	WSW	<2	B3	>5	Clear	Slight	8.1	227	Transit	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:44	01:00	41.32287	-71.00637	41.32207	-71.00230	29.8	14	SW	<2	B3	0.5-1	Cloudy	None	5.7	168	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; John, Darnell	RPS	01:00	01:57	41.32207	-71.00230	41.32052	-71.01629	28	14	E	<2	B4	0.5-1	Cloudy	None	8.5	101	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	01:57	03:01	41.32052	-71.01629	41.25802	-71.01534	33	12	WSW	<2	B3	0.5-1	Clear	None	3.8	182	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	03:01	03:57	41.25802	-71.01534	41.19297	-71.01388	30	11	W	<2	B3	0.5-1	Clear	None	4.0	173	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	03:57	04:58	41.19297	-71.01388	41.08044	-71.00898	30	17	W	<2	B3	0.5-1	Clear	None	6.0	182	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	John, Darnell; Mohandeo, Ravie	RPS	04:58	05:55	41.08044	-71.00898	40.97112	-70.99256	29	10	WSW	<2	B3	0.5-1	Clear	None	7.0	178	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	05:55	06:56	40.97112	-70.99256	40.85732	-70.98157	48.7	7	WSW	<2	B3	0.5-1	Clear	None	7.2	176	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Gutierrez, Daniela	RPS	06:56	07:58	40.85732	-70.98157	40.74240	-70.96463	47.2	6	W	<2	B3	0.5-1	Clear	None	7.1	178	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	07:58	08:58	40.74240	-70.96463	40.67168	-71.04604	30	4	SSE	<2	B3	0.5-1	Clear	None	7.3	160	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Mohandeo, Ravie	RPS	08:58	09:20	40.67168	-71.04604	40.65426	-71.06849	61.5	3	NW	<2	B3	1-2	Clear	None	4.7	230	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Mohandeo, Ravie	RPS	09:20	09:54	40.65426	-71.06849	40.65545	-71.07399	57	2	NW	<2	B3	2-5	Clear	None	3.6	220	Standby	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	09:54	10:54	40.65545	-71.07399	40.64841	-71.12003	36	2	NNW	<2	B2	>5	Clear	None	1.2	308	Deploying/Retrieving	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	10:54	11:00	40.64841	-71.12003	40.64726	-71.12633	64.7	2	NNW	<2	B2	>5	Clear	Severe	2.1	242	Soft Start	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:00	11:14	40.64726	-71.12633	40.65314	-71.12136	64	5	NNE	<2	B2	>5	Clear	Severe	3.6	125	Soft Start	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:14	12:00	40.65314	-71.12136	40.64740	-71.05667	67.2	7	NNE	<2	B2	>5	Clear	Severe	4.5	103	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	12:59	40.64740	-71.05667	40.63829	-70.96404	67	6	NE	<2	B2	>5	Clear	Severe	4.3	89	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	12:59	14:00	40.63829	-70.96404	40.60685	-70.87898	69	4	NE	<2	B2	>5	Clear	Severe	4.3	87	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	14:00	14:05	40.60685	-70.87898	40.60259	-70.87837	68	3	ESE	<2	B2	>5	Clear	Severe	4.3	120	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:05	14:57	40.60259	-70.87837	40.62845	-70.95214	68	3	ESE	<2	B2	>5	Clear	Severe	4.3	120	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	14:57	15:54	40.62845	-70.95214	40.65789	-71.02807	69	9	NW	<2	B3	>5	Clear	Severe	4.1	279	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	15:54	16:01	40.65789	-71.02807	40.66146	-71.03769	69	9	NW	<2	B3	>5	Clear	Severe	4.1	279	Silent	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Lai Tan, Lyndon	RPS	16:01	16:41	40.66146	-71.03769	40.68143	-71.07864	65	8	WNW	<2	B3	>5	Clear	Slight	4.5	291	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:41	16:47	40.68143	-71.07864	40.67777	-71.06850	65	8	WNW	<2	B2	>5	Clear	Slight	4.5	291	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:47	16:55	40.67777	-71.06850	40.67330	-71.05646	65	8	WNW	<2	B2	>5	Clear	Slight	4.5	291	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	16:55	17:58	40.67330	-71.05646	40.68018	-71.08680	64	7	SW	<2	B2	>5	Clear	Slight	4.6	121	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:59	40.68018	-71.08680	40.65954	-71.03946	63	10	WNW	<2	B2	>5	Clear	Slight	4.6	300	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	18:59	19:18	40.65954	-71.03946	40.65905	-71.06425	62	10	W	<2	B2	>5	Clear	Slight	5.0	267	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	19:18	19:25	40.65905	-71.06425	40.66516	-71.06018	62	10	W	<2	B2	>5	Clear	Slight	5.0	33	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	19:25	19:38	40.66516	-71.06018	40.67891	-71.05134	62	10	W	<2	B3	>5	Clear	Slight	5.0	33	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	19:38	19:40	40.67891	-71.05134	40.68001	-71.05065	62	10	WSW	<2	B3	>5	Clear	Slight	5.0	33	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	19:40	19:58	40.68001	-71.05065	40.67437	-71.04092	62	10	W	<2	B3	>5	Clear	Slight	5.0	33	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:58	20:12	40.67437	-71.04092	40.65880	-71.05105	64	17	WSW	<2	B3	>5	Clear	Severe	4.3	211	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:12	20:45	40.65880	-71.05105	40.67381	-71.08141	64	16	WNW	<2	B3	>5	Clear	Severe	4.3	211	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:45	20:59	40.67381	-71.08141	40.68828	-71.07083	63	16	WNW	<2	B3	>5	Clear	Severe	4.2	22	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:59	21:17	40.68828	-71.07083	40.68018	-71.06369	64	10	WSW	<2	B3	>5	Clear	Severe	4.0	44	Silent	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:17	21:31	40.68018	-71.06369	40.66666	-71.07233	64	15	SSW	<2	B3	>5	Clear	Severe	3.9	212	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	21:31	21:32	40.66666	-71.07233	40.66558	-71.07304	64	15	SSW	<2	B3	>5	Clear	Severe	3.9	285	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:32	21:57	40.66558	-71.07304	40.67636	-71.10776	64	15	SSW	<2	B3	>5	Clear	Severe	3.9	285	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	21:57	23:00	40.67636	-71.10776	40.67496	-71.10375	63	11	W	<2	B3	>5	Clear	Severe	4.7	25	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-07-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:00	23:34	40.67496	-71.10375	40.69735	-71.13224	63	18	W	<2	B3	>5	Clear	Slight	4.4	299	Full Power	N/A
2022-07-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:34	00:00	40.69735	-71.13224	40.70690	-71.09995	63	18	W	<2	B3	>5	Clear	Slight	4.4	299	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:14	40.70221	-71.10016	40.69381	-71.10726	59.8	13	NE	<2	B3	2-5	Clear	Slight	4.4	163	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:14	00:40	40.69381	-71.10726	40.67380	-71.09632	61	18	SW	<2	B3	2-5	Clear	Slight	3.3	158	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:40	00:59	40.67380	-71.09632	40.66101	-71.06746	63	10	W	<2	B3	0.5-1	Clear	None	4.5	132	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	John, Darnell; Lai Tan, Lyndon; Gutierrez, Daniela	RPS	00:59	01:39	40.66101	-71.06746	40.65853	-71.02641	64.7	7	SW	<2	B3	0.5-1	Clear	None	4.4	143	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	John, Darnell; Gutierrez, Daniela; Lai Tan, Lyndon	RPS	01:39	01:46	40.65853	-71.02641	40.66166	-71.03753	64.9	12	W	<2	B3	0.5-1	Clear	None	3.9	275	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Lai Tan, Lyndon; Gutierrez, Daniela; John, Darnell	RPS	01:46	02:00	40.66166	-71.03753	40.66889	-71.05679	66	13	W	<2	B3	0.5-1	Clear	None	4.2	297	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:00	03:00	40.66889	-71.05679	40.70410	-71.13681	64.2	13	WNW	<2	B3	0.5-1	Clear	None	4.5	283	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Mohandeo, Ravie; Jaimes, Fernando; Gutierrez, Daniela	RPS	03:00	03:56	40.70410	-71.13681	40.73899	-71.21048	59	13	WNW	<2	B3	0.5-1	Clear	None	4.3	304	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Osuna, Yosiris; John, Darnell; Jaimes, Fernando	RPS	03:56	04:35	40.73899	-71.21048	40.76522	-71.26236	59	14	W	<2	B3	0.5-1	Clear	None	4.4	302	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Both	Jaimes, Fernando; Osuna, Yosiris; John, Darnell	RPS	04:35	05:00	40.76522	-71.26236	40.77483	-71.27048	61	14	W	<2	B3	0.5-1	Clear	None	4.9	309	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Both	Osuna, Yosiris; Mohandeo, Ravie; John, Darnell	RPS	05:00	06:00	40.77483	-71.27048	40.73565	-71.19241	62	3	SW	<2	B3	0.5-1	Clear	None	5.0	127	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Both	Mohandeo, Ravie; Gutierrez, Daniela; Osuna, Yosiris	RPS	06:00	06:58	40.73565	-71.19241	40.69646	-71.11485	59.7	4	SSW	<2	B3	0.5-1	Clear	None	4.3	130	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:58	07:58	40.69646	-71.11485	40.69540	-71.10661	61	16	WSW	<2	B3	0.5-1	Clear	None	5.2	215	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Both	Perez, Aaron; Mohandeo, Ravie; Jaimes, Fernando	RPS	07:58	09:00	40.69540	-71.10661	40.69494	-71.10766	63	5	SE	<2	B3	0.5-1	Clear	None	4.4	125	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Both	Jaimes, Fernando; Perez, Aaron; Mohandeo, Ravie	RPS	09:00	09:30	40.69494	-71.10766	40.71598	-71.15251	60	13	NW	<2	B3	0.5-1	Cloudy	None	4.3	311	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:30	09:58	40.71598	-71.15251	40.73645	-71.19612	59	13	WNW	<2	B3	2-5	Cloudy	None	5.2	311	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	09:58	10:53	40.73645	-71.19612	40.73287	-71.18163	54	10	WSW	<2	B3	>5	Cloudy	None	5.2	280	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:53	11:58	40.73287	-71.18163	40.69947	-71.12723	61	15	S	<2	B3	>5	Cloudy	Severe	4.5	122	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	11:58	13:00	40.69947	-71.12723	40.74122	-71.21611	59	11	SW	<2	B3	>5	Cloudy	Severe	4.3	321	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	13:00	13:45	40.74122	-71.21611	40.77321	-71.27764	60	14	S	<2	B3	>5	Cloudy	Slight	4.8	308	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	13:45	13:54	40.77321	-71.27764	40.77799	-71.27223	61	12	SSW	<2	B3	>5	Cloudy	Moderate	4.8	306	Soft Start	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:54	14:05	40.77799	-71.27223	40.76981	-71.26189	60	19	SE	<2	B4	>5	Cloudy	Severe	4.8	139	Soft Start	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	14:05	14:57	40.76981	-71.26189	40.73274	-71.20348	60	19	SE	<2	B4	>5	Cloudy	Severe	4.8	130	Soft Start	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	14:57	15:20	40.73274	-71.20348	40.75004	-71.22702	59	15	SSW	<2	B4	>5	Cloudy	Severe	4.1	214	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	15:20	15:27	40.75004	-71.22702	40.74729	-71.21578	59	15	SSW	<2	B4	>5	Cloudy	Severe	4.2	127	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:27	15:33	40.74729	-71.21578	40.74321	-71.20725	59	15	SSW	<2	B4	>5	Cloudy	Severe	5.1	143	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:33	15:35	40.74321	-71.20725	40.74179	-71.20416	58	18	SW	<2	B4	>5	Cloudy	Severe	3.5	129	Silent	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	15:35	15:58	40.74179	-71.20416	40.74759	-71.23117	58	20	SW	<2	B4	>5	Cloudy	Severe	4.9	132	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:58	16:28	40.74759	-71.23117	40.76850	-71.27188	59	13	WNW	<2	B4	>5	Cloudy	Moderate	4.7	298	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Lai Tan, Lyndon	RPS	16:28	16:56	40.76850	-71.27188	40.79040	-71.30387	58	15	NW	<2	B4	>5	Cloudy	Moderate	5.0	298	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	16:56	17:57	40.79040	-71.30387	40.84186	-71.37912	60	10	SSW	<2	B4	>5	Cloudy	Slight	4.5	308	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	17:57	18:57	40.84186	-71.37912	40.89159	-71.45163	58.5	12	SSW	<2	B4	>5	Cloudy	Slight	4.5	308	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	18:57	20:00	40.89159	-71.45163	40.94560	-71.52825	60	9	NW	<2	B4	>5	Cloudy	Moderate	4.6	308	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Gutierrez, Daniela	RPS	20:00	20:52	40.94560	-71.52825	40.99436	-71.59043	54	10	SW	<2	B4	>5	Cloudy	Moderate	4.4	320	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Gutierrez, Daniela	RPS	20:52	20:58	40.99436	-71.59043	41.00030	-71.59750	46	10	NW	<2	B4	>5	Cloudy	Severe	4.6	319	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Gutierrez, Daniela	RPS	20:58	21:59	41.00030	-71.59750	41.04902	-71.65843	42	11	SW	<2	B4	>5	Cloudy	Severe	5.3	321	Full Power	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Jaimes, Fernando	RPS	21:59	22:42	41.04902	-71.65843	41.06006	-71.67907	44	10	NW	<2	B4	>5	Cloudy	Severe	2.4	320	Deploying/Retrieving	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Jaimes, Fernando	RPS	22:42	22:52	41.06006	-71.67907	41.07337	-71.69617	36	9	SW	<2	B3	>5	Cloudy	None	3.7	317	Transit	N/A
2022-07-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:52	23:06	41.07337	-71.69617	41.09816	-71.72590	37	13	W	<2	B3	2-5	Fog	None	8.9	320	Transit	N/A
2022-07-28	*GO Explorer*	HRG	Visual	John, Darnell; Jaimes, Fernando	RPS	23:06	00:01	41.09816	-71.72590	41.13834	-71.77322	43	11	W	<2	B3	0.05-0.1	Fog	None	9.1	321	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	00:01	00:43	41.13941	-71.77501	41.15407	-71.81442	18	13	WSW	<2	B3	<0.05	Fog	None	3.0	303	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:43	01:00	41.15407	-71.81442	41.15805	-71.83464	42	15	WSW	<2	B3	<0.05	Fog	None	3.1	259	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; John, Darnell	RPS	01:00	01:54	41.15805	-71.83464	41.16224	-71.89179	40	16	WSW	<2	B3	0.3-0.5	Fog	None	3.1	282	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	01:54	02:53	41.16224	-71.89179	41.16429	-71.97254	33	14	SW	<2	B3	0.3-0.5	Clear	None	3.8	281	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:53	03:55	41.16429	-71.97254	41.21394	-72.04951	22	16	NNW	<2	B3	0.5-1	Cloudy	None	4.9	273	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; John, Darnell	RPS	03:55	05:03	41.21394	-72.04951	41.22802	-72.11625	30	9	WNW	<2	B3	0.5-1	Cloudy	None	3.7	294	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	05:03	05:40	41.22802	-72.11625	41.23234	-72.13755	27	2	W	<2	B2	0.5-1	Fog	None	2.8	280	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; John, Darnell	RPS	05:40	05:54	41.23234	-72.13755	41.23398	-72.14411	27	2	W	<2	B2	0.05-0.1	Fog	None	2.8	280	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	05:54	07:00	41.23398	-72.14411	41.23529	-72.15837	60	0	S	<2	B1	0.5-1	Fog	None	1.5	282	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Gutierrez, Daniela	RPS	07:00	07:55	41.23529	-72.15837	41.24608	-72.17528	55.8	2	NW	<2	B1	0.5-1	Precipitation	None	1.4	326	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	07:55	09:00	41.24608	-72.17528	41.23262	-72.16604	50	2	NW	<2	B1	0.5-1	Fog	None	2.0	345	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	09:00	09:25	41.23262	-72.16604	41.24683	-72.17938	57	7	NW	<2	B1	1-2	Fog	None	2.5	12	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	09:25	09:58	41.24683	-72.17938	41.24344	-72.18057	49	10	WNW	<2	B1	0.3-0.5	Fog	None	3.2	295	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:58	10:55	41.24344	-72.18057	41.25215	-72.17980	48	7	WNW	<2	B1	0.3-0.5	Fog	None	4.4	189	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Perez, Aaron; Mohandeo, Ravie	RPS	10:55	11:56	41.25215	-72.17980	41.25177	-72.19504	38	3	NW	<2	B1	2-5	Fog	Severe	0.3	251	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	11:56	12:59	41.25177	-72.19504	41.25475	-72.22309	38	7	SE	<2	B1	2-5	Fog	Severe	1.0	275	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	12:59	13:55	41.25475	-72.22309	41.25297	-72.19437	28	9	W	<2	B1	2-5	Fog	Slight	1.7	267	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:55	15:00	41.25297	-72.19437	41.25096	-72.20644	30.7	5	E	<2	B1	2-5	Fog	Slight	2.8	85	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	15:42	41.25096	-72.20644	41.24685	-72.18870	32.9	15	W	<2	B2	2-5	Cloudy	Slight	4.2	275	Standby	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	15:42	15:59	41.24685	-72.18870	41.23259	-72.15360	32.9	4	ESE	<2	B2	2-5	Cloudy	Slight	6.6	116	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:59	16:56	41.23259	-72.15360	41.17106	-72.00110	44	2	ESE	<2	B3	2-5	Cloudy	Slight	7.2	110	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	16:56	17:58	41.17106	-72.00110	41.13324	-71.80082	26	7	SW	<2	B2	>5	Cloudy	None	8.4	117	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	17:58	18:59	41.13324	-71.80082	41.03151	-71.66482	19	6	ESE	<2	B3	>5	Cloudy	None	8.4	112	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:59	19:57	41.03151	-71.66482	40.99447	-71.60589	47	10	SE	<2	B4	>5	Cloudy	None	8.0	135	Transit	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:57	20:26	40.99447	-71.60589	40.97890	-71.62131	43	15	WSW	<2	B4	>5	Cloudy	Slight	1.7	213	Deploying/Retrieving	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:26	20:46	40.97890	-71.62131	40.98939	-71.61560	44	16	SW	<2	B4	>5	Cloudy	Slight	3.3	221	Soft Start	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:46	20:59	40.98939	-71.61560	40.99668	-71.60281	44	16	SW	<2	B4	>5	Cloudy	Slight	3.3	221	Full Power	N/A
2022-07-29	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	20:59	21:16	40.99668	-71.60281	41.00460	-71.58944	42.7	11	WSW	<2	B4	>5	Cloudy	Moderate	2.7	54	Full Power	N/A
2022-07-29	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	21:16	21:42	41.00460	-71.58944	41.01400	-71.56620	43	12	WSW	<2	B4	>5	Cloudy	Moderate	3.1	48	Silent	N/A
2022-07-29	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	21:42	22:02	41.01400	-71.56620	40.99661	-71.58819	45	21	SSW	<2	B4	>5	Cloudy	Moderate	4.8	251	Soft Start	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:02	23:20	40.99661	-71.58819	40.93324	-71.66621	43	21	SSW	<2	B4	>5	Cloudy	Moderate	4.1	224	Full Power	N/A
2022-07-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:20	00:05	40.93324	-71.66621	40.91830	-71.68155	47	21	SW	<2	B4	>5	Cloudy	Moderate	4.2	202	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	00:05	00:45	40.91011	-71.68300	40.88566	-71.61575	53	9	ESE	<2	B3	2-5	Cloudy	None	8.7	120	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:45	00:57	40.88566	-71.61575	40.87364	-71.58260	55	13	SSW	<2	B3	0.5-1	Cloudy	None	7.6	120	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; John, Darnell	RPS	00:57	01:55	40.87364	-71.58260	40.81645	-71.43477	56.6	12	SSW	<2	B3	0.5-1	Cloudy	None	8.4	110	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	01:55	02:58	40.81645	-71.43477	40.75352	-71.27082	58	12	SSW	<2	B3	0.5-1	Cloudy	None	7.7	122	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Jaimes, Fernando	RPS	02:58	03:57	40.75352	-71.27082	40.68986	-71.10939	61	15	SE	<2	B3	0.5-1	Cloudy	None	7.9	115	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	03:57	04:55	40.68986	-71.10939	40.65124	-70.99366	62	14	SSE	<2	B3	0.5-1	Cloudy	None	8.5	110	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; John, Darnell	RPS	04:55	05:09	40.65124	-70.99366	40.64801	-70.98482	67	3	SW	<2	B3	0.5-1	Cloudy	None	0.7	135	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; John, Darnell	RPS	05:09	05:28	40.64801	-70.98482	40.64356	-70.96836	68	9	S	<2	B3	0.05-0.1	Precipitation	None	3.0	110	Deploying/Retrieving	N/A
2022-07-30	*GO Explorer*	HRG	Both	John, Darnell; Osuna, Yosiris; Mohandeo, Ravie	RPS	05:28	05:47	40.64356	-70.96836	40.63800	-70.95183	69	8	SW	<2	B3	0.05-0.1	Precipitation	None	3.6	99	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Osuna, Yosiris; Mohandeo, Ravie; John, Darnell	RPS	05:47	05:55	40.63800	-70.95183	40.63527	-70.94467	69	7	W	<2	B3	0.1-0.3	Cloudy	None	3.4	107	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:55	06:25	40.63527	-70.94467	40.62653	-70.91865	69	4	WSW	<2	B3	0.1-0.3	Fog	None	3.2	126	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-07-30	*GO Explorer*	HRG	Both	Mohandeo, Ravie; Gutierrez, Daniela; Osuna, Yosiris	RPS	06:25	06:57	40.62653	-70.91865	40.62030	-70.92258	68.5	5	SSE	<2	B3	0.05-0.1	Precipitation	None	2.9	126	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Osuna, Yosiris; Jaimes, Fernando	RPS	06:57	07:54	40.62030	-70.92258	40.64463	-70.98584	69.2	7	WNW	<2	B3	0.05-0.1	Precipitation	None	3.5	300	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Perez, Aaron; Mohandeo, Ravie; Jaimes, Fernando	RPS	07:54	08:48	40.64463	-70.98584	40.63877	-70.95497	68.4	12	WNW	<2	B3	0.05-0.1	Precipitation	None	3.5	267	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Mohandeo, Ravie; Perez, Aaron; Jaimes, Fernando	RPS	08:48	08:58	40.63877	-70.95497	40.63333	-70.94414	69	0	S	<2	B2	0.1-0.3	Precipitation	None	3.5	137	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Jaimes, Fernando; Perez, Aaron; Mohandeo, Ravie	RPS	08:58	09:07	40.63333	-70.94414	40.63251	-70.95431	69	3	SW	<2	B2	0.3-0.5	Precipitation	None	3.2	169	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Jaimes, Fernando; Perez, Aaron; Mohandeo, Ravie	RPS	09:07	09:30	40.63251	-70.95431	40.64311	-70.97058	69	4	NW	<2	B1	0.5-1	Cloudy	None	4.7	304	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Mohandeo, Ravie; Perez, Aaron; Jaimes, Fernando	RPS	09:30	09:37	40.64311	-70.97058	40.63961	-70.96045	69	4	NW	<2	B1	1-2	Fog	None	4.7	304	Standby	N/A
2022-07-30	*GO Explorer*	HRG	Both	Jaimes, Fernando; Perez, Aaron; Mohandeo, Ravie	RPS	09:37	09:57	40.63961	-70.96045	40.63170	-70.93462	69	4	ESE	<2	B1	2-5	Cloudy	None	3.4	127	Soft Start	N/A
2022-07-30	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:57	10:00	40.63170	-70.93462	40.63043	-70.93032	69	4	SW	<2	B1	2-5	Cloudy	None	4.0	148	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:00	10:09	40.63043	-70.93032	40.62417	-70.93156	68	4	W	<2	B1	2-5	Cloudy	None	3.8	170	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	10:09	10:14	40.62417	-70.93156	40.62661	-70.93805	68	4	W	<2	B1	2-5	Precipitation	None	3.8	170	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	10:14	10:56	40.62661	-70.93805	40.65256	-71.00233	68	4	W	<2	B1	2-5	Precipitation	None	3.8	170	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	10:56	11:00	40.65256	-71.00233	40.65549	-71.00874	66	9	NW	<2	B1	2-5	Precipitation	None	5.5	294	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Mohandeo, Ravie	RPS	11:00	11:59	40.65549	-71.00874	40.69484	-71.08899	66	9	NW	<2	B1	2-5	Cloudy	None	5.1	294	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	11:59	13:00	40.69484	-71.08899	40.68523	-71.08684	66	2	ESE	<2	B1	2-5	Cloudy	None	4.5	111	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	13:57	40.68523	-71.08684	40.72447	-71.18228	68	15	NW	<2	B1	>5	Cloudy	Severe	5.2	297	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Lai Tan, Lyndon	RPS	13:57	14:58	40.72447	-71.18228	40.73921	-71.20660	58	18	WNW	<2	B3	>5	Cloudy	Moderate	4.7	277	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; Osuna, Yosiris	RPS	14:58	15:58	40.73921	-71.20660	40.75211	-71.23408	56.3	17	WNW	<2	B3	>5	Cloudy	Moderate	4.8	300	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:58	16:56	40.75211	-71.23408	40.79527	-71.30673	57.3	11	NW	<2	B3	>5	Cloudy	Moderate	4.8	305	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:56	17:02	40.79527	-71.30673	40.79995	-71.31361	57.6	15	NW	<2	B3	>5	Clear	Slight	4.2	309	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Perez, Aaron; John, Darnell	RPS	17:02	17:22	40.79995	-71.31361	40.81595	-71.33738	57.6	15	NW	<2	B3	>5	Clear	Slight	4.2	309	Soft Start	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:22	17:58	40.81595	-71.33738	40.84575	-71.38312	57.6	15	NW	<2	B3	>5	Clear	Slight	4.2	309	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:00	40.84575	-71.38312	40.84739	-71.38579	57.6	16	NW	<2	B3	>5	Clear	Slight	4.7	300	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:00	19:34	40.84739	-71.38579	40.92298	-71.48380	57	15	NW	<2	B4	>5	Clear	Severe	4.5	307	Full Power	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:34	19:57	40.92298	-71.48380	40.90920	-71.48756	55	12	SW	<2	B3	>5	Clear	Severe	5.1	131	Silent	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:57	20:54	40.90920	-71.48756	40.97139	-71.43285	54.5	18	W	<2	B4	>5	Clear	Severe	1.3	318	Deploying/Retrieving	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:54	21:57	40.97139	-71.43285	41.09958	-71.33000	42.3	11	W	<2	B3	>5	Clear	Severe	8.6	31	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:57	23:04	41.09958	-71.33000	41.23122	-71.20976	49.5	10	WNW	<2	B3	>5	Clear	Severe	8.5	28	Transit	N/A
2022-07-30	*GO Explorer*	HRG	Visual	John, Darnell; Jaimes, Fernando	RPS	23:04	00:03	41.23122	-71.20976	41.35162	-71.10947	47	9	NW	<2	B3	>5	Clear	Severe	8.6	30	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	John, Darnell; Gutierrez, Daniela	RPS	00:03	00:45	41.35590	-71.10635	41.43389	-71.02063	21.3	14	NNE	<2	B2	2-5	Clear	None	8.9	31	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:45	01:00	41.43389	-71.02063	41.45841	-70.97872	20	11	NE	<2	B2	0.5-1	Clear	None	9.2	39	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	01:00	01:56	41.45841	-70.97872	41.53532	-70.84729	19.8	8	ENE	<2	B2	0.5-1	Clear	None	9.4	64	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	01:56	03:00	41.53532	-70.84729	41.62155	-70.91348	17.6	16	NNW	<2	B2	0.5-1	Clear	None	9.0	336	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:59	41.62131	-70.91335	41.57498	-70.87578	3	7	NNW	<2	B1	>5	Clear	Moderate	5.3	345	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:59	21:58	41.57498	-70.87578	41.49429	-70.86743	8	22	SSW	<2	B3	>5	Clear	Severe	6.1	154	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:58	22:59	41.49429	-70.86743	41.45245	-70.99574	17	17	WSW	<2	B3	>5	Clear	Severe	6.1	240	Transit	N/A
2022-07-31	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:59	00:00	41.45245	-70.99574	41.37735	-71.09624	28	16	SW	<2	B3	>5	Clear	Severe	6.3	246	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:45	41.37291	-71.09886	41.29564	-71.15245	24	20	SW	<2	B3	2-5	Cloudy	None	7.5	203	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:45	01:01	41.29564	-71.15245	41.26516	-71.17569	28	19	SW	<2	B3	0.5-1	Cloudy	None	7.6	205	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Lai Tan, Lyndon	RPS	01:01	01:57	41.26516	-71.17569	41.16898	-71.27250	38	19	SW	<2	B3	0.5-1	Cloudy	None	7.9	212	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	01:57	03:00	41.16898	-71.27250	41.04865	-71.36664	50	17	SW	<2	B3	0.5-1	Clear	None	7.9	214	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	03:56	41.04865	-71.36664	40.94578	-71.46153	46	20	SW	<2	B3	0.5-1	Clear	None	8.4	212	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	03:56	04:56	40.94578	-71.46153	40.94533	-71.53808	55	19	SE	<2	B3	0.5-1	Clear	None	8.5	215	Transit	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Mohandeo, Ravie	RPS	04:56	05:27	40.94533	-71.53808	40.97246	-71.53723	54	7	SW	<2	B3	0.5-1	Clear	None	3.5	5	Deploying/Retrieving	N/A
2022-08-01	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:27	06:00	40.97246	-71.53723	41.00470	-71.55351	52	9	SW	<2	B3	0.5-1	Clear	None	2.7	5	Deploying/Retrieving	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:00	06:04	41.00470	-71.55351	41.00858	-71.55667	47	11	WSW	<2	B3	0.5-1	Cloudy	None	4.1	335	Standby	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:04	06:24	41.00858	-71.55667	41.01172	-71.58104	47	12	WSW	<2	B3	0.5-1	Cloudy	None	4	327	Soft Start	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:24	06:51	41.01172	-71.58104	41.00234	-71.61633	48	16	SW	<2	B3	0.5-1	Cloudy	None	3.7	236	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:51	06:56	41.00234	-71.61633	41.00335	-71.62668	43	15	SW	<2	B3	0.5-1	Precipitation	None	3.6	239	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:56	07:28	41.00335	-71.62668	41.00127	-71.59066	43	18	SW	<2	B3	0.5-1	Precipitation	None	4.2	260	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	07:28	07:56	41.00127	-71.59066	40.97715	-71.55957	46	18	SW	<2	B3	0.5-1	Precipitation	None	4.1	260	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:56	08:17	40.97715	-71.55957	40.98744	-71.58336	51	20	SW	<2	B4	0.5-1	Precipitation	None	3.7	193	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:17	08:37	40.98744	-71.58336	41.00521	-71.59750	46	18	W	<2	B4	0.5-1	Precipitation	None	4.6	316	Soft Start	N/A
2022-08-01	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:37	09:00	41.00521	-71.59750	40.98629	-71.57019	50	15	W	<2	B3	0.5-1	Precipitation	None	5	130	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:00	09:35	40.98629	-71.57019	40.95306	-71.52867	52	6	NW	<2	B3	1-2	Precipitation	None	4.6	136	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:35	10:00	40.95306	-71.52867	40.93057	-71.49770	54	7	NW	<2	B3	1-2	Precipitation	None	4.7	136	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:00	10:32	40.93057	-71.49770	40.90178	-71.45646	56	6	N	<2	B3	2-5	Precipitation	None	4.6	136	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:32	10:48	40.90178	-71.45646	40.89034	-71.44010	56	6	N	<2	B3	0.5-1	Precipitation	None	4.6	136	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:48	10:56	40.89034	-71.44010	40.88295	-71.42952	56	6	N	<2	B3	2-5	Cloudy	None	4.6	136	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:56	11:40	40.88295	-71.42952	40.84315	-71.37121	60	9	N	<2	B3	2-5	Cloudy	None	4.8	132	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:40	12:00	40.84315	-71.37121	40.82585	-71.34584	60	8	N	<2	B3	2-5	Precipitation	None	5	138	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	12:18	40.82585	-71.34584	40.81078	-71.32384	63	9	E	<2	B3	2-5	Precipitation	None	4.6	134	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:18	13:00	40.81078	-71.32384	40.77681	-71.27404	62	10	ENE	<2	B3	0.5-1	Precipitation	None	4.2	115	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	13:08	40.77681	-71.27404	40.77024	-71.26448	61	12	ENE	<2	B3	1-2	Precipitation	None	4.3	123	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:08	13:22	40.77024	-71.26448	40.75930	-71.25963	60	14	SE	<2	B3	1-2	Cloudy	None	4.4	128	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:22	13:28	40.75930	-71.25963	40.76434	-71.26486	61	14	NE	<2	B3	1-2	Precipitation	None	4.4	312	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:28	13:32	40.76434	-71.26486	40.76788	-71.27016	61	5	NW	<2	B3	1-2	Precipitation	None	4.6	314	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:32	13:56	40.76788	-71.27016	40.78804	-71.29976	61	6	NW	<2	B3	1-2	Precipitation	None	4.6	311	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:56	14:44	40.78804	-71.29976	40.83208	-71.36378	61	11	NW	<2	B3	1-2	Precipitation	None	4.7	315	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:44	14:56	40.83208	-71.36378	40.84289	-71.37980	61	6	NW	<2	B3	2-5	Cloudy	None	5	324	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	14:56	15:59	40.84289	-71.37980	40.89872	-71.46110	59	6	NW	<2	B3	2-5	Cloudy	None	5.1	313	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:59	16:59	40.89872	-71.46110	40.95428	-71.53889	59	7	NW	<2	B3	2-5	Cloudy	None	5	324	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:59	17:43	40.95428	-71.53889	40.99503	-71.59065	54	14	E	<2	B3	2-5	Cloudy	None	3.9	316	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:43	18:00	40.99503	-71.59065	41.00929	-71.60141	54	14	E	<2	B3	2-5	Cloudy	None	3.9	150	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:00	18:11	41.00929	-71.60141	41.00130	-71.58977	54	14	E	<2	B3	2-5	Cloudy	None	3.9	150	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:11	18:17	41.00130	-71.58977	40.99607	-71.58265	53	15	E	<2	B3	2-5	Cloudy	None	4.2	135	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:17	18:58	40.99607	-71.58265	40.95996	-71.53676	53	19	ESE	<2	B3	>5	Cloudy	None	4.2	135	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:58	20:00	40.95996	-71.53676	40.90900	-71.46615	53	19	SE	<2	B3	>5	Cloudy	None	4.2	128	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:53	40.90900	-71.46615	40.87156	-71.41219	57	19	E	<2	B3	>5	Cloudy	None	4.1	137	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:53	21:58	40.87156	-71.41219	40.82203	-71.33978	58	18	E	<2	B3	>5	Cloudy	None	4.2	133	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:58	23:02	40.82203	-71.33978	40.80579	-71.31625	60	12	SE	<2	B3	>5	Cloudy	None	4.4	129	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:02	23:20	40.80579	-71.31625	40.76113	-71.26305	61	10	NE	<2	B3	>5	Cloudy	None	4.4	111	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:20	23:27	40.76113	-71.26305	40.76875	-71.27103	61	13	NNE	<2	B3	>5	Cloudy	None	4.7	317	Silent	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:27	23:42	40.76875	-71.27103	40.78204	-71.29045	60	15	NNE	<2	B3	>5	Cloudy	None	4.8	313	Full Power	N/A
2022-08-01	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:42	00:00	40.78204	-71.29045	40.79682	-71.31204	60	15	NNE	<2	B3	>5	Cloudy	None	4.8	313	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:34	40.79900	-71.31521	40.82480	-71.35292	70	11	N	<2	B3	2-5	Cloudy	None	4.2	328	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:34	00:59	40.82480	-71.35292	40.84667	-71.38498	61	11	N	<2	B3	0.5-1	Cloudy	None	4.3	314	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:59	01:54	40.84667	-71.38498	40.89089	-71.44980	58	13	N	<2	B3	0.5-1	Cloudy	None	4.6	309	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:54	02:59	40.89089	-71.44980	40.93943	-71.51903	70	3	N	<2	B3	0.5-1	Cloudy	None	4.3	307	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:59	03:54	40.93943	-71.51903	40.98960	-71.58279	70	12	WNW	<2	B3	0.5-1	Cloudy	None	4.7	301	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	03:54	04:16	40.98960	-71.58279	41.00145	-71.58971	70	14	NW	<2	B3	0.5-1	Cloudy	None	4.4	308	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:16	04:23	41.00145	-71.58971	40.99544	-71.58138	69	8	WSW	<2	B3	0.5-1	Cloudy	None	4.6	142	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:23	04:55	40.99544	-71.58138	40.96498	-71.54252	69	8	SE	<2	B3	0.5-1	Cloudy	None	4.6	142	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	04:55	06:00	40.96498	-71.54252	40.90125	-71.45525	54	12	W	<2	B3	0.5-1	Cloudy	None	3.8	126	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:00	06:56	40.90125	-71.45525	40.87857	-71.42194	72	7	SSW	<2	B3	0.5-1	Cloudy	None	5	133	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:56	07:55	40.87857	-71.42194	40.80545	-71.31495	70	10	WSW	<2	B3	0.5-1	Cloudy	None	5	130	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:55	08:34	40.80545	-71.31495	40.77000	-71.26328	60	11	W	<2	B3	0.5-1	Clear	None	5	130	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:34	08:51	40.77000	-71.26328	40.76275	-71.26230	62	14	NW	<2	B3	0.5-1	Clear	None	4.8	130	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:51	08:58	40.76275	-71.26230	40.76888	-71.27077	60	18	WNW	<2	B3	0.5-1	Clear	None	4.3	306	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:58	09:30	40.76888	-71.27077	40.79389	-71.30726	61	16	W	<2	B3	0.5-1	Clear	None	4.3	317	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:30	09:56	40.79389	-71.30726	40.81544	-71.33866	59	15	WNW	<2	B3	1-2	Clear	None	4.3	320	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:56	10:56	40.81544	-71.33866	40.86638	-71.41337	59	15	NW	<2	B3	1-2	Clear	None	4.6	320	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:56	12:01	40.86638	-71.41337	40.92318	-71.49534	61	16	W	<2	B3	>5	Clear	Severe	4.4	322	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:01	13:01	40.92318	-71.49534	40.97952	-71.56906	54	15	NW	<2	B3	>5	Clear	Severe	4.9	322	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:01	13:37	40.97952	-71.56906	41.00217	-71.59020	50	16	NW	<2	B3	>5	Cloudy	Moderate	5	322	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:37	13:43	41.00217	-71.59020	40.99745	-71.58366	47	10	SW	<2	B3	>5	Cloudy	Moderate	4	134	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:43	13:56	40.99745	-71.58366	40.98605	-71.56835	48	4	SW	<2	B3	>5	Cloudy	Moderate	4.1	146	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:56	15:00	40.98605	-71.56835	40.93396	-71.50104	49	11	SW	<2	B3	>5	Clear	Moderate	3.8	136	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	16:00	40.93396	-71.50104	40.88977	-71.43768	49	11	SW	<2	B3	>5	Clear	Moderate	3.8	136	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:00	16:19	40.88977	-71.43768	40.87441	-71.41534	49	11	SE	<2	B3	>5	Clear	Moderate	3.8	136	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:19	16:23	40.87441	-71.41534	40.87314	-71.41309	49	11	SE	<2	B3	>5	Clear	Moderate	4.8	126	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:23	16:44	40.87314	-71.41309	40.86116	-71.40557	50	11	SE	<2	B3	>5	Clear	Moderate	4.5	126	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:44	16:57	40.86116	-71.40557	40.87145	-71.42301	50	11	SE	<2	B3	>5	Clear	Moderate	3.8	305	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:57	17:15	40.87145	-71.42301	40.88416	-71.44167	61	12	WSW	<2	B3	>5	Clear	Moderate	4.4	305	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:15	17:36	40.88416	-71.44167	40.88168	-71.42577	61	12	WSW	<2	B3	>5	Clear	Moderate	4.4	305	Soft Start	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:36	18:07	40.88168	-71.42577	40.85835	-71.39176	61	12	WSW	<2	B3	>5	Clear	Moderate	4.4	305	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:07	18:31	40.85835	-71.39176	40.84107	-71.36667	61	16	SW	<2	B3	>5	Clear	Moderate	4.4	136	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:31	18:32	40.84107	-71.36667	40.84049	-71.36571	61	16	SW	<2	B3	>5	Clear	Moderate	4.4	136	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:32	18:55	40.84049	-71.36571	40.82265	-71.33703	61	16	SW	<2	B3	>5	Clear	Moderate	4.5	136	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:55	19:04	40.82265	-71.33703	40.81573	-71.32575	61	16	SE	<2	B3	>5	Clear	Severe	4.4	136	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:04	19:24	40.81573	-71.32575	40.81947	-71.34376	61	16	SE	<2	B3	>5	Clear	Severe	4.4	136	Soft Start	N/A
2022-08-02	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	19:24	19:58	40.81947	-71.34376	40.84636	-71.38560	61	16	WNW	<2	B3	>5	Clear	Severe	4.4	136	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:58	20:10	40.84636	-71.38560	40.84630	-71.37429	58	10	WSW	<2	B3	>5	Clear	Severe	5.1	356	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:10	20:15	40.84630	-71.37429	40.84209	-71.36811	58	10	WSW	<2	B3	>5	Clear	Severe	5.1	356	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:15	20:58	40.84209	-71.36811	40.80571	-71.31503	59	13	SE	<2	B3	>5	Clear	Severe	5.1	140	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:58	21:33	40.80571	-71.31503	40.77381	-71.26842	60	15	SSW	<2	B3	>5	Clear	Severe	4.7	145	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:33	21:57	40.77381	-71.26842	40.75459	-71.23931	40	15	SSW	<2	B3	>5	Clear	Severe	4.7	145	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:57	22:29	40.75459	-71.23931	40.76353	-71.26244	39	14	SE	<2	B3	>5	Clear	Severe	4.1	138	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:29	22:36	40.76353	-71.26244	40.76905	-71.27043	39	11	SE	<2	B3	>5	Clear	Severe	3.9	138	Silent	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:36	22:56	40.76905	-71.27043	40.78399	-71.29214	43	12	WSW	<2	B3	>5	Clear	Severe	4	309	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:56	23:20	40.78399	-71.29214	40.80253	-71.31930	60	14	WSW	<2	B3	>5	Clear	Severe	3.6	305	Full Power	N/A
2022-08-02	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:20	00:00	40.80253	-71.31930	40.83464	-71.36630	60	14	WSW	<2	B3	>5	Clear	Severe	3.6	305	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:45	40.84048	-71.37479	40.87319	-71.42275	57	13	WSW	<2	B3	2-5	Clear	None	4.7	310	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:45	00:57	40.87319	-71.42275	40.88338	-71.43768	60	12	W	<2	B3	0.5-1	Clear	None	4.7	321	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:57	01:58	40.88338	-71.43768	40.93340	-71.50941	61	11	W	<2	B3	0.5-1	Clear	None	4.5	318	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:58	03:00	40.93340	-71.50941	40.98753	-71.57888	55	12	W	<2	B3	0.5-1	Clear	None	4.6	312	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	03:09	40.98753	-71.57888	40.99510	-71.58922	58	11	W	<2	B3	0.5-1	Clear	None	4.2	318	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:09	03:25	40.99510	-71.58922	41.00170	-71.58892	58	11	W	<2	B3	0.5-1	Clear	None	4.2	318	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:25	03:30	41.00170	-71.58892	40.99660	-71.58193	58	12	W	<2	B3	0.5-1	Clear	None	4.2	158	Silent	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:30	03:56	40.99660	-71.58193	40.97328	-71.55194	46	8	SW	<2	B3	0.5-1	Clear	None	4.5	137	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	03:56	04:56	40.97328	-71.55194	40.96480	-71.54120	41	7	WSW	<2	B3	0.5-1	Clear	None	4.3	140	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	04:56	06:03	40.96480	-71.54120	40.86693	-71.40405	55	8	NW	<2	B3	0.5-1	Fog	None	4.8	138	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:03	06:58	40.86693	-71.40405	40.82287	-71.33935	55	5	W	<2	B3	0.5-1	Fog	None	4.8	138	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:58	07:54	40.82287	-71.33935	40.78008	-71.27685	46	4	W	<2	B3	0.5-1	Fog	None	4.2	127	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:54	08:24	40.78008	-71.27685	40.76524	-71.26446	61	2	N	<2	B2	0.5-1	Clear	None	4.6	133	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:24	08:28	40.76524	-71.26446	40.76835	-71.26898	60	14	NW	<2	B3	0.5-1	Clear	None	4.9	322	Silent	N/A
2022-08-03	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:28	08:58	40.76835	-71.26898	40.79384	-71.30610	60	14	NNW	<2	B2	0.5-1	Clear	None	4.5	318	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:58	09:32	40.79384	-71.30610	40.82359	-71.34963	61	11	NNW	<2	B2	1-2	Clear	None	4.6	292	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:32	09:58	40.82359	-71.34963	40.84730	-71.38413	60	13	NNW	<2	B2	2-5	Clear	None	4.7	302	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:58	10:55	40.84730	-71.38413	40.89905	-71.45970	57	12	NW	<2	B2	2-5	Clear	None	5.1	302	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:55	12:00	40.89905	-71.45970	40.95683	-71.53968	59	16	N	<2	B3	>5	Clear	Severe	5	307	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	13:03	40.95683	-71.53968	40.95683	-71.53968	59	15	ESE	<2	B3	>5	Clear	Severe	5	317	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:03	13:09	40.95683	-71.53968	40.95683	-71.53968	57	15	ESE	<2	B3	>5	Clear	Severe	5	130	Silent	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:09	14:00	40.95683	-71.53968	40.95651	-71.53050	56	13	ESE	<2	B3	>5	Clear	Severe	5	132	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:00	15:05	40.95651	-71.53050	40.90707	-71.46142	53	10	ESE	<2	B3	>5	Clear	Severe	4	136	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:05	15:57	40.90707	-71.46142	40.86187	-71.39576	56	7	SE	<2	B2	>5	Clear	Severe	4.8	147	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:57	16:51	40.86187	-71.39576	40.81834	-71.33230	59	7	SE	<2	B2	>5	Clear	Moderate	5	130	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:51	17:58	40.81834	-71.33230	40.76783	-71.25858	62	4	ESE	<2	B2	>5	Clear	Moderate	4.7	143	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:13	40.76783	-71.25858	40.76783	-71.25858	62	4	ESE	<2	B2	>5	Clear	Moderate	4.7	143	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:13	18:19	40.76783	-71.25858	40.76783	-71.25858	60	3	NW	<2	B2	>5	Clear	Slight	4.4	308	Silent	N/A
2022-08-03	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:19	18:58	40.76783	-71.25858	40.80063	-71.31543	60	3	NW	<2	B2	>5	Clear	Slight	4.4	308	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:58	19:32	40.80063	-71.31543	40.82630	-71.35305	60	3	NW	<2	B2	>5	Clear	Moderate	4.2	308	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:32	19:57	40.82630	-71.35305	40.84765	-71.38414	60	4	SW	<2	B2	>5	Clear	Slight	4.1	308	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:57	20:59	40.84765	-71.38414	40.90042	-71.46105	58	5	W	<2	B2	>5	Clear	Severe	4.8	316	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:59	22:00	40.90042	-71.46105	40.94841	-71.52881	59	6	WSW	<2	B2	>5	Clear	Severe	4.3	315	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:00	22:55	40.94841	-71.52881	40.99553	-71.58883	56	7	W	<2	B2	>5	Clear	Severe	4.2	334	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:55	23:15	40.99553	-71.58883	41.00278	-71.58971	56	9	W	<2	B2	>5	Clear	Severe	4.2	312	Full Power	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:15	23:21	41.00278	-71.58971	40.99717	-71.58167	64	8	W	<2	B2	>5	Clear	Severe	5.1	147	Silent	N/A
2022-08-03	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:21	00:00	40.99717	-71.58167	40.95941	-71.53360	64	11	SSW	<2	B2	>5	Clear	Severe	5.1	142	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:45	40.95634	-71.52976	40.92154	-71.48169	53	10	S	<2	B2	2-5	Clear	Slight	4.9	149	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:45	00:55	40.92154	-71.48169	40.91334	-71.46996	59	10	S	<2	B2	0.5-1	Clear	None	3.5	146	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:55	01:56	40.91334	-71.46996	40.86420	-71.39872	60	9	S	<2	B2	0.5-1	Clear	None	4	144	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:56	03:00	40.86420	-71.39872	40.81487	-71.32658	59	8	SSW	<2	B2	0.5-1	Clear	None	4.2	141	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	04:00	40.81487	-71.32658	40.76707	-71.25537	62	10	SW	<2	B2	0.5-1	Clear	None	4.7	122	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:00	04:57	40.76707	-71.25537	40.77035	-71.32741	9	7	SW	<2	B2	0.5-1	Clear	None	7	276	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	04:57	06:00	40.77035	-71.32741	40.82165	-71.34754	37	12	W	<2	B2	0.5-1	Clear	None	4.1	276	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:00	06:05	40.82165	-71.34754	40.82531	-71.35357	64	9	W	<2	B2	0.5-1	Clear	None	4.7	282	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:05	06:49	40.82531	-71.35357	40.86384	-71.41032	60	7	W	<2	B2	0.5-1	Clear	None	4.8	323	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:49	06:51	40.86384	-71.41032	40.86477	-71.41179	57	7	WSW	<2	B2	0.5-1	Clear	None	4.3	308	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:51	06:56	40.86477	-71.41179	40.86936	-71.41835	59	8	W	<2	B2	0.5-1	Clear	None	3.8	305	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:56	07:56	40.86936	-71.41835	40.92002	-71.49182	63	9	W	<2	B2	0.5-1	Clear	None	4.2	311	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:56	08:54	40.92002	-71.49182	40.92268	-71.48740	53	9	W	<2	B2	0.5-1	Clear	None	4.3	305	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:54	08:59	40.92268	-71.48740	40.91864	-71.48157	62	14	S	<2	B2	1-2	Clear	None	4.9	138	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:59	09:31	40.91864	-71.48157	40.89083	-71.44174	61	13	S	<2	B2	1-2	Clear	None	4.4	134	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:31	09:58	40.89083	-71.44174	40.86790	-71.40819	55	14	SW	<2	B2	2-5	Clear	None	4.9	135	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:58	10:43	40.86790	-71.40819	40.84043	-71.37322	56	13	SE	<2	B2	2-5	Clear	None	5	139	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:43	10:56	40.84043	-71.37322	40.84816	-71.37575	55	7	ENE	<2	B2	2-5	Clear	Severe	4.3	310	Deploying/Retrieving	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:56	12:00	40.84816	-71.37575	40.83461	-71.36092	64	10	SW	<2	B2	>5	Clear	Severe	2.8	162	Deploying/Retrieving	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	12:56	40.83461	-71.36092	40.83750	-71.35168	64	9	SSE	<2	B2	>5	Clear	Severe	1	218	Standby	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:56	13:56	40.83750	-71.35168	40.83882	-71.34235	61	9	W	<2	B2	>5	Clear	Severe	0.7	38	Standby	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:56	15:00	40.83882	-71.34235	40.83793	-71.32884	50	7	SSE	<2	B2	>5	Clear	Severe	1.7	146	Standby	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	15:58	40.83793	-71.32884	40.80435	-71.30144	51	1	ESE	<2	B2	>5	Clear	Moderate	1.4	124	Standby	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:58	16:38	40.80435	-71.30144	40.76460	-71.31336	51	13	SSW	<2	B3	>5	Clear	Moderate	4.9	196	Standby	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:38	16:59	40.76460	-71.31336	40.75560	-71.32497	51	13	SSW	<2	B3	>5	Clear	Moderate	4	196	Soft Start	N/A
2022-08-04	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:59	18:48	40.75560	-71.32497	40.78635	-71.26496	55	4	SW	<2	B3	>5	Clear	Slight	3.8	345	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:48	18:58	40.78635	-71.26496	40.77721	-71.27534	55	4	SW	<2	B3	>5	Clear	Slight	3.8	345	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:58	19:07	40.77721	-71.27534	40.76960	-71.28458	55	15	SW	<2	B3	>5	Clear	Slight	4.5	223	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:07	19:11	40.76960	-71.28458	40.76880	-71.28966	55	15	SW	<2	B3	>5	Clear	Slight	4.5	223	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:11	19:31	40.76880	-71.28966	40.78459	-71.31442	55	15	SW	<2	B3	>5	Clear	Moderate	5.3	220	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:31	19:37	40.78459	-71.31442	40.78999	-71.30827	55	15	SW	<2	B3	>5	Clear	Moderate	5.3	31	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:37	19:49	40.78999	-71.30827	40.80099	-71.29537	55	15	SW	<2	B3	>5	Clear	Moderate	5.3	43	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:49	19:51	40.80099	-71.29537	40.80206	-71.29387	55	15	S	<2	B3	>5	Clear	Severe	5.3	41	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:51	19:57	40.80206	-71.29387	40.80195	-71.28443	55	15	S	<2	B3	>5	Clear	Severe	5.3	49	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:57	20:02	40.80195	-71.28443	40.79771	-71.28296	55	16	S	<2	B3	>5	Clear	Severe	4.4	138	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:02	20:07	40.79771	-71.28296	40.79255	-71.28921	55	16	S	<2	B3	>5	Clear	Severe	4.4	138	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:07	20:08	40.79255	-71.28921	40.79209	-71.28972	55	16	S	<2	B3	>5	Clear	Severe	4.4	220	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:08	20:19	40.79209	-71.28972	40.78156	-71.30214	55	10	NE	<2	B3	>5	Clear	Severe	4.7	42	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:19	20:20	40.78156	-71.30214	40.78054	-71.30348	55	16	S	<2	B3	>5	Clear	Severe	4.4	220	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:20	20:42	40.78054	-71.30348	40.79619	-71.33269	55	16	S	<2	B3	>5	Clear	Severe	4.4	220	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:42	20:59	40.79619	-71.33269	40.81278	-71.31288	55	16	S	<2	B3	>5	Clear	Severe	4.4	220	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:59	21:01	40.81278	-71.31288	40.81458	-71.31074	55	9	S	<2	B3	>5	Clear	Severe	4.6	39	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:01	21:12	40.81458	-71.31074	40.80915	-71.30066	55	9	S	<2	B3	>5	Clear	Severe	4.6	39	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:12	21:18	40.80915	-71.30066	40.80406	-71.30734	61	5	NE	<2	B3	>5	Clear	Severe	4.6	41	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:18	21:30	40.80406	-71.30734	40.79312	-71.32028	61	5	NE	<2	B3	>5	Clear	Severe	4.6	215	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:30	21:31	40.79312	-71.32028	40.79239	-71.32178	61	5	NE	<2	B3	>5	Clear	Severe	4.6	215	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:31	21:54	40.79239	-71.32178	40.80886	-71.35012	61	5	NE	<2	B3	>5	Clear	Severe	4.6	310	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:54	22:00	40.80886	-71.35012	40.81368	-71.34371	61	5	NE	<2	B3	>5	Clear	Severe	4.6	310	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:00	22:13	40.81368	-71.34371	40.82501	-71.33046	61	5	NE	<2	B3	>5	Clear	Severe	4.6	220	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:13	22:15	40.82501	-71.33046	40.82650	-71.32772	61	5	NE	<2	B3	>5	Clear	Severe	4.6	220	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:15	22:26	40.82650	-71.32772	40.82194	-71.31671	61	5	NE	<2	B3	>5	Clear	Severe	4.6	220	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:26	22:31	40.82194	-71.31671	40.81715	-71.32404	61	5	NE	<2	B3	>5	Clear	Severe	4.6	240	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:31	22:42	40.81715	-71.32404	40.80634	-71.33672	61	5	NE	<2	B3	>5	Clear	Severe	4.6	240	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:42	22:43	40.80634	-71.33672	40.80508	-71.33819	61	5	NE	<2	B3	>5	Clear	Severe	4.6	240	Silent	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:43	22:58	40.80508	-71.33819	40.81326	-71.35911	61	5	NE	<2	B3	>5	Clear	Severe	4.6	240	Full Power	N/A
2022-08-04	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:58	00:00	40.81326	-71.35911	40.81835	-71.36486	60	10	WSW	<2	B3	>5	Clear	Severe	4.8	303	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:25	40.82038	-71.36824	40.83838	-71.37854	49	6	SW	<2	B2	2-5	Clear	Slight	4.6	294	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:25	00:44	40.83838	-71.37854	40.85027	-71.35526	49	6	SW	<2	B2	1-2	Clear	Slight	4.6	294	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:44	01:57	40.85027	-71.35526	40.83274	-71.37612	50	15	S	<2	B2	0.5-1	Clear	None	4.2	134	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:57	02:17	40.83274	-71.37612	40.84007	-71.39925	55	17	SW	<2	B2	0.5-1	Clear	None	3.7	132	Soft Start	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:17	02:27	40.84007	-71.39925	40.84941	-71.39728	58	16	SW	<2	B2	0.5-1	Clear	None	3.6	311	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:27	02:39	40.84941	-71.39728	40.86032	-71.38452	61	17	SW	<2	B2	0.5-1	Clear	None	3.4	38	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:39	03:00	40.86032	-71.38452	40.86112	-71.36613	60	17	SW	<2	B2	0.5-1	Clear	None	3.6	152	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	03:37	40.86112	-71.36613	40.86224	-71.36628	62	16	SW	<2	B2	0.5-1	Clear	None	3.6	300	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:37	03:56	40.86224	-71.36628	40.86425	-71.36850	58	17	SW	<2	B2	0.5-1	Clear	None	3.7	43	Soft Start	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:56	04:02	40.86425	-71.36850	40.85768	-71.37143	59	18	SW	<2	B2	0.5-1	Clear	None	4.4	197	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:02	04:07	40.85768	-71.37143	40.85311	-71.37657	54	18	SW	<2	B2	0.5-1	Clear	None	4.6	222	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:07	04:20	40.85311	-71.37657	40.84234	-71.38979	53	18	SW	<2	B2	0.5-1	Clear	None	4.5	220	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:20	04:22	40.84234	-71.38979	40.84063	-71.39203	56	18	SW	<2	B2	0.5-1	Clear	None	5.2	228	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:22	04:43	40.84063	-71.39203	40.85633	-71.42012	54	18	SW	<2	B2	0.5-1	Clear	None	4.9	260	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:43	04:49	40.85633	-71.42012	40.86172	-71.41456	54	18	SW	<2	B2	0.5-1	Clear	None	4.6	272	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:49	04:57	40.86172	-71.41456	40.86941	-71.40566	54	18	SW	<2	B2	0.5-1	Clear	None	4.6	45	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	04:57	05:01	40.86941	-71.40566	40.87323	-71.40104	60	6	WSW	<2	B2	0.5-1	Clear	None	4.9	48	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:01	05:02	40.87323	-71.40104	40.87452	-71.39961	60	6	SW	<2	B2	0.5-1	Clear	None	4.6	44	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:02	05:59	40.87452	-71.39961	40.86380	-71.43886	60	6	SW	<2	B2	0.5-1	Clear	None	4.8	38	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:59	06:55	40.86380	-71.43886	40.86453	-71.42725	62	6	SW	<2	B2	0.5-1	Clear	None	4.6	348	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:55	06:57	40.86453	-71.42725	40.86258	-71.42971	62	6	SW	<2	B2	0.5-1	Clear	None	4.9	348	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:57	07:53	40.86258	-71.42971	40.89210	-71.42610	65	16	WSW	<2	B2	0.5-1	Clear	None	4.2	266	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:53	08:53	40.89210	-71.42610	40.90906	-71.45391	60	19	WSW	<2	B3	0.5-1	Clear	None	4.2	225	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:53	08:54	40.90906	-71.45391	40.90996	-71.45291	59	7	WSW	<2	B3	0.5-1	Clear	None	4.5	44	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:54	08:55	40.90996	-71.45291	40.91024	-71.45257	58	7	WSW	<2	B3	0.5-1	Clear	None	4.2	48	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:55	09:06	40.91024	-71.45257	40.90545	-71.44206	57	7	WSW	<2	B3	0.5-1	Clear	None	5.2	41	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:06	09:10	40.90545	-71.44206	40.90147	-71.44696	59	7	WSW	<2	B3	0.5-1	Clear	None	4.9	224	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:10	09:21	40.90147	-71.44696	40.88986	-71.46102	58	7	WSW	<2	B3	0.5-1	Clear	None	4.2	220	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:21	09:22	40.88986	-71.46102	40.88885	-71.46219	60	17	WSW	<2	B3	0.5-1	Clear	None	4.8	224	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	09:22	09:35	40.88885	-71.46219	40.89126	-71.47905	60	17	WSW	<2	B3	1-2	Clear	None	4.8	220	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:35	10:03	40.89126	-71.47905	40.91223	-71.48248	58	14	W	<2	B3	2-5	Clear	None	4.7	310	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:03	10:59	40.91223	-71.48248	40.90878	-71.49812	56	5	W	<2	B3	>5	Clear	Moderate	4.7	33	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:59	11:40	40.90878	-71.49812	40.93025	-71.47664	57	5	W	<2	B3	>5	Clear	Severe	4.7	305	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:40	11:45	40.93025	-71.47664	40.92598	-71.48163	55	14	WSW	<2	B3	>5	Cloudy	Slight	5	225	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:45	11:56	40.92598	-71.48163	40.91429	-71.49586	56	14	WSW	<2	B3	>5	Cloudy	Slight	3.8	218	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:56	11:57	40.91429	-71.49586	40.91292	-71.49742	55	16	WSW	<2	B3	>5	Cloudy	Severe	5.5	228	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:57	12:00	40.91292	-71.49742	40.91047	-71.50038	56	17	WSW	<2	B3	>5	Cloudy	Severe	5.6	229	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	12:23	40.91047	-71.50038	40.93033	-71.52501	56	14	NW	<2	B3	>5	Cloudy	Severe	5.7	264	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:23	12:28	40.93033	-71.52501	40.93487	-71.51937	55	6	W	<2	B3	>5	Cloudy	Moderate	4.1	48	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:28	12:42	40.93487	-71.51937	40.94596	-71.50614	55	7	W	<2	B3	>5	Cloudy	Moderate	4.2	47	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:42	12:43	40.94596	-71.50614	40.94706	-71.50462	53	8	W	<2	B3	>5	Cloudy	Moderate	4.2	32	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:43	12:56	40.94706	-71.50462	40.94237	-71.49445	53	9	W	<2	B3	>5	Cloudy	Moderate	4.2	42	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:56	13:01	40.94237	-71.49445	40.93820	-71.49933	54	18	W	<2	B3	>5	Cloudy	Moderate	4.2	234	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:01	13:11	40.93820	-71.49933	40.92778	-71.51124	54	17	W	<2	B3	>5	Cloudy	Moderate	4.1	222	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:11	13:13	40.92778	-71.51124	40.92572	-71.51369	54	20	WSW	<2	B4	>5	Cloudy	Moderate	4.2	225	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:13	13:37	40.92572	-71.51369	40.94421	-71.54189	55	16	NW	<2	B3	>5	Cloudy	Moderate	4.8	296	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:37	13:42	40.94421	-71.54189	40.94794	-71.53665	53	9	W	<2	B3	>5	Cloudy	None	4	47	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:42	13:55	40.94794	-71.53665	40.95784	-71.52281	53	8	W	<2	B3	>5	Cloudy	None	4.2	52	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:55	13:57	40.95784	-71.52281	40.95941	-71.52051	53	10	NE	<2	B3	>5	Cloudy	None	4.1	47	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:57	14:08	40.95941	-71.52051	40.95547	-71.50973	53	10	NE	<2	B3	>5	Cloudy	None	4.2	48	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:08	14:13	40.95547	-71.50973	40.95007	-71.51642	53	9	NE	<2	B3	>5	Cloudy	None	4.4	202	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:13	14:24	40.95007	-71.51642	40.93943	-71.53133	52	10	NE	<2	B3	>5	Cloudy	None	4.1	225	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:24	14:25	40.93943	-71.53133	40.93838	-71.53283	53	9	NE	<2	B3	>5	Cloudy	None	4.3	224	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:25	14:49	40.93838	-71.53283	40.95722	-71.55822	52	10	NE	<2	B3	>5	Cloudy	None	4.1	320	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:49	14:54	40.95722	-71.55822	40.96126	-71.55257	51	10	NE	<2	B3	>5	Cloudy	None	4.1	39	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	14:54	15:09	40.96126	-71.55257	40.97157	-71.53823	50	9	NE	<2	B3	>5	Cloudy	None	4.1	48	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:09	15:10	40.97157	-71.53823	40.97232	-71.53701	51	10	E	<2	B3	>5	Cloudy	None	4.3	68	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:10	15:22	40.97232	-71.53701	40.96743	-71.52671	51	10	E	<2	B3	>5	Cloudy	None	4.2	51	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:22	15:27	40.96743	-71.52671	40.96293	-71.53305	51	10	E	<2	B3	>5	Cloudy	None	4.3	226	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:27	15:38	40.96293	-71.53305	40.95252	-71.54747	51	10	E	<2	B3	>5	Cloudy	None	4.3	225	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:38	15:39	40.95252	-71.54747	40.95221	-71.54799	51	10	W	<2	B3	>5	Cloudy	Slight	5.6	223	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:39	16:00	40.95221	-71.54799	40.96824	-71.57591	51	12	W	<2	B3	>5	Cloudy	Slight	4.9	228	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:00	16:06	40.96824	-71.57591	40.97375	-71.56979	54	14	W	<2	B3	>5	Cloudy	Slight	5.2	323	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:06	16:18	40.97375	-71.56979	40.98431	-71.55504	51	11	W	<2	B3	>5	Cloudy	Slight	5.6	48	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:18	16:19	40.98431	-71.55504	40.98539	-71.55349	53	10	W	<2	B3	>5	Cloudy	Slight	4.6	51	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Lai Tan, Lyndon	RPS	16:19	16:32	40.98539	-71.55349	40.98065	-71.54306	52	16	WSW	<2	B3	>5	Cloudy	Slight	4.3	50	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Lai Tan, Lyndon	RPS	16:32	16:37	40.98065	-71.54306	40.97576	-71.54960	52	18	WSW	<2	B3	>5	Cloudy	Slight	4.3	226	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Lai Tan, Lyndon	RPS	16:37	16:48	40.97576	-71.54960	40.96601	-71.56309	51	17	SW	<2	B3	>5	Cloudy	Slight	4.5	226	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Lai Tan, Lyndon	RPS	16:48	16:49	40.96601	-71.56309	40.96481	-71.56455	51	17	SW	<2	B3	>5	Cloudy	Slight	4.5	228	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:49	17:00	40.96481	-71.56455	40.97149	-71.57702	51	18	SW	<2	B3	>5	Cloudy	Slight	4.5	226	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:00	18:01	40.97149	-71.57702	40.99622	-71.65246	49	12	W	<2	B3	>5	Cloudy	Slight	4.7	322	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:01	18:11	40.99622	-71.65246	40.99740	-71.66914	46	11	W	<2	B3	>5	Cloudy	Moderate	5.2	285	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:11	18:13	40.99740	-71.66914	40.99765	-71.67195	49	13	W	<2	B3	>5	Cloudy	Moderate	4.6	277	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:13	18:17	40.99765	-71.67195	41.00137	-71.67580	51	12	W	<2	B3	>5	Cloudy	Moderate	4.8	16	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:17	18:24	41.00137	-71.67580	41.00196	-71.66720	50	12	W	<2	B3	>5	Cloudy	Moderate	5.2	31	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:24	19:01	41.00196	-71.66720	40.99766	-71.60506	52	10	W	<2	B3	>5	Cloudy	Moderate	4.7	96	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:01	19:19	40.99766	-71.60506	40.99360	-71.57685	42	9	E	<2	B3	>5	Cloudy	Moderate	4.5	102	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:19	19:21	40.99360	-71.57685	40.99301	-71.57416	48	14	S	<2	B3	>5	Cloudy	Severe	4.2	143	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:21	19:59	40.99301	-71.57416	40.99069	-71.57003	48	14	S	<2	B4	>5	Cloudy	Severe	4.2	143	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:59	20:07	40.99069	-71.57003	40.99041	-71.58257	48	21	WSW	<2	B4	>5	Cloudy	Severe	3.5	235	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:07	21:00	40.99041	-71.58257	40.99790	-71.67241	47	20	W	<2	B4	>5	Cloudy	Severe	4.7	279	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:00	21:01	40.99790	-71.67241	40.99768	-71.67383	42	15	WNW	<2	B4	>5	Cloudy	Severe	5.8	285	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:01	21:11	40.99768	-71.67383	41.00328	-71.67672	42	15	WNW	<2	B4	>5	Cloudy	Severe	5	285	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:11	21:56	41.00328	-71.67672	40.99876	-71.61865	42	15	WNW	<2	B4	>5	Clear	Severe	5.5	77	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:56	22:12	40.99876	-71.61865	40.99381	-71.57664	41	7	E	<2	B4	>5	Clear	Severe	4.8	97	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:12	22:13	40.99381	-71.57664	40.99322	-71.57406	42	5	SE	<2	B4	>5	Clear	Severe	4.4	97	Silent	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:13	22:59	40.99322	-71.57406	40.94788	-71.52371	42	5	SE	<2	B4	>5	Clear	Severe	4.4	97	Full Power	N/A
2022-08-05	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:59	00:00	40.94788	-71.52371	40.91371	-71.47960	64	5	SW	<2	B4	>5	Clear	Severe	5.5	140	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:40	40.91259	-71.47803	40.87949	-71.43047	66	11	SSW	<2	B3	2-5	Clear	Slight	4.8	111	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:40	00:57	40.87949	-71.43047	40.86934	-71.40659	61	10	SW	<2	B3	0.5-1	Clear	None	5.2	118	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:57	01:01	40.86934	-71.40659	40.86733	-71.40146	63	9	SSW	<2	B3	0.5-1	Cloudy	None	4.8	107	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:01	01:10	40.86733	-71.40146	40.86359	-71.40838	64	12	SW	<2	B3	0.5-1	Cloudy	None	3.2	170	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:10	01:11	40.86359	-71.40838	40.86430	-71.40940	64	11	SW	<2	B3	0.5-1	Cloudy	None	3.2	330	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:11	01:15	40.86430	-71.40940	40.86719	-71.41365	63	9	SW	<2	B3	0.5-1	Cloudy	None	3.9	318	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:15	01:28	40.86719	-71.41365	40.87719	-71.42824	65	8	SW	<2	B3	0.5-1	Cloudy	None	4.2	320	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:28	01:29	40.87719	-71.42824	40.87760	-71.42888	60	8	SW	<2	B3	0.5-1	Cloudy	None	4.2	320	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:29	01:55	40.87760	-71.42888	40.86870	-71.40311	60	8	SW	<2	B3	0.5-1	Cloudy	None	4.2	320	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:55	02:24	40.86870	-71.40311	40.84814	-71.38450	59	9	SW	<2	B3	0.5-1	Clear	None	4.3	141	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:24	02:29	40.84814	-71.38450	40.85269	-71.39146	58	10	SW	<2	B3	0.5-1	Clear	None	4.7	297	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:29	03:00	40.85269	-71.39146	40.87712	-71.42888	57	11	W	<2	B3	0.5-1	Cloudy	None	4.1	312	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	04:01	40.87712	-71.42888	40.84679	-71.38578	60	10	WSW	<2	B3	0.5-1	Cloudy	None	5.3	309	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Jaimes, Fernando; John, Darnell; Osuna, Yosiris	RPS	04:01	05:00	40.84679	-71.38578	40.86325	-71.40603	58	9	W	<2	B3	0.5-1	Cloudy	None	4.5	313	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	John, Darnell; Mohandeo, Ravie; Osuna, Yosiris	RPS	05:00	06:00	40.86325	-71.40603	40.81639	-71.33061	60	10	W	<2	B3	0.5-1	Fog	None	4.8	NAN	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Mohandeo, Ravie; Osuna, Yosiris	RPS	06:00	06:57	40.81639	-71.33061	40.83821	-71.37234	61	8	SW	<2	B3	0.5-1	Fog	None	4.1	121	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Osuna, Yosiris	RPS	06:57	07:54	40.83821	-71.37234	40.88517	-71.44219	63	14	W	<2	B3	0.5-1	Fog	None	4	297	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	07:54	08:58	40.88517	-71.44219	40.94154	-71.52301	63	12	W	<2	B3	0.5-1	Fog	None	4.7	306	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Both	Jaimes, Fernando; Mohandeo, Ravie; Perez, Aaron	RPS	08:58	09:37	40.94154	-71.52301	40.97727	-71.56754	54	10	W	<2	B3	0.5-1	Clear	None	4.8	324	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:37	09:59	40.97727	-71.56754	40.99871	-71.59300	50	11	WSW	<2	B3	1-2	Clear	None	5.2	332	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:59	10:56	40.99871	-71.59300	40.99412	-71.62971	40	5	NE	<2	B2	>5	Clear	Moderate	4.8	26	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:56	11:20	40.99412	-71.62971	40.99686	-71.66988	44	14	SW	<2	B2	>5	Clear	Severe	4.8	281	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	11:20	12:00	40.99686	-71.66988	40.98449	-71.71351	42	15	SW	<2	B3	>5	Clear	Severe	3	273	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	12:25	40.98449	-71.71351	41.00480	-71.69347	42	16	SW	<2	B3	>5	Clear	Severe	4.8	273	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:25	12:45	41.00480	-71.69347	41.02572	-71.69013	40	8	SW	<2	B3	>5	Clear	Severe	4.5	351	Soft Start	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:45	13:00	41.02572	-71.69013	41.02950	-71.69521	43	12	SSW	<2	B3	>5	Clear	Severe	3.6	29	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	13:58	41.02950	-71.69521	41.00321	-71.67645	43	16	SSW	<2	B3	>5	Clear	Severe	3.6	306	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:58	14:59	41.00321	-71.67645	40.99433	-71.57733	41	16	SSW	<2	B3	>5	Clear	Severe	4.8	94	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:59	15:00	40.99433	-71.57733	40.99369	-71.57475	48	17	SSE	<2	B4	>5	Clear	Severe	4.6	165	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	16:00	40.99369	-71.57475	40.99558	-71.64741	48	17	SSE	<2	B4	>5	Clear	Severe	4.6	165	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:00	16:14	40.99558	-71.64741	40.99709	-71.66899	45	15	W	<2	B4	>5	Clear	Severe	4.2	274	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:14	16:15	40.99709	-71.66899	40.99729	-71.67178	45	15	W	<2	B4	>5	Clear	Severe	4.2	274	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:15	17:00	40.99729	-71.67178	40.99572	-71.66022	45	15	W	<2	B4	>5	Clear	Moderate	4.2	274	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:00	18:01	40.99572	-71.66022	40.98155	-71.58486	45	14	E	<2	B4	>5	Clear	Moderate	4.8	95	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:01	18:12	40.98155	-71.58486	40.99213	-71.59635	51	14	W	<2	B4	>5	Clear	Severe	3.9	302	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:12	18:18	40.99213	-71.59635	40.99352	-71.60492	51	14	W	<2	B4	>5	Clear	Severe	3.8	302	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:18	19:01	40.99352	-71.60492	40.99898	-71.66781	52	14	W	<2	B4	>5	Clear	Severe	4	302	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:01	19:08	40.99898	-71.66781	41.00607	-71.67443	51	15	WSW	<2	B4	>5	Clear	Severe	5	322	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:08	19:42	41.00607	-71.67443	41.04570	-71.70930	48	14	WSW	<2	B4	>5	Clear	Severe	4.2	322	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:42	19:58	41.04570	-71.70930	41.06296	-71.72632	43	14	WSW	<2	B4	>5	Clear	Severe	5	322	Soft Start	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:58	20:02	41.06296	-71.72632	41.06637	-71.73319	30	14	WSW	<2	B4	>5	Clear	Severe	5.4	291	Soft Start	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:02	20:13	41.06637	-71.73319	41.07366	-71.73113	30	14	WSW	<2	B4	>5	Clear	Severe	5.4	291	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:13	20:43	41.07366	-71.73113	41.04887	-71.70815	39	17	SSE	<2	B3	>5	Clear	Severe	3.2	148	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:43	22:00	41.04887	-71.70815	41.00285	-71.66998	39	17	SSE	<2	B3	>5	Clear	Severe	3.2	148	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:00	22:15	41.00285	-71.66998	41.01891	-71.68476	42	12	WSW	<2	B3	>5	Clear	Severe	4	317	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:15	22:16	41.01891	-71.68476	41.01985	-71.68560	42	11	WSW	<2	B3	>5	Clear	Severe	4	317	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:16	22:46	41.01985	-71.68560	41.04856	-71.71952	42	9	WSW	<2	B3	>5	Clear	Severe	4.1	316	Full Power	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:46	22:55	41.04856	-71.71952	41.05215	-71.71269	43	10	WSW	<2	B3	>5	Clear	Moderate	4.2	150	Silent	N/A
2022-08-06	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	22:55	00:00	41.05215	-71.71269	41.00151	-71.68341	42	12	WSW	<2	B3	>5	Clear	Moderate	4.3	148	Silent	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:39	41.00282	-71.68170	40.99899	-71.62071	49	6	SSW	<2	B3	2-5	Clear	Slight	5.3	107	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:39	00:56	40.99899	-71.62071	40.99722	-71.59427	45	5	SSW	<2	B3	0.5-1	Clear	None	4.8	100	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	00:56	01:06	40.99722	-71.59427	40.99432	-71.57863	48	12	SSW	<2	B3	0.5-1	Clear	None	4.9	101	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:06	01:08	40.99432	-71.57863	40.99356	-71.57516	47	12	SSW	<2	B3	0.5-1	Clear	None	4.5	108	Silent	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:08	01:37	40.99356	-71.57516	40.99524	-71.58463	47	12	SSW	<2	B3	0.5-1	Clear	None	4.5	108	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; John, Darnell; Lai Tan, Lyndon	RPS	01:37	01:56	40.99524	-71.58463	40.99811	-71.61327	43	12	SSW	<2	B3	0.5-1	Clear	None	4.2	277	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	01:56	02:29	40.99811	-71.61327	41.00163	-71.66518	42	19	SW	<2	B3	0.5-1	Clear	None	4.2	262	Full Power	N/A
2022-08-07	*GO Explorer*	HRG	Both	Gutierrez, Daniela; Jaimes, Fernando; Mohandeo, Ravie	RPS	02:29	02:31	41.00163	-71.66518	41.00183	-71.66838	43	21	SW	<2	B4	0.5-1	Clear	None	4.9	304	Silent	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:31	02:35	41.00183	-71.66838	41.00061	-71.67434	43	20	SW	<2	B4	0.5-1	Clear	None	4.5	269	Silent	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:35	03:00	41.00061	-71.67434	40.98056	-71.69101	42	22	SW	<2	B4	0.5-1	Clear	None	4	222	Deploying/Retrieving	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	03:00	03:43	40.98056	-71.69101	40.99227	-71.68052	43	20	SW	<2	B4	0.5-1	Clear	None	2.1	201	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	03:43	04:00	40.99227	-71.68052	41.00818	-71.67800	42	19	SW	<2	B4	0.5-1	Clear	None	4.2	28	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	04:00	05:05	41.00818	-71.67800	41.03772	-71.68706	46	20	SW	2-4	B4	0.5-1	Clear	None	4.8	276	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	John, Darnell; Mohandeo, Ravie	RPS	05:05	06:03	41.03772	-71.68706	40.98897	-71.72036	49	20	SW	2-4	B4	0.5-1	Clear	None	2.9	203	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	John, Darnell; Mohandeo, Ravie	RPS	06:03	06:55	40.98897	-71.72036	41.02257	-71.70089	55	24	SSW	2-4	B5	0.5-1	Clear	None	3.1	209	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	06:55	07:57	41.02257	-71.70089	41.07472	-71.67722	42	18	SW	2-4	B5	0.5-1	Clear	None	3.3	31	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	07:57	08:56	41.07472	-71.67722	41.03994	-71.70372	42	12	WSW	2-4	B5	0.5-1	Clear	None	3	3	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	08:56	09:35	41.03994	-71.70372	41.01250	-71.72456	49	18	WSW	2-4	B5	0.5-1	Clear	None	2.8	203	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	09:35	10:00	41.01250	-71.72456	40.99543	-71.73841	43	19	SW	2-4	B5	1-2	Clear	None	3.1	202	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:00	10:59	40.99543	-71.73841	41.03475	-71.69300	49	13	SW	<2	B3	2-5	Clear	None	3.7	208	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:59	12:00	41.03475	-71.69300	41.07235	-71.65018	36	15	SW	<2	B3	>5	Clear	Slight	3.8	31	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	13:00	41.07235	-71.65018	41.04961	-71.66714	37	19	SW	<2	B4	>5	Clear	Moderate	2.1	218	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	14:00	41.04961	-71.66714	41.02183	-71.68417	37	17	WSW	<2	B4	>5	Fog	Moderate	2	179	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:00	15:00	41.02183	-71.68417	41.00091	-71.69546	44	18	WSW	<2	B4	>5	Fog	Moderate	1.4	200	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	15:57	41.00091	-71.69546	41.03332	-71.64636	40	15	NE	<2	B4	>5	Cloudy	Moderate	3.6	70	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:57	16:55	41.03332	-71.64636	41.07299	-71.60683	44	11	SW	<2	B4	>5	Cloudy	Moderate	2.2	48	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:55	17:58	41.07299	-71.60683	41.04737	-71.63734	44	11	SW	<2	B4	>5	Clear	Moderate	3	37	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:55	41.04737	-71.63734	41.02093	-71.66512	43	18	SW	<2	B4	>5	Clear	Slight	2.4	225	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:55	20:00	41.02093	-71.66512	41.03800	-71.65114	38	20	SSW	<2	B4	>5	Clear	Slight	1.9	204	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:14	41.03800	-71.65114	41.06017	-71.64863	37	14	SW	<2	B4	>5	Clear	Severe	4.5	39	Standby	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:14	21:58	41.06017	-71.64863	41.16716	-71.76824	37	14	SW	<2	B4	>5	Clear	Severe	4.5	39	Transit	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:58	22:56	41.16716	-71.76824	41.18869	-71.94712	42	22	W	<2	B4	>5	Clear	Severe	9	311	Transit	N/A
2022-08-07	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:56	00:00	41.18869	-71.94712	41.22594	-72.09882	42	16	WSW	<2	B3	>5	Clear	Slight	5.7	303	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:45	41.22606	-72.10119	41.23447	-72.15505	45	26	WSW	<2	B4	>5	Clear	None	5.2	277	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:45	00:56	41.23447	-72.15505	41.23819	-72.16620	55	18	SW	<2	B4	1-2	Cloudy	None	2.8	296	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	00:56	01:56	41.23819	-72.16620	41.25804	-72.16429	59	22	WSW	<2	B4	0.5-1	Cloudy	None	3.1	285	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	01:56	02:56	41.25804	-72.16429	41.21397	-72.15085	62	19	WSW	<2	B4	0.5-1	Clear	None	3.4	178	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:56	03:58	41.21397	-72.15085	41.22945	-72.09950	61	12	SW	<2	B2	0.5-1	Clear	None	5.2	51	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	03:58	05:00	41.22945	-72.09950	41.21863	-72.13734	91	19	WSW	<2	B2	0.5-1	Clear	None	2.7	217	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	05:00	05:56	41.21863	-72.13734	41.21774	-72.15750	53	24	SW	<2	B3	0.5-1	Clear	None	1.7	257	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	05:56	06:56	41.21774	-72.15750	41.24087	-72.10732	52	11	SW	<2	B2	0.5-1	Clear	None	6.8	80	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	06:56	07:56	41.24087	-72.10732	41.21993	-72.15470	57	19	SW	<2	B2	0.5-1	Clear	None	2.1	200	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	07:56	08:57	41.21993	-72.15470	41.23281	-72.12209	55	18	SW	<2	B2	0.5-1	Clear	None	2.6	231	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	08:57	09:35	41.23281	-72.12209	41.23605	-72.12633	95	14	SW	<2	B2	0.5-1	Cloudy	None	2.1	45	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	09:35	09:53	41.23605	-72.12633	41.22504	-72.14641	80	18	SW	<2	B2	1-2	Fog	None	3.5	237	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	09:53	10:00	41.22504	-72.14641	41.21904	-72.15271	44	18	SSW	<2	B2	1-2	Fog	Slight	4.2	228	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	10:00	10:55	41.21904	-72.15271	41.23425	-72.12471	54	17	SSW	<2	B2	>5	Cloudy	Moderate	4.3	215	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:55	12:00	41.23425	-72.12471	41.21024	-72.03494	91	10	SW	<2	B2	>5	Fog	Severe	2.9	49	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	13:00	41.21024	-72.03494	41.16610	-71.88846	24	6	ESE	<2	B2	>5	Clear	Severe	5.5	111	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	13:55	41.16610	-71.88846	41.13035	-71.78436	31	15	ESE	<2	B3	>5	Fog	Severe	8.2	108	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:55	15:00	41.13035	-71.78436	41.12860	-71.78648	31	7	ESE	<2	B4	>5	Clear	Severe	7.5	114	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	16:00	41.12860	-71.78648	41.14402	-71.87167	61	19	WNW	<2	B4	>5	Clear	Severe	3.5	308	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:00	16:53	41.14402	-71.87167	41.14222	-71.84450	61	22	W	<2	B4	>5	Clear	Severe	3.5	297	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:53	17:58	41.14222	-71.84450	41.12638	-71.81120	45	14	E	<2	B3	>5	Clear	Severe	7.5	100	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	19:00	41.12638	-71.81120	41.17264	-71.89061	45	19	NW	<2	B4	>5	Fog	Severe	6.5	328	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	19:00	20:00	41.17264	-71.89061	41.19343	-71.98702	45	2	WNW	<2	B4	>5	Fog	Severe	6.5	282	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:57	41.19343	-71.98702	41.20691	-72.06367	30	15	SW	<2	B4	>5	Fog	Severe	5	280	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:57	21:58	41.20691	-72.06367	41.22990	-72.09386	68	18	SW	<2	B4	>5	Fog	Moderate	4	292	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:58	23:00	41.22990	-72.09386	41.23044	-71.94439	65	10	ESE	<2	B4	>5	Fog	Severe	7.1	109	Transit	N/A
2022-08-08	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:00	00:00	41.23044	-71.94439	41.24752	-71.77176	40	17	SSW	<2	B4	>5	Fog	Severe	7.7	90	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:38	41.24857	-71.76516	41.26237	-71.65652	37	12	SSW	<2	B4	2-5	Fog	None	8.5	82	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:38	00:51	41.26237	-71.65652	41.26614	-71.61280	35	12	SSW	<2	B4	0.5-1	Fog	None	8.8	83	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	00:51	02:00	41.26614	-71.61280	41.29604	-71.38403	35	11	E	<2	B4	0.5-1	Fog	None	8.8	81	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	02:00	02:56	41.29604	-71.38403	41.34611	-71.22219	40	9	SW	<2	B4	0.5-1	Fog	None	9.2	70	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:56	04:02	41.34611	-71.22219	41.42595	-71.04745	26	7	SW	<2	B3	0.5-1	Clear	None	8.5	56	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	04:02	05:01	41.42595	-71.04745	41.49208	-70.88787	18	12	SW	<2	B3	0.5-1	Fog	None	8.3	57	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	05:01	05:56	41.49208	-70.88787	41.59597	-70.88796	18	10	SW	<2	B3	0.5-1	Fog	None	8.7	69	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	05:56	06:40	41.59597	-70.88796	41.62314	-70.91362	8	20	NW	<2	B2	0.5-1	Clear	None	8.9	339	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	17:25	17:58	41.62432	-70.91402	41.60040	-70.89018	9	14	WSW	<2	B2	>5	Clear	None	0	0	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:57	41.60040	-70.89018	41.49392	-70.86766	10	26	SSE	<2	B3	>5	Fog	None	7.9	155	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	18:57	20:00	41.49392	-70.86766	41.45071	-71.00907	16	27	WSW	<2	B4	>5	Fog	None	7.2	241	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:58	41.45071	-71.00907	41.38593	-71.11627	16	28	SW	<2	B5	>5	Fog	Severe	5.8	243	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:58	21:58	41.38593	-71.11627	41.31978	-71.23647	25	26	SW	<2	B5	>5	Fog	Severe	7.7	239	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	21:58	23:00	41.31978	-71.23647	41.28977	-71.39007	31	26	SW	2-4	B5	>5	Fog	Severe	6.5	234	Transit	N/A
2022-08-09	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	23:00	00:00	41.28977	-71.39007	41.27807	-71.52686	37	27	WSW	2-4	B5	>5	Fog	None	7.7	262	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:27	41.27807	-71.52686	41.26858	-71.56120	45	18	SW	<2	B3	2-5	Fog	Slight	3.7	234	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:27	00:42	41.26858	-71.56120	41.26690	-71.57778	37	17	SW	<2	B3	1-2	Fog	Slight	3.2	234	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:42	00:56	41.26690	-71.57778	41.26376	-71.59304	31	15	SW	<2	B3	0.5-1	Fog	None	3.3	234	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Gutierrez, Daniela	RPS	00:56	02:00	41.26376	-71.59304	41.23321	-71.64111	35	13	SW	<2	B3	0.5-1	Fog	None	2.6	234	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	02:00	02:57	41.23321	-71.64111	41.14204	-71.69474	33	9	SW	<2	B3	0.5-1	Fog	None	4.9	223	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:57	03:57	41.14204	-71.69474	41.03188	-71.68154	39	14	SW	<2	B3	0.5-1	Fog	None	6.1	187	Transit	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	03:57	04:58	41.03188	-71.68154	40.98228	-71.67187	45	11	SW	<2	B3	0.5-1	Fog	None	6.3	172	Standby	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	04:58	05:55	40.98228	-71.67187	40.93521	-71.68953	47	9	W	<2	B3	0.5-1	Fog	None	3.6	217	Standby	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	05:55	06:32	40.93521	-71.68953	40.92664	-71.69959	51	5	WNW	<2	B3	0.5-1	Fog	None	2.8	213	Deploying/Retrieving	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Mohandeo, Ravie	RPS	06:32	06:53	40.92664	-71.69959	40.94412	-71.69554	56	12	NNW	<2	B3	0.5-1	Fog	None	3.6	21	Soft Start	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	06:53	06:58	40.94412	-71.69554	40.94850	-71.69508	50	20	N	<2	B3	0.1-0.3	Fog	None	2.7	8	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Osuna, Yosiris	RPS	06:58	07:54	40.94850	-71.69508	40.98502	-71.69877	53	19	NE	<2	B3	0.5-1	Fog	None	2.6	8	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	07:54	08:00	40.98502	-71.69877	40.98710	-71.70090	44	21	NE	<2	B3	0.5-1	Fog	None	1.7	309	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	08:00	09:00	40.98710	-71.70090	41.03236	-71.71939	43	20	NNW	<2	B3	0.5-1	Fog	None	2.4	325.5	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	09:00	09:34	41.03236	-71.71939	41.06688	-71.73390	49	16	NNE	<2	B3	0.5-1	Fog	None	3.9	353	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	09:34	09:45	41.06688	-71.73390	41.07956	-71.73855	25	20	NE	<2	B3	0.5-1	Fog	None	3.8	355	Soft Start	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	09:45	09:54	41.07956	-71.73855	41.07451	-71.72988	32	18	ENE	<2	B3	2-5	Fog	None	3	67	Soft Start	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	09:54	09:56	41.07451	-71.72988	41.07292	-71.72824	30	13	ENE	<2	B4	2-5	Fog	None	5.3	137	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	09:56	10:55	41.07292	-71.72824	41.08937	-71.73976	29	12	ENE	<2	B4	2-5	Fog	None	5.1	162	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	10:55	12:00	41.08937	-71.73976	41.08225	-71.73470	21	16	ENE	<2	B4	2-5	Fog	None	3	107	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	12:00	13:00	41.08225	-71.73470	41.09240	-71.73752	20	14	NW	<2	B4	2-5	Cloudy	None	5.4	288	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	13:00	13:55	41.09240	-71.73752	41.10565	-71.74476	19	7	NE	<2	B4	2-5	Cloudy	None	3.9	187	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	13:55	14:22	41.10565	-71.74476	41.09993	-71.74547	19	17	NE	<2	B4	2-5	Cloudy	None	4.1	35	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:22	14:25	41.09993	-71.74547	41.09575	-71.74358	20	15	NE	<2	B4	2-5	Cloudy	None	4.2	165	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	14:25	15:00	41.09575	-71.74358	41.07448	-71.73045	19	8	NE	<2	B4	2-5	Cloudy	None	4.5	147.3	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	15:00	15:58	41.07448	-71.73045	41.01072	-71.67127	29	9	SE	<2	B4	>5	Cloudy	None	5.5	158	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:58	15:58	41.01072	-71.67127	41.01019	-71.67075	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	141	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	15:58	16:02	41.01019	-71.67075	41.00536	-71.66997	27	8	SSE	<2	B3	>5	Cloudy	None	4.7	139	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:02	16:24	41.00536	-71.66997	41.01738	-71.67904	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	221	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:24	16:29	41.01738	-71.67904	41.01169	-71.67193	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	221	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:29	16:41	41.01169	-71.67193	40.99804	-71.65924	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	221	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:41	16:42	40.99804	-71.65924	40.99715	-71.65836	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	142	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	16:42	16:57	40.99715	-71.65836	40.99669	-71.67595	27	7	SSE	<2	B3	>5	Cloudy	None	4.2	142	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	16:57	17:04	40.99669	-71.67595	41.00229	-71.67472	41	13	NE	<2	B3	>5	Clear	Slight	4.4	321	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:04	17:09	41.00229	-71.67472	41.00194	-71.66768	41	12	E	<2	B3	>5	Clear	Slight	4.1	103	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:09	17:58	41.00194	-71.66768	40.99625	-71.58788	41	12	E	<2	B3	>5	Clear	Slight	4.6	110	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	17:58	18:04	40.99625	-71.58788	40.99405	-71.57852	45	14	E	<2	B3	>5	Clear	Slight	4.9	124	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:04	18:06	40.99405	-71.57852	40.99337	-71.57525	47	12	ENE	<2	B3	>5	Clear	Slight	4.4	100	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:06	18:16	40.99337	-71.57525	40.98716	-71.57276	47	12	ENE	<2	B3	>5	Clear	Slight	4.6	96	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:16	18:24	40.98716	-71.57276	40.99130	-71.58441	47	10	ENE	<2	B3	>5	Clear	Slight	4.3	290	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:24	18:48	40.99130	-71.58441	40.99575	-71.62502	47	5	ENE	<2	B3	>5	Clear	Slight	4.9	290	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:48	18:56	40.99575	-71.62502	40.99496	-71.64148	47	4	SE	<2	B3	>5	Clear	Slight	4.5	272	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	John, Darnell; Perez, Aaron	RPS	18:56	19:08	40.99496	-71.64148	40.99118	-71.66009	47	5	ENE	<2	B3	>5	Clear	Slight	4.9	290	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	19:08	19:20	40.99118	-71.66009	41.00095	-71.67059	47	4	SE	<2	B3	>5	Clear	Slight	4.3	272	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	19:20	19:40	41.00095	-71.67059	40.99233	-71.65499	48	12	E	<2	B3	>5	Clear	Moderate	3.2	70	Soft Start	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	19:40	19:47	40.99233	-71.65499	40.99127	-71.66201	43	6	SW	<2	B3	>5	Clear	Severe	4.3	222	Soft Start	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:47	19:53	40.99127	-71.66201	40.99739	-71.66628	43	6	SW	<2	B3	>5	Clear	Severe	4.3	222	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	19:53	20:00	40.99739	-71.66628	41.00412	-71.67254	43	6	SW	<2	B3	>5	Clear	Severe	4.3	222	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:00	20:27	41.00412	-71.67254	41.03051	-71.69699	42	7	NNW	<2	B3	>5	Clear	Severe	4.3	222	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:27	20:28	41.03051	-71.69699	41.03198	-71.69829	40	2	N	<2	B3	>5	Clear	Severe	4.3	355	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	20:28	20:59	41.03198	-71.69829	41.02015	-71.67981	40	2	N	<2	B3	>5	Clear	Severe	4.3	15	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	20:59	21:26	41.02015	-71.67981	41.03863	-71.70551	42	11	SE	<2	B3	>5	Clear	Severe	4.8	191	Full Power	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	21:26	22:00	41.03863	-71.70551	41.04267	-71.70134	45	10	SSE	<2	B3	>5	Clear	Severe	2.3	167	Silent	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Jaimes, Fernando	RPS	22:00	22:59	41.04267	-71.70134	41.03357	-71.71048	45	10	SSE	<2	B3	>5	Clear	Severe	2.3	167	Deploying/Retrieving	N/A
2022-08-10	*GO Explorer*	HRG	Visual	Jaimes, Fernando; John, Darnell	RPS	22:59	00:00	41.03357	-71.71048	41.06918	-71.57206	38	17	SE	<2	B3	>5	Clear	Severe	6.1	118	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:00	00:45	41.07375	-71.56504	41.11015	-71.51250	27	11	ESE	<2	B3	1-2	Cloudy	None	5.6	42	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; John, Darnell	RPS	00:45	01:00	41.11015	-71.51250	41.12444	-71.49055	32	10	ESE	<2	B3	0.5-1	Cloudy	None	4.9	55	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Lai Tan, Lyndon	RPS	01:00	02:00	41.12444	-71.49055	41.18262	-71.39408	25	10	SE	<2	B3	0.5-1	Cloudy	None	5.2	43	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	02:00	02:54	41.18262	-71.39408	41.23929	-71.29779	32	11	SE	<2	B3	0.5-1	Cloudy	None	6.1	50	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	02:54	03:56	41.23929	-71.29779	41.29654	-71.18369	36	6	E	<2	B3	0.5-1	Cloudy	None	6.3	54	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	03:56	04:55	41.29654	-71.18369	41.36751	-71.10170	25	10	E	<2	B3	0.5-1	Cloudy	None	6.1	44	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	John, Darnell; Osuna, Yosiris	RPS	04:55	05:52	41.36751	-71.10170	41.43945	-71.02081	28	8	ESE	<2	B3	0.5-1	Cloudy	None	5.4	40	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	05:52	06:59	41.43945	-71.02081	41.49428	-70.87738	57	3	SE	<2	B1	0.5-1	Cloudy	None	6.3	35	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Gutierrez, Daniela; Jaimes, Fernando	RPS	06:59	07:56	41.49428	-70.87738	41.58076	-70.87930	62	7	SE	<2	B1	0.5-1	Cloudy	None	6.7	69	Transit	N/A
2022-08-11	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Mohandeo, Ravie	RPS	07:56	08:53	41.58076	-70.87930	41.62167	-70.91364	8	4	SW	<2	B1	0.5-1	Cloudy	None	6.8	335	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:25	00:54	41.62158	-70.91341	41.63188	-70.91107	9	3	NW	<2	B1	0.5-1	Clear	None	4	349	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:54	02:00	41.63188	-70.91107	41.52629	-70.84327	9	2	SW	<2	B1	0.5-1	Clear	None	0.5	101	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:55	41.52629	-70.84327	41.45592	-70.99480	16	14	SW	<2	B1	0.5-1	Clear	None	9.2	203	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:55	03:50	41.45592	-70.99480	41.37819	-71.10460	17	12	SW	<2	B2	0.5-1	Clear	None	9.3	237	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:50	04:57	41.37819	-71.10460	41.27771	-71.24554	28	14	SW	<2	B2	0.5-1	Clear	None	8.7	228	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	04:57	05:58	41.27771	-71.24554	41.15498	-71.43547	26	15	WSW	<2	B2	0.5-1	Clear	None	8.9	230	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:58	06:52	41.15498	-71.43547	41.06535	-71.57057	25	12	WSW	<2	B2	0.5-1	Clear	None	9	222	Transit	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:52	07:38	41.06535	-71.57057	41.06393	-71.70544	37	12	W	<2	B2	0.5-1	Clear	None	8.2	276	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:38	07:57	41.06393	-71.70544	41.05519	-71.70498	41	7	WNW	<2	B2	0.5-1	Clear	None	2.3	249	Deploying/Retrieving	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:57	08:58	41.05519	-71.70498	41.01570	-71.71981	41	7	WNW	<2	B2	0.5-1	Clear	None	1.7	161	Deploying/Retrieving	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:58	09:34	41.01570	-71.71981	41.02391	-71.73721	43	11	SW	<2	B2	0.5-1	Clear	None	4	235	Deploying/Retrieving	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:34	09:54	41.02391	-71.73721	41.04467	-71.73903	43	14	N	<2	B2	2-5	Clear	None	3.7	1	Soft Start	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:54	10:30	41.04467	-71.73903	41.08139	-71.73543	42	14	N	<2	B2	2-5	Clear	None	3.8	356	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:30	10:36	41.08139	-71.73543	41.07550	-71.73001	42	7	N	<2	B2	2-5	Clear	None	3.8	131	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:36	11:35	41.07550	-71.73001	41.02062	-71.67928	42	7	N	<2	B2	2-5	Cloudy	None	3.8	131	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:35	11:42	41.02062	-71.67928	41.01340	-71.67263	44	7	N	<2	B2	2-5	Cloudy	None	4.4	141	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:42	11:46	41.01340	-71.67263	41.00901	-71.67077	43	9	N	<2	B2	2-5	Cloudy	None	4.6	181	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:46	11:55	41.00901	-71.67077	40.99864	-71.67226	43	9	N	<2	B2	2-5	Cloudy	None	4.6	181	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	11:55	12:57	40.99864	-71.67226	40.99309	-71.61273	46	10	N	<2	B2	2-5	Cloudy	None	4.1	196	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:57	13:40	40.99309	-71.61273	40.99320	-71.66185	47	19	NE	<2	B2	2-5	Cloudy	None	3.7	91	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:40	13:45	40.99320	-71.66185	40.99766	-71.66566	41	14	N	<2	B2	2-5	Cloudy	None	4.3	336	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:45	14:00	40.99766	-71.66566	41.01348	-71.68018	41	13	N	<2	B2	2-5	Cloudy	None	5	322	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	41.01348	-71.68018	41.07767	-71.73801	46	19	N	<2	B3	2-5	Cloudy	None	5	324	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:32	41.07767	-71.73801	41.11732	-71.76374	18	11	NNW	<2	B2	>5	Cloudy	None	5.2	336	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:32	15:36	41.11732	-71.76374	41.12175	-71.76812	20	12	N	<2	B2	>5	Cloudy	None	4.8	290	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:36	16:00	41.12175	-71.76812	41.12382	-71.76867	21	11	NNW	<2	B2	>5	Cloudy	None	5.1	280	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:55	41.12382	-71.76867	41.06513	-71.72155	21	11	NNW	<2	B2	>5	Cloudy	None	4.3	168	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:55	17:59	41.06513	-71.72155	40.99396	-71.66195	36	5	SW	<2	B2	>5	Cloudy	None	4.7	156	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:59	18:57	40.99396	-71.66195	41.04188	-71.71008	43	5	WSW	<2	B2	>5	Cloudy	Slight	5.1	245	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	18:57	20:00	41.04188	-71.71008	41.08128	-71.73325	38	2	NNW	<2	B2	>5	Clear	Slight	3	334	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:15	41.08128	-71.73325	41.06791	-71.73396	30	2	NNW	<2	B2	>5	Clear	Slight	6.2	163	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:15	20:21	41.06791	-71.73396	41.07272	-71.73738	32	3	NNW	<2	B2	>5	Clear	Slight	6	312	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:21	20:36	41.07272	-71.73738	41.08566	-71.74522	33	2	NNW	<2	B2	>5	Clear	Slight	6.2	337	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:36	20:39	41.08566	-71.74522	41.08722	-71.74697	33	3	NNW	<2	B2	>5	Clear	Slight	6	333	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:39	20:55	41.08722	-71.74697	41.09358	-71.74818	30	9	SW	<2	B2	>5	Clear	Slight	4.2	207	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	20:55	21:53	41.09358	-71.74818	41.09810	-71.74707	20	3	WNW	<2	B2	>5	Clear	Severe	3.9	56	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:53	21:55	41.09810	-71.74707	41.09559	-71.74597	20	13	NNE	<2	B2	>5	Clear	Severe	4.6	161	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:55	22:00	41.09559	-71.74597	41.09003	-71.74247	20	13	NE	<2	B2	>5	Clear	Severe	5.1	164	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:05	41.09003	-71.74247	41.08353	-71.73855	20	13	NE	<2	B2	>5	Clear	Severe	4.9	155	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:05	22:07	41.08353	-71.73855	41.08103	-71.73737	15	13	SSW	<2	B2	>5	Clear	Severe	4.5	156	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:07	22:59	41.08103	-71.73737	41.11375	-71.75021	16	12	SSW	<2	B2	>5	Clear	Severe	4.1	171	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	23:02	41.11375	-71.75021	41.11184	-71.74951	19	12	SSW	<2	B2	>5	Cloudy	Severe	3.5	167	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:02	23:26	41.11184	-71.74951	41.08932	-71.74158	18	12	SSW	<2	B2	>5	Cloudy	Severe	3.5	160	Full Power	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:26	23:28	41.08932	-71.74158	41.08732	-71.74089	19	9	SSW	<2	B2	>5	Cloudy	Severe	3.5	169	Silent	N/A
2022-08-12	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:28	00:00	41.08732	-71.74089	41.10042	-71.74549	19	9	SSW	<2	B2	>5	Cloudy	Severe	3.3	187	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:29	41.09855	-71.74481	41.07966	-71.73491	19	8	NE	<2	B2	2-5	Cloudy	None	2.9	155	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:29	00:55	41.07966	-71.73491	41.08443	-71.74167	19	9	NE	<2	B2	0.5-1	Cloudy	None	2.8	154	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:55	01:15	41.08443	-71.74167	41.10393	-71.74583	19	2	N	<2	B2	0.5-1	Fog	None	6.1	345	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:15	01:17	41.10393	-71.74583	41.10292	-71.74432	19	2	NNW	<2	B2	0.5-1	Fog	None	3.1	116	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:17	01:35	41.10292	-71.74432	41.08850	-71.73757	20	2	N	<2	B2	0.5-1	Fog	None	2.5	148	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:35	01:38	41.08850	-71.73757	41.08608	-71.73614	19	3	SSE	<2	B2	0.5-1	Fog	None	3.1	152	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:38	02:06	41.08608	-71.73614	41.11222	-71.75850	18	6	S	<2	B2	0.5-1	Fog	None	3.1	153	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:06	02:14	41.11222	-71.75850	41.11619	-71.75350	18	8	NE	<2	B2	0.5-1	Fog	None	6.2	339	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:14	02:17	41.11619	-71.75350	41.11431	-71.75101	18	6	SE	<2	B2	0.5-1	Fog	None	2.9	151	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:17	02:45	41.11431	-71.75101	41.09009	-71.74074	17	6	SE	<2	B2	0.5-1	Fog	None	2.9	157	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:45	02:48	41.09009	-71.74074	41.08723	-71.73961	18	7	SE	<2	B2	0.5-1	Fog	None	3.7	159	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:48	02:55	41.08723	-71.73961	41.08219	-71.74566	19	7	SE	<2	B2	0.5-1	Fog	None	3.9	181	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:55	03:54	41.08219	-71.74566	41.09935	-71.73815	18	6	SW	<2	B2	0.5-1	Fog	None	5.1	308	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:54	04:38	41.09935	-71.73815	41.10232	-71.74653	20	2	SE	<2	B2	0.5-1	Fog	None	4.4	228	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:38	04:42	41.10232	-71.74653	41.10569	-71.75000	21	14	NNE	<2	B2	0.5-1	Fog	None	4.4	316	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:42	04:50	41.10569	-71.75000	41.11192	-71.75693	21	14	NNE	<2	B2	0.5-1	Fog	None	4.4	316	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:50	04:51	41.11192	-71.75693	41.11263	-71.75760	21	4	NE	<2	B2	0.5-1	Cloudy	None	3.2	311	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:51	05:00	41.11263	-71.75760	41.11724	-71.76636	21	4	NE	<2	B2	0.5-1	Cloudy	None	3.2	311	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	41.11724	-71.76636	41.11155	-71.75466	22	10	NE	<2	B2	0.5-1	Cloudy	None	3	305	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:56	41.11155	-71.75466	41.09710	-71.74131	17	10	NE	<2	B3	0.5-1	Cloudy	None	2.3	310	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:56	08:02	41.09710	-71.74131	41.12173	-71.76697	17	12	NE	<2	B3	0.5-1	Cloudy	None	2.3	231	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:02	08:57	41.12173	-71.76697	41.12406	-71.77172	17	21	NE	<2	B3	0.5-1	Cloudy	None	2.9	41	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:57	09:37	41.12406	-71.77172	41.11564	-71.77896	17	20	NE	<2	B3	0.5-1	Cloudy	None	2.3	317	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:37	10:00	41.11564	-71.77896	41.12333	-71.75112	17	17	NE	<2	B3	2-5	Cloudy	None	4.2	46	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:00	10:26	41.12333	-71.75112	41.10083	-71.74128	17	14	NNE	<2	B3	2-5	Cloudy	None	4.3	166	Deploying/Retrieving	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:26	11:00	41.10083	-71.74128	41.08324	-71.75966	17	14	NNE	<2	B3	2-5	Cloudy	None	2.8	157	Standby	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:00	11:57	41.08324	-71.75966	41.06011	-71.80600	18	13	NNE	<2	B4	2-5	Cloudy	None	3.1	223	Standby	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	11:57	13:00	41.06011	-71.80600	41.10480	-71.81259	20	12	NNE	<2	B4	2-5	Cloudy	Moderate	2.1	240	Standby	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:35	41.10480	-71.81259	41.15067	-71.82799	15	19	N	<2	B4	2-5	Clear	Severe	3.5	355	Standby	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:35	14:00	41.15067	-71.82799	41.16700	-71.84131	18	17	NNE	<2	B4	>5	Clear	Severe	2.4	325	Deploying/Retrieving	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:34	41.16700	-71.84131	41.16003	-71.82600	20	18	NNE	<2	B4	>5	Clear	Severe	2.6	322	Deploying/Retrieving	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:34	14:55	41.16003	-71.82600	41.14963	-71.81302	19	16	NNE	<2	B3	>5	Clear	Severe	2.3	117	Soft Start	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:55	14:57	41.14963	-71.81302	41.14845	-71.81161	29	5	SE	<2	B3	>5	Clear	Severe	2.7	142	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	14:57	16:00	41.14845	-71.81161	41.11387	-71.77418	30	4	SE	<2	B3	>5	Clear	Severe	2.4	133	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:57	41.11387	-71.77418	41.11573	-71.77426	20	2	ESE	<2	B2	>5	Clear	Severe	4.5	291	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:57	17:28	41.11573	-71.77426	41.11157	-71.75493	18	5	SE	<2	B2	>5	Clear	Slight	4.2	247	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:28	17:30	41.11157	-71.75493	41.11276	-71.75746	18	7	SSW	<2	B2	>5	Clear	Slight	4.1	298	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:30	17:59	41.11276	-71.75746	41.12568	-71.78869	18	7	SSW	<2	B2	>5	Clear	Slight	4.2	305	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:59	18:09	41.12568	-71.78869	41.12833	-71.79776	20	9	SSW	<2	B2	>5	Clear	Slight	2.9	293	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:09	18:12	41.12833	-71.79776	41.12884	-71.80021	19	10	S	<2	B2	>5	Clear	Slight	2.8	271	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:12	18:27	41.12884	-71.80021	41.13395	-71.79979	19	10	S	<2	B2	>5	Clear	Slight	2.7	268	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:27	18:29	41.13395	-71.79979	41.13235	-71.79552	20	4	N	<2	B2	>5	Clear	Slight	5.5	114	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:29	18:49	41.13235	-71.79552	41.11649	-71.75566	20	4	N	<2	B2	>5	Clear	Slight	5.4	112	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:49	18:52	41.11649	-71.75566	41.11392	-71.75412	20	10	S	<2	B2	>5	Clear	Slight	2.9	210	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:52	18:58	41.11392	-71.75412	41.11320	-71.75691	20	10	S	<2	B2	>5	Clear	Slight	0.8	213	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	18:58	19:28	41.11320	-71.75691	41.11806	-71.76701	20	12	W	<2	B2	>5	Clear	Slight	2.4	240	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:28	19:30	41.11806	-71.76701	41.11859	-71.76780	20	11	WNW	<2	B2	>5	Clear	Slight	2.6	288	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:30	20:03	41.11859	-71.76780	41.12766	-71.79693	16	11	WNW	<2	B2	>5	Clear	Slight	2.4	306	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:03	20:06	41.12766	-71.79693	41.12846	-71.79963	18	13	WNW	<2	B2	>5	Clear	Slight	2.7	291	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:06	20:19	41.12846	-71.79963	41.13361	-71.80130	20	10	WNW	<2	B2	>5	Clear	Slight	2.8	294	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:19	20:21	41.13361	-71.80130	41.13204	-71.79690	18	8	WNW	<2	B2	>5	Clear	Slight	6.2	124	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:21	20:42	41.13204	-71.79690	41.11692	-71.75740	16	4	ESE	<2	B2	>5	Clear	Slight	6.4	119	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:42	20:45	41.11692	-71.75740	41.11438	-71.75256	16	4	ESE	<2	B2	>5	Clear	Slight	5.9	132	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:45	20:57	41.11438	-71.75256	41.10546	-71.74733	16	5	ESE	<2	B2	>5	Clear	Slight	5.3	116	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	20:57	21:06	41.10546	-71.74733	41.11102	-71.75334	19	12	SW	<2	B2	>5	Clear	Severe	3.2	304	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:06	21:08	41.11102	-71.75334	41.11231	-71.75473	18	10	SSW	<2	B2	>5	Clear	Severe	2.9	323	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:08	21:31	41.11231	-71.75473	41.11589	-71.76005	18	10	SSW	<2	B2	>5	Clear	Severe	2.9	326	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:31	21:33	41.11589	-71.76005	41.11589	-71.76005	18	8	NNW	<2	B2	>5	Clear	Severe	2.9	352	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:33	22:00	41.11589	-71.76005	41.12268	-71.77462	18	8	NNW	<2	B2	>5	Clear	Severe	3.8	2	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	23:01	41.12268	-71.77462	41.11923	-71.75668	15	11	S	<2	B2	>5	Clear	Severe	4.2	290	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:01	23:03	41.11923	-71.75668	41.11919	-71.76191	19	4	S	<2	B2	>5	Clear	Severe	4.8	265	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:03	23:21	41.11919	-71.76191	41.12723	-71.79116	18	2	S	<2	B2	>5	Clear	Severe	4.9	297	Full Power	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:21	23:24	41.12723	-71.79116	41.12893	-71.79664	20	3	SSW	<2	B2	>5	Clear	Severe	5.1	294	Silent	N/A
2022-08-13	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:24	00:00	41.12893	-71.79664	41.12288	-71.76214	20	3	SSW	<2	B2	>5	Clear	Severe	5	320	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:30	41.12238	-71.76105	41.10406	-71.74129	19	8	S	<2	B2	2-5	Clear	None	3	142	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna Yosiris	RPS	00:30	00:35	41.10406	-71.74129	41.10241	-71.74889	21	7	SSW	<2	B2	1-2	Clear	None	3.2	200	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna Yosiris	RPS	00:35	00:37	41.10241	-71.74889	41.10498	-71.75072	18	5	NW	<2	B2	1-2	Clear	None	5.7	325	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna Yosiris	RPS	00:37	00:47	41.10498	-71.75072	41.11748	-71.76400	18	5	NW	<2	B2	1-2	Clear	None	6.1	322	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna Yosiris	RPS	00:47	00:50	41.11748	-71.76400	41.12101	-71.76868	18	5	NW	<2	B2	1-2	Clear	None	6.3	314	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna Yosiris	RPS	00:50	00:52	41.12101	-71.76868	41.12186	-71.77288	18	5	NW	<2	B2	1-2	Clear	None	6.3	314	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:52	02:00	41.12186	-71.77288	41.10012	-71.74364	16	7	W	<2	B2	1-2	Clear	None	6	286	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	03:00	41.10012	-71.74364	41.10972	-71.75503	16	6	W	<2	B2	1-2	Clear	None	3.9	128	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:00	03:56	41.10972	-71.75503	41.09544	-71.74314	19	2	WNW	<2	B2	1-2	Clear	None	3	137	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:56	05:00	41.09544	-71.74314	41.11855	-71.76093	20	9	N	<2	B2	1-2	Clear	None	5.3	346	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	41.11855	-71.76093	41.11890	-71.75907	20	6	E	<2	B2	1-2	Clear	None	4.4	67	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:26	41.11890	-71.75907	41.11596	-71.75068	22	1	NE	<2	B2	1-2	Clear	None	5.4	140	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:26	06:34	41.11596	-71.75068	41.10602	-71.74634	19	4	E	<2	B2	1-2	Clear	None	5.1	178	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:34	06:43	41.10602	-71.74634	41.09096	-71.74080	19	5	E	<2	B2	1-2	Clear	None	5.6	164	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:43	06:45	41.09096	-71.74080	41.08788	-71.73955	17	3	NE	<2	B2	1-2	Clear	None	5.5	172	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:45	06:53	41.08788	-71.73955	41.08039	-71.73978	18	4	NE	<2	B2	1-2	Clear	None	4.5	192	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:53	07:59	41.08039	-71.73978	41.07970	-71.74192	17	8	WNW	<2	B2	1-2	Clear	None	2.9	271	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:59	08:53	41.07970	-71.74192	41.08994	-71.74026	18	10	SW	<2	B2	1-2	Clear	None	2.9	271	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:53	09:33	41.08994	-71.74026	41.08763	-71.74821	19	1	ENE	<2	B2	1-2	Clear	None	5.4	117	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:33	10:29	41.08763	-71.74821	41.07154	-71.73454	19	1	ENE	<2	B2	>5	Clear	None	5.4	117	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:29	11:01	41.07154	-71.73454	41.09846	-71.75382	22	14	NNW	<2	B2	>5	Clear	Moderate	3.6	339	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:01	11:57	41.09846	-71.75382	41.09151	-71.74000	21	7	NE	<2	B2	>5	Clear	Severe	4.2	76	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	11:57	12:39	41.09151	-71.74000	41.05338	-71.70957	23	6	NW	<2	B2	>5	Clear	Severe	3.7	136	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:39	12:44	41.05338	-71.70957	41.04826	-71.70463	22	7	NW	<2	B2	>5	Clear	Severe	3.7	140	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:44	12:57	41.04826	-71.70463	41.03604	-71.69325	22	6	NW	<2	B2	>5	Clear	Severe	3.8	142	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:57	12:59	41.03604	-71.69325	41.03438	-71.69169	22	6	NW	<2	B2	>5	Clear	Severe	3.8	142	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:59	13:00	41.03438	-71.69169	41.03355	-71.69119	22	7	NW	<2	B2	>5	Clear	Severe	3.9	143	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	41.03355	-71.69119	41.00480	-71.66426	21	9	NW	<2	B2	>5	Clear	Severe	3.8	144	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:11	41.00480	-71.66426	40.99917	-71.66778	26	3	SE	<2	B2	>5	Clear	Severe	4.2	136	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:11	14:15	40.99917	-71.66778	41.00376	-71.67140	28	4	SE	<2	B2	>5	Clear	Severe	4	335	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:15	14:32	41.00376	-71.67140	41.02276	-71.68914	27	4	SSE	<2	B2	>5	Clear	Severe	4	337	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:32	14:33	41.02276	-71.68914	41.02391	-71.69020	28	3	SE	<2	B2	>5	Clear	Severe	4.3	339	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:33	15:00	41.02391	-71.69020	41.05570	-71.71908	28	3	SE	<2	B2	>5	Clear	Severe	4	339	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:16	41.05570	-71.71908	41.07401	-71.73680	29	4	SE	<2	B2	>5	Clear	Severe	4.1	336	Full Power	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:16	15:25	41.07401	-71.73680	41.08495	-71.74507	29	5	SSE	<2	B2	>5	Clear	Severe	4	336	Silent	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:25	16:00	41.08495	-71.74507	41.07735	-71.71974	28	3	SSE	<2	B2	>5	Clear	Severe	2	140	Deploying/Retrieving	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:29	41.07735	-71.71974	41.07533	-71.70994	27	4	SE	<2	B2	>5	Clear	Severe	2	130	Deploying/Retrieving	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:29	16:53	41.07533	-71.70994	41.03876	-71.65301	27	8	SE	<2	B2	>5	Clear	Severe	7.1	130	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:53	18:00	41.03876	-71.65301	40.93897	-71.48117	38	11	SSE	<2	B2	>5	Cloudy	None	8.7	132	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	19:00	40.93897	-71.48117	40.85148	-71.32060	51	10	SSW	<2	B2	>5	Cloudy	None	8.6	127	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	20:00	40.85148	-71.32060	40.76278	-71.16018	55	6	ESE	<2	B2	>5	Cloudy	None	9	123	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:58	40.76278	-71.16018	40.67894	-71.00332	56	7	ESE	<2	B2	>5	Cloudy	None	9	126	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	20:58	22:00	40.67894	-71.00332	40.60700	-70.84206	61	9	SSE	<2	B2	>5	Cloudy	None	8.7	122	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:58	40.60700	-70.84206	40.66204	-70.68559	65	4	NE	<2	B2	>5	Cloudy	None	8.1	65	Transit	N/A
2022-08-14	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:58	00:00	40.66204	-70.68559	40.71513	-70.52368	61	6	NNE	<2	B2	>5	Cloudy	Severe	7.7	68	Transit	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:22	40.72060	-70.50892	40.73991	-70.45728	55	10	SSE	<2	B2	1-2	Clear	None	8.5	65	Transit	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:22	00:54	40.73991	-70.45728	40.77468	-70.36546	50	10	SSE	<2	B2	0.5-1	Cloudy	None	8.9	63	Transit	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:54	01:42	40.77468	-70.36546	40.82548	-70.22180	50	9	ENE	<2	B2	0.5-1	Cloudy	None	9.1	65	Transit	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:42	01:57	40.82548	-70.22180	40.82700	-70.19503	39	4	E	<2	B2	0.5-1	Cloudy	None	4.4	53	Standby	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:57	02:55	40.82700	-70.19503	40.81846	-70.21504	39	4	E	<2	B2	0.5-1	Cloudy	None	4.8	93	Standby	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:55	03:58	40.81846	-70.21504	40.81466	-70.25680	40	1	NNW	<2	B2	0.5-1	Cloudy	None	3	307	Deploying/Retrieving	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:58	04:13	40.81466	-70.25680	40.80950	-70.26714	45	2	S	<2	B2	0.5-1	Cloudy	None	2.5	236	Deploying/Retrieving	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:13	04:33	40.80950	-70.26714	40.81860	-70.25606	44	2	S	<2	B2	0.5-1	Cloudy	None	2.5	252	Soft Start	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:33	04:55	40.81860	-70.25606	40.82784	-70.22215	47	2	S	<2	B2	0.5-1	Cloudy	None	2.5	68	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:55	05:00	40.82784	-70.22215	40.82824	-70.21397	42	8	E	<2	B2	0.5-1	Clear	None	2.5	68	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:16	40.82824	-70.21397	40.82848	-70.18966	40	8	E	<2	B2	0.5-1	Clear	None	4.1	85	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:16	05:17	40.82848	-70.18966	40.82840	-70.18902	38	9	E	<2	B2	0.5-1	Clear	None	4	98	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:17	05:28	40.82840	-70.18902	40.82312	-70.18458	38	9	E	<2	B2	0.5-1	Clear	None	4	98	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:28	05:33	40.82312	-70.18458	40.82297	-70.19260	39	1	NNW	<2	B1	0.5-1	Clear	None	4.7	264	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:33	05:48	40.82297	-70.19260	40.82284	-70.20257	39	1	NNW	<2	B1	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:48	05:49	40.82284	-70.20257	40.82284	-70.20257	39	2	E	<2	B1	0.5-1	Clear	None	4.7	264	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:49	06:04	40.82284	-70.20257	40.82284	-70.20257	39	2	E	<2	B1	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:04	06:09	40.82284	-70.20257	40.82792	-70.21252	41	10	E	<2	B1	0.5-1	Clear	None	4.4	95	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:09	06:23	40.82792	-70.21252	40.82816	-70.19100	41	10	E	<2	B1	0.5-1	Clear	None	4.5	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:23	06:24	40.82816	-70.19100	40.82817	-70.18939	39	11	E	<2	B1	0.5-1	Clear	None	4.2	92	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:24	06:35	40.82817	-70.18939	40.82194	-70.18269	39	9	E	<2	B1	0.5-1	Clear	None	4	120	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:35	06:41	40.82194	-70.18269	40.82269	-70.19150	39	2	WNW	<2	B1	0.5-1	Clear	None	4.2	304	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:41	06:55	40.82269	-70.19150	40.82245	-70.21388	39	2	WNW	<2	B1	0.5-1	Clear	None	3.9	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:55	06:56	40.82245	-70.21388	40.82242	-70.21632	40	2	WNW	<2	B1	0.5-1	Clear	None	4.5	266	Silent	N/A

Monitoring Effort

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:56	07:10	40.82242	-70.21632	40.82766	-70.22009	40	2	WNW	<2	B1	0.5-1	Clear	None	4.5	266	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:10	07:15	40.82766	-70.22009	40.82767	-70.21275	39	2	WNW	<2	B1	0.5-1	Clear	None	4.3	91	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:15	07:29	40.82767	-70.21275	40.82782	-70.19089	39	2	W	<2	B1	0.5-1	Clear	None	4.1	90	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:29	07:30	40.82782	-70.19089	40.82782	-70.18934	39	2	W	<2	B1	0.5-1	Clear	None	4.1	88	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:30	07:44	40.82782	-70.18934	40.82237	-70.18560	39	2	WNW	<2	B1	0.5-1	Clear	None	4.1	87	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:44	07:56	40.82237	-70.18560	40.82229	-70.20758	40	2	WNW	<2	B1	0.5-1	Clear	None	4.1	280	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:56	08:00	40.82229	-70.20758	40.82224	-70.21403	39	2	W	<2	B1	0.5-1	Clear	None	4.1	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:01	40.82224	-70.21403	40.82217	-70.21574	39	2	W	<2	B1	0.5-1	Clear	None	4.9	270	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:01	08:14	40.82217	-70.21574	40.82730	-70.22162	39	2	W	<2	B1	0.5-1	Clear	None	4.9	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:14	08:20	40.82730	-70.22162	40.82736	-70.21351	40	2	W	<2	B1	0.5-1	Clear	None	5.1	98	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:20	08:36	40.82736	-70.21351	40.82764	-70.19123	40	2	W	<2	B1	0.5-1	Clear	None	4.8	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:36	08:37	40.82764	-70.19123	40.82765	-70.18972	40	2	W	<2	B1	0.5-1	Clear	None	4.8	88	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:37	08:54	40.82765	-70.18972	40.82019	-70.18376	40	2	W	<2	B1	0.5-1	Clear	None	4.8	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:54	08:59	40.82019	-70.18376	40.82215	-70.19318	40	2	W	<2	B1	0.5-1	Clear	None	4.8	88	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:59	09:10	40.82215	-70.19318	40.82197	-70.21297	41	3	SE	<2	B1	0.5-1	Clear	None	5.2	272	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:10	09:12	40.82197	-70.21297	40.82197	-70.21757	41	3	SE	<2	B1	0.5-1	Clear	None	5.3	272	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:12	09:27	40.82197	-70.21757	40.82708	-70.22092	41	3	SE	<2	B1	0.5-1	Clear	None	5.3	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:27	09:33	40.82708	-70.22092	40.82720	-70.21264	40	3	SE	<2	B1	0.5-1	Clear	None	5.3	91	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:33	09:35	40.82720	-70.21264	40.82718	-70.20997	40	3	SE	<2	B1	0.5-1	Clear	None	5.3	91	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:35	09:50	40.82718	-70.20997	40.82737	-70.19079	40	3	SE	<2	B1	2-5	Clear	None	5.3	91	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:50	09:51	40.82737	-70.19079	40.82739	-70.18953	40	3	SE	<2	B1	>5	Cloudy	None	5.3	90	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:51	10:11	40.82739	-70.18953	40.82187	-70.19128	40	3	SE	<2	B1	>5	Cloudy	None	5.3	90	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:11	10:22	40.82187	-70.19128	40.82167	-70.21278	39	3	SE	<2	B1	>5	Cloudy	None	5.3	230	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:22	10:23	40.82167	-70.21278	40.82166	-70.21463	40	3	SE	<2	B1	>5	Cloudy	None	5.3	230	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:23	10:38	40.82166	-70.21463	40.82681	-70.22011	39	3	SE	<2	B1	>5	Cloudy	None	5.3	230	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:38	10:44	40.82681	-70.22011	40.82668	-70.21300	39	10	SE	<2	B1	>5	Cloudy	None	5.3	90	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:44	11:04	40.82668	-70.21300	40.82707	-70.19159	38	10	SSE	<2	B1	>5	Cloudy	None	5.3	90	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:04	11:06	40.82707	-70.19159	40.82705	-70.18947	38	10	SSE	<2	B1	>5	Cloudy	None	5.3	126	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:06	11:18	40.82705	-70.18947	40.82170	-70.18588	38	9	SSE	<2	B1	>5	Cloudy	None	5.3	126	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:18	11:22	40.82170	-70.18588	40.82155	-70.19271	38	5	SSE	<2	B1	>5	Cloudy	None	5.3	126	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:22	11:33	40.82155	-70.19271	40.82132	-70.21616	39	0	SSE	<2	B1	>5	Cloudy	None	6	264	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:33	11:33	40.82132	-70.21616	40.82132	-70.21660	39	0	SSE	<2	B1	>5	Cloudy	None	6	264	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:33	11:46	40.82132	-70.21660	40.82659	-70.21925	39	0	SSE	<2	B1	>5	Cloudy	None	6	264	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:46	11:53	40.82659	-70.21925	40.82657	-70.21175	40	11	E	<2	B1	>5	Cloudy	None	3.3	96	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:53	11:59	40.82657	-70.21175	40.82665	-70.20439	40	11	E	<2	B1	>5	Cloudy	None	3.3	96	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	11:59	12:11	40.82665	-70.20439	40.82680	-70.19100	40	13	ESE	<2	B1	>5	Cloudy	Slight	3.4	79	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:11	12:12	40.82680	-70.19100	40.82681	-70.18978	40	11	ESE	<2	B1	>5	Cloudy	Slight	3.4	80	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:12	12:25	40.82681	-70.18978	40.82145	-70.18419	40	12	ESE	<2	B1	>5	Cloudy	Slight	3.3	81	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:25	12:29	40.82145	-70.18419	40.82130	-70.19175	40	11	ESE	<2	B1	>5	Cloudy	Slight	3.5	80	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:29	12:40	40.82130	-70.19175	40.82112	-70.21313	41	11	ESE	<2	B1	>5	Cloudy	Slight	3.4	81	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:40	12:41	40.82112	-70.21313	40.82112	-70.21502	41	11	ESE	<2	B1	>5	Cloudy	Slight	3.6	82	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:41	12:53	40.82112	-70.21502	40.82622	-70.22079	40	9	ESE	<2	B1	>5	Cloudy	Slight	3.4	80	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:53	12:59	40.82622	-70.22079	40.82615	-70.21338	40	10	ESE	<2	B1	>5	Cloudy	Slight	3.2	86	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:59	13:00	40.82615	-70.21338	40.82620	-70.21214	41	11	ESE	<2	B1	>5	Cloudy	Slight	3.4	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:18	40.82620	-70.21214	40.82647	-70.19114	41	11	E	<2	B1	>5	Cloudy	Moderate	3.1	89	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:18	13:19	40.82647	-70.19114	40.82649	-70.18995	42	10	E	<2	B2	>5	Cloudy	Severe	3.4	92	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:19	13:34	40.82649	-70.18995	40.82123	-70.18426	42	11	E	<2	B2	>5	Cloudy	Severe	3.3	92	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:34	13:38	40.82123	-70.18426	40.82101	-70.19089	41	11	E	<2	B2	>5	Cloudy	Severe	3.4	200	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:38	13:51	40.82101	-70.19089	40.82082	-70.21469	42	11	E	<2	B2	>5	Cloudy	Severe	5	271	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:51	13:52	40.82082	-70.21469	40.82082	-70.21650	41	13	ESE	<2	B2	>5	Cloudy	Severe	4.9	272	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:52	14:05	40.82082	-70.21650	40.82590	-70.21981	41	12	ESE	<2	B2	>5	Cloudy	Severe	4.9	272	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:05	14:10	40.82590	-70.21981	40.82600	-70.21292	42	12	ESE	<2	B2	>5	Cloudy	Severe	4	268	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:10	14:28	40.82600	-70.21292	40.82608	-70.19177	42	11	SE	<2	B2	>5	Cloudy	Severe	3.9	260	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:28	14:30	40.82608	-70.19177	40.82608	-70.18936	40	9	ESE	<2	B2	>5	Cloudy	Severe	4.2	250	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:30	14:46	40.82608	-70.18936	40.82093	-70.18543	40	7	ESE	<2	B2	>5	Cloudy	Severe	4	248	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:46	14:50	40.82093	-70.18543	40.82077	-70.19183	40	9	SE	<2	B2	>5	Cloudy	Severe	4.1	245	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:50	15:00	40.82077	-70.19183	40.82054	-70.20651	42	7	SE	<2	B2	>5	Cloudy	Severe	4	235	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:04	40.82054	-70.20651	40.82044	-70.21354	41	9	SE	<2	B2	>5	Cloudy	Severe	4.2	92	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:04	15:05	40.82044	-70.21354	40.82042	-70.21529	41	11	ESE	<2	B2	>5	Cloudy	Severe	4	90	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:05	15:22	40.82042	-70.21529	40.82678	-70.21912	41	9	ESE	<2	B2	>5	Cloudy	Severe	4.1	89	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:22	15:27	40.82678	-70.21912	40.82569	-70.21387	41	7	ESE	<2	B2	>5	Cloudy	Severe	4	87	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:27	15:37	40.82569	-70.21387	40.82580	-70.19866	42	9	ESE	<2	B2	>5	Cloudy	Severe	4.2	178	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	15:37	15:43	40.82580	-70.19866	40.82592	-70.19071	41	11	ESE	<2	B2	>5	Cloudy	Severe	4.7	272	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:43	15:44	40.82592	-70.19071	40.82591	-70.18922	42	11	ESE	<2	B2	>5	Cloudy	Severe	4	178	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:44	15:56	40.82591	-70.18922	40.82077	-70.18571	41	3	E	<2	B2	>5	Cloudy	Severe	3.4	217	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:56	16:00	40.82077	-70.18571	40.82051	-70.19230	42	3	E	<2	B2	>5	Cloudy	Severe	4.5	267	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:13	40.82051	-70.19230	40.82030	-70.21419	42	7	NW	<2	B2	>5	Cloudy	Severe	4.3	313	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:13	16:14	40.82030	-70.21419	40.82030	-70.21590	42	7	NW	<2	B2	>5	Cloudy	Severe	4.2	346	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:14	16:23	40.82030	-70.21590	40.82642	-70.22109	42	7	NW	<2	B2	>5	Cloudy	Severe	4.5	356	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:23	16:24	40.82642	-70.22109	40.82627	-70.21975	42	7	NW	<2	B2	>5	Cloudy	Moderate	4.5	113	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:24	16:42	40.82627	-70.21975	40.82569	-70.19037	42	7	NW	<2	B2	>5	Cloudy	Moderate	4.5	115	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:42	16:43	40.82569	-70.19037	40.82565	-70.18869	41	5	NW	<2	B2	>5	Cloudy	Moderate	4.5	87	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:43	16:54	40.82565	-70.18869	40.82037	-70.18598	41	4	NW	<2	B2	>5	Cloudy	Moderate	4.5	87	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:54	16:56	40.82037	-70.18598	40.82033	-70.18909	41	3	NW	<2	B2	>5	Cloudy	Moderate	4.5	243	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:56	17:00	40.82033	-70.18909	40.82014	-70.19568	44	3	N	<2	B2	>5	Cloudy	Moderate	4.5	283	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:11	40.82014	-70.19568	40.81998	-70.21350	48	2	NE	<2	B2	>5	Cloudy	Moderate	4.8	271	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:11	17:13	40.81998	-70.21350	40.81993	-70.21676	41	2	WSW	<2	B2	>5	Cloudy	Moderate	4.3	270	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:13	17:21	40.81993	-70.21676	40.82579	-70.22138	41	2	WSW	<2	B2	>5	Cloudy	Moderate	4.4	266	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:21	17:23	40.82579	-70.22138	40.82521	-70.21776	42	10	E	<2	B2	>5	Cloudy	None	4.4	99	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:23	17:40	40.82521	-70.21776	40.82555	-70.19025	44	10	E	<2	B2	>5	Cloudy	None	4.3	78	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:40	17:41	40.82555	-70.19025	40.82557	-70.18839	40	10	ESE	<2	B2	>5	Cloudy	None	5.7	94	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:41	17:50	40.82557	-70.18839	40.81982	-70.18548	39	10	ESE	<2	B2	>5	Cloudy	None	4.8	87	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:50	17:51	40.81982	-70.18548	40.81974	-70.18716	40	2	NE	<2	B2	>5	Cloudy	None	4.2	257	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:51	17:58	40.81974	-70.18716	40.81985	-70.19842	40	2	NE	<2	B2	>5	Cloudy	None	4.6	269	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:58	18:09	40.81985	-70.19842	40.81975	-70.21384	40	2	NE	<2	B2	>5	Cloudy	None	4.1	267	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:09	18:11	40.81975	-70.21384	40.81974	-70.21687	42	8	NE	<2	B2	>5	Cloudy	None	3.8	271	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:11	18:21	40.81974	-70.21687	40.82475	-70.22150	42	10	NE	<2	B2	>5	Cloudy	None	4.2	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:21	18:23	40.82475	-70.22150	40.82487	-70.21772	42	12	NE	<2	B2	>5	Cloudy	Slight	5.5	83	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:23	18:38	40.82487	-70.21772	40.82509	-70.19098	42	12	NE	<2	B2	>5	Cloudy	Slight	4.4	86	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:38	18:39	40.82509	-70.19098	40.82511	-70.18819	41	12	E	<2	B2	>5	Cloudy	Slight	5.1	86	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:39	18:50	40.82511	-70.18819	40.81988	-70.18534	39	12	E	<2	B2	>5	Cloudy	Slight	5	86	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:50	18:51	40.81988	-70.18534	40.81982	-70.18700	40	3	NE	<2	B2	>5	Cloudy	Slight	4.5	264	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:51	19:00	40.81982	-70.18700	40.81966	-70.20135	40	3	NE	<2	B2	>5	Cloudy	Slight	4.8	272	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:08	40.81966	-70.20135	40.81953	-70.21365	40	5	W	<2	B2	>5	Cloudy	Slight	4.2	265	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:08	19:10	40.81953	-70.21365	40.81951	-70.21661	40	5	W	<2	B2	>5	Cloudy	Slight	4.5	257	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:10	19:21	40.81951	-70.21661	40.82456	-70.22062	40	9	W	<2	B2	>5	Cloudy	Slight	4.3	50	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:21	19:22	40.82456	-70.22062	40.82458	-70.21884	40	8	W	<2	B2	>5	Cloudy	Slight	4.6	91	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:22	19:39	40.82458	-70.21884	40.82492	-70.19076	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	87	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:39	19:41	40.82492	-70.19076	40.82491	-70.18745	40	12	W	<2	B2	>5	Cloudy	Slight	5.1	87	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:41	19:50	40.82491	-70.18745	40.81958	-70.18395	40	12	W	<2	B2	>5	Cloudy	Slight	5	87	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:50	19:52	40.81958	-70.18395	40.81953	-70.18749	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	269	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:52	20:08	40.81953	-70.18749	40.81931	-70.21417	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	269	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:08	20:09	40.81931	-70.21417	40.81926	-70.21583	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	31	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:09	20:19	40.81926	-70.21583	40.82427	-70.21969	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	31	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:19	20:20	40.82427	-70.21969	40.82444	-70.21807	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	270	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:20	20:35	40.82444	-70.21807	40.82470	-70.19186	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	91	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:35	20:37	40.82470	-70.19186	40.82473	-70.18795	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	88	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:37	20:46	40.82473	-70.18795	40.81896	-70.18434	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	97	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:46	20:48	40.81896	-70.18434	40.81929	-70.18721	40	12	W	<2	B2	>5	Cloudy	Slight	4.8	179	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:48	21:00	40.81929	-70.18721	40.81909	-70.20810	40	12	SW	<2	B2	>5	Cloudy	Slight	4.8	179	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:03	40.81909	-70.20810	40.81900	-70.21339	40	9	ENE	<2	B2	>5	Cloudy	None	4.8	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:03	21:05	40.81900	-70.21339	40.81896	-70.21691	41	8	ENE	<2	B2	>5	Cloudy	None	4.8	288	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:05	21:15	40.81896	-70.21691	40.82424	-70.22026	41	13	ENE	<2	B2	>5	Cloudy	None	4.8	358	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:15	21:17	40.82424	-70.22026	40.82419	-70.21716	42	15	ENE	<2	B2	>5	Cloudy	None	4.5	92	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:17	21:18	40.82419	-70.21716	40.82426	-70.21562	42	15	ENE	<2	B2	>5	Cloudy	None	4.5	93	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:18	21:53	40.82426	-70.21562	40.82403	-70.21841	42	15	ENE	<2	B2	>5	Cloudy	Slight	4	87	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:53	22:00	40.82403	-70.21841	40.81792	-70.21619	42	16	ENE	<2	B2	>5	Cloudy	Moderate	4.4	86	Soft Start	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:13	40.81792	-70.21619	40.82416	-70.21797	40	16	ENE	<2	B2	>5	Cloudy	Moderate	4.6	85	Soft Start	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:13	22:13	40.82416	-70.21797	40.82416	-70.21797	41	13	ENE	<2	B2	>5	Precipitation	Moderate	4.8	358	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:13	22:15	40.82416	-70.21797	40.82429	-70.21496	41	13	ENE	<2	B2	>5	Precipitation	Severe	4.8	358	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:15	22:32	40.82429	-70.21496	40.82445	-70.19097	42	16	E	<2	B3	>5	Cloudy	Severe	4.2	85	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:32	22:34	40.82445	-70.19097	40.82445	-70.18831	39	16	ENE	<2	B3	>5	Cloudy	None	3.7	88	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:34	22:44	40.82445	-70.18831	40.81864	-70.18399	39	16	ENE	<2	B3	>5	Cloudy	None	3.5	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:44	22:46	40.81864	-70.18399	40.81894	-70.18768	41	11	NNE	<2	B3	>5	Cloudy	None	4.3	268	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:46	23:00	40.81894	-70.18768	40.81883	-70.21099	42	11	NNE	<2	B3	>5	Cloudy	None	4.3	258	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	23:02	40.81883	-70.21099	40.81877	-70.21422	41	10	ENE	<2	B3	>5	Cloudy	None	4.4	269	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:02	23:03	40.81877	-70.21422	40.81871	-70.21586	41	10	ENE	<2	B3	>5	Cloudy	None	4.2	266	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:03	23:13	40.81871	-70.21586	40.82386	-70.22246	42	10	ENE	<2	B3	>5	Cloudy	None	4.3	267	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:13	23:15	40.82386	-70.22246	40.82385	-70.21972	41	19	E	<2	B3	>5	Cloudy	None	3.5	85	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:15	23:38	40.82385	-70.21972	40.82413	-70.19104	41	20	E	<2	B3	2-5	Cloudy	None	3.5	88	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:38	23:39	40.82413	-70.19104	40.82414	-70.18980	42	20	E	<2	B4	2-5	Cloudy	None	3.7	93	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:39	23:50	40.82414	-70.18980	40.81859	-70.18520	42	18	E	<2	B4	2-5	Cloudy	None	3.5	97	Full Power	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:50	23:52	40.81859	-70.18520	40.81866	-70.18957	40	10	NE	<2	B3	1-2	Cloudy	None	5.7	268	Silent	N/A
2022-08-15	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:52	00:00	40.81866	-70.18957	40.81846	-70.20419	40	10	NE	<2	B3	1-2	Cloudy	None	5.7	270	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:06	40.81838	-70.21318	40.81833	-70.21708	42	15	E	<2	B3	1-2	Cloudy	None	3.3	96	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:06	00:15	40.81833	-70.21708	40.82358	-70.22042	41	15	E	<2	B3	1-2	Cloudy	None	3.6	97	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:15	00:17	40.82358	-70.22042	40.82350	-70.21802	42	14	E	<2	B3	0.5-1	Cloudy	None	3.7	90	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:17	00:39	40.82350	-70.21802	40.82386	-70.19173	42	14	E	<2	B3	0.5-1	Cloudy	None	3.7	90	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:39	00:41	40.82386	-70.19173	40.82388	-70.18914	42	14	E	<2	B3	0.5-1	Cloudy	None	3.5	92	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:41	00:52	40.82388	-70.18914	40.81847	-70.18488	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	85	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:52	00:53	40.81847	-70.18488	40.81847	-70.18704	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	267	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:53	01:06	40.81847	-70.18704	40.81814	-70.21439	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	269	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:06	01:07	40.81814	-70.21439	40.81811	-70.21613	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	268	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:07	01:16	40.81811	-70.21613	40.82282	-70.22244	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	268	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:16	01:18	40.82282	-70.22244	40.82320	-70.21987	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	268	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:18	01:19	40.82320	-70.21987	40.82326	-70.21775	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	86	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:19	01:42	40.82326	-70.21775	40.82350	-70.18910	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	268	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:42	01:44	40.82350	-70.18910	40.82339	-70.18557	42	15	ESE	<2	B3	0.5-1	Cloudy	None	3.2	86	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:44	01:53	40.82339	-70.18557	40.81824	-70.18478	42	16	E	<2	B3	0.5-1	Cloudy	None	3.2	86	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:53	01:54	40.81824	-70.18478	40.81808	-70.18671	42	15	ESE	<2	B3	0.5-1	Cloudy	None	3.2	86	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:54	02:00	40.81808	-70.18671	40.81791	-70.19986	42	15	ESE	<2	B3	0.5-1	Cloudy	None	3.2	86	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	03:02	40.81791	-70.19986	40.81765	-70.19849	42	15	ESE	<2	B3	0.5-1	Clear	None	3.2	267	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:02	03:55	40.81765	-70.19849	40.81738	-70.20116	42	8	WSW	<2	B3	0.5-1	Clear	None	4.8	267	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:55	05:01	40.81738	-70.20116	40.81690	-70.23928	41	15	NE	<2	B3	0.5-1	Clear	None	3.4	105	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:01	05:39	40.81690	-70.23928	40.81293	-70.18123	42	14	NE	<2	B3	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:39	05:44	40.81293	-70.18123	40.81196	-70.18946	42	10	NE	<2	B3	0.5-1	Clear	None	5	265	Silent	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:44	06:00	40.81196	-70.18946	40.81904	-70.18842	42	10	NE	<2	B3	0.5-1	Clear	None	5	265	Deploying/Retrieving	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:29	40.81904	-70.18842	40.82511	-70.17264	39	15	NE	<2	B3	0.5-1	Clear	None	2.1	49	Deploying/Retrieving	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:29	06:57	40.82511	-70.17264	40.82694	-70.17554	40	12	NE	<2	B3	0.5-1	Clear	None	2	274	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:57	07:58	40.82694	-70.17554	40.88657	-70.22356	40	16	N	<2	B3	0.5-1	Clear	None	3.8	336	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:58	08:56	40.88657	-70.22356	40.91009	-70.22974	40	15	NE	<2	B3	0.5-1	Clear	None	3	307	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:56	09:36	40.91009	-70.22974	40.91044	-70.21108	39	15	NE	<2	B3	0.5-1	Clear	None	2.5	79	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:36	10:00	40.91044	-70.21108	40.90950	-70.20457	39	17	NE	<2	B4	1-2	Clear	None	1.7	93	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:00	10:59	40.90950	-70.20457	40.89732	-70.19905	38	18	NE	2-4	B4	>5	Clear	Slight	0.6	94	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:59	11:47	40.89732	-70.19905	40.88715	-70.20122	38	15	NE	2-4	B4	>5	Clear	Slight	0.2	99	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:47	11:59	40.88715	-70.20122	40.90409	-70.20529	38	15	NE	2-4	B4	>5	Clear	Slight	0.2	99	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	11:59	13:00	40.90409	-70.20529	41.03156	-70.26710	37	22	NE	2-4	B4	>5	Clear	Slight	8.2	340	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	41.03156	-70.26710	41.14620	-70.36457	42	20	NE	2-4	B4	>5	Clear	Moderate	8.6	322	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	41.14620	-70.36457	41.26497	-70.42880	40	17	NNW	2-4	B4	>5	Cloudy	Severe	8	325	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	16:00	41.26497	-70.42880	41.41374	-70.42797	36	24	N	2-4	B5	>5	Cloudy	Moderate	8.1	356	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:55	41.41374	-70.42797	41.46449	-70.44543	22	22	NNW	2-4	B4	>5	Cloudy	Moderate	8.3	359	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:55	18:00	41.46449	-70.44543	41.46481	-70.48032	18	15	ENE	2-4	B3	>5	Cloudy	None	2.2	272	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:58	41.46481	-70.48032	41.47928	-70.52116	14	18	SSE	2-4	B4	>5	Cloudy	None	1.2	283	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	18:58	20:00	41.47928	-70.52116	41.49770	-70.59055	18	18	WNW	<2	B4	>5	Cloudy	None	2.7	263	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:55	41.49770	-70.59055	41.48561	-70.68448	21	18	WNW	<2	B4	>5	Cloudy	None	4.2	290	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	20:55	22:00	41.48561	-70.68448	41.43065	-70.79042	20	12	NE	<2	B4	>5	Cloudy	None	5.1	245	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	23:00	41.43065	-70.79042	41.40989	-70.83561	22	12	NE	<2	B3	>5	Cloudy	None	5.4	237	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	23:50	41.40989	-70.83561	41.42909	-70.79315	20	19	N	<2	B3	2-5	Cloudy	None	2.7	63	Transit	N/A
2022-08-16	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:50	00:00	41.42909	-70.79315	41.43410	-70.78110	22	19	N	<2	B3	1-2	Precipitation	None	2.5	56	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	00:00	00:15	41.43434	-70.77916	41.43475	-70.77105	21	19	N	<2	B4	1-2	Precipitation	None	2.5	55	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:15	01:02	41.43475	-70.77105	41.45161	-70.73235	22	19	N	<2	B4	0.5-1	Precipitation	None	2.5	52	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:02	02:00	41.45161	-70.73235	41.48158	-70.68055	22	19	N	<2	B4	0.5-1	Precipitation	None	2.8	54	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:56	41.48158	-70.68055	41.47272	-70.70396	22	11	N	<2	B4	0.5-1	Precipitation	None	2.8	64	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:56	03:37	41.47272	-70.70396	41.45941	-70.73553	21	11	SSE	<2	B3	0.5-1	Precipitation	None	2.7	240	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:37	03:55	41.45941	-70.73553	41.45555	-70.74885	21	13	SSE	<2	B3	0.5-1	Cloudy	None	2.1	244	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:55	05:00	41.45555	-70.74885	41.42588	-70.80503	21	13	SSE	<2	B3	0.5-1	Precipitation	None	3.1	241	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	41.42588	-70.80503	41.40315	-70.87510	21	12	SSE	<2	B3	0.5-1	Precipitation	None	3	252	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	07:00	41.40315	-70.87510	41.42599	-70.80030	22	18	N	<2	B3	0.5-1	Precipitation	None	3.8	67	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:00	07:55	41.42599	-70.80030	41.45263	-70.74417	21	20	N	<2	B3	0.5-1	Precipitation	None	3.4	53	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:55	08:55	41.45263	-70.74417	41.47113	-70.69700	22	17	WNW	<2	B3	0.5-1	Precipitation	None	2.9	65	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:55	09:35	41.47113	-70.69700	41.47279	-70.68139	22	17	WNW	<2	B3	0.5-1	Precipitation	None	1.9	80	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:35	10:00	41.47279	-70.68139	41.47215	-70.67689	22	17	ESE	<2	B3	2-5	Precipitation	None	1.9	80	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:00	11:00	41.47215	-70.67689	41.48409	-70.68175	22	11	E	<2	B3	>5	Cloudy	None	1.9	15	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:00	12:00	41.48409	-70.68175	41.43838	-70.77974	22	9	E	<2	B2	>5	Cloudy	None	5	234	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	13:00	41.43838	-70.77974	41.42420	-70.80567	21	11	E	<2	B2	>5	Cloudy	Slight	4.5	80	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	41.42420	-70.80567	41.45313	-70.73859	21	16	E	<2	B2	>5	Cloudy	Moderate	3.4	62	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:58	41.45313	-70.73859	41.47894	-70.69117	22	14	E	<2	B2	>5	Cloudy	Moderate	2.4	65	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	14:58	16:08	41.47894	-70.69117	41.48722	-70.67891	20	20	NNW	<2	B3	>5	Cloudy	Moderate	2.4	51	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:08	16:57	41.48722	-70.67891	41.47166	-70.71684	20	13	ESE	<2	B2	>5	Cloudy	Moderate	2.5	251	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:57	17:57	41.47166	-70.71684	41.44391	-70.76836	19	12	SSE	<2	B2	>5	Cloudy	Slight	2.5	246	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:57	19:00	41.44391	-70.76836	41.43472	-70.77358	23	14	NNE	<2	B2	>5	Cloudy	Slight	3.3	220	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	20:00	41.43472	-70.77358	41.46278	-70.70698	22	17	NNE	<2	B3	>5	Cloudy	Slight	3.8	62	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:56	41.46278	-70.70698	41.45760	-70.71018	16	15	NE	<2	B2	>5	Cloudy	None	3.4	59	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	20:56	21:59	41.45760	-70.71018	41.41322	-70.77819	14	11	NNW	<2	B2	>5	Cloudy	Severe	4.5	235	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:59	23:00	41.41322	-70.77819	41.37456	-70.84693	9	17	NNE	<2	B3	>5	Cloudy	None	4.2	226	Transit	N/A
2022-08-17	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	00:00	41.37456	-70.84693	41.40613	-70.81822	27	17	N	<2	B3	>5	Cloudy	Severe	3.6	267	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:15	41.40702	-70.81665	41.41415	-70.80445	17	14	NNW	<2	B2	1-2	Cloudy	None	3.2	56.2	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:15	00:53	41.41415	-70.80445	41.43430	-70.76975	17	14	NNE	<2	B2	0.5-1	Cloudy	None	3.1	52	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:53	01:55	41.43430	-70.76975	41.46723	-70.71168	17	9	NNE	<2	B2	0.5-1	Cloudy	None	3.2	51	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:55	02:56	41.46723	-70.71168	41.48268	-70.68940	17	10	NNE	<2	B2	0.5-1	Cloudy	None	3.2	52	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:56	03:58	41.48268	-70.68940	41.44543	-70.76039	19	8	WSW	<2	B2	0.5-1	Cloudy	None	4.6	240	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:58	04:59	41.44543	-70.76039	41.41436	-70.80234	20	18	WSW	<2	B2	0.5-1	Cloudy	None	3.1	225	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	04:59	06:00	41.41436	-70.80234	41.41972	-70.81025	21	20	WSW	<2	B3	0.5-1	Clear	None	2.5	243	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	07:00	41.41972	-70.81025	41.47796	-70.71215	20	20	NE	<2	B3	0.5-1	Clear	None	6	46	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:00	08:00	41.47796	-70.71215	41.51048	-70.60603	20	14	W	<2	B3	0.5-1	Clear	None	5	67	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:02	41.51048	-70.60603	41.49607	-70.65775	21	9	W	<2	B3	0.5-1	Clear	None	4	52	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	09:02	09:30	41.49607	-70.65775	41.48828	-70.68136	21	18	W	<2	B3	0.5-1	Clear	None	2	245	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:30	10:30	41.48828	-70.68136	41.49757	-70.65213	21	18	W	<2	B4	2-5	Clear	Slight	2	245	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:30	11:28	41.49757	-70.65213	41.47692	-70.52066	21	16	W	<2	B4	>5	Clear	Severe	2	75	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:28	12:00	41.47692	-70.52066	41.46363	-70.44153	21	16	W	<2	B4	>5	Clear	Severe	7	106	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	13:00	41.46363	-70.44153	41.34093	-70.41826	23	15	W	<2	B4	>5	Clear	Severe	7.8	45	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	41.34093	-70.41826	41.20794	-70.38985	25	24	SSW	<2	B4	>5	Clear	Severe	9.5	206	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	41.20794	-70.38985	41.10145	-70.33354	32	14	WSW	<2	B5	>5	Clear	Severe	8.5	141	Transit	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	16:00	41.10145	-70.33354	41.05408	-70.27604	32	13	SE	2-4	B5	>5	Clear	Severe	3.4	124	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:54	41.05408	-70.27604	41.02685	-70.26159	32	13	SE	2-4	B5	>5	Clear	Severe	3.4	124	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:54	17:58	41.02685	-70.26159	41.07244	-70.29506	31	13	W	2-4	B5	>5	Clear	Moderate	3.3	347	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:58	18:40	41.07244	-70.29506	41.09315	-70.32319	32	16	W	2-4	B5	>5	Clear	Moderate	3.3	334	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:40	18:58	41.09315	-70.32319	41.10110	-70.31709	35	17	WSW	2-4	B5	>5	Clear	Severe	1.7	252	Deploying/Retrieving	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	18:58	20:07	41.10110	-70.31709	41.10104	-70.35259	31	22	WSW	2-4	B5	>5	Clear	Severe	3.6	348	Deploying/Retrieving	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:07	21:00	41.10104	-70.35259	41.09947	-70.32041	39	24	W	2-4	B5	>5	Clear	Severe	4.2	289	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:57	41.09947	-70.32041	41.09639	-70.30681	39	23	WSW	2-4	B5	>5	Clear	Severe	4.7	233	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:57	23:00	41.09639	-70.30681	41.07525	-70.30287	35	24	WSW	2-4	B5	>5	Clear	Severe	4.2	234	Standby	N/A
2022-08-18	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	00:00	41.07525	-70.30287	41.05282	-70.29737	36	23	SW	2-4	B5	>5	Clear	Severe	5.1	214	Standby	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:15	41.04776	-70.29801	41.04770	-70.29007	35	22	WSW	2-4	B4	1-2	Clear	None	4.9	189	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:15	01:02	41.04770	-70.29007	41.04231	-70.28484	35	22	WSW	2-4	B4	0.5-1	Clear	None	4.9	189	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:02	02:06	41.04231	-70.28484	41.01933	-70.28107	34	20	WSW	2-4	B4	0.5-1	Clear	None	5	212	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:06	02:51	41.01933	-70.28107	41.02399	-70.25453	34	20	W	2-4	B4	0.5-1	Clear	None	4.8	299	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:51	02:56	41.02399	-70.25453	41.02133	-70.26149	34	24	WSW	2-4	B4	0.5-1	Precipitation	None	4.7	232	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:56	03:55	41.02133	-70.26149	40.99433	-70.22113	24	24	WSW	2-4	B4	0.5-1	Precipitation	None	5.6	240	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:55	05:00	40.99433	-70.22113	40.97165	-70.20899	25	24	SSW	2-4	B4	0.5-1	Precipitation	None	4.3	139	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	40.97165	-70.20899	40.98621	-70.25451	27	16	SW	2-4	B4	0.5-1	Clear	None	3.4	153	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:56	40.98621	-70.25451	41.05055	-70.30160	33	18	NW	2-4	B4	0.5-1	Clear	None	5.4	317	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:56	08:00	41.05055	-70.30160	41.02077	-70.26507	33	18	NNE	2-4	B4	0.5-1	Clear	None	5	305	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:00	41.02077	-70.26507	40.94596	-70.24840	34	17	SW	2-4	B4	0.5-1	Clear	None	5.3	190	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:33	40.94596	-70.24840	40.90394	-70.24103	34	16	SW	2-4	B4	0.5-1	Clear	None	5.1	160	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:33	10:30	40.90394	-70.24103	40.83913	-70.23348	38	16	SW	2-4	B4	2-5	Clear	None	5.3	160	Transit	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:30	11:28	40.83913	-70.23348	40.80006	-70.26881	40	14	W	2-4	B3	>5	Clear	Slight	3.4	211	Deploying/Retrieving	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:28	12:00	40.80006	-70.26881	40.78110	-70.29574	45	13	W	<2	B3	>5	Clear	Severe	4.4	223	Deploying/Retrieving	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:20	40.78110	-70.29574	40.79607	-70.27032	44	12	W	<2	B3	>5	Clear	Severe	4.3	52	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:20	12:40	40.79607	-70.27032	40.80923	-70.24666	45	13	W	<2	B3	>5	Clear	Severe	4.2	52	Soft Start	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:40	13:00	40.80923	-70.24666	40.82170	-70.22447	45	13	W	<2	B3	>5	Clear	Severe	4.2	52	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	40.82170	-70.22447	40.81695	-70.22931	44	10	SW	<2	B3	>5	Fog	Severe	4	95	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:56	40.81695	-70.22931	40.81818	-70.18119	43	15	W	<2	B3	>5	Fog	Severe	4.5	259	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:56	15:00	40.81818	-70.18119	40.81779	-70.18751	39	15	W	<2	B3	>5	Fog	Severe	4.8	257	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:01	40.81779	-70.18751	40.81776	-70.18916	39	14	W	<2	B3	>5	Fog	Severe	5	255	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:01	15:18	40.81776	-70.18916	40.81747	-70.21558	39	14	W	<2	B3	>5	Fog	Severe	4.9	254	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:18	15:19	40.81747	-70.21558	40.81747	-70.21710	39	13	WSW	<2	B3	>5	Fog	Severe	5	254	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:19	15:40	40.81747	-70.21710	40.81640	-70.23588	39	14	W	<2	B3	>5	Fog	Severe	4.8	249	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:40	15:46	40.81640	-70.23588	40.81670	-70.22663	39	14	W	<2	B3	>5	Clear	Severe	4.8	90	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:46	16:09	40.81670	-70.22663	40.81700	-70.19037	39	14	W	<2	B3	>5	Clear	Severe	4.8	89	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:09	16:10	40.81700	-70.19037	40.81704	-70.18890	39	14	W	<2	B3	>5	Clear	Severe	4.8	91	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:10	16:20	40.81704	-70.18890	40.81215	-70.18335	39	14	W	<2	B3	>5	Clear	Severe	4.8	89	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:20	16:21	40.81215	-70.18335	40.81198	-70.18487	39	13	W	<2	B3	>5	Clear	Severe	4.8	242	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:21	16:57	40.81198	-70.18487	40.81690	-70.23500	39	12	W	<2	B3	>5	Clear	Severe	4.8	249	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:57	16:59	40.81690	-70.23500	40.81677	-70.23190	40	10	W	<2	B3	>5	Clear	Severe	4.8	86	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:59	17:00	40.81677	-70.23190	40.81644	-70.23061	40	10	W	<2	B3	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:26	40.81644	-70.23061	40.81677	-70.19042	41	10	W	<2	B3	>5	Clear	Severe	3.4	92	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:26	17:28	40.81677	-70.19042	40.81675	-70.18713	40	14	SW	<2	B3	>5	Clear	Moderate	4.6	91	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:28	17:44	40.81675	-70.18713	40.81161	-70.19476	40	14	SW	<2	B3	>5	Clear	Moderate	5.1	90	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:44	17:44	40.81161	-70.19476	40.81161	-70.19476	40	14	WSW	<2	B3	>5	Clear	Moderate	3.9	267	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:44	18:00	40.81161	-70.19476	40.81129	-70.22040	41	14	WSW	<2	B3	>5	Clear	Moderate	4.6	269	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:05	40.81129	-70.22040	40.81121	-70.22890	42	14	WSW	<2	B3	>5	Clear	Moderate	3.8	279	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:05	18:07	40.81121	-70.22890	40.81113	-70.23202	43	12	W	<2	B3	>5	Clear	Moderate	3.9	270	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:07	18:13	40.81113	-70.23202	40.81590	-70.23678	43	12	W	<2	B3	>5	Clear	Moderate	5	281	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:13	18:15	40.81590	-70.23678	40.81678	-70.23337	43	13	W	<2	B3	>5	Clear	Moderate	5.2	72	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:15	18:42	40.81678	-70.23337	40.81652	-70.19076	43	13	W	<2	B3	>5	Clear	Moderate	4.8	105	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:42	18:44	40.81652	-70.19076	40.81652	-70.18745	43	12	W	<2	B3	>5	Clear	Moderate	4.3	92	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:44	18:53	40.81652	-70.18745	40.81173	-70.18228	43	12	W	<2	B3	>5	Clear	Moderate	5	96	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:53	18:55	40.81173	-70.18228	40.81151	-70.18477	41	14	WSW	<2	B3	>5	Clear	Moderate	3.6	280	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:55	19:00	40.81151	-70.18477	40.81134	-70.19261	41	14	WSW	<2	B3	>5	Clear	Moderate	3.5	283	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:25	40.81134	-70.19261	40.81096	-70.22820	41	14	WSW	<2	B3	>5	Clear	Severe	3.8	259	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:25	19:27	40.81096	-70.22820	40.81111	-70.23121	41	14	WSW	<2	B3	>5	Clear	Severe	4.1	271	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:27	19:37	40.81111	-70.23121	40.81714	-70.23536	41	14	WSW	<2	B3	>5	Clear	Severe	4	279	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:37	19:39	40.81714	-70.23536	40.81639	-70.23223	41	14	WSW	<2	B3	>5	Clear	Severe	4.2	300	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:39	20:02	40.81639	-70.23223	40.81612	-70.19203	41	16	WSW	<2	B3	>5	Clear	Severe	3.9	26	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:02	20:04	40.81612	-70.19203	40.81624	-70.18838	41	16	WSW	<2	B3	>5	Clear	Severe	4.8	103	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:04	20:14	40.81624	-70.18838	40.81113	-70.18459	41	16	WSW	<2	B3	>5	Clear	Severe	3.8	128	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:14	20:16	40.81113	-70.18459	40.81108	-70.18675	41	16	WSW	<2	B3	>5	Clear	Severe	4.4	206	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:16	20:45	40.81108	-70.18675	40.81066	-70.22851	41	16	WSW	<2	B3	>5	Clear	Severe	4.3	256	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:45	20:47	40.81066	-70.22851	40.81106	-70.23149	41	16	WSW	<2	B3	>5	Clear	Severe	4.3	288	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:47	20:53	40.81106	-70.23149	40.81507	-70.23601	41	16	WSW	<2	B3	>5	Clear	Severe	4.3	281	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:53	20:55	40.81507	-70.23601	40.81555	-70.23275	41	16	WSW	<2	B3	>5	Clear	Severe	4.3	256	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:55	21:00	40.81555	-70.23275	40.81565	-70.22371	41	16	WSW	<2	B3	>5	Clear	Severe	4.3	101	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:19	40.81565	-70.22371	40.81585	-70.19096	42	11	WSW	<2	B3	>5	Cloudy	Severe	4.5	97	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:19	21:21	40.81585	-70.19096	40.81586	-70.18754	40	15	SW	<2	B3	>5	Cloudy	Severe	4.6	88	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:21	21:31	40.81586	-70.18754	40.81084	-70.18229	40	15	SW	<2	B3	>5	Cloudy	Severe	4.8	94	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:31	21:33	40.81084	-70.18229	40.81076	-70.18485	41	16	WSW	<2	B3	>5	Cloudy	Severe	4.2	274	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:33	22:00	40.81076	-70.18485	40.81042	-70.22320	40	16	WSW	<2	B3	>5	Cloudy	Severe	4.2	272	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:04	40.81042	-70.22320	40.81036	-70.22922	42	16	WSW	<2	B3	>5	Cloudy	Severe	4.5	272	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:04	22:05	40.81036	-70.22922	40.81042	-70.23069	43	16	W	<2	B3	>5	Clear	Severe	4.1	270	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:05	22:12	40.81042	-70.23069	40.81509	-70.23669	43	15	W	<2	B3	>5	Clear	Severe	4.1	271	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:12	22:14	40.81509	-70.23669	40.81530	-70.23421	42	7	WSW	<2	B3	>5	Clear	Severe	4.8	87	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:14	22:39	40.81530	-70.23421	40.81578	-70.19097	42	7	WSW	<2	B3	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:39	22:41	40.81578	-70.19097	40.81558	-70.18752	40	7	SW	<2	B3	>5	Clear	Severe	5	88	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:41	22:49	40.81558	-70.18752	40.81032	-70.18180	40	7	SW	<2	B3	>5	Clear	Severe	5.1	91	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:49	22:51	40.81032	-70.18180	40.81060	-70.18496	43	17	WSW	<2	B3	>5	Clear	Severe	4.1	271	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:51	22:59	40.81060	-70.18496	40.81048	-70.19849	43	17	WSW	<2	B3	>5	Clear	Severe	4.1	260	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	23:20	40.81048	-70.19849	40.81017	-70.22897	41	17	WSW	<2	B3	>5	Clear	Severe	3.5	261	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:20	23:22	40.81017	-70.22897	40.81001	-70.23200	43	15	WSW	<2	B3	>5	Clear	Slight	4.4	271	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:22	23:30	40.81001	-70.23200	40.81515	-70.23439	43	15	WSW	<2	B3	>5	Clear	Slight	4	279	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:30	23:32	40.81515	-70.23439	40.81505	-70.23108	42	15	WSW	<2	B3	>5	Clear	Slight	4	95	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:32	23:56	40.81505	-70.23108	40.81549	-70.19037	42	15	WSW	<2	B3	2-5	Clear	Slight	5.1	89	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:56	23:58	40.81549	-70.19037	40.81548	-70.18704	40	11	SW	<2	B3	1-2	Clear	None	4.4	93	Silent	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:58	00:00	40.81548	-70.18704	40.81036	-70.18389	40	11	SW	<2	B3	1-2	Clear	None	4.4	92	Full Power	N/A
2022-08-19	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	00:00	00:06	40.81548	-70.18704	40.81036	-70.18389	40	11	SW	<2	B3	1-2	Clear	None	4.4	92	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:06	00:08	40.81031	-70.18590	40.81029	-70.18728	39	16	W	<2	B3	1-2	Clear	None	4.6	268	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:08	00:32	40.81029	-70.18728	40.80992	-70.22738	39	16	W	<2	B3	1-2	Clear	None	4.6	268	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:32	00:33	40.80992	-70.22738	40.80989	-70.22913	40	16	W	<2	B3	0.5-1	Clear	None	4.6	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:33	00:34	40.80989	-70.22913	40.80990	-70.23082	42	16	W	<2	B3	0.5-1	Clear	None	4.6	271	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:34	00:44	40.80990	-70.23082	40.81520	-70.23414	43	16	W	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:44	00:45	40.81520	-70.23414	40.81492	-70.23256	43	16	W	<2	B3	0.5-1	Clear	None	4.3	102	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:45	01:00	40.81492	-70.23256	40.81503	-70.20854	43	16	W	<2	B3	0.5-1	Clear	None	5	107	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	01:12	40.81503	-70.20854	40.81522	-70.19167	40	9	SW	<2	B3	0.5-1	Clear	None	4.3	65	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:12	01:14	40.81522	-70.19167	40.81523	-70.18857	40	9	SW	<2	B3	0.5-1	Clear	None	4.3	65	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:14	01:24	40.81523	-70.18857	40.80944	-70.18363	40	9	SW	<2	B3	0.5-1	Clear	None	4.1	65	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:24	01:26	40.80944	-70.18363	40.81002	-70.18671	40	9	SW	<2	B3	0.5-1	Clear	None	4.3	65	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:26	01:48	40.81002	-70.18671	40.80955	-70.22818	40	9	SW	<2	B3	0.5-1	Clear	None	4.4	269	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:48	01:50	40.80955	-70.22818	40.80960	-70.23210	43	9	SW	<2	B3	0.5-1	Clear	None	4.3	272	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:50	01:57	40.80960	-70.23210	40.81446	-70.23465	43	9	SW	<2	B3	0.5-1	Clear	None	4.2	274	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:57	01:59	40.81446	-70.23465	40.81447	-70.23174	43	10	SW	<2	B3	0.5-1	Clear	None	4.3	72	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:59	02:00	40.81447	-70.23174	40.81450	-70.23013	43	11	SW	<2	B3	0.5-1	Clear	None	4.1	92	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:57	40.81450	-70.23013	40.80952	-70.22123	43	11	SW	<2	B3	0.5-1	Clear	None	4.2	74	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:57	03:02	40.80952	-70.22123	40.80941	-70.23049	42	16	W	<2	B3	0.5-1	Clear	None	5.4	270	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:02	03:03	40.80941	-70.23049	40.80931	-70.23191	42	12	WNW	<2	B3	0.5-1	Clear	None	6.3	271	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:03	03:10	40.80931	-70.23191	40.81415	-70.23410	42	12	WNW	<2	B3	0.5-1	Clear	None	6.4	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:10	03:12	40.81415	-70.23410	40.81410	-70.23055	43	6	WSW	<2	B3	0.5-1	Clear	None	2.1	88	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:12	03:41	40.81410	-70.23055	40.81466	-70.19025	43	6	WSW	<2	B3	0.5-1	Clear	None	3	89	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:41	03:42	40.81466	-70.19025	40.81471	-70.18897	40	5	SW	<2	B3	0.5-1	Clear	None	3.4	86	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:42	03:52	40.81471	-70.18897	40.80944	-70.18435	40	5	SW	<2	B3	0.5-1	Clear	None	3.4	94	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:52	03:53	40.80944	-70.18435	40.80956	-70.18623	40	14	W	<2	B3	0.5-1	Clear	None	5.1	271	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:53	03:57	40.80956	-70.18623	40.80941	-70.19474	40	14	W	<2	B3	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:57	04:16	40.80941	-70.19474	40.80911	-70.22916	40	14	W	<2	B3	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:16	04:17	40.80911	-70.22916	40.80902	-70.23208	40	11	W	<2	B3	0.5-1	Clear	None	5.5	296	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:17	04:24	40.80902	-70.23208	40.81436	-70.23524	40	11	W	<2	B3	0.5-1	Clear	None	5.5	296	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:24	04:30	40.81436	-70.23524	40.81387	-70.22616	40	8	SW	<2	B3	0.5-1	Clear	None	4.5	98	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:30	04:54	40.81387	-70.22616	40.81418	-70.19065	40	8	SW	<2	B3	0.5-1	Clear	None	4.3	98	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:54	04:55	40.81418	-70.19065	40.81443	-70.18884	39	3	SW	<2	B3	0.5-1	Clear	None	4.5	114	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:55	05:00	40.81443	-70.18884	40.81305	-70.18224	39	3	SW	<2	B3	0.5-1	Clear	None	4.5	114	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:05	40.81305	-70.18224	40.80932	-70.18480	38	11	SW	<2	B3	0.5-1	Clear	None	3.4	137	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:05	05:09	40.80932	-70.18480	40.80940	-70.19219	38	11	SW	<2	B3	0.5-1	Clear	None	4.9	261	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:09	05:30	40.80940	-70.19219	40.80923	-70.20811	38	11	SW	<2	B3	0.5-1	Clear	None	4.9	261	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:30	05:31	40.80923	-70.20811	40.80923	-70.20811	38	14	W	<2	B3	0.5-1	Clear	None	5.1	282	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:31	05:41	40.80923	-70.20811	40.80923	-70.20811	38	14	W	<2	B3	0.5-1	Clear	None	5.1	282	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:41	05:46	40.80923	-70.20811	40.81366	-70.22654	42	14	W	<2	B3	0.5-1	Clear	None	3.4	98	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:46	06:00	40.81366	-70.22654	40.81394	-70.20705	42	14	W	<2	B3	0.5-1	Clear	None	3.4	98	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:11	40.81394	-70.20705	40.81412	-70.18896	42	6	WSW	<2	B3	0.5-1	Clear	None	4.4	79	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:11	06:12	40.81412	-70.18896	40.81408	-70.18745	42	8	WSW	<2	B3	0.5-1	Clear	None	3.9	111	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:12	06:23	40.81408	-70.18745	40.80895	-70.18707	42	8	WSW	<2	B3	0.5-1	Clear	None	3.9	111	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:23	06:26	40.80895	-70.18707	40.80885	-70.19210	42	14	W	<2	B3	0.5-1	Clear	None	4.8	264	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:26	06:48	40.80885	-70.19210	40.80849	-70.22773	42	14	W	<2	B3	0.5-1	Clear	None	4.8	264	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:48	06:49	40.80849	-70.22773	40.80850	-70.22948	42	12	WNW	<2	B3	0.5-1	Clear	None	4.9	284	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:49	06:54	40.80850	-70.22948	40.81029	-70.23888	42	11	WNW	<2	B3	0.5-1	Clear	None	5	291	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:54	07:02	40.81029	-70.23888	40.81390	-70.23369	44	9	NW	<2	B3	0.5-1	Clear	None	5	335	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:02	07:06	40.81390	-70.23369	40.81341	-70.22744	44	12	NW	<2	B3	0.5-1	Clear	None	4.7	104	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:06	07:30	40.81341	-70.22744	40.81379	-70.19147	44	5	SW	<2	B3	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:30	07:31	40.81379	-70.19147	40.81380	-70.18984	44	5	SW	<2	B3	0.5-1	Clear	None	4.6	89	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:31	07:41	40.81380	-70.18984	40.80843	-70.18363	44	5	SW	<2	B3	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:41	07:46	40.80843	-70.18363	40.80868	-70.19135	44	5	SW	<2	B3	0.5-1	Clear	None	4.6	265	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:46	08:00	40.80868	-70.19135	40.80844	-70.21355	44	5	SW	<2	B3	0.5-1	Clear	None	4.6	271	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:09	40.80844	-70.21355	40.80821	-70.22910	44	9	SW	<2	B2	0.5-1	Clear	None	4.6	270	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:09	08:10	40.80821	-70.22910	40.80819	-70.23090	44	8	SW	<2	B2	0.5-1	Clear	None	4.6	263	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:10	08:21	40.80819	-70.23090	40.81417	-70.23371	44	12	SW	<2	B2	0.5-1	Clear	None	4.6	283	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:21	08:25	40.81417	-70.23371	40.81313	-70.22754	44	8	SW	<2	B2	0.5-1	Clear	None	4.7	200	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:25	08:46	40.81313	-70.22754	40.81360	-70.19080	45	9	SSW	<2	B2	0.5-1	Clear	None	5.2	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:46	08:47	40.81360	-70.19080	40.81361	-70.18910	45	9	SSW	<2	B2	0.5-1	Clear	None	5.2	89	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:47	08:57	40.81361	-70.18910	40.80760	-70.18449	45	13	SSW	<2	B2	0.5-1	Clear	None	5.2	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:57	09:00	40.80760	-70.18449	40.80856	-70.18901	45	14	SW	<2	B2	0.5-1	Clear	None	4.1	261	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:02	40.80856	-70.18901	40.80838	-70.19171	45	14	SW	<2	B2	0.5-1	Clear	None	4.1	261	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:02	09:26	40.80838	-70.19171	40.80796	-70.22913	44	14	SW	<2	B2	0.5-1	Clear	None	4.2	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:26	09:27	40.80796	-70.22913	40.80796	-70.22921	44	14	W	<2	B2	2-5	Cloudy	None	4.2	273	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:27	09:40	40.80796	-70.22921	40.81469	-70.23204	44	13	W	<2	B2	>5	Cloudy	None	4.2	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	09:43	40.81469	-70.23204	40.81203	-70.22811	44	14	W	<2	B2	>5	Cloudy	None	4.2	273	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:43	10:22	40.81203	-70.22811	40.81330	-70.19016	44	14	W	<2	B2	>5	Cloudy	None	4.2	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:22	10:23	40.81330	-70.19016	40.81332	-70.18942	44	12	SSW	<2	B2	>5	Cloudy	None	4.2	139	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:23	10:31	40.81332	-70.18942	40.80793	-70.18454	39	12	SSW	<2	B2	>5	Cloudy	None	4.2	139	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:31	10:36	40.80793	-70.18454	40.80808	-70.19174	39	9	W	<2	B2	>5	Cloudy	None	3.7	263	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:36	11:00	40.80808	-70.19174	40.80769	-70.22730	39	10	W	<2	B2	>5	Cloudy	None	3.7	263	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:00	11:01	40.80769	-70.22730	40.80767	-70.23032	39	10	WSW	<2	B2	>5	Cloudy	None	3.4	263	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:01	11:36	40.80767	-70.23032	40.81296	-70.23507	39	10	WSW	<2	B2	>5	Cloudy	None	3.4	263	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:36	11:41	40.81296	-70.23507	40.81263	-70.22784	42	4	S	<2	B2	>5	Cloudy	None	3.4	96	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:41	12:00	40.81263	-70.22784	40.81308	-70.19718	42	3	S	<2	B2	>5	Cloudy	None	3.4	96	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:13	40.81308	-70.19718	40.80801	-70.18296	42	4	S	<2	B2	>5	Fog	Slight	3.6	100	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:13	12:18	40.80801	-70.18296	40.80781	-70.19087	42	3	S	<2	B2	>5	Fog	Slight	4	190	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:18	12:42	40.80781	-70.19087	40.80747	-70.22746	41	10	SSW	<2	B2	>5	Fog	Slight	3.5	256	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:42	12:43	40.80747	-70.22746	40.80745	-70.22905	41	9	SSW	<2	B2	>5	Fog	Slight	4	260	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:43	12:58	40.80745	-70.22905	40.81239	-70.22739	41	10	SSW	<2	B2	>5	Fog	Slight	4.1	259	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:58	13:00	40.81239	-70.22739	40.81243	-70.22401	42	7	S	<2	B2	>5	Fog	Moderate	4.8	98	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:03	40.81243	-70.22401	40.81246	-70.21854	42	6	S	<2	B2	>5	Fog	Moderate	5	99	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:03	13:20	40.81246	-70.21854	40.81273	-70.19082	42	9	S	<2	B2	>5	Fog	Moderate	4.2	120	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:20	13:21	40.81273	-70.19082	40.81277	-70.18917	43	7	S	<2	B2	>5	Fog	Slight	4.9	100	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:21	13:30	40.81277	-70.18917	40.80771	-70.18274	43	6	S	<2	B2	>5	Fog	Slight	5	102	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:30	13:36	40.80771	-70.18274	40.80748	-70.19267	44	9	S	<2	B2	>5	Fog	Slight	4.6	110	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:36	13:58	40.80748	-70.19267	40.80720	-70.22773	44	11	S	<2	B2	>5	Fog	Slight	5	100	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:58	13:59	40.80720	-70.22773	40.80719	-70.22951	44	7	S	<2	B2	>5	Fog	Slight	4.8	130	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:59	14:00	40.80719	-70.22951	40.80718	-70.23122	44	8	S	<2	B2	>5	Fog	Slight	5	139	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:09	40.80718	-70.23122	40.81361	-70.23515	44	8	S	<2	B2	>5	Fog	Slight	4.2	139	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:09	14:14	40.81361	-70.23515	40.81203	-70.22740	44	6	S	<2	B2	>5	Fog	Moderate	4	142	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:14	14:35	40.81203	-70.22740	40.81252	-70.19159	45	4	S	<2	B2	>5	Fog	Moderate	4.7	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:35	14:36	40.81252	-70.19159	40.81249	-70.18995	45	6	S	<2	B2	>5	Fog	Moderate	4.2	90	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:36	14:44	40.81249	-70.18995	40.80781	-70.18309	45	7	S	<2	B2	>5	Fog	Moderate	4.3	92	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:44	14:49	40.80781	-70.18309	40.80730	-70.19145	45	6	S	<2	B2	>5	Fog	Moderate	4.7	220	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:49	15:00	40.80730	-70.19145	40.80705	-70.20928	45	9	SW	<2	B2	>5	Fog	Moderate	4.8	269	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:12	40.80705	-70.20928	40.80686	-70.22832	42	10	W	<2	B2	>5	Fog	Moderate	4.3	270	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:12	15:13	40.80686	-70.22832	40.80681	-70.22989	42	9	W	<2	B2	>5	Fog	Moderate	4.2	270	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:13	15:57	40.80681	-70.22989	40.80726	-70.18351	42	10	W	<2	B2	>5	Fog	Moderate	4.4	265	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:57	15:58	40.80726	-70.18351	40.80713	-70.18511	42	10	W	<2	B2	>5	Fog	Moderate	4.5	255	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:58	16:00	40.80713	-70.18511	40.80700	-70.18862	41	10	W	<2	B2	>5	Fog	Moderate	4.6	268	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:23	40.80700	-70.18862	40.80663	-70.22800	42	9	W	<2	B2	>5	Cloudy	Moderate	4.6	248	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:23	16:25	40.80663	-70.22800	40.80654	-70.23119	42	7	W	<2	B2	>5	Cloudy	Moderate	4.6	247	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:25	16:42	40.80654	-70.23119	40.80573	-70.24901	42	7	W	<2	B2	>5	Cloudy	Moderate	4.6	244	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:42	16:44	40.80573	-70.24901	40.80548	-70.24558	42	7	W	<2	B2	>5	Cloudy	Moderate	4.6	82	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:44	16:56	40.80548	-70.24558	40.80570	-70.22402	42	7	W	<2	B2	>5	Cloudy	Moderate	4.6	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:56	18:00	40.80570	-70.22402	40.80065	-70.23744	43	8	ESE	<2	B2	>5	Cloudy	Slight	4.6	93	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:03	40.80065	-70.23744	40.80061	-70.24309	43	6	WNW	<2	B2	>5	Cloudy	Slight	4.3	267	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:03	18:04	40.80061	-70.24309	40.80062	-70.24477	43	6	WNW	<2	B2	>5	Cloudy	Slight	4.9	269	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:04	18:12	40.80062	-70.24477	40.80577	-70.24827	43	6	WNW	<2	B2	>5	Cloudy	Slight	4.6	93	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:12	18:14	40.80577	-70.24827	40.80517	-70.24493	44	2	ENE	<2	B2	>5	Cloudy	Slight	4.7	83	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:14	18:46	40.80517	-70.24493	40.80577	-70.19030	43	2	ENE	<2	B2	>5	Cloudy	Slight	5.2	84	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:46	18:54	40.80577	-70.19030	40.80589	-70.17951	40	3	SW	<2	B2	>5	Cloudy	Slight	4.9	88	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:54	19:00	40.80589	-70.17951	40.80635	-70.17701	40	2.5	SW	<2	B2	>5	Cloudy	Severe	4.4	84	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:25	40.80635	-70.17701	40.80110	-70.18053	40	4	SW	<2	B2	>5	Cloudy	Severe	4.3	61	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:25	19:26	40.80110	-70.18053	40.80106	-70.18213	40	4	SW	<2	B2	>5	Cloudy	Severe	4.2	265	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:26	20:07	40.80106	-70.18213	40.80039	-70.24126	40	6	SW	<2	B2	>5	Cloudy	Severe	4.4	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:07	20:09	40.80039	-70.24126	40.80034	-70.24403	40	6	SW	<2	B2	>5	Cloudy	Severe	4.5	264	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:09	20:19	40.80034	-70.24403	40.80604	-70.24645	40	5	SW	<2	B2	>5	Cloudy	Severe	4.4	278	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:19	20:20	40.80604	-70.24645	40.80574	-70.24495	40	5	SW	<2	B2	>5	Clear	Severe	4.3	39	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:20	21:00	40.80574	-70.24495	40.80061	-70.18498	40	6	SW	<2	B2	>5	Clear	Severe	4.2	48	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:39	40.80061	-70.18498	40.80018	-70.24153	40	6	SW	<2	B2	>5	Clear	Severe	4.2	268	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:39	21:42	40.80018	-70.24153	40.80037	-70.24581	40	5	S	<2	B2	>5	Cloudy	Severe	3.9	269	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:42	22:00	40.80037	-70.24581	40.80493	-70.23001	44	5	S	<2	B2	>5	Cloudy	Severe	4	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:22	40.80493	-70.23001	40.80529	-70.19025	44	5	SSE	<2	B2	>5	Cloudy	Severe	4.8	92	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:22	22:24	40.80529	-70.19025	40.80528	-70.18567	40	8	ESE	<2	B2	>5	Cloudy	Severe	5.3	85	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:24	22:31	40.80528	-70.18567	40.80041	-70.18384	40	8	ESE	<2	B2	>5	Cloudy	Severe	4.7	101	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:31	22:32	40.80041	-70.18384	40.80039	-70.18543	41	7	WSW	<2	B2	>5	Cloudy	Severe	4.2	266	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:32	22:59	40.80039	-70.18543	40.80001	-70.22607	41	7	WSW	<2	B2	>5	Cloudy	Severe	4.2	274	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	23:09	40.80001	-70.22607	40.79970	-70.24083	43	6	WSW	<2	B2	>5	Cloudy	Severe	4.3	271	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:09	23:11	40.79970	-70.24083	40.79977	-70.24551	44	5	WSW	<2	B2	>5	Cloudy	Severe	4.4	271	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:11	23:20	40.79977	-70.24551	40.80456	-70.24800	44	6	WSW	<2	B2	>5	Cloudy	Severe	4.3	273	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:20	23:21	40.80456	-70.24800	40.80448	-70.24619	44	9	SE	<2	B2	>5	Cloudy	Slight	5.2	89	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:21	23:53	40.80448	-70.24619	40.80503	-70.19122	43	9	SE	<2	B2	>5	Cloudy	Slight	4.4	90	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:53	23:55	40.80503	-70.19122	40.80509	-70.18773	40	10	S	<2	B2	>5	Cloudy	None	4.9	89	Silent	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:55	00:00	40.80509	-70.18773	40.80014	-70.18422	40	10	S	<2	B2	>5	Cloudy	None	5.2	89	Full Power	N/A
2022-08-20	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	00:00	00:03	40.80509	-70.18773	40.80014	-70.18422	40	10	S	<2	B2	>5	Cloudy	None	5.2	89	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:03	00:05	40.80018	-70.18643	40.80013	-70.18823	40	8	SW	<2	B2	2-5	Clear	None	4.6	273	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:05	00:12	40.80013	-70.18823	40.79991	-70.20024	40	8	SW	<2	B2	1-2	Clear	None	4.6	273	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:12	01:10	40.79991	-70.20024	40.80454	-70.20965	40	7	SW	<2	B2	0.5-1	Clear	None	4.6	273	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:10	02:00	40.80454	-70.20965	40.79930	-70.23235	40	5	SE	<2	B2	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:56	40.79930	-70.23235	40.80428	-70.18484	35	5	SE	<2	B2	0.5-1	Clear	None	4.2	269	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:56	03:36	40.80428	-70.18484	40.79902	-70.24123	40	6	SE	<2	B2	0.5-1	Clear	None	4.2	94	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:36	03:38	40.79902	-70.24123	40.79895	-70.24446	41	7	ESE	<2	B2	0.5-1	Clear	None	4.3	271	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:38	03:44	40.79895	-70.24446	40.80264	-70.24982	41	7	ESE	<2	B2	0.5-1	Clear	None	4.3	278	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:44	03:46	40.80264	-70.24982	40.80347	-70.24714	41	7	ESE	<2	B2	0.5-1	Clear	None	4.3	86	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:46	04:00	40.80347	-70.24714	40.80389	-70.22633	41	7	ESE	<2	B2	0.5-1	Clear	None	4.3	90	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:00	04:33	40.80389	-70.22633	40.80398	-70.21834	42	9	SSE	<2	B2	0.5-1	Clear	None	3.7	79	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:33	04:45	40.80398	-70.21834	40.80398	-70.21834	42	9	SSE	<2	B2	0.5-1	Fog	None	3.7	250	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:45	05:00	40.80398	-70.21834	40.80349	-70.21787	42	5	ESE	<2	B2	0.5-1	Clear	None	3.7	326	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:32	40.80349	-70.21787	40.80399	-70.17407	41	11	SE	<2	B2	0.5-1	Clear	None	2.6	111	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:32	06:00	40.80399	-70.17407	40.79915	-70.19358	42	12	SE	<2	B2	0.1-0.3	Fog	None	4	87	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:23	40.79915	-70.19358	40.79928	-70.23789	41	3	SSE	<2	B2	0.1-0.3	Fog	None	5.4	277	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:23	06:42	40.79928	-70.23789	40.80309	-70.24559	44	1	S	<2	B2	0.5-1	Fog	None	4.6	279	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:42	06:59	40.80309	-70.24559	40.80313	-70.22147	43	10	ESE	<2	B2	0.1-0.3	Fog	None	3.5	90	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:59	08:00	40.80313	-70.22147	40.79891	-70.22499	44	11	E	<2	B2	0.1-0.3	Fog	None	4.3	85	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:30	40.79891	-70.22499	40.80310	-70.24147	44	2	S	<2	B2	0.1-0.3	Fog	None	4.5	271	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:30	09:00	40.80310	-70.24147	40.80375	-70.19189	44	12	SE	<2	B1	0.5-1	Fog	None	4.7	90	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	09:00	09:20	40.80375	-70.19189	40.80378	-70.16148	40	11	SE	<2	B1	0.5-1	Clear	None	4.2	90	Soft Start	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	09:20	09:25	40.80378	-70.16148	40.79963	-70.16238	40	10	SSE	<2	B1	0.5-1	Clear	None	3.6	175	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:25	10:15	40.79963	-70.16238	40.79865	-70.24321	40	5	S	<2	B1	2-5	Clear	None	4.9	256	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:15	10:16	40.79865	-70.24321	40.79865	-70.24409	40	5	S	<2	B1	>5	Clear	None	4.4	318	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:16	10:26	40.79865	-70.24409	40.80391	-70.24673	43	5	S	<2	B1	>5	Clear	Moderate	4.4	318	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:26	10:30	40.80391	-70.24673	40.80339	-70.24080	43	5	SE	<2	B1	>5	Clear	Severe	5.1	94	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:30	10:53	40.80339	-70.24080	40.80380	-70.19942	43	5	SE	<2	B1	>5	Fog	Severe	5.1	94	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Mohandeo, Ravie	RPS	10:53	11:47	40.80380	-70.19942	40.79985	-70.23849	43	12	ESE	<2	B1	0.1-0.3	Fog	Severe	5.1	122	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Mohandeo, Ravie	RPS	11:47	12:30	40.79985	-70.23849	40.80486	-70.23251	43	2	ESE	<2	B1	0.1-0.3	Fog	Moderate	3.7	264	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:30	12:55	40.80486	-70.23251	40.80347	-70.19702	43	10	ESE	<2	B1	0.5-1	Fog	Moderate	3.7	264	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Osuna, Yosiris	RPS	12:55	13:00	40.80347	-70.19702	40.80330	-70.18955	44	11	ESE	<2	B1	0.1-0.3	Fog	Moderate	4	90	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Osuna, Yosiris	RPS	13:00	13:25	40.80330	-70.18955	40.79939	-70.17213	44	10	ESE	<2	B1	0.1-0.3	Fog	Moderate	4.1	98	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:25	13:55	40.79939	-70.17213	40.80830	-70.20345	43	7	ESE	<2	B1	0.5-1	Fog	Severe	4.4	284	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:55	14:00	40.80830	-70.20345	40.80852	-70.19440	43	9	ESE	<2	B1	0.5-1	Fog	Severe	4.2	290	Soft Start	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:15	40.80852	-70.19440	40.80927	-70.19500	43	8	ESE	<2	B1	0.5-1	Fog	Severe	4	291	Soft Start	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:15	14:28	40.80927	-70.19500	40.79923	-70.18326	43	10	ESE	<2	B2	1-2	Fog	Severe	4.5	290	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:28	14:33	40.79923	-70.18326	40.79898	-70.19101	44	9	SE	<2	B2	1-2	Fog	Severe	4.1	98	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:33	15:00	40.79898	-70.19101	40.79858	-70.23280	44	11	ESE	<2	B2	1-2	Fog	Severe	4.5	100	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:05	40.79858	-70.23280	40.79849	-70.24107	43	11	E	<2	B2	2-5	Fog	Severe	4.4	94	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:05	15:06	40.79849	-70.24107	40.79847	-70.24276	43	10	E	<2	B2	2-5	Fog	Severe	4.2	88	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:06	15:14	40.79847	-70.24276	40.80310	-70.24933	43	11	E	<2	B2	>5	Fog	Severe	4.3	90	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:14	15:19	40.80310	-70.24933	40.80309	-70.24156	43	12	E	<2	B2	>5	Fog	Severe	4.3	92	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:19	15:49	40.80309	-70.24156	40.80364	-70.19025	43	8	E	<2	B2	>5	Fog	Severe	4.2	90	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:49	15:50	40.80364	-70.19025	40.80368	-70.18867	43	8	E	<2	B2	>5	Fog	Severe	4.2	100	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:50	15:59	40.80368	-70.18867	40.79839	-70.18264	43	5	E	<2	B2	>5	Fog	Severe	4.2	103	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:59	16:00	40.79839	-70.18264	40.79858	-70.18426	43	5	E	<2	B2	>5	Fog	Severe	4.2	174	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:35	40.79858	-70.18426	40.79821	-70.24170	43	3	E	<2	B2	>5	Fog	Severe	4.2	290	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:35	16:36	40.79821	-70.24170	40.79819	-70.24341	42	5	E	<2	B2	2-5	Fog	Slight	4.1	269	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:36	16:46	40.79819	-70.24341	40.80302	-70.24692	42	6	E	<2	B2	2-5	Fog	Slight	4.1	307	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:46	16:47	40.80302	-70.24692	40.80280	-70.24530	42	9	E	<2	B2	2-5	Fog	Slight	4.1	324	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:47	17:00	40.80280	-70.24530	40.80301	-70.22475	42	10	E	<2	B2	2-5	Fog	Slight	4.1	324	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:21	40.80301	-70.22475	40.80345	-70.19070	42	10	E	<2	B2	2-5	Fog	Slight	4.1	87	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:21	17:23	40.80345	-70.19070	40.80344	-70.18745	41	12	ESE	<2	B2	2-5	Fog	Slight	4.4	94	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:23	17:31	40.80344	-70.18745	40.79835	-70.18315	41	12	ESE	<2	B2	2-5	Fog	Slight	4.4	95	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:31	17:32	40.79835	-70.18315	40.79845	-70.18473	40	10	E	<2	B2	2-5	Fog	Slight	4.1	269	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:32	18:00	40.79845	-70.18473	40.79804	-70.23225	40	10	E	<2	B2	2-5	Fog	Slight	4.7	273	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:06	40.79804	-70.23225	40.79796	-70.24210	43	2	ENE	<2	B2	2-5	Fog	Slight	4.6	268	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:06	18:07	40.79796	-70.24210	40.79794	-70.24503	44	2	NE	<2	B2	2-5	Fog	Slight	4.4	279	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:07	18:17	40.79794	-70.24503	40.80263	-70.24860	44	2	NE	<2	B2	2-5	Fog	Slight	4.4	277	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:17	18:18	40.80263	-70.24860	40.80257	-70.24698	43	10	E	<2	B2	2-5	Fog	Slight	4.4	94	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:18	18:52	40.80257	-70.24698	40.80311	-70.18949	43	10	E	<2	B2	2-5	Fog	Slight	4.4	87	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:52	18:53	40.80311	-70.18949	40.80310	-70.18770	41	5	E	<2	B2	2-5	Fog	Slight	4.3	88	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:53	19:01	40.80310	-70.18770	40.79832	-70.18263	41	5	E	<2	B2	2-5	Fog	Slight	4.3	91	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:01	19:06	40.79832	-70.18263	40.79813	-70.19111	42	5	E	<2	B2	2-5	Fog	Slight	4.4	217	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:06	19:38	40.79813	-70.19111	40.79767	-70.24215	42	5	E	<2	B2	>5	Fog	Slight	4.3	243	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:38	19:39	40.79767	-70.24215	40.79762	-70.24376	42	5	W	<2	B2	>5	Fog	Slight	4.3	243	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:39	19:47	40.79762	-70.24376	40.80259	-70.24873	42	5	NW	<2	B2	>5	Fog	Slight	4.3	243	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:47	19:49	40.80259	-70.24873	40.80221	-70.24531	42	5	NE	<2	B2	>5	Fog	Slight	4.3	243	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:49	20:21	40.80221	-70.24531	40.80292	-70.19104	42	5	E	<2	B2	>5	Fog	Slight	4.3	243	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:21	20:23	40.80292	-70.19104	40.80296	-70.18761	42	5	E	<2	B2	>5	Fog	Slight	4.7	112	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:23	20:32	40.80296	-70.18761	40.79733	-70.18277	42	5	E	<2	B2	>5	Fog	Slight	4.2	133	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:32	20:34	40.79733	-70.18277	40.79798	-70.18593	42	5	E	<2	B2	>5	Fog	Slight	4.2	297	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:34	21:00	40.79798	-70.18593	40.79748	-70.22616	42	5	E	<2	B2	>5	Fog	Slight	4.2	269	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:10	40.79748	-70.22616	40.79736	-70.24175	43	5	E	<2	B3	>5	Cloudy	Severe	4.2	270	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:10	21:12	40.79736	-70.24175	40.79739	-70.24489	42	5	E	<2	B3	>5	Cloudy	Severe	4.2	268	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:12	21:20	40.79739	-70.24489	40.80190	-70.24890	42	5	E	<2	B3	>5	Cloudy	Severe	4.2	268	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:20	21:21	40.80190	-70.24890	40.80190	-70.24713	42	16	E	<2	B3	>5	Cloudy	Severe	4.8	91	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:21	21:56	40.80190	-70.24713	40.80231	-70.18593	43	16	E	<2	B3	>5	Cloudy	Severe	5	87	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:56	21:56	40.80231	-70.18593	40.80228	-70.18579	41	15	E	<2	B3	>5	Cloudy	Severe	4.6	96	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:56	21:58	40.80228	-70.18579	40.80151	-70.18266	41	15	E	<2	B3	>5	Cloudy	Severe	4.8	98	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:58	22:03	40.80151	-70.18266	40.79743	-70.18320	41	15	E	<2	B3	>5	Cloudy	Severe	5.1	112	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:03	22:04	40.79743	-70.18320	40.79758	-70.18473	42	16	E	<2	B3	>5	Fog	Severe	4.5	268	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:04	22:39	40.79758	-70.18473	40.79720	-70.24107	42	16	E	<2	B3	>5	Fog	Severe	4.6	271	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:39	22:41	40.79720	-70.24107	40.79717	-70.24423	43	7	E	<2	B3	>5	Fog	Moderate	4.5	268	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:41	22:49	40.79717	-70.24423	40.80162	-70.24869	43	7	E	<2	B3	>5	Fog	Moderate	4.1	278	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:49	22:50	40.80162	-70.24869	40.80178	-70.24710	42	15	ESE	<2	B3	>5	Fog	Severe	4.9	78	Silent	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:50	22:59	40.80178	-70.24710	40.80197	-70.23003	42	15	ESE	<2	B3	>5	Fog	Severe	4.8	78	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	23:04	40.80197	-70.23003	40.80205	-70.22267	42	15	ESE	<2	B3	>5	Fog	None	4.8	78	Full Power	N/A
2022-08-21	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Lai Tan, Lyndon	RPS	23:04	00:00	40.80205	-70.22267	40.77570	-70.21768	42	15	ESE	<2	B3	>5	Fog	None	4.5	79	Standby	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:00	01:00	40.77563	-70.22005	40.81045	-70.23072	43	8	SSE	<2	B2	<0.05	Fog	None	3.8	273	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	02:00	40.81045	-70.23072	40.80157	-70.22275	43	13	E	<2	B2	<0.05	Fog	None	4.6	28	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:58	40.80157	-70.22275	40.80209	-70.24974	43	3	W	<2	B2	<0.05	Fog	None	4.3	263	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:58	03:15	40.80209	-70.24974	40.80329	-70.22998	44	13	E	<2	B3	<0.05	Fog	None	3.5	86	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:15	03:55	40.80329	-70.22998	40.80031	-70.19393	43	14	E	<2	B3	0.05-0.1	Fog	None	3.1	89	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:55	04:20	40.80031	-70.19393	40.79973	-70.23630	43	6	E	<2	B3	0.05-0.1	Fog	None	3.1	264	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:20	04:50	40.79973	-70.23630	40.80482	-70.23399	44	5	E	<2	B3	0.5-1	Fog	None	4.8	282	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:50	05:00	40.80482	-70.23399	40.80427	-70.21938	44	14	E	<2	B3	0.5-1	Fog	None	4.8	11	Soft Start	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:11	40.80427	-70.21938	40.80373	-70.20584	44	13	E	<2	B3	0.5-1	Fog	None	4	83	Soft Start	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:11	05:20	40.80373	-70.20584	40.80328	-70.19432	44	13	E	<2	B3	0.3-0.5	Fog	None	3.6	98	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:20	06:12	40.80328	-70.19432	40.79697	-70.23315	44	14	E	<2	B3	0.05-0.1	Fog	None	2.2	98	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:12	06:52	40.79697	-70.23315	40.80851	-70.23911	44	9	E	<2	B3	0.5-1	Fog	None	4.2	261	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:52	07:00	40.80851	-70.23911	40.80785	-70.23220	43	19	E	<2	B3	0.1-0.3	Fog	None	2.7	75	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:00	07:30	40.80785	-70.23220	40.80538	-70.20675	44	17	E	<2	B3	0.1-0.3	Fog	None	3	120	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:30	08:00	40.80538	-70.20675	40.80225	-70.18247	45	16	ESE	<2	B3	0.5-1	Fog	None	2.3	107	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:00	40.80225	-70.18247	40.80299	-70.24591	46	16	ESE	<2	B3	0.5-1	Fog	None	2	111	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:15	40.80299	-70.24591	40.80245	-70.23084	46	15	ESE	<2	B3	0.5-1	Cloudy	None	2.5	86	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:15	09:35	40.80245	-70.23084	40.80276	-70.21009	44	16	E	<2	B3	0.5-1	Precipitation	None	2.4	90	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:35	09:40	40.80276	-70.21009	40.80288	-70.20496	45	19	E	<2	B3	1-2	Precipitation	None	3.2	87	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	10:00	40.80288	-70.20496	40.80271	-70.18348	44	16	E	<2	B3	2-5	Precipitation	None	2.4	90	Soft Start	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:00	10:46	40.80271	-70.18348	40.79678	-70.24175	44	10	SE	<2	B3	2-5	Precipitation	None	2.5	160	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:46	10:50	40.79678	-70.24175	40.79679	-70.24891	44	10	SE	<2	B3	2-5	Precipitation	None	4.1	264	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:50	11:01	40.79679	-70.24891	40.80146	-70.24636	44	10	E	<2	B3	2-5	Precipitation	None	4.1	248	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:01	11:06	40.80146	-70.24636	40.80147	-70.23898	43	18	SE	<2	B3	2-5	Precipitation	None	4.6	97	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:06	11:35	40.80147	-70.23898	40.80197	-70.18962	43	18	SE	<2	B3	2-5	Precipitation	None	4.6	97	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:35	11:36	40.80197	-70.18962	40.80199	-70.18720	42	18	ESE	<2	B3	2-5	Precipitation	None	5	82	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:36	11:47	40.80199	-70.18720	40.79715	-70.18383	42	20	ESE	<2	B3	2-5	Cloudy	None	4.7	82	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:47	11:52	40.79715	-70.18383	40.79706	-70.19118	42	11	E	<2	B3	2-5	Precipitation	None	4.2	262	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:52	12:00	40.79706	-70.19118	40.79692	-70.20355	42	11	E	<2	B3	2-5	Precipitation	None	4.2	260	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:25	40.79692	-70.20355	40.79659	-70.24100	42	13	ESE	<2	B3	2-5	Precipitation	None	4.1	269	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:25	12:26	40.79659	-70.24100	40.79656	-70.24254	42	11	ESE	<2	B3	2-5	Precipitation	None	4	270	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:26	12:39	40.79656	-70.24254	40.80156	-70.25047	42	12	ESE	<2	B3	2-5	Precipitation	None	4.1	272	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:39	12:45	40.80156	-70.25047	40.80122	-70.24116	42	11	ESE	<2	B3	2-5	Precipitation	None	4.2	90	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:45	13:00	40.80122	-70.24116	40.80146	-70.21614	42	18	ESE	<2	B3	2-5	Precipitation	None	4.7	80	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:16	40.80146	-70.21614	40.80183	-70.18989	42	19	ESE	<2	B3	2-5	Precipitation	None	4.7	92	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:16	13:18	40.80183	-70.18989	40.80194	-70.18667	42	17	ESE	<2	B3	2-5	Precipitation	None	4.2	88	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:18	13:34	40.80194	-70.18667	40.79572	-70.18111	42	16	SE	<2	B3	2-5	Precipitation	None	4	80	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:34	13:40	40.79572	-70.18111	40.79682	-70.19001	42	9	SE	<2	B3	2-5	Precipitation	None	4.2	270	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:40	14:00	40.79682	-70.19001	40.79654	-70.21915	42	7	SE	<2	B3	1-2	Precipitation	None	4.1	258	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:16	40.79654	-70.21915	40.79632	-70.24208	42	8	SE	<2	B3	1-2	Precipitation	None	4.2	277	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:16	14:17	40.79632	-70.24208	40.79631	-70.24360	42	12	ESE	<2	B3	1-2	Precipitation	None	4	268	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:17	14:29	40.79631	-70.24360	40.80085	-70.24866	43	11	ESE	<2	B3	1-2	Precipitation	None	4.4	257	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:29	14:34	40.80085	-70.24866	40.80100	-70.24076	43	18	ESE	<2	B3	1-2	Precipitation	None	4.8	100	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:34	15:00	40.80100	-70.24076	40.80142	-70.19717	43	20	E	<2	B3	1-2	Precipitation	None	5	88	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:30	40.80142	-70.19717	40.79642	-70.20452	44	16	ESE	<2	B3	0.5-1	Fog	None	4.5	87	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Lai Tan, Lyndon	RPS	15:30	15:55	40.79642	-70.20452	40.79619	-70.24542	41	16	ESE	<2	B3	0.1-0.3	Fog	None	4.1	257	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	15:55	16:33	40.79619	-70.24542	40.80524	-70.21927	44	9	SE	<2	B3	0.1-0.3	Fog	None	4.2	287	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:33	16:58	40.80524	-70.21927	40.80552	-70.18598	41	12	SE	<2	B3	0.3-0.5	Fog	None	4.2	98	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:58	17:03	40.80552	-70.18598	40.80569	-70.18013	42	11	SE	<2	B3	0.5-1	Fog	None	3.8	85	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:03	17:23	40.80569	-70.18013	40.79646	-70.19517	40	12	SE	<2	B3	0.5-1	Fog	None	3.4	99	Soft Start	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:23	17:23	40.79646	-70.19517	40.79646	-70.19517	40	8	S	<2	B3	1-2	Fog	None	4	274	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:23	17:24	40.79646	-70.19517	40.79630	-70.19649	40	8	S	<2	B3	1-2	Fog	None	3.8	266	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:24	17:51	40.79630	-70.19649	40.79599	-70.24234	41	8	S	<2	B3	1-2	Fog	None	4	277	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:51	17:53	40.79599	-70.24234	40.79684	-70.24694	43	5	SSE	<2	B3	1-2	Fog	None	5.2	266	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:53	18:00	40.79684	-70.24694	40.80149	-70.24330	43	5	SSE	<2	B3	1-2	Fog	None	4.7	304	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:15	40.80149	-70.24330	40.80332	-70.21974	43	5	SSE	<2	B3	1-2	Fog	None	4.1	36	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:15	18:16	40.80332	-70.21974	40.80341	-70.21812	42	7	S	<2	B3	1-2	Fog	None	5	84	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:16	18:34	40.80341	-70.21812	40.80390	-70.18977	42	7	S	<2	B3	1-2	Fog	None	5	82	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:34	18:35	40.80390	-70.18977	40.80392	-70.18827	40	12	SSW	<2	B3	1-2	Fog	None	4.3	89	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:35	18:46	40.80392	-70.18827	40.79637	-70.18450	40	12	SSW	<2	B3	1-2	Fog	None	4.1	97	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:46	18:47	40.79637	-70.18450	40.79636	-70.18612	40	17	WSW	<2	B3	1-2	Fog	None	5	268	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:47	19:00	40.79636	-70.18612	40.79609	-70.20945	40	18	WSW	<2	B3	1-2	Fog	None	5.3	267	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:19	40.79609	-70.20945	40.79573	-70.24155	41	18	W	<2	B3	1-2	Fog	None	4.9	271	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:19	19:20	40.79573	-70.24155	40.79574	-70.24323	41	18	W	<2	B3	1-2	Fog	None	4.9	271	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:20	19:40	40.79574	-70.24323	40.80165	-70.23911	41	18	W	<2	B3	1-2	Fog	None	4.9	276	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:40	19:41	40.80165	-70.23911	40.80168	-70.23749	41	18	W	<2	B3	1-2	Fog	None	4.9	60	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:41	20:00	40.80168	-70.23749	40.80211	-70.20798	41	18	W	<2	B3	1-2	Fog	None	4.9	60	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:11	40.80211	-70.20798	40.80229	-70.19011	41	7	W	<2	B3	1-2	Fog	None	5	93	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:11	20:12	40.80229	-70.19011	40.80229	-70.18852	41	15	W	<2	B3	1-2	Fog	None	5	151	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:12	20:25	40.80229	-70.18852	40.79103	-70.18372	41	15	W	<2	B3	1-2	Fog	None	5	152	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:25	20:26	40.79103	-70.18372	40.79105	-70.18550	41	13	W	<2	B3	1-2	Precipitation	None	5	183	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:26	21:00	40.79105	-70.18550	40.79033	-70.24340	41	15	W	<2	B3	1-2	Fog	None	5	221	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:08	40.79033	-70.24340	40.79020	-70.25632	42	14	W	<2	B3	1-2	Fog	None	4.6	264	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:08	21:09	40.79020	-70.25632	40.79018	-70.25788	44	14	W	<2	B3	1-2	Fog	None	4.3	264	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:09	21:18	40.79018	-70.25788	40.79528	-70.26310	44	14	W	<2	B3	1-2	Fog	None	4.3	265	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:18	21:19	40.79528	-70.26310	40.79531	-70.26133	44	16	WSW	<2	B3	1-2	Fog	None	4.6	92	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:19	21:30	40.79531	-70.26133	40.79551	-70.24466	44	16	WSW	<2	B3	1-2	Fog	None	5.4	89	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:30	22:01	40.79551	-70.24466	40.79605	-70.19013	44	3	SSW	<2	B3	0.5-1	Precipitation	None	4.9	97	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:01	22:02	40.79605	-70.19013	40.79606	-70.18835	42	16	WSW	<2	B3	0.5-1	Precipitation	None	4.6	91	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:02	22:11	40.79606	-70.18835	40.79115	-70.18204	42	16	WSW	<2	B3	0.5-1	Precipitation	None	4.6	91	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:11	22:12	40.79115	-70.18204	40.79085	-70.18354	42	20	W	<2	B3	0.5-1	Precipitation	None	4.2	268	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:12	22:59	40.79085	-70.18354	40.78990	-70.25511	42	20	W	<2	B3	1-2	Precipitation	None	4.2	272	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	23:01	40.78990	-70.25511	40.78989	-70.25813	42	13	WSW	<2	B3	1-2	Precipitation	None	4	272	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:01	23:11	40.78989	-70.25813	40.79522	-70.26174	42	13	WSW	<2	B3	1-2	Precipitation	None	4.2	272	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:11	23:12	40.79522	-70.26174	40.79517	-70.25995	44	6	SSW	<2	B3	1-2	Fog	None	4.9	87	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:12	23:43	40.79517	-70.25995	40.79558	-70.20722	44	6	SSW	<2	B3	1-2	Fog	None	4.9	87	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:43	23:54	40.79558	-70.20722	40.79582	-70.18862	43	6	S	<2	B3	0.5-1	Precipitation	None	4	91	Full Power	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:54	23:55	40.79582	-70.18862	40.79584	-70.18688	42	3	S	<2	B3	0.5-1	Precipitation	None	4.3	86	Silent	N/A
2022-08-22	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:55	00:00	40.79584	-70.18688	40.79490	-70.18058	42	3	S	<2	B3	0.5-1	Precipitation	None	4.2	89	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:00	00:16	40.79050	-70.18313	40.79026	-70.20166	43	9	WSW	<2	B3	0.05-0.1	Precipitation	None	3.2	275	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:16	00:25	40.79026	-70.20166	40.79018	-70.21333	44	10	WSW	<2	B3	0.05-0.1	Precipitation	None	3.5	276	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:25	00:51	40.79018	-70.21333	40.79633	-70.18345	44	10	WSW	<2	B3	0.3-0.5	Precipitation	None	3.5	276	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Osuna, Yosiris	RPS	00:51	00:59	40.79633	-70.18345	40.79164	-70.18055	44	18	SW	<2	B3	<0.05	Precipitation	None	3.5	210	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:59	01:01	40.79164	-70.18055	40.79138	-70.18310	44	18	SW	<2	B3	<0.05	Precipitation	None	3.5	210	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:01	01:23	40.79138	-70.18310	40.78823	-70.21121	44	18	SW	<2	B3	0.3-0.5	Precipitation	None	3	270	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:23	02:02	40.78823	-70.21121	40.79554	-70.18487	44	12	SW	<2	B3	0.5-1	Precipitation	None	3.4	298	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:02	02:22	40.79554	-70.18487	40.79063	-70.17705	44	7	S	<2	B3	0.5-1	Cloudy	None	3.4	84	Soft Start	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:22	02:24	40.79063	-70.17705	40.79062	-70.17972	44	7	S	<2	B3	0.5-1	Cloudy	None	3.4	224	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:24	02:25	40.79062	-70.17972	40.79046	-70.18142	44	7	S	<2	B3	0.5-1	Cloudy	None	3.4	263	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:25	03:00	40.79046	-70.18142	40.78988	-70.23830	44	7	S	<2	B3	0.5-1	Clear	None	3.4	263	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:00	03:54	40.78988	-70.23830	40.79536	-70.20671	44	7	WSW	<2	B3	0.5-1	Clear	None	3.4	271	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:54	04:06	40.79536	-70.20671	40.79555	-70.18998	44	2	S	<2	B3	0.5-1	Clear	None	3.8	82	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:06	04:07	40.79555	-70.18998	40.79564	-70.18855	44	2	S	<2	B3	0.5-1	Clear	None	3.8	276	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:07	04:16	40.79564	-70.18855	40.78965	-70.18132	44	2	S	<2	B3	0.5-1	Precipitation	None	3.8	276	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:16	04:22	40.78965	-70.18132	40.78941	-70.19001	44	2	S	<2	B3	0.5-1	Precipitation	None	3.8	276	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:22	05:00	40.78941	-70.19001	40.78871	-70.25809	44	2	S	<2	B3	0.5-1	Precipitation	None	3.8	276	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	40.78871	-70.25809	40.79528	-70.18637	44	15	WSW	<2	B3	0.5-1	Precipitation	None	4	276	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:52	40.79528	-70.18637	40.78835	-70.25600	45	6	SW	<2	B3	0.5-1	Precipitation	None	4.1	110	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:52	06:53	40.78835	-70.25600	40.78836	-70.25775	43	10	WSW	<2	B2	0.5-1	Precipitation	None	4	210	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:53	06:57	40.78836	-70.25775	40.79052	-70.26556	43	11	WSW	<2	B2	0.5-1	Precipitation	None	4.5	260	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:57	07:03	40.79052	-70.26556	40.79432	-70.26231	44	2	S	<2	B2	0.5-1	Clear	None	4.2	343	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:03	07:09	40.79432	-70.26231	40.79431	-70.25391	44	8	S	<2	B2	0.5-1	Clear	None	4	70	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:09	07:58	40.79431	-70.25391	40.79494	-70.18930	44	7	S	<2	B2	0.5-1	Clear	None	3.6	80	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:58	07:59	40.79494	-70.18930	40.79498	-70.18806	45	9	S	<2	B2	0.5-1	Clear	None	4	82	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:59	08:00	40.79498	-70.18806	40.79500	-70.18683	45	5	S	<2	B2	0.5-1	Clear	None	4.3	90	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:11	40.79500	-70.18683	40.78873	-70.18367	44	4	S	<2	B2	0.5-1	Clear	None	3.1	100	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:11	08:15	40.78873	-70.18367	40.78876	-70.19097	44	10	W	<2	B2	0.5-1	Fog	None	5.4	273	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:15	08:52	40.78876	-70.19097	40.78814	-70.25662	45	11	W	<2	B2	0.5-1	Fog	None	4.8	271	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:52	08:53	40.78814	-70.25662	40.78810	-70.25841	45	10	W	<2	B2	0.5-1	Fog	None	5	267	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:53	09:00	40.78810	-70.25841	40.79363	-70.26458	45	3	S	<2	B2	0.5-1	Fog	None	3.4	271	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:35	40.79363	-70.26458	40.79450	-70.21049	45	3	S	<2	B2	0.5-1	Fog	None	5	80	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:35	09:50	40.79450	-70.21049	40.79459	-70.18965	45	4	S	<2	B2	1-2	Fog	None	3.9	98	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:50	09:51	40.79459	-70.18965	40.79459	-70.18828	45	4	SSE	<2	B2	1-2	Fog	None	3.9	116	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:51	10:03	40.79459	-70.18828	40.78882	-70.18230	45	4	SSE	<2	B2	1-2	Fog	None	3.9	116	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:03	10:08	40.78882	-70.18230	40.78845	-70.19087	45	4	WSW	<2	B2	1-2	Fog	None	5	255	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:08	10:47	40.78845	-70.19087	40.78778	-70.25595	45	4	WSW	<2	B2	1-2	Fog	None	5	255	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:47	10:48	40.78778	-70.25595	40.78778	-70.25721	45	7	SE	<2	B2	0.5-1	Fog	None	4.7	77	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:48	10:58	40.78778	-70.25721	40.79393	-70.26248	45	7	SE	<2	B2	0.5-1	Fog	None	4.7	77	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:58	11:04	40.79393	-70.26248	40.79369	-70.25476	45	7	SE	<2	B2	0.5-1	Fog	None	4.7	100	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:04	11:43	40.79369	-70.25476	40.79437	-70.19001	45	7	SE	<2	B2	0.5-1	Fog	None	4	100	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:43	11:44	40.79437	-70.19001	40.79440	-70.18924	44	7	SE	<2	B2	0.5-1	Fog	None	4.7	100	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:44	12:00	40.79440	-70.18924	40.78822	-70.19044	44	5	W	<2	B2	0.5-1	Fog	None	4	253	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:42	40.78822	-70.19044	40.78755	-70.25517	44	6	W	<2	B2	0.5-1	Fog	None	3.8	257	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:42	12:43	40.78755	-70.25517	40.78755	-70.25682	44	7	S	<2	B2	0.5-1	Fog	None	4.1	253	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:43	12:59	40.78755	-70.25682	40.79415	-70.26316	44	6	S	<2	B2	0.5-1	Fog	None	4	317	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:59	13:00	40.79415	-70.26316	40.79384	-70.26176	44	7	SSW	<2	B2	0.5-1	Fog	None	4.2	320	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:04	40.79384	-70.26176	40.79342	-70.25551	44	8	S	<2	B2	0.5-1	Fog	None	4.1	300	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:04	13:41	40.79342	-70.25551	40.79417	-70.19081	45	5	SSE	<2	B2	0.5-1	Fog	None	4.4	100	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:41	13:42	40.79417	-70.19081	40.79420	-70.18895	44	7	S	<2	B2	0.5-1	Fog	Slight	4.2	99	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:42	13:52	40.79420	-70.18895	40.78822	-70.18366	44	9	S	<2	B2	1-2	Fog	Slight	4	97	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:52	13:57	40.78822	-70.18366	40.78792	-70.19159	43	11	S	<2	B2	1-2	Fog	Slight	4.3	110	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:57	14:00	40.78792	-70.19159	40.78788	-70.19641	44	9	SW	<2	B2	1-2	Fog	Moderate	5	250	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:38	40.78788	-70.19641	40.78727	-70.25551	44	10	SW	<2	B2	1-2	Fog	Moderate	4.9	248	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:38	14:39	40.78727	-70.25551	40.78727	-70.25718	44	8	SW	<2	B2	1-2	Fog	Moderate	4.6	270	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:39	14:47	40.78727	-70.25718	40.79309	-70.26429	44	9	SW	<2	B2	1-2	Fog	Moderate	4.3	280	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:47	14:53	40.79309	-70.26429	40.79322	-70.25498	44	7	ESE	<2	B2	1-2	Fog	Moderate	4.2	110	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:53	15:00	40.79322	-70.25498	40.79331	-70.24326	44	9	ESE	<2	B2	1-2	Fog	Moderate	4.1	90	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:31	40.79331	-70.24326	40.79386	-70.19039	42	9	ESE	<2	B2	2-5	Fog	Moderate	4.4	86	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:31	15:33	40.79386	-70.19039	40.79391	-70.18695	42	10	ESE	<2	B2	2-5	Fog	Moderate	4.4	87	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:33	15:42	40.79391	-70.18695	40.78803	-70.18427	42	10	ESE	<2	B2	2-5	Fog	Moderate	4.4	119	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:42	16:00	40.78803	-70.18427	40.78752	-70.21316	42	11	ESE	<2	B2	2-5	Fog	Moderate	4.4	258	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:28	40.78752	-70.21316	40.78699	-70.25632	42	9	ESE	<2	B2	2-5	Fog	Slight	4.4	257	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:28	16:29	40.78699	-70.25632	40.78698	-70.25803	42	9	ESE	<2	B2	2-5	Fog	None	4.4	285	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:29	16:37	40.78698	-70.25803	40.79298	-70.26326	42	9	ESE	<2	B2	2-5	Fog	None	4.4	257	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:37	16:38	40.79298	-70.26326	40.79313	-70.26158	42	9	ESE	<2	B2	2-5	Fog	None	4.4	69	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:38	16:57	40.79313	-70.26158	40.79318	-70.22894	42	9	ESE	<2	B2	2-5	Fog	None	4.4	69	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:57	17:21	40.79318	-70.22894	40.79365	-70.18979	42	9	ESE	<2	B2	2-5	Fog	None	4.4	77	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:21	17:23	40.79365	-70.18979	40.79352	-70.18660	41	9	SW	<2	B2	2-5	Fog	None	4.5	89	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:23	17:32	40.79352	-70.18660	40.78746	-70.18387	41	9	SW	<2	B2	2-5	Fog	None	4.5	92	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:32	17:33	40.78746	-70.18387	40.78748	-70.18557	42	9	SW	<2	B2	2-5	Fog	None	4.8	274	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:33	18:00	40.78748	-70.18557	40.78698	-70.23028	42	9	SW	<2	B2	2-5	Fog	None	4.8	267	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:16	40.78698	-70.23028	40.78675	-70.25645	42	10	SW	<2	B2	2-5	Fog	None	4.5	262	Full Power	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:16	18:24	40.78675	-70.25645	40.78215	-70.26571	42	11	SW	<2	B2	2-5	Fog	None	4.6	273	Silent	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:24	18:41	40.78215	-70.26571	40.77056	-70.27594	45	11	SSW	<2	B2	2-5	Fog	None	3.4	215	Deploying/Retrieving	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:41	18:52	40.77056	-70.27594	40.76643	-70.27980	46	10	SSW	<2	B2	1-2	Precipitation	None	1.8	196	Deploying/Retrieving	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:52	19:00	40.76643	-70.27980	40.76060	-70.28507	46	6	S	<2	B2	2-5	Fog	None	3.2	251	Transit	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	20:00	40.76060	-70.28507	40.76865	-70.28085	41	15	S	<2	B2	>5	Cloudy	Moderate	2.4	203	Transit	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	21:00	40.76865	-70.28085	40.81829	-70.24465	41	17	S	<2	B2	>5	Cloudy	Severe	2.4	16	Transit	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:58	40.81829	-70.24465	40.85873	-70.21604	44	13	SW	<2	B4	>5	Cloudy	Severe	3.2	45	Transit	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:58	22:58	40.85873	-70.21604	40.82212	-70.22751	40	18	SW	<2	B4	>5	Cloudy	Severe	3.2	212	Transit	N/A
2022-08-23	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:58	00:00	40.82212	-70.22751	40.82125	-70.22773	43	17	SW	2-4	B4	>5	Cloudy	Severe	2.8	227	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:10	40.75324	-70.23821	40.75324	-70.23821	42	12	SSW	2-4	B4	0.3-0.5	Cloudy	None	3.9	181	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Mohandeo, Ravie	RPS	00:10	00:53	40.75324	-70.23821	40.73395	-70.23415	44	10	SSW	2-4	B4	0.3-0.5	Cloudy	None	4.1	187	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:53	01:55	40.73395	-70.23415	40.74821	-70.21613	43	10	N	2-4	B4	0.3-0.5	Cloudy	None	3.1	157	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:55	02:58	40.74821	-70.21613	40.80791	-70.21173	44	7	S	2-4	B4	0.3-0.5	Cloudy	None	3.2	338	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	02:58	04:00	40.80791	-70.21173	40.84637	-70.21300	43	7	WSW	2-4	B4	0.5-1	Clear	None	2.3	350	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:00	05:00	40.84637	-70.21300	40.88754	-70.21805	43	10	SW	2-4	B4	0.5-1	Clear	None	2.4	3	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:53	40.88754	-70.21805	40.94892	-70.23800	43	7	SW	2-4	B4	0.5-1	Clear	None	3	12	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:53	06:54	40.94892	-70.23800	40.94807	-70.23866	43	7	SW	2-4	B4	0.5-1	Clear	None	3	12	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:54	08:00	40.94807	-70.23866	40.90260	-70.26920	45	16	SW	2-4	B4	0.5-1	Clear	None	3.9	212	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:59	40.90260	-70.26920	40.86426	-70.27665	43	15	SSW	2-4	B4	0.5-1	Clear	None	2.7	221	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	08:59	09:40	40.86426	-70.27665	40.84000	-70.26668	43	16	SW	2-4	B4	0.5-1	Clear	None	1.9	194	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	10:31	40.84000	-70.26668	40.80836	-70.25015	43	17	SW	2-4	B3	1-2	Fog	None	1.5	166	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:31	11:30	40.80836	-70.25015	40.76971	-70.24533	42	18	SW	2-4	B3	2-5	Fog	Slight	2.7	165	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:30	12:00	40.76971	-70.24533	40.75049	-70.24751	44	19	WSW	2-4	B3	2-5	Fog	Severe	2.3	192	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:45	40.75049	-70.24751	40.77268	-70.25598	44	13	SW	2-4	B3	2-5	Fog	Severe	2.6	180	Transit	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:45	13:00	40.77268	-70.25598	40.76353	-70.26229	44	12	WSW	2-4	B3	>5	Fog	Severe	2.8	178	Deploying/Retrieving	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	40.76353	-70.26229	40.79059	-70.25998	44	14	WSW	2-4	B3	>5	Fog	Severe	3.4	230	Deploying/Retrieving	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:20	40.79059	-70.25998	40.80585	-70.25288	43	5	NNW	2-4	B3	>5	Fog	Severe	3	37	Soft Start	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:20	14:23	40.80585	-70.25288	40.80662	-70.25000	44	7	NW	<2	B3	>5	Fog	Severe	3.4	40	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:23	14:28	40.80662	-70.25000	40.80636	-70.24269	44	6	NW	<2	B3	>5	Fog	Severe	4.1	75	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:28	14:56	40.80636	-70.24269	40.80685	-70.18938	44	5	W	<2	B3	>5	Fog	Severe	5	90	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:56	14:57	40.80685	-70.18938	40.80685	-70.18748	44	7	W	<2	B3	>5	Fog	Severe	4.3	90	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:57	15:00	40.80685	-70.18748	40.80638	-70.18191	44	9	W	<2	B3	>5	Fog	Severe	4.2	90	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:12	40.80638	-70.18191	40.79647	-70.18254	44	10	W	<2	B3	>5	Clear	Severe	4.3	200	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:12	15:17	40.79647	-70.18254	40.79622	-70.18922	44	11	W	<2	B3	>5	Clear	Severe	3.5	258	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:17	15:53	40.79622	-70.18922	40.79556	-70.24183	44	12	W	<2	B3	>5	Clear	Severe	4	261	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:53	15:55	40.79556	-70.24183	40.79547	-70.24513	44	12	W	<2	B3	>5	Clear	Severe	4	246	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:55	16:18	40.79547	-70.24513	40.79261	-70.26088	44	13	W	<2	B3	>5	Clear	Severe	4	246	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:18	16:19	40.79261	-70.26088	40.79261	-70.25912	44	14	W	<2	B3	>5	Clear	Severe	4	53	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:19	16:59	40.79261	-70.25912	40.79335	-70.18975	44	13	W	<2	B3	>5	Clear	Severe	4	53	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:59	17:00	40.79335	-70.18975	40.79339	-70.18798	41	15	WSW	<2	B3	>5	Clear	Slight	5.1	85	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:10	40.79339	-70.18798	40.78743	-70.18350	41	15	WSW	<2	B3	>5	Clear	Slight	5.2	92	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:10	17:12	40.78743	-70.18350	40.78720	-70.18663	41	14	W	<2	B3	>5	Clear	Slight	4.5	260	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:12	17:54	40.78720	-70.18663	40.78651	-70.25625	41	14	W	<2	B3	>5	Clear	Slight	4.6	266	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:54	17:56	40.78651	-70.25625	40.78658	-70.25960	44	16	WNW	<2	B3	>5	Clear	Slight	5.2	257	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:56	17:59	40.78658	-70.25960	40.78734	-70.26449	44	16	WNW	<2	B3	>5	Clear	Slight	5.2	278	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:59	18:05	40.78734	-70.26449	40.79228	-70.25990	43	14	NW	<2	B3	>5	Clear	Slight	3.8	310	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:05	18:06	40.79228	-70.25990	40.79234	-70.25829	44	7	W	<2	B3	>5	Clear	Moderate	3.9	79	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:06	18:46	40.79234	-70.25829	40.79310	-70.19086	44	9	W	<2	B3	>5	Clear	Moderate	3.9	84	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:46	18:48	40.79310	-70.19086	40.79301	-70.18630	41	10	WSW	<2	B3	>5	Clear	Moderate	5.1	97	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:48	18:59	40.79301	-70.18630	40.78681	-70.18696	41	10	WSW	<2	B3	>5	Clear	Moderate	5.1	101	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:59	19:00	40.78681	-70.18696	40.78692	-70.18862	42	12	W	<2	B3	>5	Clear	Moderate	5	268	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:40	40.78692	-70.18862	40.78624	-70.25584	42	8	W	<2	B3	>5	Clear	Moderate	4.8	268	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:40	19:41	40.78624	-70.25584	40.78625	-70.25747	43	9	W	<2	B3	>5	Clear	Moderate	5.2	348	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:41	19:51	40.78625	-70.25747	40.79206	-70.26027	43	7	W	<2	B3	>5	Clear	Moderate	5	348	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:51	19:52	40.79206	-70.26027	40.79209	-70.25874	43	7	W	<2	B3	>5	Clear	Moderate	4.4	86	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:52	20:00	40.79209	-70.25874	40.79232	-70.24561	43	7	W	<2	B3	>5	Clear	Moderate	4	86	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:35	40.79232	-70.24561	40.79283	-70.19342	43	5	E	<2	B3	>5	Clear	Moderate	4.4	97	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:35	20:36	40.79283	-70.19342	40.79283	-70.19342	43	5	E	<2	B3	>5	Clear	Moderate	4.5	97	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:36	20:46	40.79283	-70.19342	40.78680	-70.18470	43	5	E	<2	B3	>5	Clear	Moderate	4.2	97	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:46	20:48	40.78680	-70.18470	40.78669	-70.18796	43	5	E	<2	B3	>5	Clear	Moderate	4	97	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-24	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:48	21:00	40.78669	-70.18796	40.78644	-70.20838	43	5	E	<2	B3	>5	Clear	Moderate	4.4	97	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:29	40.78644	-70.20838	40.78590	-70.25577	43	5	E	<2	B3	>5	Cloudy	Severe	3.8	295	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:29	21:33	40.78590	-70.25577	40.78644	-70.26213	44	7	WSW	<2	B3	>5	Cloudy	Severe	4.5	287	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:33	21:40	40.78644	-70.26213	40.79186	-70.26098	45	7	WSW	<2	B3	>5	Cloudy	Severe	5.3	294	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:40	21:41	40.79186	-70.26098	40.79182	-70.25926	44	8	WSW	<2	B3	>5	Cloudy	Severe	5	93	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:41	22:00	40.79182	-70.25926	40.79225	-70.22637	44	14	WSW	<2	B3	>5	Cloudy	Severe	5.3	91	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:23	40.79225	-70.22637	40.79263	-70.18965	43	8	SW	<2	B3	>5	Cloudy	Severe	4.9	88	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:23	22:24	40.79263	-70.18965	40.79259	-70.18807	41	8	SW	<2	B3	>5	Cloudy	Severe	4.1	92	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:24	22:34	40.79259	-70.18807	40.78664	-70.18327	41	8	SW	<2	B3	>5	Cloudy	Severe	4.3	93	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:34	22:35	40.78664	-70.18327	40.78644	-70.18479	41	12	WSW	<2	B3	>5	Cloudy	Severe	3.8	261	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:35	23:00	40.78644	-70.18479	40.78612	-70.22662	41	12	WSW	<2	B3	>5	Cloudy	Severe	4.6	265	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	23:18	40.78612	-70.22662	40.78540	-70.25613	42	13	WSW	<2	B3	>5	Cloudy	Moderate	4.6	273	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:18	23:20	40.78540	-70.25613	40.78568	-70.26024	43	13	W	<2	B3	>5	Cloudy	Slight	4.6	263	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:20	23:29	40.78568	-70.26024	40.79136	-70.26159	43	13	W	<2	B3	>5	Cloudy	Slight	4.9	278	Full Power	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:29	23:30	40.79136	-70.26159	40.79141	-70.25983	44	7	SSW	<2	B3	>5	Cloudy	None	4.8	82	Silent	N/A
2022-08-24	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:30	00:00	40.79141	-70.25983	40.79218	-70.20341	44	7	SSW	<2	B3	2-5	Cloudy	None	4.8	82	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:10	40.79220	-70.19511	40.79225	-70.18827	41	4	SW	<2	B3	1-2	Clear	None	4.6	116	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:10	00:11	40.79225	-70.18827	40.79222	-70.18806	41	5	SW	<2	B3	0.5-1	Clear	None	4.6	117	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:11	00:20	40.79222	-70.18806	40.78625	-70.18279	41	4	SW	<2	B3	0.5-1	Clear	None	4.7	117	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:20	00:21	40.78625	-70.18279	40.78633	-70.18434	41	4	WSW	<2	B3	0.5-1	Clear	None	4.7	264	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:21	01:00	40.78633	-70.18434	40.78546	-70.24634	41	4	WSW	<2	B3	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	01:58	40.78546	-70.24634	40.79202	-70.19066	42	14	NNW	<2	B3	0.5-1	Clear	None	4.5	267	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:58	02:00	40.79202	-70.19066	40.79206	-70.18698	42	14	NNW	<2	B3	0.5-1	Clear	None	4.5	90	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:52	40.79206	-70.18698	40.78518	-70.25604	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:52	03:03	40.78518	-70.25604	40.79096	-70.26029	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	03:03	03:04	40.79096	-70.26029	40.79102	-70.25879	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	03:04	03:09	40.79102	-70.25879	40.79114	-70.25061	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	03:09	04:03	40.79114	-70.25061	40.78553	-70.19194	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:03	05:02	40.78553	-70.19194	40.79082	-70.24676	42	14	NNW	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:02	05:41	40.79082	-70.24676	40.79147	-70.19043	42	4	SW	<2	B3	0.5-1	Clear	None	4.4	69	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:41	05:42	40.79147	-70.19043	40.79152	-70.18898	42	7	SW	<2	B3	0.5-1	Clear	None	3.9	90	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:42	05:55	40.79152	-70.18898	40.78523	-70.18446	42	6	SW	<2	B3	0.5-1	Clear	None	4	98	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:55	05:59	40.78523	-70.18446	40.78521	-70.19261	42	12	W	<2	B3	0.5-1	Clear	None	4.7	260	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:59	06:00	40.78521	-70.19261	40.78524	-70.19401	42	11	W	<2	B3	0.5-1	Clear	None	5	270	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:55	40.78524	-70.19401	40.79057	-70.24799	42	12	W	<2	B3	0.5-1	Clear	None	5	270	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:55	08:00	40.79057	-70.24799	40.77947	-70.19494	42	12	W	<2	B3	0.5-1	Clear	None	5	89	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:01	40.77947	-70.19494	40.78423	-70.27129	42	13	W	<2	B3	0.5-1	Clear	None	5	264	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:01	09:40	40.78423	-70.27129	40.78479	-70.21546	46	3	SW	<2	B3	0.5-1	Clear	None	5.1	79	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	09:57	40.78479	-70.21546	40.78503	-70.18920	45	1	SW	<2	B2	1-2	Clear	None	5.1	90	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:57	09:58	40.78503	-70.18920	40.78506	-70.18758	45	5	SW	<2	B2	2-5	Clear	None	3.4	103	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:58	10:13	40.78506	-70.18758	40.77942	-70.18293	44	5	SW	<2	B2	2-5	Clear	None	3.4	103	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:13	10:18	40.77942	-70.18293	40.77929	-70.19157	42	14	W	<2	B2	>5	Clear	None	5.1	259	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:18	11:05	40.77929	-70.19157	40.77837	-70.27015	42	14	W	<2	B2	>5	Clear	None	5.2	260	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:05	11:06	40.77837	-70.27015	40.77837	-70.27190	42	11	W	<2	B2	>5	Clear	None	4.7	264	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:06	12:00	40.77837	-70.27190	40.78459	-70.20862	45	11	W	<2	B2	>5	Clear	None	4.7	264	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:11	40.78459	-70.20862	40.78473	-70.19088	45	5	SW	<2	B2	>5	Clear	Severe	4.5	98	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:11	12:12	40.78473	-70.19088	40.78479	-70.18926	45	6	SW	<2	B2	>5	Clear	Severe	4.2	100	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:12	13:00	40.78479	-70.18926	40.77861	-70.23418	45	7	SW	<2	B2	>5	Clear	Severe	4	100	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	40.77861	-70.23418	40.78408	-70.23375	45	10	W	<2	B3	>5	Clear	Severe	4.3	276	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	40.78408	-70.23375	40.77865	-70.21107	43	4	S	<2	B3	>5	Clear	Severe	5.2	80	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:39	40.77865	-70.21107	40.77797	-70.27085	44	8	WSW	<2	B3	>5	Clear	Severe	5	270	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:39	15:40	40.77797	-70.27085	40.77794	-70.27246	42	6	WSW	<2	B3	>5	Clear	Severe	5	345	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:40	15:50	40.77794	-70.27246	40.78290	-70.28139	44	6	WSW	<2	B3	>5	Clear	Severe	5	40	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:50	15:53	40.78290	-70.28139	40.78333	-70.27652	44	5	WSW	<2	B3	>5	Clear	Severe	5	40	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:53	16:00	40.78333	-70.27652	40.78344	-70.26490	44	4	W	<2	B3	>5	Clear	Severe	5	270	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:56	40.78344	-70.26490	40.77896	-70.17877	42	5	W	<2	B3	>5	Clear	Severe	4.3	280	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:56	16:58	40.77896	-70.17877	40.77873	-70.18178	42	5	W	<2	B3	>5	Clear	Slight	4.3	225	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:58	17:00	40.77873	-70.18178	40.77858	-70.18517	42	8	W	<2	B3	>5	Clear	Slight	4.3	225	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:53	40.77858	-70.18517	40.77778	-70.26983	42	8	W	<2	B3	>5	Clear	Slight	4.3	273	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:53	17:55	40.77778	-70.26983	40.77774	-70.27314	44	7	WSW	<2	B2	>5	Clear	Slight	4.6	272	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:55	18:00	40.77774	-70.27314	40.77970	-70.27992	44	7	WSW	<2	B2	>5	Clear	Slight	4.6	272	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:04	40.77970	-70.27992	40.78295	-70.27708	44	7	WSW	<2	B2	>5	Clear	Slight	4.5	273	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:04	18:05	40.78295	-70.27708	40.78299	-70.27549	44	6	SSE	<2	B2	>5	Clear	Slight	3.7	82	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:05	18:56	40.78299	-70.27549	40.78400	-70.18932	44	6	SSE	<2	B2	>5	Clear	Slight	3.6	89	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:56	18:57	40.78400	-70.18932	40.78401	-70.18681	44	7	E	<2	B2	>5	Clear	Slight	4.5	92	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:57	19:00	40.78401	-70.18681	40.78345	-70.18253	44	7	E	<2	B2	>5	Clear	Slight	4.3	95	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:06	40.78345	-70.18253	40.77832	-70.18423	44	9	E	<2	B2	>5	Clear	Slight	4.7	111	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:06	19:07	40.77832	-70.18423	40.77826	-70.18594	44	9	E	<2	B2	>5	Clear	Slight	4.7	111	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:07	20:00	40.77826	-70.18594	40.77748	-70.27225	44	9	E	<2	B2	>5	Clear	Slight	4.7	111	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	21:00	40.77748	-70.27225	40.78384	-70.19327	44	7	E	<2	B2	>5	Clear	Slight	4.5	93	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:26	40.78384	-70.19327	40.77824	-70.17499	42	7	WSW	<2	B2	>5	Fog	Severe	5.1	113	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:26	21:28	40.77824	-70.17499	40.77818	-70.17845	41	7	WSW	<2	B2	>5	Fog	Severe	3.7	276	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:28	22:00	40.77818	-70.17845	40.77745	-70.23245	41	7	WSW	<2	B2	>5	Fog	Severe	5.2	267	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:23	40.77745	-70.23245	40.77708	-70.26978	41	7	WSW	<2	B2	>5	Fog	Severe	5.1	267	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:23	22:25	40.77708	-70.26978	40.77704	-70.27318	44	8	WSW	<2	B2	>5	Fog	Severe	4.6	267	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:25	22:34	40.77704	-70.27318	40.78281	-70.27640	44	7	WSW	<2	B2	>5	Fog	Severe	4.6	267	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:34	22:35	40.78281	-70.27640	40.78243	-70.27484	43	5	SE	<2	B2	>5	Clear	Severe	4.5	86	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:35	23:00	40.78243	-70.27484	40.78299	-70.23513	43	5	SE	<2	B2	>5	Clear	Severe	4.5	87	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	23:25	40.78299	-70.23513	40.78325	-70.19058	43	5	SE	<2	B2	>5	Clear	None	4.9	89	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:25	23:27	40.78325	-70.19058	40.78324	-70.18616	42	6	SSE	<2	B2	>5	Clear	None	4.9	85	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:27	23:37	40.78324	-70.18616	40.77779	-70.18424	42	6	SSE	<2	B2	>5	Clear	None	4.9	85	Full Power	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:37	23:38	40.77779	-70.18424	40.77798	-70.18592	43	6	W	<2	B2	2-5	Clear	None	4.3	267	Silent	N/A
2022-08-25	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:38	00:00	40.77798	-70.18592	40.77738	-70.22832	43	6	W	<2	B2	2-5	Clear	None	4.3	273	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:13	40.77723	-70.23955	40.77720	-70.24067	45	8	W	<2	B2	0.5-1	Clear	None	4	270	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:13	00:33	40.77720	-70.24067	40.77689	-70.27020	45	8	W	<2	B2	0.5-1	Clear	None	4	271	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:33	00:35	40.77689	-70.27020	40.77688	-70.27279	45	8	W	<2	B2	0.5-1	Clear	None	4	270	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:35	00:44	40.77688	-70.27279	40.78247	-70.27733	45	8	W	<2	B2	0.5-1	Clear	None	4.2	268	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:44	00:46	40.78247	-70.27733	40.78223	-70.27390	43	4	S	<2	B2	0.5-1	Clear	None	4.8	85	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:46	01:00	40.78223	-70.27390	40.78234	-70.24929	43	4	S	<2	B2	0.5-1	Clear	None	4.8	85	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	01:32	40.78234	-70.24929	40.78314	-70.18990	43	2	S	<2	B2	0.5-1	Clear	None	4.8	96	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:32	01:34	40.78314	-70.18990	40.78307	-70.18623	43	2	S	<2	B2	0.5-1	Clear	None	4.8	221	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:34	01:42	40.78307	-70.18623	40.77756	-70.18320	43	3	W	<2	B2	0.5-1	Clear	None	4.8	221	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:42	01:43	40.77756	-70.18320	40.77748	-70.18483	43	5	W	<2	B2	0.5-1	Clear	None	4.8	270	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:43	02:00	40.77748	-70.18483	40.77725	-70.21173	43	6	WSW	<2	B2	0.5-1	Clear	None	4.8	270	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:40	40.77725	-70.21173	40.77661	-70.27080	43	7	W	<2	B2	0.5-1	Clear	None	3.4	239	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:40	02:41	40.77661	-70.27080	40.77660	-70.27233	43	7	W	<2	B2	0.5-1	Clear	None	4.5	268	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:41	02:57	40.77660	-70.27233	40.78211	-70.26449	43	5	NW	<2	B2	0.5-1	Clear	None	4.1	225	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:57	03:40	40.78211	-70.26449	40.78294	-70.19082	45	5	SE	<2	B2	0.5-1	Clear	None	5.5	84	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:40	03:42	40.78294	-70.19082	40.78294	-70.18732	41	6	SSW	<2	B2	0.5-1	Clear	None	4.3	91	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:42	03:52	40.78294	-70.18732	40.77732	-70.18501	41	6	SSW	<2	B2	0.5-1	Clear	None	4.9	90	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:52	03:56	40.77732	-70.18501	40.77719	-70.19152	41	7	SSW	<2	B2	0.5-1	Clear	None	4.9	90	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:56	04:45	40.77719	-70.19152	40.77643	-70.27053	41	8	W	<2	B2	0.5-1	Clear	None	4.9	255	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	04:45	04:46	40.77643	-70.27053	40.77640	-70.27220	41	8	W	<2	B2	0.5-1	Clear	None	4.9	93	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	04:46	04:59	40.77640	-70.27220	40.78182	-70.27855	41	8	W	<2	B2	0.5-1	Clear	None	4.9	93	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:59	05:00	40.78182	-70.27855	40.78180	-70.27708	41	8	W	<2	B2	0.5-1	Clear	None	5	93	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:05	40.78180	-70.27708	40.78180	-70.26944	41	8	W	<2	B2	0.5-1	Clear	None	5.1	93	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:05	05:59	40.78180	-70.26944	40.78262	-70.19045	41	8	W	<2	B2	0.5-1	Clear	None	4.9	93	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:59	06:00	40.78262	-70.19045	40.78265	-70.18905	42	7	W	<2	B2	0.5-1	Clear	None	4.2	90	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:16	40.78265	-70.18905	40.77678	-70.18065	42	4	SE	<2	B2	0.5-1	Clear	None	3.5	70	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:16	06:33	40.77678	-70.18065	40.77667	-70.21257	42	10	WSW	<2	B2	0.5-1	Clear	None	4	250	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:33	07:00	40.77667	-70.21257	40.77622	-70.25963	42	9	WSW	<2	B2	0.5-1	Clear	None	5.1	253	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:00	07:05	40.77622	-70.25963	40.77610	-70.26946	42	8	WSW	<2	B2	0.5-1	Clear	None	4.9	262	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:05	07:06	40.77610	-70.26946	40.77610	-70.27145	42	9	W	<2	B2	0.5-1	Clear	None	5.1	268	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:06	07:19	40.77610	-70.27145	40.78145	-70.27710	42	6	W	<2	B2	0.5-1	Clear	None	5	270	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:19	07:25	40.78145	-70.27710	40.78151	-70.26869	42	4	SE	<2	B2	0.5-1	Clear	None	4.5	100	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:25	08:00	40.78151	-70.26869	40.78208	-70.21829	42	6	SE	<2	B2	0.5-1	Clear	None	4	98	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:22	40.78208	-70.21829	40.78243	-70.18961	42	6	S	<2	B2	0.5-1	Clear	None	4.2	91	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:22	08:23	40.78243	-70.18961	40.78243	-70.18832	42	7	S	<2	B2	0.5-1	Clear	None	4	90	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:23	08:37	40.78243	-70.18832	40.77654	-70.17986	42	6	S	<2	B2	0.5-1	Clear	None	4.1	90	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:37	08:42	40.77654	-70.17986	40.77660	-70.18958	42	8	WSW	<2	B2	0.5-1	Fog	None	5	270	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:42	09:01	40.77660	-70.18958	40.77628	-70.22746	42	9	WSW	<2	B2	0.5-1	Fog	None	5.2	276	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:01	09:36	40.77628	-70.22746	40.78114	-70.27776	43	8	SW	<2	B2	0.5-1	Clear	None	5.3	265	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:36	09:42	40.78114	-70.27776	40.78122	-70.26856	43	4	S	<2	B2	1-2	Clear	None	4.2	79	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:42	10:34	40.78122	-70.26856	40.78191	-70.20425	43	2	S	<2	B1	1-2	Fog	None	4.2	95	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	10:34	11:32	40.78191	-70.20425	40.77597	-70.21187	43	2	S	<2	B1	0.05-0.1	Fog	Moderate	4.2	102	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:32	12:02	40.77597	-70.21187	40.78243	-70.21721	43	7	SW	<2	B1	1-2	Fog	Severe	4.5	259	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:02	12:10	40.78243	-70.21721	40.78374	-70.20750	43	6	SE	<2	B1	1-2	Fog	Severe	3.8	96	Soft Start	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:10	12:18	40.78374	-70.20750	40.78430	-70.19814	43	6	SE	<2	B1	0.5-1	Fog	Severe	3.8	96	Soft Start	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Osuna, Yosiris	RPS	12:18	12:44	40.78430	-70.19814	40.77765	-70.17815	43	6	SE	<2	B1	0.3-0.5	Fog	Severe	3.8	96	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:44	13:00	40.77765	-70.17815	40.77774	-70.20095	43	11	W	<2	B1	0.5-1	Fog	Severe	4	252	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:14	40.77774	-70.20095	40.77755	-70.22433	43	10	W	<2	B1	0.5-1	Fog	Severe	4.7	275	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:14	13:34	40.77755	-70.22433	40.77720	-70.25782	43	9	W	<2	B1	1-2	Fog	Severe	4.4	270	Soft Start	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:34	14:00	40.77720	-70.25782	40.78254	-70.27277	43	11	W	<2	B1	1-2	Fog	Severe	4.2	268	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:03	40.78254	-70.27277	40.78257	-70.26749	43	9	W	<2	B1	2-5	Fog	Severe	4.9	256	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:03	14:59	40.78257	-70.26749	40.77650	-70.18249	44	6	S	<2	B2	2-5	Fog	Severe	5.1	90	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:59	15:00	40.77650	-70.18249	40.77645	-70.18392	44	5	S	<2	B2	>5	Fog	Severe	5	89	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:05	40.77645	-70.18392	40.77634	-70.19102	44	7	S	<2	B2	>5	Fog	Severe	4.2	90	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:05	16:00	40.77634	-70.19102	40.77553	-70.26857	44	9	S	<2	B2	>5	Fog	Severe	4.3	110	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:01	40.77553	-70.26857	40.77546	-70.27018	44	12	S	<2	B2	>5	Fog	Severe	5.4	120	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:01	16:03	40.77546	-70.27018	40.77542	-70.27321	44	9	S	<2	B2	>5	Fog	Severe	5	125	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:03	16:12	40.77542	-70.27321	40.78114	-70.27701	44	11	S	<2	B2	>5	Fog	Severe	4.2	130	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:12	16:13	40.78114	-70.27701	40.78106	-70.27538	43	9	S	<2	B2	>5	Fog	Severe	4.1	119	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:13	16:59	40.78106	-70.27538	40.78183	-70.18970	43	7	S	<2	B2	>5	Fog	Severe	4.5	100	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:59	17:00	40.78183	-70.18970	40.78184	-70.18783	43	9	S	<2	B2	>5	Fog	Severe	5.1	98	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:09	40.78184	-70.18783	40.77618	-70.18333	42	7	S	<2	B3	>5	Clear	Slight	5.3	90	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:09	17:10	40.77618	-70.18333	40.77620	-70.18495	42	13	SW	<2	B3	>5	Clear	Slight	4.6	276	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:10	18:00	40.77620	-70.18495	40.77545	-70.26106	42	13	SW	<2	B3	>5	Clear	Slight	4.6	276	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:06	40.77545	-70.26106	40.77534	-70.27023	43	13	SW	<2	B3	>5	Clear	Moderate	4.4	276	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:06	18:08	40.77534	-70.27023	40.77537	-70.27456	44	13	SW	<2	B3	>5	Clear	Moderate	4.2	272	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:08	18:17	40.77537	-70.27456	40.78095	-70.27551	44	13	SW	<2	B3	>5	Clear	Moderate	4.2	272	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:17	18:18	40.78095	-70.27551	40.78082	-70.27387	45	9	S	<2	B3	>5	Clear	Moderate	4.5	86	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:18	19:00	40.78082	-70.27387	40.78141	-70.19952	45	9	S	<2	B3	>5	Clear	Moderate	4.5	86	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:05	40.78141	-70.19952	40.78150	-70.19087	45	12	S	<2	B3	>5	Clear	Severe	4.4	76	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:05	19:07	40.78150	-70.19087	40.78152	-70.18742	45	12	S	<2	B3	>5	Clear	Severe	4.4	76	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:07	19:16	40.78152	-70.18742	40.77589	-70.18413	45	10	S	<2	B3	>5	Clear	Severe	4.4	76	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:16	19:17	40.77589	-70.18413	40.77598	-70.18560	45	10	S	<2	B3	>5	Clear	Severe	4.3	76	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:17	20:09	40.77598	-70.18560	40.77493	-70.27098	45	11	S	<2	B3	>5	Clear	Severe	4.2	76	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:09	20:10	40.77493	-70.27098	40.77490	-70.27278	45	11	S	<2	B3	>5	Clear	Severe	4.5	76	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:10	20:20	40.77490	-70.27278	40.78037	-70.27451	45	11	S	<2	B3	>5	Clear	Severe	4.3	76	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:20	20:21	40.78037	-70.27451	40.78042	-70.27284	45	11	S	<2	B3	>5	Clear	Severe	4.3	76	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:21	21:00	40.78042	-70.27284	40.78027	-70.26783	45	11	S	<2	B3	>5	Clear	Severe	4.3	76	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:12	40.78027	-70.26783	40.78027	-70.26783	43	4	SSW	<2	B3	>5	Clear	Severe	4.5	89	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:12	21:14	40.78027	-70.26783	40.78027	-70.26783	43	5	SSW	<2	B3	>5	Clear	Severe	4.6	84	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:14	21:24	40.78027	-70.26783	40.77540	-70.18452	43	5	SSW	<2	B3	>5	Clear	Severe	4.6	84	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:24	21:25	40.77540	-70.18452	40.77552	-70.18639	42	15	WSW	<2	B3	>5	Clear	Severe	5.3	271	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:25	22:00	40.77552	-70.18639	40.77499	-70.24301	42	15	WSW	<2	B3	>5	Clear	Severe	5.2	270	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:16	40.77499	-70.24301	40.77469	-70.27001	45	16	WSW	<2	B3	>5	Clear	Severe	4.6	274	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:16	22:17	40.77469	-70.27001	40.77466	-70.27170	46	16	WSW	<2	B3	>5	Clear	Severe	4.1	275	Silent	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:17	22:27	40.77466	-70.27170	40.78047	-70.27581	46	16	WSW	<2	B3	>5	Clear	Severe	4.1	275	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:27	22:28	40.78047	-70.27581	40.78034	-70.27422	46	8	SSW	<2	B3	>5	Clear	Severe	4.8	78	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:28	23:00	40.78034	-70.27422	40.78070	-70.22147	46	8	SSW	<2	B3	>5	Clear	Severe	4.8	82	Full Power	N/A
2022-08-26	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	00:00	40.78070	-70.22147	40.77492	-70.23695	43	4	SW	<2	B3	>5	Clear	None	4.6	84	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:11	40.77487	-70.23896	40.77467	-70.24975	43	16	WSW	<2	B3	1-2	Clear	None	4.2	264	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:11	01:04	40.77467	-70.24975	40.78031	-70.22401	43	16	WSW	<2	B3	0.5-1	Clear	None	4.2	264	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:04	02:57	40.78031	-70.22401	40.78635	-70.22135	43	9	SW	<2	B3	0.5-1	Clear	None	4.2	85	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:57	03:15	40.78635	-70.22135	40.78667	-70.19071	43	9	NE	<2	B3	0.5-1	Clear	None	4.6	79	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:15	03:20	40.78667	-70.19071	40.78576	-70.18261	42	2	NW	<2	B3	0.5-1	Clear	None	4.2	89	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:20	03:46	40.78576	-70.18261	40.76935	-70.18968	42	2	NW	<2	B3	0.5-1	Clear	None	4.2	208	Deploying/Retrieving	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:46	04:04	40.76935	-70.18968	40.76138	-70.20232	43	2	SW	<2	B3	0.5-1	Clear	None	4	216	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:04	05:00	40.76138	-70.20232	40.78704	-70.21844	43	2	NE	<2	B3	0.5-1	Clear	None	3.3	2	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:57	40.78704	-70.21844	40.79313	-70.21734	43	10	W	2-4	B4	0.5-1	Clear	None	3.8	286	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:57	06:00	40.79313	-70.21734	40.79320	-70.21306	44	11	W	2-4	B4	0.5-1	Clear	None	3.8	286	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	07:00	40.79320	-70.21306	40.78666	-70.22640	43	2	SE	2-4	B4	0.5-1	Clear	None	4.1	99	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:00	08:00	40.78666	-70.22640	40.79272	-70.22672	45	16	WSW	2-4	B4	0.5-1	Clear	None	4.5	265	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:01	40.79272	-70.22672	40.78609	-70.21657	43	11	SW	2-4	B4	0.5-1	Clear	None	4.2	98	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:01	09:40	40.78609	-70.21657	40.79197	-70.25833	43	16	WSW	2-4	B4	0.5-1	Clear	None	4.2	270	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	10:40	40.79197	-70.25833	40.79367	-70.18233	42	11	SW	2-4	B4	1-2	Fog	None	3.7	98	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:40	11:40	40.79367	-70.18233	40.78755	-70.25788	40	3	SW	2-4	B4	1-2	Fog	Moderate	2.7	110	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:40	12:00	40.78755	-70.25788	40.78966	-70.25279	41	8	W	2-4	B3	1-2	Fog	Severe	5.4	19	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	13:00	40.78966	-70.25279	40.78311	-70.20883	41	7	SW	2-4	B3	1-2	Fog	Severe	4.4	103	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	40.78311	-70.20883	40.78016	-70.20565	42	15	W	2-4	B4	1-2	Fog	Moderate	4.5	275	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	40.78016	-70.20565	40.79181	-70.25104	42	10	W	<2	B4	1-2	Fog	None	4.1	268	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	16:00	40.79181	-70.25104	40.77612	-70.20326	42	10	W	<2	B4	2-5	Fog	None	4.1	280	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:27	40.77612	-70.20326	40.77446	-70.24084	42	5	W	<2	B4	2-5	Fog	None	4.1	255	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:27	17:00	40.77446	-70.24084	40.76314	-70.26751	42	5	W	<2	B4	>5	Fog	None	4.3	239	Deploying/Retrieving	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:05	40.76314	-70.26751	40.76112	-70.27146	43	2	N	<2	B4	>5	Fog	None	2.5	235	Deploying/Retrieving	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:05	17:12	40.76112	-70.27146	40.75972	-70.27919	45	6	NNW	<2	B3	>5	Fog	None	4.4	262	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:12	17:33	40.75972	-70.27919	40.78111	-70.27070	45	6	NNW	<2	B3	>5	Fog	None	4.9	283	Soft Start	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:33	17:34	40.78111	-70.27070	40.78123	-70.26928	45	6	ENE	<2	B3	>5	Fog	None	4.9	89	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:34	17:35	40.78123	-70.26928	40.78122	-70.26781	45	6	ENE	<2	B3	>5	Fog	None	5.2	87	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:35	17:58	40.78122	-70.26781	40.78163	-70.22952	45	6	ENE	<2	B3	2-5	Fog	None	5.1	87	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:58	18:22	40.78163	-70.22952	40.78213	-70.18945	43	15	NE	<2	B3	1-2	Fog	None	4.6	87	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:22	18:23	40.78213	-70.18945	40.78217	-70.18777	41	15	ENE	<2	B3	1-2	Fog	None	4.9	89	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:23	18:32	40.78217	-70.18777	40.77513	-70.18290	41	15	ENE	<2	B3	1-2	Fog	None	5.2	97	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:32	18:34	40.77513	-70.18290	40.77512	-70.18576	42	10	NE	<2	B3	1-2	Fog	None	4.4	268	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:34	19:00	40.77512	-70.18576	40.77465	-70.22668	42	10	NE	<2	B3	1-2	Fog	None	4.4	274	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:26	40.77465	-70.22668	40.77416	-70.27057	45	12	NE	<2	B3	1-2	Fog	None	4.4	252	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:26	19:27	40.77416	-70.27057	40.77420	-70.27230	45	14	NE	<2	B3	1-2	Fog	None	4.4	78	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:27	19:36	40.77420	-70.27230	40.77914	-70.27784	45	14	NE	<2	B3	1-2	Fog	None	4.4	78	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:36	19:38	40.77914	-70.27784	40.77962	-70.27471	45	14	E	<2	B3	1-2	Fog	None	4.4	73	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:38	20:00	40.77962	-70.27471	40.77984	-70.24002	45	15	E	<2	B3	1-2	Fog	None	4.4	78	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:41	40.77984	-70.24002	40.77445	-70.18407	45	18	E	<2	B3	1-2	Fog	None	4.6	85	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:41	20:42	40.77445	-70.18407	40.77465	-70.18525	45	18	E	<2	B3	>5	Fog	None	4.6	280	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:42	21:00	40.77465	-70.18525	40.77446	-70.21718	45	18	E	<2	B3	>5	Fog	None	4.6	271	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:32	40.77446	-70.21718	40.77396	-70.27115	45	8	W	<2	B3	>5	Fog	None	4.6	252	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:32	21:33	40.77396	-70.27115	40.77383	-70.27290	46	5	ENE	<2	B3	>5	Fog	None	4.4	272	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:33	21:44	40.77383	-70.27290	40.77941	-70.27520	46	5	ENE	<2	B3	>5	Fog	None	4.4	279	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:44	21:45	40.77941	-70.27520	40.77936	-70.27378	45	16	E	<2	B3	>5	Fog	None	4.4	87	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:45	22:00	40.77936	-70.27378	40.77971	-70.24873	45	15	E	<2	B3	>5	Fog	None	4.3	87	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	22:37	40.77971	-70.24873	40.78008	-70.19057	45	15	E	<2	B3	>5	Fog	None	4.3	94	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:37	22:39	40.78008	-70.19057	40.78012	-70.18748	42	15	ENE	<2	B3	>5	Fog	None	4.2	89	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:39	22:49	40.78012	-70.18748	40.77454	-70.18374	42	15	ENE	<2	B3	>5	Fog	None	4.2	89	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:49	22:50	40.77454	-70.18374	40.77467	-70.18555	43	10	NE	<2	B3	>5	Fog	None	3.1	279	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:50	23:00	40.77467	-70.18555	40.77432	-70.20155	43	10	NE	<2	B3	>5	Fog	None	3.2	283	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	23:41	40.77432	-70.20155	40.77349	-70.27032	43	8	NE	<2	B3	>5	Fog	None	4.8	279	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:41	23:42	40.77349	-70.27032	40.77350	-70.27197	45	10	NE	<2	B3	1-2	Fog	None	4.6	278	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:42	23:52	40.77350	-70.27197	40.77914	-70.27607	45	10	NE	<2	B3	1-2	Fog	None	4.6	273	Full Power	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:52	23:53	40.77914	-70.27607	40.77906	-70.27461	45	20	E	<2	B4	1-2	Fog	None	4.6	93	Silent	N/A
2022-08-27	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:53	00:00	40.77906	-70.27461	40.77926	-70.26471	45	18	E	<2	B4	1-2	Fog	None	4.7	85	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	00:00	00:11	40.77940	-70.24512	40.77939	-70.24282	42	13	E	<2	B3	1-2	Fog	None	4.6	92	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:11	00:42	40.77939	-70.24282	40.77982	-70.19017	42	14	E	<2	B3	0.5-1	Fog	None	4.7	92	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:42	00:43	40.77982	-70.19017	40.77974	-70.18856	43	14	ENE	<2	B3	0.5-1	Fog	None	4.3	89	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:43	00:58	40.77974	-70.18856	40.76853	-70.18509	43	14	ENE	<2	B3	0.5-1	Fog	None	4.2	94	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:58	00:59	40.76853	-70.18509	40.76839	-70.18669	43	12	NE	<2	B3	0.5-1	Fog	None	4.6	276	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:59	01:00	40.76839	-70.18669	40.76841	-70.18906	43	12	NE	<2	B3	0.5-1	Fog	None	4.6	271	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	02:00	40.76841	-70.18906	40.76737	-70.28040	43	10	NE	<2	B3	0.5-1	Fog	None	4.8	274	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:03	40.76737	-70.28040	40.76733	-70.28478	43	10	NE	<2	B3	0.5-1	Fog	None	4.8	273	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:03	02:04	40.76733	-70.28478	40.76730	-70.28625	43	15	E	<2	B3	0.5-1	Fog	None	4.7	271	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:04	02:14	40.76730	-70.28625	40.77308	-70.29102	43	15	E	<2	B3	0.5-1	Fog	None	4.7	269	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:14	02:15	40.77308	-70.29102	40.77317	-70.28917	43	16	E	<2	B3	0.5-1	Fog	None	4.7	23	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:15	02:58	40.77317	-70.28917	40.77410	-70.20885	43	17	E	<2	B3	0.5-1	Fog	None	4.7	96	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:58	03:09	40.77410	-70.20885	40.77432	-70.18867	43	20	E	<2	B3	0.5-1	Fog	None	5.2	89	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:09	03:10	40.77432	-70.18867	40.77432	-70.18842	43	20	E	<2	B3	0.5-1	Fog	None	5.2	89	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:10	03:19	40.77432	-70.18842	40.76826	-70.18410	43	20	E	<2	B3	0.5-1	Fog	None	4.9	93	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:19	03:20	40.76826	-70.18410	40.76818	-70.18533	43	11	E	<2	B3	0.5-1	Fog	None	4.7	265	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:20	03:32	40.76818	-70.18533	40.76812	-70.20380	43	9	NE	<2	B3	0.5-1	Fog	None	4.8	271	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:32	03:38	40.76812	-70.20380	40.76832	-70.21075	43	10	E	<2	B3	0.3-0.5	Fog	None	4.2	267	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:38	04:04	40.76832	-70.21075	40.76832	-70.21075	43	9	E	<2	B3	0.05-0.1	Fog	None	4.3	265	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:04	04:08	40.76832	-70.21075	40.76759	-70.25989	43	9	E	<2	B3	0.05-0.1	Fog	None	4.3	265	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:08	04:38	40.76759	-70.25989	40.76771	-70.30852	43	9	E	<2	B3	0.5-1	Cloudy	None	4.3	265	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:38	04:59	40.76771	-70.30852	40.77291	-70.29236	43	9	E	<2	B3	0.5-1	Cloudy	None	3.9	290	Soft Start	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:59	05:00	40.77291	-70.29236	40.77291	-70.29067	43	9	E	<2	B3	0.5-1	Cloudy	None	3.9	89	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	05:01	40.77291	-70.29067	40.77298	-70.28869	43	9	E	<2	B3	0.5-1	Cloudy	None	3.9	90	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	05:01	05:04	40.77298	-70.28869	40.77297	-70.28409	43	9	E	<2	B3	0.5-1	Cloudy	None	3.9	87	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:04	06:00	40.77297	-70.28409	40.77366	-70.19924	43	17	E	<2	B4	0.5-1	Cloudy	None	4.4	90	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:07	40.77366	-70.19924	40.77400	-70.18964	44	16	E	<2	B4	0.5-1	Cloudy	None	4.1	86	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:07	06:08	40.77400	-70.18964	40.77402	-70.18736	44	16	E	<2	B4	0.5-1	Cloudy	None	4.1	86	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:08	06:22	40.77402	-70.18736	40.76756	-70.18175	43	16	E	<2	B4	0.5-1	Cloudy	None	4.3	94	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:22	06:27	40.76756	-70.18175	40.76780	-70.19224	41	6	E	<2	B4	0.5-1	Cloudy	None	4.9	273	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:27	06:59	40.76780	-70.19224	40.76719	-70.24946	41	6	E	<2	B4	0.5-1	Cloudy	None	4.9	273	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:59	07:19	40.76719	-70.24946	40.76680	-70.28405	44	7	E	<2	B3	0.5-1	Cloudy	None	4.4	274	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:19	07:21	40.76680	-70.28405	40.76679	-70.28767	44	7	E	<2	B3	0.5-1	Cloudy	None	4.1	276	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:21	07:36	40.76679	-70.28767	40.77260	-70.28999	44	8	ENE	<2	B3	0.5-1	Clear	None	4.4	274	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:36	07:41	40.77260	-70.28999	40.77278	-70.28317	44	17	E	<2	B3	0.5-1	Clear	None	4.4	86	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	07:41	08:00	40.77278	-70.28317	40.77298	-70.25768	42	17	E	<2	B3	0.5-1	Clear	None	4.7	90	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	08:53	40.77298	-70.25768	40.77369	-70.19046	44	17	E	<2	B3	0.5-1	Clear	None	3.5	83	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:53	08:54	40.77369	-70.19046	40.77373	-70.18917	44	15	E	<2	B3	0.5-1	Clear	None	3.7	116	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:54	09:00	40.77373	-70.18917	40.77321	-70.18181	44	14	E	<2	B3	0.5-1	Clear	None	3.4	90	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:14	40.77321	-70.18181	40.76648	-70.17953	44	15	E	<2	B3	0.5-1	Clear	None	3.5	102	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:14	09:21	40.76648	-70.17953	40.76743	-70.19253	43	8	NE	<2	B3	0.5-1	Clear	None	5.4	281	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:21	09:40	40.76743	-70.19253	40.76709	-70.22924	43	8	NE	<2	B3	0.5-1	Cloudy	None	5.2	267	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:40	10:09	40.76709	-70.22924	40.76653	-70.28514	43	8	NE	<2	B3	1-2	Cloudy	None	5.2	267	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:09	10:10	40.76653	-70.28514	40.76654	-70.28570	43	8	NE	<2	B3	1-2	Cloudy	None	5	253	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:10	10:25	40.76654	-70.28570	40.77127	-70.29008	43	9	NE	<2	B3	1-2	Cloudy	None	5	253	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:25	10:31	40.77127	-70.29008	40.77150	-70.28144	42	18	ENE	<2	B4	1-2	Cloudy	None	4.1	94	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:31	11:34	40.77150	-70.28144	40.77228	-70.18842	42	18	ENE	<2	B4	1-2	Cloudy	None	4.1	91	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:34	11:35	40.77228	-70.18842	40.77210	-70.18578	42	16	ENE	<2	B4	2-5	Cloudy	None	4.1	92	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:35	11:47	40.77210	-70.18578	40.76407	-70.16532	42	16	ENE	<2	B4	2-5	Cloudy	None	4.1	92	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:47	11:52	40.76407	-70.16532	40.76723	-70.19096	43	10	NE	<2	B3	2-5	Cloudy	None	4.1	257	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:52	12:00	40.76723	-70.19096	40.76705	-70.20491	43	11	NE	<2	B3	2-5	Cloudy	None	4.1	259	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:47	40.76705	-70.20491	40.76605	-70.28493	43	9	NE	<2	B3	2-5	Cloudy	None	4.2	260	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:47	12:48	40.76605	-70.28493	40.76597	-70.28658	43	10	NE	<2	B3	2-5	Cloudy	None	4	262	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:48	13:00	40.76597	-70.28658	40.77105	-70.29297	43	11	ENE	<2	B3	2-5	Cloudy	None	4.3	265	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	13:07	40.77105	-70.29297	40.77110	-70.28305	44	15	E	<2	B3	2-5	Cloudy	None	4.4	96	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:07	14:00	40.77110	-70.28305	40.77211	-70.19870	44	16	E	<2	B3	2-5	Cloudy	None	4.6	87	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	14:06	40.77211	-70.19870	40.77211	-70.18969	44	17	E	<2	B3	2-5	Cloudy	None	4.4	105	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:06	14:07	40.77211	-70.18969	40.77216	-70.18811	44	12	E	<2	B3	2-5	Fog	Moderate	4.2	104	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:07	14:26	40.77216	-70.18811	40.76813	-70.19743	44	14	E	<2	B3	2-5	Fog	Moderate	4.1	102	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:26	14:32	40.76813	-70.19743	40.76792	-70.20660	44	12	E	<2	B3	2-5	Fog	Severe	4	106	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:32	15:00	40.76792	-70.20660	40.76737	-70.25075	44	16	E	<2	B3	2-5	Fog	Severe	4.6	260	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	15:21	40.76737	-70.25075	40.76714	-70.28369	44	14	E	<2	B3	2-5	Fog	Severe	4.6	266	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:21	15:22	40.76714	-70.28369	40.76712	-70.28531	44	12	E	<2	B3	2-5	Fog	Severe	4.6	266	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:22	15:36	40.76712	-70.28531	40.77085	-70.29320	44	14	E	<2	B3	2-5	Fog	Severe	4.4	266	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:36	15:41	40.77085	-70.29320	40.77087	-70.28438	44	19	E	<2	B3	>5	Fog	Severe	5	109	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:41	16:00	40.77087	-70.28438	40.77124	-70.25034	44	16	E	<2	B3	>5	Fog	Severe	5.1	96	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:34	40.77124	-70.25034	40.77188	-70.18897	44	16	E	<2	B3	>5	Fog	Severe	5.1	96	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:34	16:35	40.77188	-70.18897	40.77195	-70.18714	44	20	E	<2	B3	>5	Fog	Severe	5.1	112	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:35	16:44	40.77195	-70.18714	40.76697	-70.18299	44	22	E	<2	B3	>5	Fog	Severe	5.1	136	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:44	16:46	40.76697	-70.18299	40.76698	-70.18618	44	20	E	<2	B3	>5	Fog	Severe	5.1	276	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:46	16:55	40.76698	-70.18618	40.76689	-70.20171	44	20	E	<2	B3	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	16:55	17:46	40.76689	-70.20171	40.76599	-70.28451	43	12	ENE	<2	B4	>5	Clear	Moderate	3.8	267	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:46	17:48	40.76599	-70.28451	40.76590	-70.28788	46	10	E	<2	B4	>5	Clear	Moderate	4.6	265	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:48	17:57	40.76590	-70.28788	40.77036	-70.29264	46	10	E	<2	B4	>5	Clear	Moderate	4.7	260	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:57	17:59	40.77036	-70.29264	40.77061	-70.28988	46	20	E	<2	B4	>5	Clear	Moderate	4.6	87	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:59	18:00	40.77061	-70.28988	40.77056	-70.28791	46	20	E	<2	B4	>5	Clear	Moderate	4.6	82	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	19:00	40.77056	-70.28791	40.77162	-70.19218	46	20	E	<2	B4	>5	Clear	Moderate	4.6	85	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	19:01	40.77162	-70.19218	40.77164	-70.19050	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:01	19:03	40.77164	-70.19050	40.77169	-70.18720	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:03	19:12	40.77169	-70.18720	40.76649	-70.18298	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:12	19:13	40.76649	-70.18298	40.76664	-70.18470	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:13	20:09	40.76664	-70.18470	40.76567	-70.28321	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:09	20:11	40.76567	-70.28321	40.76570	-70.28699	42	18	E	<2	B3	>5	Clear	Severe	4.6	268	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:11	20:22	40.76570	-70.28699	40.77029	-70.29081	42	18	E	<2	B3	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:22	20:23	40.77029	-70.29081	40.77026	-70.28924	42	18	E	<2	B3	>5	Clear	Severe	4.6	88	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:23	21:00	40.77026	-70.28924	40.77092	-70.23520	42	18	E	<2	B3	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	21:33	40.77092	-70.23520	40.77138	-70.19007	42	18	E	<2	B3	>5	Clear	Severe	4.6	92	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:33	21:35	40.77138	-70.19007	40.77140	-70.18721	43	15	E	<2	B3	>5	Clear	Severe	4.2	89	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:35	21:45	40.77140	-70.18721	40.76601	-70.18404	43	15	E	<2	B3	>5	Clear	Severe	4.2	89	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:45	21:46	40.76601	-70.18404	40.76645	-70.18579	43	7	E	<2	B3	>5	Clear	Severe	5	271	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:46	21:58	40.76645	-70.18579	40.76627	-70.20956	43	7	E	<2	B3	>5	Clear	Severe	5	276	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:58	22:41	40.76627	-70.20956	40.76540	-70.28478	43	7	E	<2	B3	>5	Clear	Severe	5.2	271	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:41	22:42	40.76540	-70.28478	40.76550	-70.28645	47	5	E	<2	B3	>5	Clear	Severe	4.4	274	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:42	22:57	40.76550	-70.28645	40.77037	-70.29924	47	5	E	<2	B3	>5	Clear	Severe	4.4	274	Full Power	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:57	22:59	40.77037	-70.29924	40.77049	-70.29717	46	18	ESE	<2	B3	>5	Clear	Moderate	4.1	87	Silent	N/A
2022-08-28	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:59	00:00	40.77049	-70.29717	40.77091	-70.20392	46	18	ESE	<2	B3	>5	Clear	Moderate	4.1	87	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:00	00:11	40.77092	-70.20257	40.77109	-70.18945	43	17	SE	<2	B3	0.5-1	Clear	None	4	101	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:11	00:12	40.77109	-70.18945	40.77109	-70.18798	43	17	SE	<2	B3	0.5-1	Clear	None	4	147	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:12	00:22	40.77109	-70.18798	40.76613	-70.18467	43	17	SE	<2	B3	0.5-1	Clear	None	4	147	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:22	00:23	40.76613	-70.18467	40.76628	-70.18638	43	17	SE	<2	B3	0.5-1	Clear	None	4	234	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:23	01:00	40.76628	-70.18638	40.76549	-70.24809	43	17	SE	<2	B3	0.5-1	Clear	None	4	234	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:00	01:22	40.76549	-70.24809	40.76509	-70.28417	43	5	SE	<2	B3	0.5-1	Clear	None	4.9	267	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:22	01:24	40.76509	-70.28417	40.76502	-70.28741	43	5	SE	<2	B3	0.5-1	Clear	None	4.9	267	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:24	01:33	40.76502	-70.28741	40.76992	-70.28961	43	5	SE	<2	B3	0.5-1	Clear	None	5	69	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:33	01:34	40.76992	-70.28961	40.76969	-70.28798	43	5	SE	<2	B3	0.5-1	Clear	None	4.8	91	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	01:34	02:00	40.76969	-70.28798	40.77012	-70.24648	43	5	SE	<2	B3	0.5-1	Clear	None	4.9	91	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:33	40.77012	-70.24648	40.77071	-70.19247	43	5	SE	<2	B3	0.5-1	Clear	None	5.1	85	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:33	02:34	40.77071	-70.19247	40.77076	-70.19072	43	5	SE	<2	B3	0.5-1	Clear	None	4.2	110	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:34	03:00	40.77076	-70.19072	40.76576	-70.20395	43	5	SE	<2	B3	0.5-1	Clear	None	4.3	176	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:00	03:07	40.76576	-70.20395	40.76564	-70.21528	43	5	SE	<2	B3	0.5-1	Clear	None	4	263	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:07	03:09	40.76564	-70.21528	40.76577	-70.21819	43	5	SE	<2	B3	0.5-1	Clear	None	4	263	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	03:09	03:56	40.76577	-70.21819	40.78513	-70.27442	43	5	SE	<2	B3	0.5-1	Clear	None	4	263	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	03:56	05:00	40.78513	-70.27442	40.77215	-70.28419	43	7	E	<2	B3	0.5-1	Clear	None	4	257	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:00	40.77215	-70.28419	40.76402	-70.26746	44	12	E	<2	B3	0.5-1	Clear	None	4.3	50	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:00	06:29	40.76402	-70.26746	40.76962	-70.29217	44	5	SE	<2	B3	0.5-1	Clear	None	4.1	274	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:29	06:35	40.76962	-70.29217	40.76936	-70.28287	46	9	NE	<2	B3	0.5-1	Clear	None	4	45	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	06:35	06:56	40.76936	-70.28287	40.76990	-70.25051	45	10	NE	<2	B3	0.5-1	Clear	None	4.2	45	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	06:56	08:00	40.76990	-70.25051	40.76553	-70.19884	45	9	E	<2	B2	0.5-1	Clear	None	3.7	90	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Perez, Aaron	RPS	08:00	09:00	40.76553	-70.19884	40.76813	-70.29786	45	5	NNW	<2	B2	0.5-1	Clear	None	4.7	277	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	09:00	09:38	40.76813	-70.29786	40.76973	-70.23675	44	2	N	<2	B2	0.5-1	Clear	None	3.8	33	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	09:38	10:38	40.76973	-70.23675	40.76516	-70.20735	44	6	SE	<2	B2	1-2	Clear	None	4.6	89	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	10:38	11:19	40.76516	-70.20735	40.76433	-70.28540	44	6	W	<2	B2	>5	Clear	Severe	5.3	267	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:19	11:20	40.76433	-70.28540	40.76430	-70.28721	44	6	SE	<2	B2	>5	Clear	Severe	5.3	93	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon	RPS	11:20	12:00	40.76430	-70.28721	40.76937	-70.25016	44	6	SE	<2	B2	>5	Clear	Severe	4	91	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:00	12:41	40.76937	-70.25016	40.76997	-70.18935	44	7	E	<2	B2	>5	Clear	Severe	4.1	90	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:41	12:42	40.76997	-70.18935	40.77004	-70.18788	44	4	E	<2	B2	>5	Clear	Severe	4	91	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	12:42	13:00	40.77004	-70.18788	40.76510	-70.19016	44	6	SE	<2	B2	>5	Clear	Severe	4.2	93	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	13:00	14:00	40.76510	-70.19016	40.76415	-70.29415	44	4	SW	<2	B2	>5	Clear	Severe	4.6	270	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Jaimes, Fernando	RPS	14:00	15:00	40.76415	-70.29415	40.76949	-70.21175	44	6	SW	<2	B2	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	15:00	16:00	40.76949	-70.21175	40.76432	-70.23938	44	8	S	<2	B2	>5	Clear	Severe	4.3	268	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:00	16:26	40.76432	-70.23938	40.76371	-70.28386	44	6	W	<2	B2	>5	Clear	Severe	4.6	251	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:26	16:28	40.76371	-70.28386	40.76371	-70.28730	44	6	W	<2	B2	>5	Clear	Severe	4.6	251	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:28	16:37	40.76371	-70.28730	40.76820	-70.29205	44	6	W	<2	B2	>5	Clear	Severe	4.6	251	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:37	16:39	40.76820	-70.29205	40.76848	-70.28878	44	6	W	<2	B2	>5	Clear	Severe	4.6	251	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	16:39	17:00	40.76848	-70.28878	40.76876	-70.25642	44	6	W	<2	B2	>5	Clear	Severe	4.6	251	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:00	17:39	40.76876	-70.25642	40.76941	-70.18976	44	6	SSE	<2	B2	>5	Clear	Slight	4.6	84	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:39	17:40	40.76941	-70.18976	40.76943	-70.18806	42	14	SSE	<2	B2	>5	Clear	Slight	5	87	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:40	17:48	40.76943	-70.18806	40.76485	-70.18297	42	14	SSE	<2	B2	>5	Clear	Slight	5	89	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:48	17:50	40.76485	-70.18297	40.76464	-70.18637	42	10	SSW	<2	B2	>5	Clear	Slight	4.6	275	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	17:50	18:00	40.76464	-70.18637	40.76444	-70.20262	42	10	SSW	<2	B2	>5	Clear	Slight	4.6	272	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:00	18:47	40.76444	-70.20262	40.76353	-70.28393	43	10	SSW	<2	B2	>5	Clear	Slight	4.7	272	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:47	18:49	40.76353	-70.28393	40.76348	-70.28743	46	11	SSW	<2	B2	>5	Clear	Moderate	4.7	276	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:49	18:58	40.76348	-70.28743	40.76833	-70.28879	46	11	SSW	<2	B2	>5	Clear	Moderate	4.8	278	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:58	18:59	40.76833	-70.28879	40.76821	-70.28767	46	11	SSW	<2	B2	>5	Clear	Severe	4.8	101	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	18:59	19:00	40.76821	-70.28767	40.76819	-70.28560	46	12	SSW	<2	B2	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	19:00	20:00	40.76819	-70.28560	40.76917	-70.19539	46	12	SSW	<2	B2	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:00	20:04	40.76917	-70.19539	40.76924	-70.18937	46	12	SSW	<2	B2	>5	Clear	Severe	4.9	260	Full Power	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:04	20:05	40.76924	-70.18937	40.76922	-70.18791	46	17	SSW	<2	B2	>5	Clear	Severe	4.9	258	Silent	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:05	20:46	40.76922	-70.18791	40.75291	-70.17778	46	17	SSW	<2	B2	>5	Clear	Severe	4.9	258	Deploying/Retrieving	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Osuna, Yosiris	RPS	20:46	21:00	40.75291	-70.17778	40.77189	-70.18164	46	9	N	<2	B2	>5	Clear	Severe	4.9	258	Transit	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	21:00	22:00	40.77189	-70.18164	40.89640	-70.23210	38	5	SW	<2	B3	>5	Clear	Severe	7.7	345	Transit	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	22:00	23:00	40.89640	-70.23210	40.98021	-70.36391	34	13	WSW	<2	B3	>5	Clear	Severe	8.5	302	Transit	N/A
2022-08-29	*GO Explorer*	HRG	Visual	Mohandeo, Ravie	RPS	23:00	00:00	40.98021	-70.36391	41.03904	-70.52498	38	13	WSW	<2	B3	>5	Clear	Moderate	8.5	295	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Osuna, Yosiris	RPS	00:00	00:57	41.04820	-70.54257	41.12204	-70.67964	42	11	SW	<2	B3	0.5-1	Clear	None	8.9	306	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	00:57	02:00	41.12204	-70.67964	41.20563	-70.85891	42	13	SW	<2	B3	0.5-1	Clear	None	9.3	301	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Osuna, Yosiris; Perez, Aaron	RPS	02:00	02:56	41.20563	-70.85891	41.31812	-70.98137	42	12	W	<2	B3	0.5-1	Clear	None	9.2	317	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Mohandeo, Ravie; Perez, Aaron	RPS	02:56	04:02	41.31812	-70.98137	41.45256	-70.99699	30	11	WNW	<2	B3	0.5-1	Clear	None	9.4	332	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Lai Tan, Lyndon; Perez, Aaron	RPS	04:02	05:00	41.45256	-70.99699	41.51960	-70.84088	30	11	WNW	<2	B3	0.5-1	Clear	None	9.1	62	Transit	N/A
2022-08-30	*GO Explorer*	HRG	Visual	Jaimes, Fernando; Lai Tan, Lyndon	RPS	05:00	06:15	41.51960	-70.84088	41.62273	-70.91400	14	6	W	<2	B2	0.5-1	Clear	None	9	330	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:10	02:00	41.62524	-70.90646	41.55160	-70.85822	7	7	NW	<2	B2	<0.05	Clear	None	4.5	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	41.55160	-70.85822	41.47042	-70.94549	7	6	NW	<2	B2	<0.05	Clear	None	4.5	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	41.47042	-70.94549	41.38416	-71.04174	28	13	NW	<2	B2	<0.05	Clear	None	7.8	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	41.38416	-71.04174	41.28208	-70.91976	19	7	NNE	<2	B2	<0.05	Clear	None	8.5	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.28208	-70.91976	41.17715	-70.81166	36	8	SE	<2	B2	<0.05	Clear	None	8.5	145	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.17715	-70.81166	41.09227	-70.67172	27	19	NNE	<2	B2	<0.05	Clear	None	8.1	125	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:36	41.09227	-70.67172	41.03440	-70.58518	4	18	E	<2	B2	<0.05	Clear	None	8.5	123	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:36	08:00	41.03440	-70.58518	40.99549	-70.53407	46	14	NNE	<2	B2	<0.05	Clear	None	8	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	40.99549	-70.53407	40.89265	-70.41455	46	16	NNE	<2	B2	<0.05	Clear	None	8	135	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:45	40.89265	-70.41455	40.81013	-70.32353	4	16	ENE	<2	B2	<0.05	Clear	None	8	138	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	09:45	10:00	40.81013	-70.32353	40.78304	-70.29309	4	14	E	<2	B2	1-2	Clear	None	8	141	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.78304	-70.29309	40.77210	-70.29512	43	13	ESE	<2	B2	>5	Clear	Slight	4	160	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	40.77210	-70.29512	40.77200	-70.20957	46	22	N	<2	B2	>5	Clear	Severe	3.9	100	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	12:30	40.77200	-70.20957	40.76968	-70.18836	43	19	NNW	<2	B2	>5	Clear	Severe	3.9	85	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:30	13:00	40.76968	-70.18836	40.76912	-70.24274	43	12	SSE	<2	B2	>5	Clear	Severe	5.1	270	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	40.76912	-70.24274	40.77402	-70.20211	45	13	SSE	<2	B2	>5	Clear	Severe	5	265	Transit	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	40.77402	-70.20211	40.76714	-70.20269	43	20	NNW	<2	B4	>5	Clear	Severe	3.7	88	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	40.76714	-70.20269	40.76600	-70.30585	43	12	SSE	<2	B4	>5	Clear	Moderate	5	275	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	40.76600	-70.30585	40.77418	-70.25876	47	9	SSE	<2	B4	>5	Clear	Severe	4.1	258	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	40.77418	-70.25876	40.76565	-70.19625	45	16	SSE	<2	B4	>5	Clear	Severe	4.9	82	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.76565	-70.19625	40.76736	-70.25238	42	12	SSE	<2	B4	>5	Clear	Severe	4.6	262	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:24	40.76736	-70.25238	40.76684	-70.28996	45	7	SSE	<2	B3	>5	Clear	Severe	4.6	264	Standby	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:24	20:00	40.76684	-70.28996	40.79420	-70.26061	45	8	SSW	<2	B3	>5	Clear	Severe	3.4	296	Deploying/Retrieving	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:33	40.79420	-70.26061	40.81371	-70.23304	45	12	WNW	<2	B3	>5	Clear	Severe	3.8	43	Deploying/Retrieving	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:33	20:55	40.81371	-70.23304	40.79159	-70.24888	42	12	E	<2	B3	>5	Clear	Severe	3.8	117	Soft Start	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:55	20:59	40.79159	-70.24888	40.79081	-70.25333	44	5	E	<2	B3	>5	Clear	Severe	4.8	225	Full Power	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	21:28	40.79081	-70.25333	40.77347	-70.27672	44	6	E	<2	B3	>5	Clear	Severe	4.6	207	Full Power	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:28	21:29	40.77347	-70.27672	40.77355	-70.27505	44	6	E	<2	B3	>5	Clear	Severe	4.6	89	Silent	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:29	21:59	40.77355	-70.27505	40.77417	-70.22376	44	6	E	<2	B3	>5	Clear	Severe	4.6	80	Full Power	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	21:59	23:00	40.77417	-70.22376	40.76506	-70.24885	44	15	NNW	<2	B3	>5	Clear	Severe	4.6	91	Full Power	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:35	40.76506	-70.24885	40.76940	-70.28799	44	8	SSE	<2	B3	>5	Clear	Severe	4.8	270	Full Power	N/A
2022-09-02	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:35	00:00	40.76940	-70.28799	40.77006	-70.24666	46	14	NW	<2	B3	>5	Clear	None	4.5	86	Full Power	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:04	40.77004	-70.24262	40.77008	-70.24129	43	14	NNE	<2	B3	>5	Clear	None	3.5	93	Full Power	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:04	00:10	40.77008	-70.24129	40.77028	-70.23241	43	14	NNE	<2	B3	>5	Clear	None	3.5	93	Standby	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:10	00:54	40.77028	-70.23241	40.79162	-70.22711	43	14	NNE	<2	B3	>5	Clear	None	3.2	93	Deploying/Retrieving	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:54	01:00	40.79162	-70.22711	40.80312	-70.23598	43	13	NNE	<2	B3	>5	Clear	None	8.7	93	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	40.80312	-70.23598	40.81746	-70.17451	40	15	NNE	<2	B3	2-5	Clear	None	8.6	300	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-03	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	40.81746	-70.17451	40.90708	-70.33872	36	6	NNE	<2	B3	0.5-1	Clear	None	6.3	302	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	40.90708	-70.33872	40.99912	-70.50667	41	5	SSW	<2	B3	2-5	Clear	None	5	303	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	40.99912	-70.50667	41.09178	-70.66511	45	1	S	<2	B2	0.5-1	Clear	None	9.2	303	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.09178	-70.66511	41.18369	-70.82978	42	3	S	<2	B2	0.5-1	Clear	None	9.2	300	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.18369	-70.82978	41.30377	-70.95900	21	6	NE	<2	B2	0.5-1	Clear	None	9.3	304	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	41.30377	-70.95900	41.42300	-71.04015	19	4	W	<2	B2	0.5-1	Clear	None	9	304	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.42300	-71.04015	41.49341	-70.87771	19	12	E	<2	B2	0.5-1	Clear	None	9	43	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	41.49341	-70.87771	41.59430	-70.88656	14	11	ESE	<2	B2	1-2	Clear	None	8.8	64	Transit	N/A
2022-09-03	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	10:00	10:55	41.59430	-70.88656	41.62211	-70.91421	14	9	N	<2	B2	>5	Clear	None	8.8	342	Transit	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:30	14:00	41.62208	-70.91373	41.62576	-70.90673	3	12	NNE	<2	B1	>5	Precipitation	Slight	1	10	Transit	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	41.62576	-70.90673	41.52680	-70.84314	7	8	NE	<2	B1	>5	Cloudy	Slight	5.7	180	Transit	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	41.52680	-70.84314	41.43460	-70.83874	12	13	NE	<2	B4	>5	Cloudy	None	6.6	220	Transit	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	41.43460	-70.83874	41.42942	-70.77859	11	12	N	<2	B3	>5	Cloudy	None	4.6	137	Transit	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.42942	-70.77859	41.44704	-70.73792	18	19	WNW	<2	B3	>5	Precipitation	None	2.9	76	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.44704	-70.73792	41.46415	-70.70947	16	17	W	<2	B3	>5	Precipitation	None	1.6	47	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	41.46415	-70.70947	41.47178	-70.69677	19	17	WNW	<2	B3	>5	Cloudy	None	1.9	60	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	41.47178	-70.69677	41.43885	-70.75207	21	12	SW	<2	B3	>5	Cloudy	None	3.6	230	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	22:00	41.43885	-70.75207	41.42261	-70.79987	20	18	E	<2	B3	>5	Cloudy	None	2.9	236	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	41.42261	-70.79987	41.40694	-70.84336	19	14	ESE	<2	B3	>5	Cloudy	None	2.3	250	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:16	41.40694	-70.84336	41.40109	-70.85634	17	12	ESE	<2	B3	>5	Cloudy	None	2.4	242	Standby	N/A
2022-09-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:16	00:00	41.40109	-70.85634	41.41324	-70.81918	25	11	NE	<2	B3	1-2	Cloudy	None	2.9	250	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	01:00	41.41485	-70.81586	41.44641	-70.75368	23	16	WNW	<2	B3	0.5-1	Cloudy	None	3.9	62	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	41.44641	-70.75368	41.46981	-70.70515	26	22	NE	<2	B3	0.5-1	Cloudy	None	3	65	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	41.46981	-70.70515	41.44891	-70.74415	22	18	ENE	<2	B3	0.5-1	Cloudy	None	2	70	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	41.44891	-70.74415	41.40609	-70.85138	23	10	N	<2	B3	0.5-1	Cloudy	None	5.3	235	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	41.40609	-70.85138	41.38023	-70.91288	22	11	NE	<2	B3	0.5-1	Cloudy	None	5.1	244	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.38023	-70.91288	41.40657	-70.85531	22	18	NNE	<2	B3	0.5-1	Cloudy	None	3	57	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.40657	-70.85531	41.42793	-70.78876	21	16	NE	<2	B3	0.5-1	Cloudy	None	3	67	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	41.42793	-70.78876	41.45483	-70.72110	20	22	NE	<2	B3	0.5-1	Cloudy	None	3.3	61	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.45483	-70.72110	41.46470	-70.70986	20	19	NNE	<2	B3	0.5-1	Cloudy	None	3.8	49	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	41.46470	-70.70986	41.44333	-70.75272	20	14	NE	<2	B3	0.5-1	Cloudy	None	2.6	237	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	10:00	11:00	41.44333	-70.75272	41.42401	-70.78686	21	15	NNE	<2	B3	2-5	Cloudy	None	2	242	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	41.42401	-70.78686	41.40162	-70.82006	18	15	NE	<2	B3	>5	Cloudy	Slight	1.6	238	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	41.40162	-70.82006	41.40154	-70.80687	21	19	SSE	<2	B4	>5	Clear	Slight	2	238	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	41.40154	-70.80687	41.40831	-70.81959	20	23	W	<2	B4	>5	Cloudy	Moderate	3.4	50	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	41.40831	-70.81959	41.35372	-70.89349	20	11	NE	<2	B4	>5	Cloudy	None	5.4	244	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	41.35372	-70.89349	41.31483	-70.97502	23	12	NE	<2	B4	>5	Cloudy	Moderate	4.9	205	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	41.31483	-70.97502	41.35510	-71.04040	30	14	N	<2	B4	>5	Cloudy	Moderate	4.3	278	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.35510	-71.04040	41.33977	-71.01085	20	18	N	<2	B4	>5	Cloudy	Moderate	4	330	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.33977	-71.01085	41.34977	-70.93941	24	17	N	<2	B4	>5	Cloudy	Moderate	3.6	97	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	41.34977	-70.93941	41.37929	-70.88166	28	21	NE	<2	B4	>5	Clear	Severe	3	74	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	41.37929	-70.88166	41.40693	-70.82505	25	24	NE	<2	B4	>5	Clear	Severe	3.5	48	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	22:00	41.40693	-70.82505	41.44047	-70.76024	21	20	NE	<2	B4	>5	Clear	Severe	3	53	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	41.44047	-70.76024	41.44497	-70.75180	22	19	N	<2	B4	>5	Clear	Severe	4	59	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:26	41.44497	-70.75180	41.43312	-70.77688	23	14	SW	<2	B4	>5	Clear	Slight	3.2	235	Standby	N/A
2022-09-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:26	00:00	41.43312	-70.77688	41.40036	-70.85090	20	15	NE	<2	B4	1-2	Clear	None	5.9	242	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	01:00	41.38148	-70.89383	41.34810	-71.00821	25	10	WSW	<2	B4	0.5-1	Clear	None	7.7	238	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	41.34810	-71.00821	41.32399	-71.18851	27	12	NE	<2	B4	0.5-1	Clear	None	8	256	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	41.32399	-71.18851	41.30051	-71.37342	36	12	N	<2	B4	0.5-1	Clear	None	8.5	257	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	41.30051	-71.37342	41.27742	-71.55504	33	13	NE	<2	B4	0.5-1	Clear	None	8.6	261	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	41.27742	-71.55504	41.24850	-71.72407	41	13	ESE	<2	B4	0.5-1	Clear	None	8.4	265	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.24850	-71.72407	41.21542	-71.87861	3	7	NNE	<2	B4	0.05-0.1	Clear	None	8	256	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.21542	-71.87861	41.19076	-72.01226	3	8	NNE	<2	B4	0.05-0.1	Clear	None	7	259	Transit	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	41.19076	-72.01226	41.18520	-71.93410	3	11	NE	<2	B4	0.05-0.1	Clear	None	4.2	202	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.18520	-71.93410	41.18968	-72.00653	3	11	E	<2	B4	0.05-0.1	Clear	None	3	280	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:55	41.18968	-72.00653	41.18946	-72.00482	4	13	ENE	<2	B3	0.05-0.1	Clear	None	2.3	302	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:55	10:00	41.18946	-72.00482	41.19143	-72.01144	30	14	E	<2	B4	2-5	Clear	None	4	287	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	41.19143	-72.01144	41.19516	-72.01911	30	19	NNE	<2	B4	>5	Clear	None	4	303	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	41.19516	-72.01911	41.20189	-72.02919	39	10	SSE	<2	B4	>5	Clear	Severe	4.3	261	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	41.20189	-72.02919	41.23637	-72.11441	34	15	S	<2	B4	>5	Clear	Severe	5	308	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	41.23637	-72.11441	41.24912	-72.18607	34	5	N	<2	B2	>5	Clear	Severe	4	270	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	41.24912	-72.18607	41.23917	-72.17530	39	16	NNE	<2	B3	>5	Clear	Severe	3.1	43	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	41.23917	-72.17530	41.24037	-72.10806	47	7	NE	<2	B3	>5	Clear	Severe	3.4	128	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	41.24037	-72.10806	41.23508	-72.12590	47	5	NNW	<2	B3	>5	Clear	Severe	4.2	101	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.23508	-72.12590	41.22644	-72.14397	84	4	SE	<2	B3	>5	Clear	Severe	3.1	255	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.22644	-72.14397	41.22914	-72.14247	62	6	NW	<2	B3	>5	Clear	Severe	4.6	90	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	41.22914	-72.14247	41.24661	-72.18680	69	5	S	<2	B2	>5	Clear	Moderate	2.2	257	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	41.24661	-72.18680	41.26090	-72.21731	38	4	S	<2	B2	>5	Clear	Moderate	3.1	305	Deploying/Retrieving	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	21:14	41.26090	-72.21731	41.25825	-72.19750	40	8	S	<2	B2	>5	Clear	Severe	3.5	99	Deploying/Retrieving	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:14	21:34	41.25825	-72.19750	41.24823	-72.17243	18	8	S	<2	B2	>5	Clear	Severe	4.5	104	Soft Start	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:34	22:00	41.24823	-72.17243	41.22949	-72.14669	20	7	S	<2	B2	>5	Clear	Severe	4.4	174	Full Power	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:26	41.22949	-72.14669	41.22981	-72.14067	21	4	NNW	<2	B2	>5	Clear	Severe	3.5	100	Full Power	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:26	22:53	41.22981	-72.14067	41.22877	-72.17647	21	8	SE	<2	B2	>5	Clear	Severe	4.7	256	Deploying/Retrieving	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:53	23:00	41.22877	-72.17647	41.23258	-72.18764	22	5	S	<2	B2	>5	Clear	Moderate	3.5	288	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:32	41.23258	-72.18764	41.23367	-72.19906	22	6	S	<2	B2	>5	Clear	Slight	5.2	294	Standby	N/A
2022-09-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:32	00:00	41.23367	-72.19906	41.23178	-72.17791	42	3	S	<2	B1	>5	Clear	None	2.4	102	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:59	41.23204	-72.17671	41.22672	-72.18909	22	2	NW	<2	B1	0.5-1	Clear	None	2	90	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:59	01:59	41.22672	-72.18909	41.22872	-72.16943	52	4	WSW	<2	B1	0.5-1	Clear	None	2.4	258	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	01:59	03:00	41.22872	-72.16943	41.22318	-72.06763	51	6	W	<2	B1	0.5-1	Clear	None	2.9	80	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:59	41.22318	-72.06763	41.19818	-72.01063	16	5	SSE	<2	B1	0.5-1	Clear	None	6.8	124	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	03:59	05:00	41.19818	-72.01063	41.20651	-72.02477	28	6	N	<2	B1	0.5-1	Clear	None	3.1	124	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.20651	-72.02477	41.19354	-71.98698	26	4	NNW	<2	B1	0.5-1	Clear	None	2	106	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:59	41.19354	-71.98698	41.16561	-71.98247	28	10	E	<2	B2	0.5-1	Clear	None	4	209	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	06:59	08:00	41.16561	-71.98247	41.19604	-72.00566	28	12	S	<2	B2	0.5-1	Clear	None	2.4	313	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.19604	-72.00566	41.15056	-71.96334	30	10	ENE	<2	B2	0.5-1	Clear	None	5	184	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-10	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:59	41.15056	-71.96334	41.16861	-71.98844	31	18	WNW	<2	B3	0.5-1	Clear	None	3.4	285	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	09:59	10:31	41.16861	-71.98844	41.16715	-71.98966	23	7	W	<2	B3	>5	Clear	None	3.8	147	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:31	11:00	41.16715	-71.98966	41.19590	-72.01344	23	14	SSW	<2	B3	>5	Clear	None	3.6	334	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:32	41.19590	-72.01344	41.21843	-72.06389	34	15	SSW	<2	B3	>5	Clear	Moderate	4.8	334	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:32	12:01	41.21843	-72.06389	41.20984	-72.04405	28	6	SW	<2	B3	>5	Clear	Severe	2.3	111	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:01	13:00	41.20984	-72.04405	41.18645	-72.00136	34	5	SW	<2	B3	>5	Clear	Severe	2.4	110	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	41.18645	-72.00136	41.15331	-71.95337	28	5	WNW	<2	B3	>5	Clear	Severe	3	153	Standby	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	41.15331	-71.95337	41.14936	-71.91003	23	8	N	<2	B3	>5	Clear	Severe	3.5	77	Deploying/Retrieving	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:10	41.14936	-71.91003	41.15471	-71.92194	35	11	NW	<2	B3	>5	Clear	Severe	3.6	272	Deploying/Retrieving	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:10	15:29	41.15471	-71.92194	41.15304	-71.95066	35	12	N	<2	B3	>5	Clear	Severe	4	260	Soft Start	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:29	16:00	41.15304	-71.95066	41.14997	-71.96510	29	14	N	<2	B3	>5	Clear	Severe	4	265	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	41.14997	-71.96510	41.19745	-72.01323	32	14	N	<2	B3	>5	Clear	Severe	3.6	248	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:36	41.19745	-72.01323	41.21350	-72.05188	39	13	N	<2	B3	>5	Clear	Severe	3.4	283	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:36	17:38	41.21350	-72.05188	41.21241	-72.05313	39	13	N	<2	B3	>5	Clear	Severe	3.4	283	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:38	18:00	41.21241	-72.05313	41.20829	-72.03212	39	13	N	<2	B3	>5	Clear	Severe	3.4	283	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:02	41.20829	-72.03212	41.20571	-72.02911	33	7	NNE	<2	B3	>5	Clear	Severe	5.4	122	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:02	18:03	41.20571	-72.02911	41.20449	-72.02677	33	7	NNE	<2	B3	>5	Clear	Severe	5.4	122	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:03	19:00	41.20449	-72.02677	41.15038	-71.96997	33	7	NNE	<2	B3	>5	Clear	Severe	5.4	122	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:18	41.15038	-71.96997	41.14646	-71.97243	31	7	W	<2	B2	>5	Clear	Severe	4.2	151	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:18	19:19	41.14646	-71.97243	41.14830	-71.97363	29	10	NW	<2	B2	>5	Clear	Severe	3.4	334	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:19	19:28	41.14830	-71.97363	41.15503	-71.97914	28	10	NW	<2	B2	>5	Clear	Severe	3.4	334	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:28	20:00	41.15503	-71.97914	41.18034	-71.99959	25	11	WNW	<2	B2	>5	Clear	Severe	3.4	334	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:43	41.18034	-71.99959	41.20384	-72.03179	29	10	WNW	<2	B2	>5	Clear	Moderate	3.2	329	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:43	20:45	41.20384	-72.03179	41.20497	-72.03428	34	10	WNW	<2	B2	>5	Clear	Severe	2.5	292	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:45	20:59	41.20497	-72.03428	41.21076	-72.04009	33	10	WNW	<2	B2	>5	Clear	Severe	2.8	288	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	21:56	41.21076	-72.04009	41.15626	-71.97618	30	4	SW	<2	B2	>5	Clear	Severe	5.5	103	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:56	21:58	41.15626	-71.97618	41.15415	-71.97447	27	5	WSW	<2	B2	>5	Clear	Severe	4	140	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:58	22:00	41.15415	-71.97447	41.15251	-71.97239	27	5	WSW	<2	B2	>5	Clear	Severe	4	140	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:09	41.15251	-71.97239	41.14776	-71.97477	27	5	WSW	<2	B2	>5	Clear	Severe	4	140	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:09	22:10	41.14776	-71.97477	41.14879	-71.97495	27	5	WSW	<2	B2	>5	Clear	Severe	4	140	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:10	23:00	41.14879	-71.97495	41.19945	-72.01514	27	5	WSW	<2	B2	>5	Clear	Severe	4	140	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:10	41.19945	-72.01514	41.20401	-72.03246	40	11	N	<2	B2	>5	Clear	Slight	5.2	290	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:10	23:12	41.20401	-72.03246	41.20560	-72.03577	40	11	N	<2	B2	>5	Clear	Slight	5.2	290	Silent	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:12	23:20	41.20560	-72.03577	41.20862	-72.05180	40	11	N	<2	B2	>5	Clear	Slight	5.2	290	Full Power	N/A
2022-09-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:20	00:00	41.20862	-72.05180	41.22091	-72.07642	35	9	N	<2	B2	2-5	Clear	None	4.7	305	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	01:00	41.22082	-72.07621	41.20578	-72.03803	26	5	N	<2	B2	0.5-1	Clear	None	0.1	227	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	41.20578	-72.03803	41.17554	-71.99365	28	6	N	<2	B2	0.5-1	Clear	None	2.5	122	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	02:33	41.17554	-71.99365	41.14722	-71.97316	30	6	NNE	<2	B2	0.5-1	Clear	Moderate	3.7	134	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:33	02:35	41.14722	-71.97316	41.14943	-71.97544	25	11	NW	<2	B2	0.5-1	Clear	Moderate	5.1	332	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:35	03:00	41.14943	-71.97544	41.17838	-71.99880	25	13	NNW	<2	B2	0.5-1	Clear	Slight	5.1	331	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:28	41.17838	-71.99880	41.20395	-72.03278	25	13	NNW	<2	B2	0.5-1	Clear	None	5.1	331	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:28	03:30	41.20395	-72.03278	41.20547	-72.03596	25	13	NNW	<2	B2	0.5-1	Clear	None	5.1	331	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:30	03:41	41.20547	-72.03596	41.21057	-72.03877	25	13	NNW	<2	B2	0.5-1	Clear	None	5.1	331	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:41	03:42	41.21057	-72.03877	41.20985	-72.03747	31	6	N	<2	B2	0.5-1	Clear	None	5.1	126	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:42	04:00	41.20985	-72.03747	41.19936	-72.01440	31	6	N	<2	B2	0.5-1	Clear	None	5.1	126	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:41	41.19936	-72.01440	41.15419	-71.97414	25	7	WSW	<2	B2	0.5-1	Clear	None	4.3	122	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:41	04:54	41.15419	-71.97414	41.15037	-71.97653	25	13	W	<2	B2	0.5-1	Clear	None	4.5	179	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:54	05:00	41.15037	-71.97653	41.15538	-71.98039	25	13	W	<2	B2	0.5-1	Clear	None	4.5	179	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:56	41.15538	-71.98039	41.16205	-71.98610	24	12	NW	<2	B2	0.5-1	Clear	None	3.4	327	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	05:56	06:00	41.16205	-71.98610	41.20033	-72.02588	25	13	W	<2	B2	0.5-1	Clear	None	4.5	179	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:09	41.20033	-72.02588	41.20364	-72.03332	40	11	NW	<2	B2	0.5-1	Clear	None	3.1	301	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:09	06:12	41.20364	-72.03332	41.20484	-72.03580	40	11	NW	<2	B2	0.5-1	Clear	None	3.1	301	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:12	06:26	41.20484	-72.03580	41.21086	-72.03831	40	11	NW	<2	B2	0.5-1	Clear	None	3.1	301	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:26	06:28	41.21086	-72.03831	41.20901	-72.03484	40	11	NW	<2	B2	0.5-1	Clear	None	3.1	301	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:28	07:00	41.20901	-72.03484	41.17491	-71.99041	40	11	NW	<2	B2	0.5-1	Clear	None	3.1	301	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:17	41.17491	-71.99041	41.15520	-71.97456	40	0	N	<2	B2	0.5-1	Cloudy	None	5	155	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:17	07:19	41.15520	-71.97456	41.15309	-71.97233	40	2	NE	<2	B2	0.5-1	Cloudy	None	4.8	141	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:19	07:33	41.15309	-71.97233	41.14983	-71.97660	40	2	NE	<2	B2	0.5-1	Cloudy	None	4.8	141	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:33	07:34	41.14983	-71.97660	41.15055	-71.97712	29	7	S	<2	B2	0.5-1	Cloudy	None	2.6	315	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:34	08:00	41.15055	-71.97712	41.16901	-71.99196	29	7	S	<2	B2	0.5-1	Cloudy	None	2.6	315	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.16901	-71.99196	41.20097	-72.02809	29	7	WNW	<2	B2	0.5-1	Cloudy	None	3.1	329	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:35	41.20097	-72.02809	41.21351	-72.05508	38	8	NW	<2	B2	0.5-1	Cloudy	None	2.5	300	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:35	09:37	41.21351	-72.05508	41.21358	-72.05636	38	8	NW	<2	B2	0.5-1	Cloudy	None	2.5	300	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:37	09:49	41.21358	-72.05636	41.21799	-72.05329	38	8	NW	<2	B2	0.5-1	Cloudy	None	2.5	300	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:49	09:50	41.21799	-72.05329	41.21745	-72.05211	38	8	NW	<2	B2	1-2	Cloudy	None	2.5	300	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:50	10:00	41.21745	-72.05211	41.21003	-72.03642	40	2	S	<2	B2	1-2	Cloudy	None	5	122	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	10:58	41.21003	-72.03642	41.15497	-71.97377	27	2	S	<2	B2	2-5	Cloudy	None	5	146	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:58	11:00	41.15497	-71.97377	41.15391	-71.97296	27	2	S	<2	B2	>5	Cloudy	None	5	139	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:11	41.15391	-71.97296	41.14911	-71.97709	30	9	W	<2	B2	>5	Cloudy	None	4.4	257	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:11	11:13	41.14911	-71.97709	41.15169	-71.97865	30	9	W	<2	B2	>5	Cloudy	None	4.4	257	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:13	12:00	41.15169	-71.97865	41.20054	-72.02763	31	9	SSW	<2	B2	>5	Cloudy	None	4.4	341	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	12:04	41.20054	-72.02763	41.20337	-72.03388	33	9	S	<2	B2	>5	Cloudy	None	4.4	313	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:04	12:07	41.20337	-72.03388	41.20517	-72.03790	36	9	S	<2	B2	>5	Cloudy	None	4.2	302	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:07	12:40	41.20517	-72.03790	41.20969	-72.03499	36	9	S	<2	B2	>5	Cloudy	None	4.4	296	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:40	12:41	41.20969	-72.03499	41.20949	-72.03456	30	2	NW	<2	B2	>5	Cloudy	None	2.5	110	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:41	13:00	41.20949	-72.03456	41.20288	-72.02001	30	2	NW	<2	B2	>5	Cloudy	None	2.5	110	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	41.20288	-72.02001	41.16247	-71.97950	33	1	NW	<2	B2	>5	Cloudy	None	2	126	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:08	41.16247	-71.97950	41.15544	-71.97383	25	3	SW	<2	B1	>5	Cloudy	None	3.7	155	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:08	14:09	41.15544	-71.97383	41.15432	-71.97293	30	3	SW	<2	B1	>5	Cloudy	None	3.2	153	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:09	14:42	41.15432	-71.97293	41.14939	-71.97699	30	3	SW	<2	B1	>5	Cloudy	None	4	145	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:42	14:43	41.14939	-71.97699	41.15166	-71.97867	29	8	NW	<2	B1	>5	Cloudy	None	4.9	320	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:43	15:00	41.15166	-71.97867	41.17001	-71.99363	29	8	NW	<2	B1	>5	Cloudy	None	4.9	327	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:35	41.17001	-71.99363	41.20384	-72.03557	28	9	NW	<2	B1	>5	Cloudy	None	4.6	333	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:35	15:36	41.20384	-72.03557	41.20491	-72.03749	37	13	S	<2	B1	>5	Precipitation	None	5	301	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:36	15:46	41.20491	-72.03749	41.20967	-72.03466	36	11	SSW	<2	B1	>5	Precipitation	None	4.8	301	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:46	15:48	41.20967	-72.03466	41.20881	-72.03235	29	5	WSW	<2	B2	>5	Precipitation	None	3.5	121	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:48	16:00	41.20881	-72.03235	41.20222	-72.01803	29	5	WSW	<2	B2	>5	Precipitation	None	3.9	116	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:45	41.20222	-72.01803	41.15662	-71.97443	34	5	WSW	<2	B2	>5	Cloudy	None	3.9	120	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:45	16:48	41.15662	-71.97443	41.15236	-71.97065	30	8	WSW	<2	B2	>5	Cloudy	None	4.1	167	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:48	16:57	41.15236	-71.97065	41.14812	-71.97645	30	8	WSW	<2	B2	>5	Cloudy	None	4.1	167	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:57	16:58	41.14812	-71.97645	41.14915	-71.97720	27	11	WSW	<2	B2	>5	Cloudy	None	4.2	328	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:58	17:00	41.14915	-71.97720	41.15114	-71.97880	27	11	WSW	<2	B2	>5	Cloudy	None	4.2	328	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.15114	-71.97880	41.19996	-72.02790	27	11	WSW	<2	B2	>5	Cloudy	None	4.2	328	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:05	41.19996	-72.02790	41.20263	-72.03373	34	13	N	<2	B2	>5	Cloudy	None	3.7	303	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:05	18:07	41.20263	-72.03373	41.20375	-72.03608	34	13	N	<2	B2	>5	Cloudy	None	3.7	303	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:07	18:16	41.20375	-72.03608	41.21197	-72.03621	34	15	N	<2	B2	>5	Cloudy	None	4	342	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:16	18:18	41.21197	-72.03621	41.21123	-72.03281	34	15	N	<2	B2	>5	Cloudy	None	5.1	130	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:18	19:00	41.21123	-72.03281	41.16923	-71.98371	34	15	N	<2	B2	>5	Cloudy	None	5.1	130	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:10	41.16923	-71.98371	41.15697	-71.97404	24	8	WSW	<2	B2	>5	Cloudy	None	5.2	145	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:10	19:12	41.15697	-71.97404	41.15377	-71.97067	27	6	WSW	<2	B1	>5	Precipitation	None	5	136	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:12	19:50	41.15377	-71.97067	41.15982	-71.89658	29	4	WSW	<2	B1	>5	Cloudy	None	5.7	125	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:50	19:51	41.15982	-71.89658	41.15803	-71.89481	37	4	WSW	<2	B1	>5	Cloudy	None	5.7	145	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:51	20:00	41.15803	-71.89481	41.14840	-71.88434	32	5	SW	<2	B1	>5	Cloudy	None	5.7	143	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:52	41.14840	-71.88434	41.12896	-71.78811	36	2	W	<2	B1	>5	Cloudy	None	5.1	123	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:52	20:53	41.12896	-71.78811	41.12820	-71.78489	20	2	W	<2	B1	>5	Cloudy	None	5.9	102	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:53	20:59	41.12820	-71.78489	41.12886	-71.77640	20	2	NW	<2	B1	>5	Cloudy	None	4.2	98	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	21:09	41.12886	-71.77640	41.12364	-71.78078	20	3	WSW	<2	B1	>5	Cloudy	None	5.8	114	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:09	21:10	41.12364	-71.78078	41.12415	-71.78221	18	11	NW	<2	B1	>5	Cloudy	None	4	288	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:10	22:00	41.12415	-71.78221	41.13934	-71.84926	18	11	NW	<2	B1	>5	Cloudy	None	4	288	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:33	41.13934	-71.84926	41.15427	-71.89585	22	13	N	<2	B1	>5	Cloudy	None	4.4	272	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:33	22:35	41.15427	-71.89585	41.15626	-71.89809	22	13	N	<2	B1	>5	Cloudy	None	4.3	303	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:35	22:45	41.15626	-71.89809	41.15961	-71.89576	22	13	N	<2	B1	>5	Cloudy	None	4.3	303	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:45	22:47	41.15961	-71.89576	41.15752	-71.89377	22	13	N	<2	B1	>5	Cloudy	None	4.3	142	Silent	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:47	23:00	41.15752	-71.89377	41.14676	-71.87902	22	13	N	<2	B1	>5	Cloudy	None	4.3	142	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:20	41.14676	-71.87902	41.14276	-71.85142	24	5	NNW	<2	B1	>5	Cloudy	None	3.6	95	Full Power	N/A
2022-09-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:20	00:00	41.14276	-71.85142	41.13477	-71.80701	23	2	W	<2	B1	2-5	Cloudy	None	3.6	96	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:20	41.13379	-71.80332	41.12907	-71.78775	18	4	N	<2	B2	0.5-1	Cloudy	None	2.8	94	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:20	00:21	41.12907	-71.78775	41.12880	-71.78614	21	3	SW	<2	B2	0.5-1	Cloudy	None	2.5	111	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:21	00:34	41.12880	-71.78614	41.12384	-71.78268	21	0	N	<2	B2	0.5-1	Cloudy	None	3.4	51	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:34	00:36	41.12384	-71.78268	41.12500	-71.78648	21	0	N	<2	B2	0.5-1	Precipitation	None	5.1	288	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:36	01:00	41.12500	-71.78648	41.13665	-71.82764	21	12	N	<2	B2	0.5-1	Precipitation	None	5.4	285	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	01:46	41.13665	-71.82764	41.15450	-71.89634	27	9	NW	<2	B2	0.5-1	Cloudy	None	5.1	294	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:46	01:48	41.15450	-71.89634	41.15686	-71.89889	32	10	NW	<2	B2	0.5-1	Cloudy	None	4.4	320	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:48	02:00	41.15686	-71.89889	41.16006	-71.89580	32	11	SW	<2	B2	0.5-1	Cloudy	None	4.5	325	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	02:02	41.16006	-71.89580	41.15796	-71.89377	31	6	N	<2	B2	0.5-1	Cloudy	None	3.1	121	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:02	02:03	41.15796	-71.89377	41.15707	-71.89283	31	6	N	<2	B2	0.5-1	Cloudy	None	3.1	127	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:03	03:00	41.15707	-71.89283	41.14017	-71.82493	31	6	N	<2	B2	0.5-1	Precipitation	None	3.1	127	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:28	41.14017	-71.82493	41.12940	-71.78752	20	9	N	<2	B2	0.5-1	Cloudy	None	3.7	105	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:28	03:30	41.12940	-71.78752	41.12866	-71.78472	20	6	N	<2	B2	0.5-1	Cloudy	None	3.8	105	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:30	03:40	41.12866	-71.78472	41.12376	-71.78331	20	6	N	<2	B2	0.5-1	Cloudy	None	3.8	105	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:40	03:41	41.12376	-71.78331	41.12438	-71.78494	21	7	N	<2	B2	0.5-1	Cloudy	None	3.8	303	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:41	04:00	41.12438	-71.78494	41.13313	-71.81531	21	7	N	<2	B2	0.5-1	Cloudy	None	3.8	303	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	41.13313	-71.81531	41.15406	-71.89657	20	7	N	<2	B2	0.5-1	Cloudy	None	3.8	287	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:03	41.15406	-71.89657	41.15670	-71.89924	31	14	E	<2	B2	0.5-1	Precipitation	None	4.1	56	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:03	05:08	41.15670	-71.89924	41.15791	-71.89358	31	8	E	<2	B2	0.5-1	Precipitation	None	4.1	56	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:08	05:10	41.15791	-71.89358	41.15627	-71.89162	31	8	E	<2	B2	0.5-1	Precipitation	None	4.1	56	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:10	06:00	41.15627	-71.89162	41.13426	-71.80274	31	8	E	<2	B2	0.5-1	Precipitation	None	4.1	56	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:08	41.13426	-71.80274	41.13006	-71.78844	20	8	E	<2	B2	0.5-1	Precipitation	None	5.2	100	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:08	06:10	41.13006	-71.78844	41.12885	-71.78449	20	8	ESE	<2	B2	0.5-1	Precipitation	None	5.5	110	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:10	06:22	41.12885	-71.78449	41.12393	-71.78458	20	8	ESE	<2	B2	0.5-1	Precipitation	None	5.5	110	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:22	06:23	41.12393	-71.78458	41.12435	-71.78588	21	9	E	<2	B2	0.5-1	Precipitation	None	2.9	301	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:23	07:00	41.12435	-71.78588	41.13314	-71.81636	21	9	E	<2	B2	0.5-1	Precipitation	None	2.9	301	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	41.13314	-71.81636	41.14090	-71.87491	28	4	ESE	<2	B2	0.5-1	Precipitation	None	2.4	281	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	08:24	41.14090	-71.87491	41.15493	-71.89806	26	6	E	<2	B2	0.5-1	Precipitation	None	3	287	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:24	08:26	41.15493	-71.89806	41.15634	-71.89973	25	9	E	<2	B2	0.5-1	Precipitation	None	3	319	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:26	08:34	41.15634	-71.89973	41.15904	-71.89384	25	9	E	<2	B2	0.5-1	Precipitation	None	3	319	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:34	08:36	41.15904	-71.89384	41.15737	-71.89211	25	13	E	<2	B2	0.5-1	Precipitation	None	4.5	145	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:36	09:00	41.15737	-71.89211	41.14383	-71.85782	25	13	E	<2	B3	0.5-1	Precipitation	None	4.5	145	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:43	41.14383	-71.85782	41.12972	-71.78626	25	20	E	<2	B4	0.5-1	Precipitation	None	5	89	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:43	09:45	41.12972	-71.78626	41.12898	-71.78377	25	18	E	<2	B4	0.5-1	Precipitation	None	4.5	112	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:45	10:00	41.12898	-71.78377	41.12283	-71.76280	25	18	E	<2	B4	0.5-1	Precipitation	None	4.5	112	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	10:00	10:15	41.12283	-71.76280	41.11586	-71.74171	18	18	E	<2	B4	0.5-1	Precipitation	None	4.2	112	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	10:15	10:25	41.11586	-71.74171	41.11439	-71.75226	18	10	E	<2	B4	0.5-1	Precipitation	None	4.5	178	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:25	11:00	41.11439	-71.75226	41.12776	-71.77953	18	10	E	<2	B4	2-5	Precipitation	None	3.6	295	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:07	41.12776	-71.77953	41.12313	-71.78459	21	9	E	<2	B4	2-5	Precipitation	None	4.4	288	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:07	11:09	41.12313	-71.78459	41.12443	-71.78766	21	9	E	<2	B4	2-5	Precipitation	None	4.4	288	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:09	11:40	41.12443	-71.78766	41.12324	-71.78306	21	9	E	<2	B4	2-5	Precipitation	None	4.4	288	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:40	11:42	41.12324	-71.78306	41.12426	-71.78668	21	6	ENE	<2	B4	2-5	Precipitation	None	5.1	285	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:42	12:00	41.12426	-71.78668	41.13301	-71.81727	21	6	ENE	<2	B4	2-5	Precipitation	None	5.1	285	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	12:52	41.13301	-71.81727	41.15409	-71.89739	21	8	ENE	<2	B4	2-5	Precipitation	None	4.7	283	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:52	12:54	41.15409	-71.89739	41.15560	-71.89911	32	17	NE	<2	B4	2-5	Precipitation	None	3.2	21	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:54	13:00	41.15560	-71.89911	41.15978	-71.89686	32	17	NE	<2	B4	2-5	Precipitation	None	3.2	36	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:03	41.15978	-71.89686	41.15878	-71.89343	31	15	ENE	<2	B4	2-5	Precipitation	None	2.7	94	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:03	13:05	41.15878	-71.89343	41.15790	-71.89228	31	15	ENE	<2	B4	2-5	Precipitation	None	2.7	94	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:05	14:00	41.15790	-71.89228	41.14317	-71.83639	31	15	ENE	<2	B4	2-5	Precipitation	None	2.7	94	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:44	41.14317	-71.83639	41.13015	-71.78699	27	14	NE	<2	B4	2-5	Precipitation	None	3.1	105	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:44	14:46	41.13015	-71.78699	41.12911	-71.78457	27	10	SSE	<2	B4	2-5	Cloudy	None	3.6	119	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:46	14:56	41.12911	-71.78457	41.12301	-71.78278	21	10	S	<2	B4	2-5	Cloudy	None	3.3	137	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:56	15:00	41.12301	-71.78278	41.12481	-71.78986	21	6	SW	<2	B3	2-5	Cloudy	None	5	278	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:16	41.12481	-71.78986	41.13210	-71.81500	21	7	SSE	<2	B3	2-5	Precipitation	None	5.4	291	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:16	15:45	41.13210	-71.81500	41.13825	-71.85516	21	8	NE	<2	B3	1-2	Precipitation	None	4.5	296	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:45	16:00	41.13825	-71.85516	41.14117	-71.87717	19	5	NE	<2	B3	2-5	Cloudy	None	4.1	274	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:18	41.14117	-71.87717	41.15454	-71.89851	28	7	N	<2	B3	2-5	Cloudy	None	4.3	292	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:18	16:20	41.15454	-71.89851	41.15642	-71.90048	28	13	WSW	<2	B3	2-5	Cloudy	None	3.8	338	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:20	16:28	41.15642	-71.90048	41.15919	-71.89350	28	13	WSW	<2	B3	2-5	Cloudy	None	3.8	338	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:28	16:29	41.15919	-71.89350	41.15817	-71.89232	33	13	WSW	<2	B3	2-5	Precipitation	None	4.4	143	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:29	17:00	41.15817	-71.89232	41.14406	-71.85041	33	8	N	<2	B3	2-5	Precipitation	None	4.4	143	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:37	41.14406	-71.85041	41.13082	-71.78812	33	11	NNW	<2	B3	2-5	Precipitation	None	5	110	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:37	17:39	41.13082	-71.78812	41.12979	-71.78489	21	11	NNW	<2	B3	>5	Precipitation	None	5	117	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:39	17:49	41.12979	-71.78489	41.12282	-71.78390	21	11	S	<2	B3	>5	Precipitation	None	5	117	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:49	17:50	41.12282	-71.78390	41.12317	-71.78507	21	11	S	<2	B3	>5	Cloudy	None	3.6	296	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:50	18:00	41.12317	-71.78507	41.12661	-71.79634	20	11	S	<2	B3	>5	Cloudy	None	3.6	296	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.12661	-71.79634	41.13801	-71.85379	20	11	S	<2	B3	>5	Cloudy	None	2.8	297	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:51	41.13801	-71.85379	41.15469	-71.89912	20	5	NNW	<2	B2	>5	Clear	Moderate	2.6	279	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:51	19:53	41.15469	-71.89912	41.15609	-71.90064	30	7	NNW	<2	B2	>5	Cloudy	None	3.1	319	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:53	20:00	41.15609	-71.90064	41.16180	-71.89592	31	7	NNW	<2	B2	>5	Cloudy	None	3.4	337	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:04	41.16180	-71.89592	41.15737	-71.89086	31	4	SE	<2	B2	>5	Clear	Severe	6.4	136	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:04	20:18	41.15737	-71.89086	41.14575	-71.87110	33	4	SE	<2	B2	>5	Clear	Severe	4.8	149	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:18	20:20	41.14575	-71.87110	41.14430	-71.86692	26	4	ESE	<2	B2	>5	Clear	Severe	5.4	117	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:20	20:32	41.14430	-71.86692	41.13647	-71.86615	25	5	ESE	<2	B2	>5	Clear	Severe	5.4	132	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:32	20:34	41.13647	-71.86615	41.13710	-71.86814	17	5	ESE	<2	B2	>5	Clear	Severe	4	350	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:34	20:58	41.13710	-71.86814	41.14862	-71.89347	17	5	ESE	<2	B2	>5	Clear	Severe	4	350	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:58	21:00	41.14862	-71.89347	41.14984	-71.89487	17	3	E	<2	B2	>5	Clear	Severe	3.8	327	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	21:07	41.14984	-71.89487	41.15565	-71.90116	17	5	ENE	<2	B2	>5	Clear	Severe	4.7	327	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:07	21:16	41.15565	-71.90116	41.15876	-71.89164	17	5	ENE	<2	B2	>5	Clear	Severe	4.7	327	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:16	21:17	41.15876	-71.89164	41.15764	-71.89051	16	6	SE	<2	B2	>5	Clear	Severe	5	148	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:17	21:32	41.15764	-71.89051	41.14550	-71.86929	16	6	SE	<2	B2	>5	Clear	Severe	5	148	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:32	21:33	41.14550	-71.86929	41.14496	-71.86767	26	7	SE	<2	B2	>5	Clear	Severe	4.4	130	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:33	21:45	41.14496	-71.86767	41.13625	-71.86639	26	7	SE	<2	B2	>5	Clear	Severe	4.4	130	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:45	21:46	41.13625	-71.86639	41.13660	-71.86770	26	3	WNW	<2	B2	>5	Clear	Severe	3.7	299	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:46	22:00	41.13660	-71.86770	41.14229	-71.88478	26	3	WNW	<2	B2	>5	Clear	Severe	3.7	299	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:16	41.14229	-71.88478	41.15464	-71.90051	32	8	S	<2	B2	>5	Clear	Severe	3.7	307	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:16	22:18	41.15464	-71.90051	41.15640	-71.90241	32	8	S	<2	B2	>5	Clear	Severe	4.2	327	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:18	22:37	41.15640	-71.90241	41.16155	-71.89690	32	8	S	<2	B2	>5	Clear	Severe	4.1	323	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:37	22:39	41.16155	-71.89690	41.16010	-71.89386	32	8	S	<2	B2	>5	Clear	Severe	5.1	127	Silent	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:39	22:56	41.16010	-71.89386	41.14635	-71.87084	32	8	S	<2	B2	>5	Clear	Severe	5.1	127	Full Power	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	22:56	23:00	41.14635	-71.87084	41.14461	-71.86450	27	7	SE	<2	B1	0.1-0.3	Fog	None	4.7	115	Standby	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:00	23:37	41.14461	-71.86450	41.13678	-71.81501	28	7	SE	<2	B1	0.1-0.3	Fog	None	4.7	115	Standby	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:37	23:45	41.13678	-71.81501	41.13459	-71.80528	23	1	SE	<2	B1	0.1-0.3	Fog	None	3.3	109	Standby	N/A
2022-09-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:45	00:00	41.13459	-71.80528	41.13628	-71.82205	22	8	SSE	<2	B1	0.5-1	Cloudy	None	4.8	305	Standby	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:15	41.13887	-71.83043	41.14241	-71.84641	22	7	SSE	<2	B2	0.5-1	Cloudy	None	4.8	305	Standby	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:15	00:38	41.14241	-71.84641	41.13991	-71.88333	23	5	W	<2	B1	0.5-1	Cloudy	None	4.7	252	Soft Start	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:38	01:00	41.13991	-71.88333	41.15967	-71.89331	31	5	NW	<2	B1	0.5-1	Cloudy	None	4.4	301	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	01:01	41.15967	-71.89331	41.15904	-71.89185	27	5	ESE	<2	B1	0.5-1	Cloudy	None	3.5	83	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:01	01:03	41.15904	-71.89185	41.15795	-71.89018	32	5	ESE	<2	B1	0.5-1	Cloudy	None	3.5	100	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:03	01:24	41.15795	-71.89018	41.14635	-71.87002	32	5	ESE	<2	B1	0.5-1	Cloudy	None	3.9	141	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:24	01:25	41.14635	-71.87002	41.14597	-71.86888	34	6	ESE	<2	B1	0.5-1	Cloudy	None	3.1	149	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:25	01:41	41.14597	-71.86888	41.13533	-71.86607	34	6	ESE	<2	B1	0.5-1	Cloudy	None	3.1	149	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:41	01:42	41.13533	-71.86607	41.13578	-71.86722	35	3	WNW	<2	B1	0.5-1	Cloudy	None	4.7	299	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:42	02:00	41.13578	-71.86722	41.14816	-71.89364	35	3	WNW	<2	B1	0.5-1	Cloudy	None	4.7	299	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	02:06	41.14816	-71.89364	41.15463	-71.90103	35	3	WNW	<2	B1	0.5-1	Cloudy	None	4.7	299	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:06	02:07	41.15463	-71.90103	41.15578	-71.90210	31	5	E	<2	B1	0.5-1	Cloudy	None	3.1	64	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:07	02:21	41.15578	-71.90210	41.15816	-71.88990	31	6	E	<2	B1	0.5-1	Cloudy	None	3.1	64	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:21	02:22	41.15816	-71.88990	41.15764	-71.88933	30	8	SSE	<2	B1	0.5-1	Cloudy	None	3	139	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:22	02:43	41.15764	-71.88933	41.14658	-71.86962	30	8	SSE	<2	B1	0.5-1	Cloudy	None	3	142	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:43	02:45	41.14658	-71.86962	41.14596	-71.86750	34	7	SE	<2	B1	0.5-1	Cloudy	None	2.9	136	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:45	02:59	41.14596	-71.86750	41.13547	-71.86550	34	7	SE	<2	B1	0.5-1	Cloudy	None	2.9	136	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:59	03:00	41.13547	-71.86550	41.13591	-71.86696	16	3	WNW	<2	B1	0.5-1	Cloudy	None	4.6	295	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:01	41.13591	-71.86696	41.13660	-71.86875	16	3	WNW	<2	B1	0.5-1	Cloudy	None	4.6	295	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:01	03:25	41.13660	-71.86875	41.15431	-71.90098	16	3	WNW	<2	B1	0.5-1	Cloudy	None	4.6	295	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:25	03:27	41.15431	-71.90098	41.15633	-71.90279	31	3	WNW	<2	B1	0.5-1	Cloudy	None	3.9	335	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:27	03:40	41.15633	-71.90279	41.15764	-71.88869	31	3	WNW	<2	B1	0.5-1	Cloudy	None	3.1	49	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:40	03:41	41.15764	-71.88869	41.15664	-71.88765	31	9	SSE	<2	B1	0.5-1	Cloudy	None	4.2	147	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:41	03:57	41.15664	-71.88765	41.14756	-71.87160	33	9	SSE	<2	B1	0.5-1	Cloudy	None	3.9	137	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:57	03:58	41.14756	-71.87160	41.14711	-71.87030	33	9	SSE	<2	B1	0.5-1	Cloudy	None	4.2	119	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:58	04:01	41.14711	-71.87030	41.14498	-71.86708	33	9	SSE	<2	B1	0.5-1	Cloudy	None	3.9	106	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:01	04:13	41.14498	-71.86708	41.13545	-71.86686	34	10	S	<2	B1	0.5-1	Cloudy	None	3.6	140	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:13	04:15	41.13545	-71.86686	41.13662	-71.87035	20	6	S	<2	B1	0.5-1	Cloudy	None	4.3	290	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:15	04:41	41.13662	-71.87035	41.15511	-71.90233	20	6	S	<2	B1	0.5-1	Cloudy	None	4.3	290	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:41	04:43	41.15511	-71.90233	41.15718	-71.90455	20	5	SSE	<2	B1	0.5-1	Cloudy	None	3.8	51	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:43	04:55	41.15718	-71.90455	41.15943	-71.89055	31	10	SSE	<2	B1	0.5-1	Cloudy	None	4.4	90	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:55	04:57	41.15943	-71.89055	41.15782	-71.88856	32	13	SSE	<2	B1	0.5-1	Cloudy	None	4.6	132	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:57	05:00	41.15782	-71.88856	41.15438	-71.88472	32	13	S	<2	B1	0.5-1	Cloudy	None	4.6	132	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:11	41.15438	-71.88472	41.14712	-71.86969	37	11	S	<2	B1	0.5-1	Cloudy	None	4.6	135	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:11	05:13	41.14712	-71.86969	41.14600	-71.86738	27	9	S	<2	B1	0.5-1	Cloudy	None	4.5	107	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:13	05:27	41.14600	-71.86738	41.13459	-71.86497	28	9	S	<2	B1	0.5-1	Cloudy	None	4.2	138	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:27	05:29	41.13459	-71.86497	41.13542	-71.86746	19	9	S	<2	B1	0.5-1	Cloudy	None	3.6	292	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:29	06:00	41.13542	-71.86746	41.15517	-71.90291	19	9	S	<2	B1	0.5-1	Cloudy	None	3.6	292	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:02	41.15517	-71.90291	41.15704	-71.90456	30	6	S	<2	B1	0.5-1	Cloudy	None	4	315	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:02	06:14	41.15704	-71.90456	41.15905	-71.88800	30	6	S	<2	B1	0.5-1	Cloudy	None	4	315	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:14	06:16	41.15905	-71.88800	41.15603	-71.88603	32	7	S	<2	B1	0.5-1	Cloudy	None	4.9	165	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:16	06:27	41.15603	-71.88603	41.14723	-71.86928	32	7	S	<2	B1	0.5-1	Cloudy	None	5.1	141	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:27	06:29	41.14723	-71.86928	41.14589	-71.86636	22	7	S	<2	B1	0.5-1	Cloudy	None	5.1	141	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:29	06:47	41.14589	-71.86636	41.13491	-71.86665	22	7	S	<2	B1	0.5-1	Cloudy	None	4.2	152	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:47	06:49	41.13491	-71.86665	41.13565	-71.86891	19	3	W	<2	B1	0.5-1	Cloudy	None	3	290	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:49	07:00	41.13565	-71.86891	41.13940	-71.88033	19	3	W	<2	B1	0.5-1	Cloudy	None	3	289	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:25	41.13940	-71.88033	41.15429	-71.90255	33	3	WNW	<2	B1	0.5-1	Cloudy	None	3.4	301	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:25	07:27	41.15429	-71.90255	41.15590	-71.90399	31	5	S	<2	B1	0.5-1	Cloudy	None	3.6	312	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:27	07:38	41.15590	-71.90399	41.15932	-71.88882	31	5	S	<2	B1	0.5-1	Cloudy	None	3.6	326	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:38	07:40	41.15932	-71.88882	41.15732	-71.88647	32	8	S	<2	B1	0.5-1	Cloudy	None	5	170	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:40	07:51	41.15732	-71.88647	41.14838	-71.87157	32	8	S	<2	B1	0.5-1	Cloudy	None	5	170	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:51	07:53	41.14838	-71.87157	41.14710	-71.86796	28	8	SSE	<2	B1	0.5-1	Cloudy	None	4.8	134	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:53	08:00	41.14710	-71.86796	41.13892	-71.86001	28	8	SSE	<2	B1	0.5-1	Cloudy	None	3.9	148	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	08:09	41.13892	-71.86001	41.13424	-71.86512	22	8	S	<2	B1	0.5-1	Cloudy	None	5.3	178	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:09	08:11	41.13424	-71.86512	41.13482	-71.86739	18	1	W	<2	B1	0.5-1	Cloudy	None	2.6	295	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:11	08:48	41.13482	-71.86739	41.15454	-71.90322	18	1	W	<2	B1	0.5-1	Cloudy	None	2.6	295	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:48	08:50	41.15454	-71.90322	41.15559	-71.90468	30	9	SE	<2	B1	0.5-1	Cloudy	None	4	50	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:50	09:00	41.15559	-71.90468	41.15989	-71.89418	30	9	SE	<2	B1	0.5-1	Cloudy	None	4.6	44	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:04	41.15989	-71.89418	41.15789	-71.88679	30	9	SE	<2	B1	0.5-1	Cloudy	None	5.3	97	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:04	09:06	41.15789	-71.88679	41.15556	-71.88473	36	9	ESE	<2	B1	0.5-1	Cloudy	None	4.3	141	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:06	09:16	41.15556	-71.88473	41.14817	-71.87001	36	9	ESE	<2	B1	0.5-1	Cloudy	None	4.3	139	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:16	09:18	41.14817	-71.87001	41.14689	-71.86718	28	9	E	<2	B1	0.5-1	Cloudy	None	4.3	139	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:18	09:34	41.14689	-71.86718	41.13418	-71.86655	28	9	E	<2	B1	0.5-1	Cloudy	None	4.3	143	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:34	09:35	41.13418	-71.86655	41.13437	-71.86710	19	2	E	<2	B1	0.5-1	Cloudy	None	3.3	300	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:35	10:00	41.13437	-71.86710	41.14716	-71.89533	19	2	E	<2	B1	0.5-1	Cloudy	None	3.3	300	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	10:08	41.14716	-71.89533	41.15413	-71.90327	31	2	E	<2	B1	2-5	Cloudy	None	3.8	310	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:08	10:10	41.15413	-71.90327	41.15595	-71.90564	31	2	E	<2	B1	>5	Cloudy	None	4.1	323	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:10	10:24	41.15595	-71.90564	41.15840	-71.88720	31	2	E	<2	B1	>5	Cloudy	None	4.1	323	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:24	10:25	41.15840	-71.88720	41.15739	-71.88631	31	11	SSE	<2	B1	>5	Cloudy	None	4.3	149	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:25	10:37	41.15739	-71.88631	41.14856	-71.87052	31	11	SSE	<2	B1	>5	Cloudy	None	4.3	149	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:37	10:39	41.14856	-71.87052	41.14768	-71.86667	29	12	ESE	<2	B1	>5	Cloudy	None	4.2	99	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:39	10:56	41.14768	-71.86667	41.13379	-71.86608	29	6	ESE	<2	B1	>5	Cloudy	None	4.2	99	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:56	10:57	41.13379	-71.86608	41.13434	-71.86771	19	6	SE	<2	B1	>5	Cloudy	None	4.2	291	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:57	11:00	41.13434	-71.86771	41.13573	-71.87190	19	6	SE	<2	B1	>5	Cloudy	None	4.2	291	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:26	41.13573	-71.87190	41.15412	-71.90361	31	8	E	<2	B1	>5	Cloudy	None	4.4	334	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:26	11:28	41.15412	-71.90361	41.15618	-71.90530	31	11	E	<2	B1	>5	Cloudy	None	4.1	37	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:28	11:42	41.15618	-71.90530	41.15840	-71.88688	31	11	E	<2	B1	>5	Cloudy	None	4.1	37	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:42	11:44	41.15840	-71.88688	41.15618	-71.88441	32	18	SE	<2	B1	>5	Cloudy	None	4.1	136	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:44	11:55	41.15618	-71.88441	41.14907	-71.87085	32	18	SE	<2	B1	>5	Cloudy	None	4.1	136	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:55	11:58	41.14907	-71.87085	41.14715	-71.86714	29	18	SE	<2	B1	>5	Cloudy	None	5	114	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:58	12:00	41.14715	-71.86714	41.14585	-71.86647	29	18	SE	<2	B1	>5	Cloudy	None	4.6	151	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	12:15	41.14585	-71.86647	41.13283	-71.86663	29	18	SE	<2	B1	>5	Cloudy	None	5.2	153	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:15	12:16	41.13283	-71.86663	41.13375	-71.86799	21	7	E	<2	B1	>5	Cloudy	None	4.9	319	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:16	12:30	41.13375	-71.86799	41.14188	-71.88949	21	7	E	<2	B1	>5	Cloudy	None	4.9	319	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:30	12:44	41.14188	-71.88949	41.15435	-71.90419	31	7	E	<2	B1	>5	Precipitation	None	4.7	307	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:44	12:46	41.15435	-71.90419	41.15619	-71.90616	31	10	SE	<2	B1	2-5	Precipitation	None	4.7	332	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:46	13:00	41.15619	-71.90616	41.15950	-71.88830	31	10	SE	<2	B1	1-2	Precipitation	None	4.7	22	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:02	41.15950	-71.88830	41.15844	-71.88665	31	20	SE	<2	B1	>5	Precipitation	None	4	127	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:02	13:03	41.15844	-71.88665	41.15748	-71.88535	31	20	SE	<2	B1	>5	Precipitation	None	3.4	131	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:03	13:20	41.15748	-71.88535	41.14893	-71.86975	31	20	SE	<2	B1	>5	Precipitation	None	3	138	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:20	13:22	41.14893	-71.86975	41.14773	-71.86702	29	14	NW	<2	B1	>5	Precipitation	None	3.3	123	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:22	13:31	41.14773	-71.86702	41.14553	-71.85816	29	10	NW	<2	B1	2-5	Precipitation	None	3.3	144	Full Power	N/A
9/13/2022	*GO Explorer*	HRG	Visual	Diaz, Paola; Azevedo, Camil	RPS	13:31	13:33	41.14553	-71.85816	41.14614	-71.85575	29	10	NW	<2	B1	0.5-1	Precipitation	None	3.3	144	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Azevedo, Camila	RPS	13:33	13:43	41.14614	-71.85575	41.15601	-71.85191	26	10	NW	<2	B1	0.1-0.3	Fog	None	3.3	144	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Azevedo, Camila	RPS	13:43	13:50	41.15601	-71.85191	41.15962	-71.86282	26	10	NNE	<2	B1	1-2	Precipitation	None	4.8	345	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Azevedo, Camila	RPS	13:50	13:51	41.15962	-71.86282	41.15956	-71.86478	25	8	NNW	<2	B1	0.5-1	Precipitation	None	5.4	261	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Diaz, Paola; Azevedo, Camila	RPS	13:51	14:00	41.15956	-71.86478	41.15935	-71.88232	29	8	NNW	<2	B1	0.5-1	Precipitation	None	5.4	265	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:10	41.15935	-71.88232	41.15905	-71.90212	34	4	SE	<2	B1	2-5	Precipitation	None	5.5	270	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:10	14:12	41.15905	-71.90212	41.15902	-71.90610	30	4	SE	<2	B1	2-5	Precipitation	None	5.5	270	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:12	14:46	41.15902	-71.90610	41.15738	-71.88469	30	7	NNE	<2	B1	2-5	Precipitation	None	4.5	298	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:46	14:48	41.15738	-71.88469	41.15641	-71.88362	34	11	E	<2	B2	1-2	Precipitation	None	3	133	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:48	15:00	41.15641	-71.88362	41.15024	-71.87267	35	13	E	<2	B2	0.5-1	Precipitation	None	3.9	146	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:03	41.15024	-71.87267	41.14945	-71.87010	31	12	E	<2	B2	0.5-1	Precipitation	None	2.4	126	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:03	15:05	41.14945	-71.87010	41.14874	-71.86819	29	17	E	<2	B2	0.5-1	Precipitation	None	3.1	97	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:05	15:31	41.14874	-71.86819	41.15985	-71.86149	29	15	E	<2	B2	1-2	Precipitation	None	3.2	120	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:31	15:33	41.15985	-71.86149	41.15982	-71.86563	28	9	E	<2	B2	1-2	Precipitation	None	4.8	277	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:33	15:53	41.15982	-71.86563	41.15929	-71.90367	29	9	E	<2	B2	1-2	Precipitation	None	4.6	257	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:53	15:55	41.15929	-71.90367	41.15956	-71.90721	30	8	E	<2	B2	2-5	Cloudy	None	4.1	279	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:55	16:00	41.15956	-71.90721	41.16276	-71.90941	30	8	E	<2	B2	2-5	Cloudy	None	3.6	300	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:19	41.16276	-71.90941	41.16064	-71.89069	30	15	NW	<2	B2	2-5	Precipitation	None	2.4	58	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:19	17:00	41.16064	-71.89069	41.15318	-71.85200	30	16	NW	<2	B2	>5	Cloudy	None	2.7	107	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:03	41.15318	-71.85200	41.15255	-71.84852	30	17	NE	<2	B2	>5	Cloudy	None	2.8	174	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:03	17:23	41.15255	-71.84852	41.16010	-71.86501	30	17	NE	<2	B2	>5	Cloudy	None	2.8	178	Soft Start	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:23	17:24	41.16010	-71.86501	41.16008	-71.86688	30	10	SSE	<2	B2	2-5	Precipitation	None	5.1	285	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:24	17:25	41.16008	-71.86688	41.16007	-71.86863	30	9	SSE	<2	B2	2-5	Precipitation	None	5	271	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:25	17:45	41.16007	-71.86863	41.15958	-71.90338	30	8	SSE	<2	B2	2-5	Precipitation	None	4.8	267	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:45	17:46	41.15958	-71.90338	41.15957	-71.90505	31	8	S	<2	B2	>5	Precipitation	None	4.6	269	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:46	18:00	41.15957	-71.90505	41.16164	-71.89458	31	9	S	<2	B2	>5	Precipitation	None	4.4	286	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:05	41.16164	-71.89458	41.15892	-71.88616	31	17	NNE	<2	B2	>5	Cloudy	None	4.9	140	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:05	18:07	41.15892	-71.88616	41.15693	-71.88392	35	17	NNE	<2	B2	>5	Cloudy	None	4.9	148	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:07	18:16	41.15693	-71.88392	41.14986	-71.87080	36	17	NNE	<2	B2	>5	Cloudy	None	5.2	148	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:16	18:18	41.14986	-71.87080	41.14866	-71.86713	36	18	N	<2	B2	>5	Cloudy	None	5.9	117	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:18	18:34	41.14866	-71.86713	41.16042	-71.86435	36	18	N	<2	B2	>5	Cloudy	None	5.7	72	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:34	18:35	41.16042	-71.86435	41.16039	-71.86574	29	8	SSE	<2	B2	>5	Cloudy	None	4	267	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:35	19:00	41.16039	-71.86574	41.15997	-71.90280	29	8	SSE	<2	B2	>5	Cloudy	None	4.1	271	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:02	41.15997	-71.90280	41.15992	-71.90575	31	6	E	<2	B2	>5	Cloudy	None	4.1	271	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:02	19:19	41.15992	-71.90575	41.15632	-71.88879	31	6	E	<2	B2	>5	Cloudy	None	3.3	295	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:19	19:20	41.15632	-71.88879	41.15510	-71.88566	33	15	ESE	<2	B3	>5	Cloudy	None	5.5	113	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:20	19:30	41.15510	-71.88566	41.15020	-71.87055	33	15	ESE	<2	B3	>5	Cloudy	None	5.5	113	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:30	19:31	41.15020	-71.87055	41.14964	-71.86878	28	15	SE	<2	B3	>5	Cloudy	None	5.2	117	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:31	20:00	41.14964	-71.86878	41.15117	-71.88881	28	15	SE	<2	B3	>5	Cloudy	Moderate	5.2	117	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:08	41.15117	-71.88881	41.15624	-71.88539	35	0	SE	<2	B2	>5	Cloudy	Moderate	3.5	316	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:08	20:09	41.15624	-71.88539	41.15473	-71.88301	34	11	SE	<2	B3	>5	Cloudy	None	5.3	125	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:09	20:18	41.15473	-71.88301	41.15048	-71.87089	34	11	SE	<2	B3	>5	Cloudy	None	5.6	121	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:18	20:20	41.15048	-71.87089	41.14932	-71.86798	29	10	SSE	<2	B3	>5	Cloudy	None	4	105	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:20	20:56	41.14932	-71.86798	41.15646	-71.88763	29	10	SSE	<2	B3	>5	Cloudy	None	4.4	110	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:56	20:58	41.15646	-71.88763	41.15522	-71.88439	33	11	S	<2	B2	>5	Cloudy	Moderate	4.9	139	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:58	21:00	41.15522	-71.88439	41.15416	-71.88105	33	11	S	<2	B2	>5	Cloudy	Moderate	4.9	139	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	21:07	41.15416	-71.88105	41.14994	-71.86833	32	10	S	<2	B2	>5	Cloudy	Slight	5	115	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:07	21:08	41.14994	-71.86833	41.14964	-71.86719	32	13	SW	<2	B2	>5	Cloudy	Slight	4.2	147	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:08	21:43	41.14964	-71.86719	41.15619	-71.88545	32	13	SW	<2	B2	>5	Cloudy	Slight	4.2	147	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:43	21:44	41.15619	-71.88545	41.15551	-71.88388	36	11	SSE	<2	B2	>5	Cloudy	Moderate	5	108	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:44	21:53	41.15551	-71.88388	41.15077	-71.87004	36	11	SSE	<2	B2	>5	Cloudy	Moderate	5	108	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:53	21:55	41.15077	-71.87004	41.14945	-71.86620	28	14	SW	<2	B2	>5	Cloudy	Slight	4	140	Silent	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:55	22:00	41.14945	-71.86620	41.14582	-71.86468	28	14	SW	<2	B2	>5	Cloudy	Slight	4	140	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	41.14582	-71.86468	41.15167	-71.93475	27	13	SSE	<2	B2	>5	Cloudy	Severe	2.7	288	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:26	41.15167	-71.93475	41.14798	-71.97007	39	14	SE	<2	B2	>5	Cloudy	None	3.8	269	Full Power	N/A
2022-09-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:26	00:00	41.14798	-71.97007	41.17649	-71.99633	30	21	SW	<2	B2	2-5	Clear	None	4	271	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:53	41.18070	-71.99963	41.21056	-72.03418	30	6	SSW	<2	B3	0.5-1	Cloudy	None	3.7	338	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:53	00:54	41.21056	-72.03418	41.20980	-72.03297	29	15	SW	<2	B3	0.5-1	Clear	None	4.7	123	Silent	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:54	01:00	41.20980	-72.03297	41.20551	-72.02346	29	15	SSW	<2	B3	0.5-1	Clear	None	5	128	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	01:52	41.20551	-72.02346	41.15647	-71.97313	31	15	SSW	<2	B3	0.5-1	Clear	None	4.6	122	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:52	01:54	41.15647	-71.97313	41.15422	-71.97385	29	23	SW	<2	B3	0.5-1	Clear	None	4.6	203	Silent	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:54	02:00	41.15422	-71.97385	41.14669	-71.97711	29	21	SW	<2	B3	0.5-1	Clear	None	4.6	189	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	02:35	41.14669	-71.97711	41.15664	-71.97652	26	21	W	<2	B3	0.5-1	Clear	Moderate	4	20	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:35	03:00	41.15664	-71.97652	41.18382	-71.99831	26	22	W	<2	B3	0.5-1	Clear	Moderate	4.6	337	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:45	41.18382	-71.99831	41.21186	-72.03683	26	22	SW	<2	B3	0.5-1	Clear	Slight	4.6	331	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:45	03:47	41.21186	-72.03683	41.21121	-72.03544	30	16	SSW	<2	B4	0.5-1	Clear	Slight	3.1	111	Silent	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:47	04:00	41.21121	-72.03544	41.20601	-72.02426	30	16	SSW	<2	B4	0.5-1	Clear	Slight	3.1	111	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:17	41.20601	-72.02426	41.19873	-72.00860	31	16	W	<2	B4	0.5-1	Clear	Moderate	2.6	110	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:17	05:00	41.19873	-72.00860	41.16134	-71.97701	34	16	W	<2	B4	0.5-1	Cloudy	None	3.2	113	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:06	41.16134	-71.97701	41.15528	-71.97279	25	9	NW	<2	B4	0.5-1	Cloudy	None	4	150	Full Power	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:06	05:08	41.15528	-71.97279	41.15295	-71.97370	29	14	NW	<2	B4	0.5-1	Cloudy	None	4	189	Silent	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:08	06:00	41.15295	-71.97370	41.15316	-72.00706	29	14	NW	<2	B4	0.5-1	Cloudy	None	4	189	Deploying/Retrieving	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.15316	-72.00706	41.20986	-72.04592	23	22	NW	<2	B4	0.5-1	Clear	None	4.4	341	Transit	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	41.20986	-72.04592	41.21016	-72.03885	23	18	NW	<2	B4	0.5-1	Clear	None	4	310	Transit	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	41.21016	-72.03885	41.21875	-72.06524	23	13	NW	<2	B4	0.5-1	Clear	None	1.7	303	Transit	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	41.21875	-72.06524	41.23053	-72.05945	23	6	NNW	<2	B3	0.5-1	Clear	None	2.4	119	Transit	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	41.23053	-72.05945	41.24831	-72.08788	23	15	NW	<2	B3	2-5	Clear	None	1.3	311	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	41.24831	-72.08788	41.24989	-72.05674	23	6	W	<2	B3	>5	Clear	Moderate	6.4	117	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	41.24989	-72.05674	41.27908	-72.04121	37	6	W	<2	B3	>5	Clear	Severe	6.1	87	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	41.27908	-72.04121	41.25827	-72.06113	37	14	WNW	<2	B4	>5	Clear	Severe	2.5	248	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	41.25827	-72.06113	41.23294	-72.09915	76	14	W	<2	B3	>5	Clear	Severe	4.5	236	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	41.23294	-72.09915	41.26862	-72.05193	82	11	NW	<2	B4	>5	Clear	Severe	3.8	81	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	41.26862	-72.05193	41.25270	-72.07228	14	18	ESE	<2	B4	>5	Clear	Severe	3.7	207	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.25270	-72.07228	41.25625	-72.06989	26	13	W	<2	B4	>5	Clear	Severe	4.4	55	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.25625	-72.06989	41.25382	-72.06480	32	19	SE	<2	B4	>5	Clear	Severe	3.1	235	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	41.25382	-72.06480	41.27027	-72.04635	24	14	W	<2	B5	>5	Clear	Severe	4.7	68	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:59	41.27027	-72.04635	41.22814	-72.07734	11	19	W	<2	B5	>5	Clear	Severe	4	191	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	22:00	41.22814	-72.07734	41.18587	-71.99644	15	6	NW	<2	B5	>5	Clear	Severe	6.3	137	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	41.18587	-71.99644	41.15340	-71.97987	28	9	E	<2	B5	>5	Clear	Severe	4	168	Deploying/Retrieving	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:24	41.15340	-71.97987	41.17341	-71.99590	29	12	SSW	<2	B5	>5	Clear	Slight	3.8	330	Standby	N/A
2022-09-14	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:24	00:00	41.17341	-71.99590	41.18918	-72.00230	29	11	NNW	<2	B1	2-5	Clear	None	3.7	329	Standby	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:59	41.18209	-71.99648	41.19848	-72.01220	37	9	NE	<2	B2	1-2	Clear	None	4.7	151	Standby	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:59	02:00	41.19848	-72.01220	41.19349	-72.00600	35	13	WNW	<2	B3	0.5-1	Clear	None	3.5	300	Standby	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	41.19349	-72.00600	41.16291	-71.98351	34	3	SW	<2	B2	0.5-1	Clear	Slight	4.7	142	Standby	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	41.16291	-71.98351	41.21653	-72.05502	27	9	SW	<2	B3	0.5-1	Clear	None	4.8	329	Standby	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:39	41.21653	-72.05502	41.21467	-72.04002	31	13	W	<2	B2	0.5-1	Clear	Slight	4.6	308	Deploying/Retrieving	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:39	04:59	41.21467	-72.04002	41.20615	-72.03234	29	9	W	<2	B3	0.5-1	Clear	Slight	1.9	106	Soft Start	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:59	04:59	41.20615	-72.03234	41.20603	-72.03209	33	8	W	<2	B2	0.5-1	Clear	Slight	2.3	101	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:59	05:00	41.20603	-72.03209	41.20562	-72.03160	33	8	W	<2	B2	0.5-1	Clear	Slight	2.3	101	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:05	41.20562	-72.03160	41.20374	-72.02798	33	8	W	<2	B2	0.5-1	Clear	Slight	2.3	101	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:05	06:00	41.20374	-72.02798	41.16749	-71.98685	35	9	W	<2	B2	0.5-1	Clear	Slight	2.7	108	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:09	41.16749	-71.98685	41.15921	-71.98004	26	9	WNW	<2	B2	0.5-1	Clear	None	3.9	146	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:09	06:11	41.15921	-71.98004	41.15731	-71.97874	23	8	NW	<2	B2	0.5-1	Clear	None	3.9	149	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:11	06:23	41.15731	-71.97874	41.15606	-71.97408	26	10	W	<2	B3	0.5-1	Clear	None	3.6	184	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:23	06:25	41.15606	-71.97408	41.15775	-71.97570	26	17	NW	<2	B5	0.5-1	Clear	None	4.1	332	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:25	06:57	41.15775	-71.97570	41.18854	-72.00044	25	18	NW	<2	B5	0.5-1	Clear	None	4.1	327	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:57	06:59	41.18854	-72.00044	41.19045	-72.00220	32	19	NW	<2	B5	0.5-1	Clear	None	3	327	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:59	07:00	41.19045	-72.00220	41.19122	-72.00296	32	19	NW	<2	B5	0.5-1	Clear	None	3	327	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:32	41.19122	-72.00296	41.17450	-71.99630	32	19	NW	<2	B5	0.5-1	Clear	None	3	327	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:32	07:34	41.17450	-71.99630	41.17636	-71.99770	31	21	SSW	<2	B5	0.5-1	Clear	None	3.8	325	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:34	07:51	41.17636	-71.99770	41.19255	-72.01031	31	21	SSW	<2	B5	0.5-1	Clear	None	3.8	325	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:51	07:53	41.19255	-72.01031	41.19396	-72.01030	36	24	NW	<2	B6	0.5-1	Clear	None	3.4	311	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:53	07:57	41.19396	-72.01030	41.19662	-72.01428	36	24	NW	<2	B6	0.5-1	Clear	None	3.4	311	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:57	07:58	41.19662	-72.01428	41.19712	-72.01540	36	24	NW	<2	B6	0.5-1	Clear	None	3.4	311	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:58	08:00	41.19712	-72.01540	41.19803	-72.01741	36	24	NW	<2	B6	0.5-1	Clear	None	3.4	311	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	08:11	41.19803	-72.01741	41.20377	-72.03008	36	24	NW	<2	B6	0.5-1	Clear	None	3.4	311	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:11	08:13	41.20377	-72.03008	41.20539	-72.03251	34	25	NW	<2	B5	0.5-1	Clear	None	3.6	304	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:13	08:27	41.20539	-72.03251	41.20644	-72.04019	34	25	NW	<2	B5	0.5-1	Clear	None	3.6	336	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:27	08:28	41.20644	-72.04019	41.20555	-72.03858	35	21	NW	<2	B4	0.5-1	Clear	None	5.2	120	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:28	08:42	41.20555	-72.03858	41.19402	-72.01479	35	21	NW	<2	B4	0.5-1	Clear	None	5.2	120	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:42	08:44	41.19402	-72.01479	41.19195	-72.01327	37	18	NW	<2	B4	0.5-1	Clear	None	5.3	147	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:44	09:00	41.19195	-72.01327	41.19897	-72.01230	37	18	NW	<2	B4	0.5-1	Clear	None	5.3	147	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:07	41.19897	-72.01230	41.20258	-72.01955	33	24	NNW	<2	B6	0.5-1	Clear	None	3.4	308	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:07	09:09	41.20258	-72.01955	41.20379	-72.02222	31	21	WNW	<2	B5	0.5-1	Clear	None	3.2	298	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:09	09:20	41.20379	-72.02222	41.20830	-72.03199	31	21	WNW	<2	B5	0.5-1	Clear	None	3.2	298	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:20	09:22	41.20830	-72.03199	41.20885	-72.03294	30	26	NNW	<2	B6	0.5-1	Clear	None	2.5	305	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:22	09:49	41.20885	-72.03294	41.20175	-72.02771	30	26	NNW	<2	B6	0.5-1	Clear	None	2.5	305	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:49	09:51	41.20175	-72.02771	41.20259	-72.02960	34	27	NW	<2	B6	0.5-1	Clear	None	2.6	303	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:51	10:00	41.20259	-72.02960	41.20592	-72.03696	34	27	NW	<2	B6	0.5-1	Clear	None	2.6	303	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	10:00	10:10	41.20592	-72.03696	41.21028	-72.04679	34	30	NNW	<2	B7	0.5-1	Clear	None	2.8	299	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:10	10:19	41.21028	-72.04679	41.21370	-72.05368	34	30	NNW	<2	B7	0.5-1	Clear	None	2.8	299	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:19	10:21	41.21370	-72.05368	41.21466	-72.05550	34	30	NNW	<2	B7	>5	Clear	None	2.9	328	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:21	10:34	41.21466	-72.05550	41.21689	-72.06078	34	28	NW	<2	B7	>5	Clear	Slight	3	328	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:34	10:36	41.21689	-72.06078	41.21520	-72.05615	29	26	NW	<2	B6	>5	Clear	Moderate	5.5	110	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:36	11:00	41.21520	-72.05615	41.19853	-72.01978	29	26	NW	<2	B6	>5	Clear	Moderate	5.5	119	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:40	41.19853	-72.01978	41.15350	-71.97789	32	24	NNW	<2	B6	>5	Clear	Severe	5.1	159	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:40	11:42	41.15350	-71.97789	41.15148	-71.97612	29	23	NNW	<2	B6	>5	Clear	Severe	4.9	121	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:42	12:00	41.15148	-71.97612	41.14840	-71.94894	29	23	NNW	<2	B6	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	41.14840	-71.94894	41.13903	-71.86236	34	21	NNW	<2	B5	>5	Clear	Severe	4.6	106	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:03	41.13903	-71.86236	41.14133	-71.86417	21	22	N	<2	B6	>5	Clear	Severe	2.6	5	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:03	13:04	41.14133	-71.86417	41.14213	-71.86646	21	19	N	<2	B4	>5	Clear	Severe	2.6	0	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:04	13:24	41.14213	-71.86646	41.15547	-71.89206	24	19	N	<2	B5	>5	Clear	Severe	4.2	320	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:24	13:26	41.15547	-71.89206	41.15737	-71.89396	33	26	N	<2	B7	>5	Clear	Severe	4.5	323	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:26	13:58	41.15737	-71.89396	41.13910	-71.86610	33	26	N	<2	B7	>5	Clear	Severe	4.5	323	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:58	14:00	41.13910	-71.86610	41.13994	-71.86830	20	21	NW	<2	B5	>5	Clear	Severe	4.5	323	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:05	41.13994	-71.86830	41.14254	-71.87548	20	21	NW	<2	B5	>5	Clear	Severe	4.5	323	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:05	14:07	41.14254	-71.87548	41.14360	-71.87841	30	18	SSW	<2	B6	>5	Clear	Severe	4.4	300	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:07	15:00	41.14360	-71.87841	41.14355	-71.86412	30	21	SSW	<2	B6	>5	Clear	Severe	4.4	311	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	16:00	41.14355	-71.86412	41.14020	-71.82545	26	15	S	<2	B6	>5	Clear	Severe	3.7	102	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:44	41.14020	-71.82545	41.12545	-71.78476	21	13	S	<2	B5	>5	Clear	Severe	3.3	123	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:44	16:45	41.12545	-71.78476	41.12594	-71.78652	20	17	SSE	<2	B5	>5	Clear	Severe	4.8	292	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:45	17:00	41.12594	-71.78652	41.13275	-71.81034	20	19	SSE	<2	B5	>5	Clear	Severe	4.5	292	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:11	41.13275	-71.81034	41.13750	-71.82765	22	19	S	<2	B5	>5	Clear	Severe	4.4	290	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:11	17:13	41.13750	-71.82765	41.13832	-71.83083	21	19	S	<2	B5	>5	Clear	Severe	4.6	292	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:13	17:31	41.13832	-71.83083	41.14249	-71.84506	21	12	SE	<2	B5	>5	Clear	Severe	4.3	267	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:31	17:33	41.14249	-71.84506	41.14246	-71.84247	20	13	NNW	<2	B5	>5	Clear	Severe	3.6	97	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:33	18:00	41.14246	-71.84247	41.13439	-71.80683	21	10	NNW	<2	B5	>5	Clear	Severe	3.7	88	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:09	41.13439	-71.80683	41.13093	-71.79428	19	13	NNW	<2	B5	>5	Clear	Severe	4	110	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:09	18:11	41.13093	-71.79428	41.13011	-71.79140	21	13	WNW	<2	B5	>5	Clear	Severe	4.5	72	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:11	19:00	41.13011	-71.79140	41.14154	-71.83135	21	12	WNW	<2	B5	>5	Clear	Severe	4.5	67	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	41.14154	-71.83135	41.12238	-71.76330	19	12	N	<2	B4	>5	Clear	Severe	4.3	292	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:33	41.12238	-71.76330	41.12836	-71.77692	18	11	NW	<2	B3	>5	Clear	Severe	4.5	53	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:33	20:34	41.12836	-71.77692	41.12669	-71.77375	19	7	NW	<2	B3	>5	Clear	Severe	5.5	122	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:34	20:47	41.12669	-71.77375	41.11754	-71.75634	19	7	NW	<2	B3	>5	Clear	Severe	5	133	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:47	20:48	41.11754	-71.75634	41.11690	-71.75486	20	7	NW	<2	B3	>5	Clear	Severe	4	116	Silent	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:48	21:00	41.11690	-71.75486	41.11306	-71.75728	20	7	NW	<2	B3	>5	Clear	Severe	4.5	119	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	22:00	41.11306	-71.75728	41.10469	-71.73986	18	19	NW	<2	B3	>5	Clear	Severe	2.8	293	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	41.10469	-71.73986	41.12915	-71.78525	20	18	S	<2	B3	>5	Clear	Severe	3.2	266	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:21	41.12915	-71.78525	41.11228	-71.76362	20	10	ESE	<2	B3	>5	Clear	Slight	4.9	219	Full Power	N/A
2022-09-15	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:21	00:00	41.11228	-71.76362	41.12146	-71.76269	16	11	E	<2	B3	1-2	Clear	None	4.6	195	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:58	41.11949	-71.76579	41.11949	-71.76579	33	17	SE	<2	B3	0.5-1	Clear	None	4.1	224	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:58	01:42	41.07969	-71.73516	41.09184	-71.74656	34	15	NW	<2	B4	0.5-1	Clear	None	4.6	153	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:42	01:43	41.09184	-71.74656	41.09289	-71.74698	20	21	N	<2	B4	0.5-1	Clear	None	4.3	345	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:43	01:56	41.09289	-71.74698	41.10778	-71.75246	20	21	N	<2	B4	0.5-1	Clear	None	4.3	345	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	01:56	01:58	41.10778	-71.75246	41.11002	-71.75323	19	25	N	<2	B7	0.5-1	Clear	None	4.3	344	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	01:58	02:00	41.11002	-71.75323	41.11226	-71.75200	19	25	N	<2	B7	0.5-1	Clear	None	4.2	141	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	02:18	41.11226	-71.75200	41.10406	-71.74935	18	25	N	<2	B7	0.5-1	Clear	None	4.2	141	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:18	02:20	41.10406	-71.74935	41.10605	-71.75135	18	24	N	<2	B7	0.5-1	Clear	None	4.9	325	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:20	02:31	41.10605	-71.75135	41.11749	-71.76360	18	24	N	<2	B7	0.5-1	Clear	None	4.6	325	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:31	02:33	41.11749	-71.76360	41.11991	-71.76676	17	25	NNW	<2	B7	0.5-1	Clear	None	4.8	315	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:33	03:00	41.11991	-71.76676	41.13173	-71.79890	17	25	NNW	<2	B7	0.5-1	Clear	None	4.8	288	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:59	41.13173	-71.79890	41.09461	-71.74394	20	9	NW	<2	B2	0.5-1	Clear	None	3.7	111	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	03:59	04:27	41.09461	-71.74394	41.06870	-71.72734	19	14	NW	<2	B4	0.5-1	Clear	None	3.8	164	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:27	04:27	41.06870	-71.72734	41.06818	-71.72686	35	10	NW	<2	B3	0.5-1	Clear	None	4.1	148	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:27	05:00	41.06818	-71.72686	41.04458	-71.71441	35	10	NW	<2	B3	0.5-1	Clear	None	4.1	148	Deploying/Retrieving	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	41.04458	-71.71441	41.01333	-71.61934	38	14	NW	<2	B3	0.5-1	Clear	None	2.2	175	Deploying/Retrieving	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	41.01333	-71.61934	40.97940	-71.42030	38	11	N	<2	B3	0.5-1	Clear	None	9.1	102	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	40.97940	-71.42030	40.94185	-71.21826	29	8	NE	<2	B3	0.5-1	Clear	None	9.8	102	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	40.94185	-71.21826	40.91007	-71.02096	29	9	ENE	<2	B3	0.5-1	Clear	None	9.3	102	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	40.91007	-71.02096	40.87596	-70.82019	31	11	ENE	<2	B3	0.5-1	Clear	None	9.1	100	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.87596	-70.82019	40.84101	-70.62521	29	14	NE	<2	B4	>5	Clear	None	9.4	100	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	40.84101	-70.62521	40.79277	-70.44358	52	18	NE	<2	B5	>5	Clear	Moderate	9.1	101	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	40.79277	-70.44358	40.76648	-70.29128	49	7	NE	<2	B3	>5	Clear	Severe	8.8	109	Transit	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:49	40.76648	-70.29128	40.78092	-70.29701	45	13	N	<2	B3	>5	Clear	Severe	1.2	207	Deploying/Retrieving	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:49	14:00	40.78092	-70.29701	40.77677	-70.28574	46	9	N	<2	B3	>5	Clear	Severe	4	122	Soft Start	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:09	40.77677	-70.28574	40.77468	-70.27387	46	9	N	<2	B3	>5	Clear	Severe	3.3	118	Soft Start	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:09	14:28	40.77468	-70.27387	40.76992	-70.25025	45	9	N	<2	B3	>5	Clear	Severe	3.4	108	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:28	14:29	40.76992	-70.25025	40.77004	-70.24770	45	8	N	<2	B3	>5	Clear	Severe	3.5	104	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:29	15:00	40.77004	-70.24770	40.77046	-70.19954	45	8	N	<2	B3	>5	Clear	Severe	3.6	100	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:06	40.77046	-70.19954	40.77053	-70.19050	43	9	NNW	<2	B3	>5	Clear	Severe	4.2	84	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:06	15:09	40.77053	-70.19050	40.77002	-70.18562	43	7	NW	<2	B3	>5	Clear	Severe	4.4	101	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:09	15:17	40.77002	-70.18562	40.76434	-70.18487	43	5	NW	<2	B3	>5	Clear	Severe	4.5	128	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:17	15:19	40.76434	-70.18487	40.76426	-70.18874	43	15	WNW	<2	B3	>5	Clear	Severe	4.5	269	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:19	16:00	40.76426	-70.18874	40.76365	-70.25498	43	15	WNW	<2	B4	>5	Clear	Severe	4.7	258	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:19	40.76365	-70.25498	40.76331	-70.28440	45	16	SE	<2	B4	>5	Clear	Severe	4.3	272	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:19	16:21	40.76331	-70.28440	40.76332	-70.28703	47	17	SE	<2	B4	>5	Clear	Severe	4.2	263	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:21	16:29	40.76332	-70.28703	40.76803	-70.28991	47	18	SE	<2	B4	>5	Clear	Severe	4	282	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:29	16:30	40.76803	-70.28991	40.76791	-70.28810	47	11	SE	<2	B4	>5	Clear	Severe	5	96	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:30	17:00	40.76791	-70.28810	40.76849	-70.23290	46	14	SE	<2	B4	>5	Clear	Severe	4.9	89	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:23	40.76849	-70.23290	40.76889	-70.18961	44	14	NW	<2	B4	>5	Clear	Severe	4.8	85	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:23	17:25	40.76889	-70.18961	40.76883	-70.18585	43	13	NNW	<2	B4	>5	Clear	Severe	4.8	106	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:25	17:35	40.76883	-70.18585	40.76396	-70.18571	43	14	NNW	<2	B4	>5	Clear	Severe	5.1	107	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:35	17:37	40.76396	-70.18571	40.76414	-70.18748	43	18	SE	<2	B4	>5	Clear	Severe	4.7	270	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:37	18:00	40.76414	-70.18748	40.76372	-70.22223	43	17	SE	<2	B4	>5	Clear	Severe	4.2	267	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:15	40.76372	-70.22223	40.76354	-70.24348	44	19	SE	<2	B4	>5	Clear	Severe	4.1	264	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:15	18:16	40.76354	-70.24348	40.76349	-70.24496	44	17	SE	<2	B4	>5	Clear	Severe	4.1	268	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:16	19:00	40.76349	-70.24496	40.77051	-70.19853	44	17	SE	<2	B4	>5	Clear	Severe	4.1	266	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:16	40.77051	-70.19853	40.76407	-70.18423	43	10	WNW	<2	B4	>5	Clear	Severe	4.9	84	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:16	19:17	40.76407	-70.18423	40.76412	-70.18574	42	18	WNW	<2	B4	>5	Clear	Severe	3.9	261	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:17	20:00	40.76412	-70.18574	40.76335	-70.24748	42	18	WNW	<2	B4	>5	Clear	Severe	3.9	261	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:24	40.76335	-70.24748	40.76307	-70.28362	44	18	NW	<2	B4	>5	Clear	Severe	4.1	268	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:24	20:26	40.76307	-70.28362	40.76304	-70.28693	47	17	WNW	<2	B4	>5	Clear	Severe	4.1	276	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:26	20:35	40.76304	-70.28693	40.76754	-70.28843	47	16	WNW	<2	B4	>5	Clear	Severe	4.1	276	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:35	20:36	40.76754	-70.28843	40.76765	-70.28689	46	6	WNW	<2	B4	>5	Clear	Severe	4.7	79	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:36	20:59	40.76765	-70.28689	40.76815	-70.24754	46	6	NW	<2	B4	>5	Clear	Severe	4.7	93	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	21:33	40.76815	-70.24754	40.76874	-70.18966	44	6	NW	<2	B4	>5	Clear	Severe	4.8	91	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:33	21:35	40.76874	-70.18966	40.76858	-70.18567	42	10	NW	<2	B4	>5	Clear	Severe	4.7	111	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:35	21:44	40.76858	-70.18567	40.76311	-70.18432	42	10	NW	<2	B4	>5	Clear	Severe	4.7	111	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:44	21:46	40.76311	-70.18432	40.76351	-70.18753	42	19	SSE	<2	B4	>5	Clear	Severe	3.7	291	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:46	22:00	40.76351	-70.18753	40.76356	-70.20824	42	19	SSE	<2	B4	>5	Clear	Severe	3.7	291	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:47	40.76356	-70.20824	40.76278	-70.28462	43	19	WNW	<2	B4	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:47	22:48	40.76278	-70.28462	40.76262	-70.28737	47	16	WNW	<2	B4	>5	Clear	Slight	4.8	248	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:48	23:00	40.76262	-70.28737	40.75764	-70.30590	47	15	WNW	<2	B4	>5	Clear	Slight	4.7	252	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:07	40.75764	-70.30590	40.76226	-70.30237	47	13	WNW	<2	B4	>5	Clear	None	4.7	10	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:07	23:08	40.76226	-70.30237	40.76235	-70.30050	46	12	NW	<2	B4	>5	Clear	None	4.6	71	Silent	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:08	23:21	40.76235	-70.30050	40.76242	-70.28013	47	12	NW	<2	B4	>5	Clear	None	4.3	89	Full Power	N/A
2022-09-16	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:21	00:00	40.76242	-70.28013	40.76309	-70.22240	46	7	NW	<2	B3	1-2	Clear	None	4.3	78	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:58	40.76322	-70.21912	40.75799	-70.22795	43	7	NNW	<2	B3	0.5-1	Clear	None	4.3	93	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:58	01:40	40.75799	-70.22795	40.75720	-70.29914	46	14	NW	<2	B3	0.5-1	Clear	None	4.9	268	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:40	01:43	40.75720	-70.29914	40.75732	-70.30308	50	15	SSE	<2	B3	0.5-1	Clear	None	4.5	270	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:43	01:50	40.75732	-70.30308	40.76200	-70.30320	50	15	SSE	<2	B3	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:50	01:51	40.76200	-70.30320	40.76201	-70.30275	49	8	NNW	<2	B3	0.5-1	Clear	None	4.3	85	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:51	02:00	40.76201	-70.30275	40.76179	-70.28930	49	8	NNW	<2	B3	0.5-1	Clear	None	4.3	85	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	40.76179	-70.28930	40.76315	-70.20259	49	8	NW	<2	B3	0.5-1	Clear	None	4	85	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	40.76315	-70.20259	40.75741	-70.25352	43	8	E	<2	B3	0.5-1	Clear	None	3.5	90	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:28	40.75741	-70.25352	40.75694	-70.29752	48	4	NW	<2	B3	0.5-1	Clear	None	4.5	268	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:28	05:00	40.75694	-70.29752	40.76207	-70.27171	48	19	N	<2	B5	0.5-1	Clear	None	4.3	294	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:51	40.76207	-70.27171	40.76297	-70.18942	46	21	ENE	<2	B5	0.5-1	Clear	None	4.3	97	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:51	06:00	40.76297	-70.18942	40.75812	-70.18259	42	20	NE	<2	B6	0.5-1	Clear	None	4.3	92	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	06:59	40.75812	-70.18259	40.75688	-70.27526	42	20	NE	<2	B6	0.5-1	Clear	None	3.7	209	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	06:59	07:14	40.75688	-70.27526	40.75663	-70.29920	49	8	NE	<2	B5	0.5-1	Clear	None	4.2	271	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:14	08:00	40.75663	-70.29920	40.76210	-70.24569	48	8	N	<2	B3	0.5-1	Clear	None	4.1	275	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	40.76210	-70.24569	40.75736	-70.20771	44	14	ESE	<2	B3	1-2	Clear	None	4.6	89	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	09:00	10:00	40.75736	-70.20771	40.75852	-70.30753	48	15	ENE	<2	B5	>5	Clear	None	4.5	84	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.75852	-70.30753	40.76222	-70.21400	47	17	NE	<2	B5	>5	Clear	Severe	4.3	82	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	40.76222	-70.21400	40.75673	-70.24292	47	16	NE	<2	B5	>5	Clear	Severe	4.6	84	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	40.75673	-70.24292	40.76127	-70.27952	45	7	NE	<2	B3	>5	Clear	Severe	4.3	274	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	40.76127	-70.27952	40.76212	-70.19484	46	11	NE	<2	B3	>5	Clear	Severe	4.1	93	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	40.76212	-70.19484	40.75614	-70.26542	46	11	ENE	<2	B4	>5	Clear	Severe	3.7	74	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:19	40.75614	-70.26542	40.75584	-70.29831	46	2	NNE	<2	B3	>5	Clear	Severe	4.6	261	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:19	15:21	40.75584	-70.29831	40.75587	-70.30173	48	6	NE	<2	B3	>5	Clear	Severe	4.7	270	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:21	15:29	40.75587	-70.30173	40.76058	-70.30403	48	6	NE	<2	B3	>5	Clear	Severe	4.6	283	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:29	15:31	40.76058	-70.30403	40.76069	-70.30025	48	12	ENE	<2	B3	>5	Clear	Severe	4.4	86	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:31	16:06	40.76069	-70.30025	40.76126	-70.24482	48	12	ENE	<2	B3	>5	Clear	Severe	4.4	96	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:06	16:40	40.76126	-70.24482	40.76192	-70.18877	45	11	ENE	<2	B3	>5	Clear	Severe	4.6	95	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:40	16:42	40.76192	-70.18877	40.76186	-70.18693	43	8	ENE	<2	B3	>5	Clear	Severe	4.1	120	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:42	16:51	40.76186	-70.18693	40.75601	-70.18444	42	10	ENE	<2	B3	>5	Clear	Severe	4.3	118	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:51	16:52	40.75601	-70.18444	40.75602	-70.18613	43	9	NNE	<2	B3	>5	Clear	Severe	4.6	268	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:52	18:00	40.75602	-70.18613	40.75492	-70.29413	43	10	N	<2	B3	>5	Clear	Severe	4.6	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:03	40.75492	-70.29413	40.75499	-70.29940	47	10	NNE	<2	B3	>5	Clear	Severe	4.6	315	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:03	18:05	40.75499	-70.29940	40.75540	-70.30299	48	10	NNE	<2	B3	>5	Clear	Severe	4.6	300	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:05	18:12	40.75540	-70.30299	40.76035	-70.30410	48	8	NNE	<2	B3	>5	Clear	Severe	4.6	307	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:12	18:13	40.76035	-70.30410	40.76037	-70.30367	48	8	NNE	<2	B3	>5	Clear	Severe	4.8	89	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:13	19:00	40.76037	-70.30367	40.76124	-70.22186	48	10	N	<2	B3	>5	Clear	Severe	4.7	96	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:19	40.76124	-70.22186	40.76145	-70.18989	44	13	N	<2	B2	>5	Clear	Severe	4.8	91	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:19	19:21	40.76145	-70.18989	40.76162	-70.18653	43	8	E	<2	B2	>5	Clear	Severe	4.6	100	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:21	19:29	40.76162	-70.18653	40.75582	-70.18347	43	8	E	<2	B2	>5	Clear	Severe	4.6	100	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:29	19:30	40.75582	-70.18347	40.75591	-70.18660	43	3	NW	<2	B2	>5	Clear	Severe	4.5	275	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:30	20:00	40.75591	-70.18660	40.75528	-70.23194	43	2	NW	<2	B2	>5	Clear	Severe	4.2	263	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:43	40.75528	-70.23194	40.75454	-70.29865	44	2	NW	<2	B1	>5	Clear	Severe	4.1	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:43	20:45	40.75454	-70.29865	40.75468	-70.30159	47	2	WNW	<2	B1	>5	Clear	Severe	4.2	270	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:45	20:53	40.75468	-70.30159	40.76018	-70.30390	47	2	WNW	<2	B1	>5	Clear	Severe	4.2	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:53	20:54	40.76018	-70.30390	40.76009	-70.30111	47	7	E	<2	B1	>5	Clear	Severe	4.2	90	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:54	20:59	40.76009	-70.30111	40.76030	-70.29285	47	7	E	<2	B1	>5	Clear	Severe	4.2	90	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	22:00	40.76030	-70.29285	40.76130	-70.19265	47	8	E	<2	B1	>5	Clear	Severe	4.4	94	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:02	40.76130	-70.19265	40.76130	-70.19002	47	9	SE	<2	B1	>5	Clear	Severe	4.3	95	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:02	22:04	40.76130	-70.19002	40.76131	-70.18711	47	9	SE	<2	B1	>5	Clear	Severe	4.3	92	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:04	22:12	40.76131	-70.18711	40.75546	-70.18377	47	9	S	<2	B1	>5	Clear	Severe	4.1	124	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:12	22:13	40.75546	-70.18377	40.75550	-70.18582	47	10	WSW	<2	B1	>5	Clear	Severe	5.1	280	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:13	23:00	40.75550	-70.18582	40.75471	-70.26373	47	10	WSW	<2	B1	>5	Clear	Severe	4.7	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:15	40.75471	-70.26373	40.75442	-70.28873	47	10	WSW	<2	B1	>5	Clear	Slight	4.7	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:15	23:20	40.75442	-70.28873	40.75417	-70.29887	47	10	W	<2	B1	1-2	Clear	None	4.6	270	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:20	23:23	40.75417	-70.29887	40.75451	-70.30228	47	11	W	<2	B1	1-2	Clear	None	4.4	284	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:23	23:31	40.75451	-70.30228	40.75950	-70.30578	47	11	W	<2	B1	1-2	Clear	None	4.6	294	Full Power	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:31	23:33	40.75950	-70.30578	40.75983	-70.30264	47	9	SSW	<2	B1	0.5-1	Clear	None	4	87	Silent	N/A
2022-09-17	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:33	00:00	40.75983	-70.30264	40.76030	-70.26192	48	9	SSW	<2	B1	0.5-1	Clear	None	4	90	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:48	40.76038	-70.25043	40.76110	-70.19017	47	9	S	<2	B1	0.5-1	Clear	None	4.1	91	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:48	00:50	40.76110	-70.19017	40.76087	-70.18679	42	8	S	<2	B1	0.5-1	Clear	None	3.7	96	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:50	00:59	40.76087	-70.18679	40.75516	-70.18378	42	8	S	<2	B1	0.5-1	Clear	None	3.7	107	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:59	01:45	40.75516	-70.18378	40.75447	-70.26034	42	11	SSW	<2	B2	0.5-1	Clear	None	5	270	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:45	01:58	40.75447	-70.26034	40.75420	-70.28399	45	11	WSW	<2	B3	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	01:58	02:07	40.75420	-70.28399	40.75429	-70.29747	47	10	SW	<2	B3	0.5-1	Clear	None	4.8	264	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:07	02:09	40.75429	-70.29747	40.75399	-70.30118	48	15	SW	<2	B4	0.5-1	Clear	None	4.6	266	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:09	02:19	40.75399	-70.30118	40.75968	-70.30232	48	15	SW	<2	B4	0.5-1	Clear	None	4.6	266	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:19	02:20	40.75968	-70.30232	40.75970	-70.30117	47	12	SW	<2	B4	0.5-1	Clear	None	4.4	92	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:20	03:00	40.75970	-70.30117	40.76035	-70.24106	47	12	SW	<2	B4	0.5-1	Clear	None	4.1	89	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	40.76035	-70.24106	40.75464	-70.20555	44	13	SSW	<2	B4	0.5-1	Clear	None	4	87	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	40.75464	-70.20555	40.75276	-70.30312	43	15	SSW	<2	B4	0.5-1	Clear	None	4.6	257	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	40.75276	-70.30312	40.76007	-70.23026	48	8	SSW	<2	B3	0.5-1	Clear	None	4.7	343	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	40.76007	-70.23026	40.75427	-70.21708	44	9	SSW	<2	B3	0.5-1	Clear	None	3.5	100	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:53	40.75427	-70.21708	40.75347	-70.29813	43	17	W	<2	B5	0.5-1	Clear	None	4.1	264	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:53	07:55	40.75347	-70.29813	40.75362	-70.30125	48	16	W	<2	B5	0.5-1	Clear	None	4.2	279	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:55	08:00	40.75362	-70.30125	40.75621	-70.30710	48	17	W	<2	B5	0.5-1	Clear	None	4.2	279	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	08:03	40.75621	-70.30710	40.75904	-70.30451	48	10	SW	<2	B5	0.5-1	Clear	None	4.5	74	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:03	08:05	40.75904	-70.30451	40.75906	-70.29946	48	10	SW	<2	B5	0.5-1	Clear	None	4.5	74	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:05	09:00	40.75906	-70.29946	40.76000	-70.21177	48	10	SW	<2	B4	0.5-1	Clear	None	4.5	74	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	09:14	40.76000	-70.21177	40.76017	-70.18972	48	12	WSW	<2	B4	0.5-1	Clear	None	4.8	94	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:14	09:16	40.76017	-70.18972	40.76022	-70.18697	42	5	SW	<2	B3	0.5-1	Clear	None	4.3	107	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:16	09:26	40.76022	-70.18697	40.75455	-70.18541	42	11	SW	<2	B3	0.5-1	Clear	None	4.3	107	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:26	09:28	40.75455	-70.18541	40.75437	-70.18817	43	19	SW	<2	B3	0.5-1	Clear	None	4	268	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:28	10:00	40.75437	-70.18817	40.75382	-70.23449	43	19	SW	<2	B3	1-2	Clear	None	4	268	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	10:42	40.75382	-70.23449	40.75320	-70.29823	47	15	SW	<2	B4	>5	Cloudy	None	5.2	105	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:42	10:44	40.75320	-70.29823	40.75317	-70.30090	48	19	SW	<2	B5	>5	Cloudy	None	4.1	264	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:44	10:53	40.75317	-70.30090	40.75931	-70.30266	48	19	WSW	<2	B5	>5	Cloudy	None	4.1	264	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:53	10:55	40.75931	-70.30266	40.75885	-70.29892	47	19	WSW	<2	B5	>5	Cloudy	None	5.2	254	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:55	11:00	40.75885	-70.29892	40.75897	-70.29037	47	19	SW	<2	B5	>5	Clear	None	5.2	254	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:59	40.75897	-70.29037	40.76009	-70.18916	47	15	SW	<2	B5	>5	Clear	None	4.8	91	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:59	12:01	40.76009	-70.18916	40.75965	-70.18503	42	15	SW	<2	B4	>5	Clear	None	4.6	91	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:01	12:09	40.75965	-70.18503	40.75425	-70.18315	42	15	SW	<2	B4	>5	Clear	None	4.3	117	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:09	12:11	40.75425	-70.18315	40.75417	-70.18616	42	20	W	<2	B6	>5	Clear	None	4	265	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:11	13:00	40.75417	-70.18616	40.75327	-70.25911	42	20	W	<2	B6	>5	Clear	None	4	265	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:27	40.75327	-70.25911	40.75297	-70.30026	45	19	W	<2	B4	>5	Clear	None	4	240	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:27	13:29	40.75297	-70.30026	40.75292	-70.30365	38	19	WSW	<2	B4	>5	Clear	None	4	260	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:29	13:43	40.75292	-70.30365	40.75859	-70.30155	38	19	WSW	<2	B4	>5	Clear	None	4	260	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:43	13:44	40.75859	-70.30155	40.75860	-70.30101	47	17	WSW	<2	B4	>5	Clear	None	4	90	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:44	14:00	40.75860	-70.30101	40.75886	-70.27572	47	15	WSW	<2	B4	>5	Clear	None	4	79	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:55	40.75886	-70.27572	40.75969	-70.18907	46	16	SW	<2	B4	>5	Clear	None	4.4	78	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:55	14:57	40.75969	-70.18907	40.75944	-70.18610	42	14	SW	<2	B4	>5	Clear	None	3.7	96	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:57	15:00	40.75944	-70.18610	40.75804	-70.18198	42	14	SW	<2	B4	>5	Clear	None	4.2	120	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:06	40.75804	-70.18198	40.75351	-70.18370	42	15	SW	<2	B4	>5	Clear	None	4.2	134	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:06	15:08	40.75351	-70.18370	40.75385	-70.18697	43	21	WSW	<2	B5	>5	Clear	None	4.1	270	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:08	16:00	40.75385	-70.18697	40.75291	-70.27245	43	22	WSW	<2	B5	>5	Clear	None	4.7	270	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:17	40.75291	-70.27245	40.75278	-70.29898	47	22	W	<2	B5	>5	Clear	Severe	3.5	267	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:17	16:18	40.75278	-70.29898	40.75274	-70.30107	48	22	W	<2	B5	>5	Clear	Severe	3.5	273	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:18	16:26	40.75274	-70.30107	40.75816	-70.30239	49	22	W	<2	B5	>5	Clear	Severe	5	288	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:26	16:27	40.75816	-70.30239	40.75825	-70.30011	49	20	WSW	<2	B5	>5	Clear	Severe	4.5	90	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:27	17:00	40.75825	-70.30011	40.75883	-70.24686	49	18	WSW	<2	B5	>5	Clear	Severe	4.5	89	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:36	40.75883	-70.24686	40.75940	-70.19049	49	21	WSW	<2	B5	>5	Clear	Severe	4.4	87	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:36	17:38	40.75940	-70.19049	40.75943	-70.18736	43	14	WSW	<2	B5	>5	Clear	Severe	4.6	113	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:38	18:00	40.75943	-70.18736	40.75343	-70.20520	43	14	WSW	<2	B5	>5	Clear	Severe	4.7	100	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.75343	-70.20520	40.75250	-70.28514	43	24	W	<2	B5	>5	Clear	Severe	4.8	262	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:11	40.75250	-70.28514	40.75236	-70.29942	48	22	W	<2	B5	>5	Clear	Severe	3.1	277	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:11	19:13	40.75236	-70.29942	40.75278	-70.30206	48	21	W	<2	B5	>5	Clear	Severe	4.3	283	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:13	19:22	40.75278	-70.30206	40.75799	-70.30386	48	22	W	<2	B5	>5	Clear	Severe	4.1	269	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:22	19:23	40.75799	-70.30386	40.75797	-70.30144	48	17	W	<2	B5	>5	Clear	Severe	4.6	80	Silent	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:23	20:00	40.75797	-70.30144	40.75870	-70.23948	48	20	W	<2	B5	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:30	40.75870	-70.23948	40.75919	-70.18984	45	14	WSW	<2	B5	>5	Clear	Severe	4.9	90	Full Power	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:30	20:59	40.75919	-70.18984	40.76921	-70.14719	43	15	SW	2-4	B5	>5	Clear	Severe	4.5	80	Deploying/Retrieving	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	22:00	40.76921	-70.14719	40.76306	-70.15657	42	17	WSW	2-4	B5	>5	Clear	Severe	2.1	39	Deploying/Retrieving	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	40.76306	-70.15657	40.75728	-70.23513	42	23	WSW	2-4	B5	>5	Clear	Severe	4	245	Standby	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:20	40.75728	-70.23513	40.75418	-70.26006	44	23	WSW	2-4	B5	2-5	Clear	None	4.3	281	Standby	N/A
2022-09-18	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:20	00:00	40.75418	-70.26006	40.76230	-70.20948	45	19	SW	2-4	B5	0.5-1	Clear	None	4.3	71	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	01:00	40.76208	-70.21269	40.76246	-70.17929	44	26	WSW	2-4	B6	0.5-1	Clear	None	3.1	261	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	40.76246	-70.17929	40.76586	-70.10293	47	17	SW	2-4	B5	0.5-1	Clear	None	4.9	88	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	40.76586	-70.10293	40.75715	-70.13573	47	22	WSW	2-4	B6	0.5-1	Clear	None	3.5	72	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	40.75715	-70.13573	40.74485	-70.19782	40	20	WSW	2-4	B6	0.5-1	Clear	None	3.1	256	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	40.74485	-70.19782	40.73391	-70.25776	43	23	W	2-4	B6	0.5-1	Clear	None	2.6	259	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	40.73391	-70.25776	40.76175	-70.21064	43	23	SW	2-4	B6	0.5-1	Clear	None	2.6	253	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	40.76175	-70.21064	40.77147	-70.21385	43	14	SW	2-4	B6	0.5-1	Clear	None	3.7	50	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	08:00	40.77147	-70.21385	40.75708	-70.27222	43	22	SW	2-4	B6	0.5-1	Clear	None	2.6	264	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:00	09:00	40.75708	-70.27222	40.74120	-70.32798	43	18	SW	2-4	B6	0.5-1	Clear	None	2.1	248	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	40.74120	-70.32798	40.72677	-70.36933	43	18	SW	2-4	B5	0.5-1	Clear	None	3.2	255	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.72677	-70.36933	40.75573	-70.26424	49	9	W	<2	B3	2-5	Clear	None	5.1	66	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	12:00	40.75573	-70.26424	40.75684	-70.27401	44	10	W	<2	B3	>5	Cloudy	None	5.1	69	Standby	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	40.75684	-70.27401	40.76494	-70.28259	47	22	W	<2	B6	>5	Cloudy	None	5.4	264	Deploying/Retrieving	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	40.76494	-70.28259	40.75505	-70.29292	45	9	SSW	<2	B6	>5	Cloudy	None	2.7	63	Deploying/Retrieving	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	40.75505	-70.29292	40.76542	-70.31284	48	16	W	<2	B5	>5	Clear	None	3.9	258	Deploying/Retrieving	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:19	40.76542	-70.31284	40.75789	-70.31493	48	6	W	<2	B3	>5	Clear	None	2	46	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:19	15:39	40.75789	-70.31493	40.74469	-70.33390	49	11	W	<2	B3	>5	Clear	None	3.7	223	Soft Start	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:39	16:00	40.74469	-70.33390	40.75026	-70.32564	49	10	W	<2	B3	>5	Clear	None	3.1	217	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	16:05	40.75026	-70.32564	40.75133	-70.31780	49	10	W	<2	B3	>5	Clear	None	4.2	63	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:05	16:06	40.75133	-70.31780	40.75137	-70.31609	49	2	W	<2	B3	>5	Clear	None	4.2	83	Silent	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:06	17:00	40.75137	-70.31609	40.75234	-70.23080	49	2	W	<2	B3	>5	Clear	None	4.2	65	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	40.75234	-70.23080	40.75307	-70.14150	49	7	SW	<2	B2	>5	Clear	None	4.1	96	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.75307	-70.14150	40.75390	-70.05992	50	7	SW	<2	B3	>5	Clear	None	4.1	96	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	19:30	40.75390	-70.05992	40.75448	-70.01756	40	3	SW	<2	B2	>5	Clear	None	3.5	90	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:30	19:31	40.75448	-70.01756	40.75446	-70.01676	41	7	SW	<2	B2	>5	Clear	None	4	100	Silent	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:31	19:41	40.75446	-70.01676	40.74915	-70.01385	41	7	SW	<2	B2	>5	Clear	None	4	100	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:41	19:42	40.74915	-70.01385	40.74896	-70.01611	41	13	WSW	<2	B2	>5	Clear	None	4.5	271	Silent	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:42	19:59	40.74896	-70.01611	40.74876	-70.04624	41	12	WSW	<2	B2	>5	Clear	None	4.5	270	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:59	20:59	40.74876	-70.04624	40.74778	-70.14485	41	12	WSW	<2	B2	>5	Clear	None	5.1	270	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	22:00	40.74778	-70.14485	40.74687	-70.23927	40	14	W	<2	B2	>5	Clear	None	4.6	274	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:52	40.74687	-70.23927	40.74608	-70.31284	40	12	WSW	<2	B2	>5	Clear	None	4.8	246	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:52	22:54	40.74608	-70.31284	40.74603	-70.31596	49	12	WSW	<2	B2	>5	Clear	None	4.8	268	Silent	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:54	23:00	40.74603	-70.31596	40.75110	-70.31458	49	13	WSW	<2	B2	>5	Clear	None	4.6	7	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:08	40.75110	-70.31458	40.75760	-70.30348	49	13	WSW	<2	B2	>5	Clear	None	4.9	38	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:08	23:10	40.75760	-70.30348	40.75764	-70.30123	48	13	WSW	<2	B2	>5	Clear	None	4.9	89	Silent	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:10	23:16	40.75764	-70.30123	40.75757	-70.28942	48	16	SSW	<2	B2	2-5	Clear	None	5.1	92	Full Power	N/A
2022-09-19	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:16	00:00	40.75757	-70.28942	40.75856	-70.21775	47	14	SSW	<2	B2	0.5-1	Clear	None	4.8	103	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:59	40.75860	-70.21563	40.75278	-70.23609	43	17	SSW	<2	B4	0.5-1	Clear	None	4.4	99	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:59	01:37	40.75278	-70.23609	40.75208	-70.29911	44	21	SW	<2	B4	0.5-1	Clear	None	5.2	261	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:37	01:39	40.75208	-70.29911	40.75272	-70.30302	48	21	W	<2	B4	0.5-1	Clear	None	5.1	306	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:39	01:46	40.75272	-70.30302	40.75737	-70.30508	48	21	W	<2	B4	0.5-1	Clear	None	5.1	306	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:46	01:48	40.75737	-70.30508	40.75747	-70.30084	47	16	SSW	<2	B4	0.5-1	Clear	None	4.8	70	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:48	02:00	40.75747	-70.30084	40.75760	-70.28302	47	16	SSW	<2	B4	0.5-1	Clear	None	4.8	70	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	40.75760	-70.28302	40.75860	-70.19274	47	17	SSW	<2	B4	0.5-1	Cloudy	None	4.3	90	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	03:33	40.75860	-70.19274	40.75269	-70.21401	42	10	SW	<2	B4	0.5-1	Clear	None	4.1	85	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:33	04:00	40.75269	-70.21401	40.75225	-70.25749	42	10	SW	<2	B4	0.5-1	Precipitation	None	4.1	85	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:26	40.75225	-70.25749	40.75179	-70.29871	45	23	W	<2	B6	0.5-1	Cloudy	None	4.8	264	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:26	04:28	40.75179	-70.29871	40.75181	-70.30146	48	24	W	<2	B6	0.5-1	Cloudy	None	4.2	261	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:28	04:45	40.75181	-70.30146	40.75113	-70.31914	48	24	W	<2	B6	0.5-1	Cloudy	None	3.9	242	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:45	04:47	40.75113	-70.31914	40.75109	-70.31592	48	24	W	<2	B6	0.5-1	Cloudy	None	4.5	95	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:47	05:00	40.75109	-70.31592	40.75136	-70.29635	48	24	W	<2	B6	0.5-1	Cloudy	None	3.9	99	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	05:59	40.75136	-70.29635	40.75216	-70.21503	48	22	SW	<2	B6	0.5-1	Cloudy	None	3.9	96	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:59	06:00	40.75216	-70.21503	40.75231	-70.20915	43	20	SW	<2	B5	0.5-1	Clear	None	3.4	105	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	40.75231	-70.20915	40.75303	-70.12539	41	7	SSW	<2	B4	0.5-1	Clear	None	4.3	81	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna; Azevedo, Camila	RPS	07:00	08:03	40.75303	-70.12539	40.75390	-70.03898	39	7	SSW	<2	B4	0.5-1	Clear	None	3.6	102	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:03	08:16	40.75390	-70.03898	40.75397	-70.03072	39	13	SW	<2	B4	0.5-1	Clear	None	3.8	84	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:16	08:18	40.75397	-70.03072	40.75397	-70.03072	39	9	SSW	<2	B4	0.5-1	Clear	None	4.9	109	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:18	08:28	40.75397	-70.03072	40.74882	-70.01374	39	4	SSW	<2	B4	0.5-1	Clear	None	3.9	120	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:28	08:29	40.74882	-70.01374	40.74869	-70.01563	41	17	SSW	<2	B4	0.5-1	Clear	None	3.2	259	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:29	09:00	40.74869	-70.01563	40.74831	-70.05931	41	17	SSW	<2	B4	0.5-1	Clear	None	3.2	259	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	40.74831	-70.05931	40.74739	-70.14838	41	15	SSW	<2	B4	0.5-1	Cloudy	None	4.9	277	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.74739	-70.14838	40.74654	-70.23712	40	11	W	<2	B3	1-2	Cloudy	None	3.4	269	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:50	40.74654	-70.23712	40.74566	-70.31352	45	11	SW	<2	B3	>5	Clear	None	4.5	269	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:50	11:53	40.74566	-70.31352	40.74642	-70.31839	49	14	SW	<2	B4	>5	Clear	None	4.2	280	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:53	12:00	40.74642	-70.31839	40.75090	-70.31775	49	14	SW	<2	B4	>5	Clear	None	4.2	280	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	12:02	40.75090	-70.31775	40.75094	-70.31322	49	14	SW	<2	B4	>5	Clear	None	4.5	86	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:02	13:00	40.75094	-70.31322	40.75194	-70.22192	49	14	SW	<2	B4	>5	Clear	None	4.5	86	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	13:59	40.75194	-70.22192	40.75278	-70.13594	44	5	SW	<2	B4	>5	Fog	None	3.8	76	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	13:59	15:00	40.75278	-70.13594	40.75368	-70.03857	40	2	SW	<2	B4	2-5	Fog	None	4.7	107	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:00	15:14	40.75368	-70.03857	40.75393	-70.01834	41	3	SW	<2	B4	2-5	Fog	None	4	101	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:14	15:16	40.75393	-70.01834	40.75352	-70.01528	41	2	SW	<2	B4	2-5	Clear	None	4.5	85	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:16	15:25	40.75352	-70.01528	40.74783	-70.01350	41	2	SW	<2	B4	2-5	Clear	None	4.7	99	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:25	15:26	40.74783	-70.01350	40.74819	-70.01593	41	11	SW	<2	B4	2-5	Clear	None	5.5	257	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	15:26	16:00	40.74819	-70.01593	40.74802	-70.06952	41	11	SW	<2	B4	2-5	Clear	None	5.5	257	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	40.74802	-70.06952	40.74698	-70.17248	39	13	WNW	<2	B4	2-5	Clear	Moderate	5.4	280	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	40.74698	-70.17248	40.74598	-70.27935	39	9	NW	<2	B4	2-5	Clear	Moderate	5.6	249	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:19	40.74598	-70.27935	40.74544	-70.31339	48	13	NE	<2	B4	2-5	Cloudy	None	5.1	260	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:19	18:21	40.74544	-70.31339	40.74564	-70.31643	48	14	NE	<2	B4	2-5	Cloudy	None	5	309	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:21	18:28	40.74564	-70.31643	40.75045	-70.31905	48	14	NE	<2	B4	2-5	Cloudy	None	5	315	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:28	18:29	40.75045	-70.31905	40.75061	-70.31625	48	14	NE	<2	B4	2-5	Cloudy	None	4.5	80	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:29	19:00	40.75061	-70.31625	40.75106	-70.26866	48	19	NNE	<2	B4	2-5	Cloudy	None	4.4	93	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	40.75106	-70.26866	40.75217	-70.17543	46	17	ENE	<2	B4	>5	Cloudy	Moderate	4.6	97	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:59	40.75217	-70.17543	40.75310	-70.08859	43	20	NE	<2	B5	>5	Cloudy	None	4.1	81	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	20:59	21:42	40.75310	-70.08859	40.75364	-70.01947	41	19	ENE	<2	B4	>5	Cloudy	None	4.5	103	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:42	21:44	40.75364	-70.01947	40.75360	-70.01585	40	15	ENE	<2	B4	>5	Cloudy	None	4.1	131	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:44	21:52	40.75360	-70.01585	40.74822	-70.01319	40	15	ENE	<2	B4	>5	Cloudy	None	4.1	131	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:52	21:54	40.74822	-70.01319	40.74822	-70.01690	40	10	NE	<2	B4	>5	Cloudy	None	5.2	281	Silent	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:54	21:59	40.74822	-70.01690	40.74806	-70.02613	40	10	NE	<2	B4	>5	Cloudy	None	5.2	281	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	21:59	23:00	40.74806	-70.02613	40.74708	-70.12681	40	10	NE	<2	B4	>5	Cloudy	None	5	280	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:14	40.74708	-70.12681	40.74682	-70.15106	40	11	NNE	<2	B4	>5	Cloudy	None	4.7	265	Full Power	N/A
2022-09-20	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:14	00:00	40.74682	-70.15106	40.74618	-70.22576	41	9	NE	<2	B4	>5	Cloudy	None	5.2	270	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:08	40.74609	-70.22949	40.74601	-70.23921	44	10	N	<2	B4	0.5-1	Cloudy	None	4.6	269	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:08	01:00	40.74601	-70.23921	40.74619	-70.32043	44	10	N	<2	B4	0.5-1	Cloudy	None	4.6	269	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	01:00	02:00	40.74619	-70.32043	40.75121	-70.23405	44	11	NNE	<2	B4	0.5-1	Cloudy	None	3.6	306	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	02:00	03:00	40.75121	-70.23405	40.75216	-70.14372	44	13	ENE	<2	B4	0.5-1	Cloudy	None	4	88	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	40.75216	-70.14372	40.75299	-70.05885	40	11	E	<2	B4	0.5-1	Cloudy	None	4	89	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	05:00	40.75299	-70.05885	40.74757	-70.04466	39	10	E	<2	B4	0.5-1	Clear	None	3.7	80	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	05:00	06:00	40.74757	-70.04466	40.74666	-70.14980	38	3	E	<2	B3	0.5-1	Clear	None	5.4	259	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Diaz, Paola	RPS	06:00	07:00	40.74666	-70.14980	40.74574	-70.24228	41	4	N	<2	B2	0.5-1	Clear	None	4.2	262	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:00	07:47	40.74574	-70.24228	40.74492	-70.31208	45	5	NNW	<2	B2	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:47	07:50	40.74492	-70.31208	40.74506	-70.31655	48	4	NE	<2	B2	0.5-1	Clear	None	3.6	274	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	07:50	08:00	40.74506	-70.31655	40.75010	-70.31635	48	4	NE	<2	B2	0.5-1	Clear	None	3.6	274	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	08:00	08:01	40.75010	-70.31635	40.75015	-70.31497	48	11	E	<2	B2	0.5-1	Clear	None	4	87	Silent	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	08:01	09:00	40.75015	-70.31497	40.75103	-70.22609	48	11	E	<2	B2	0.5-1	Clear	None	4.8	90	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Diaz, Paola; Runyan, Leanna	RPS	09:00	10:00	40.75103	-70.22609	40.75190	-70.13461	47	12	E	<2	B2	0.5-1	Clear	None	4.8	90	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	10:00	11:00	40.75190	-70.13461	40.75279	-70.04113	39	12	E	<2	B3	1-2	Cloudy	None	4.2	93	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:00	11:14	40.75279	-70.04113	40.75302	-70.01759	40	10	E	<2	B3	>5	Cloudy	None	4.2	93	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:14	11:16	40.75302	-70.01759	40.75269	-70.01475	41	10	E	<2	B3	>5	Cloudy	None	4.7	93	Silent	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:16	11:24	40.75269	-70.01475	40.74770	-70.01321	41	10	E	<2	B3	>5	Cloudy	None	4.5	109	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:24	11:26	40.74770	-70.01321	40.74766	-70.01756	39	4	N	<2	B2	>5	Cloudy	None	4.5	266	Silent	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	11:26	12:00	40.74766	-70.01756	40.74723	-70.07169	39	4	N	<2	B2	>5	Cloudy	None	4.5	266	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Azevedo, Camila	RPS	12:00	13:00	40.74723	-70.07169	40.74622	-70.17054	38	2	ESE	<2	B2	>5	Cloudy	None	4.2	260	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Diaz, Paola	RPS	13:00	14:00	40.74622	-70.17054	40.74518	-70.27070	43	2	NNE	<2	B2	>5	Cloudy	None	5.1	275	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:25	40.74518	-70.27070	40.74981	-70.31308	47	3	N	<2	B2	>5	Cloudy	None	5.1	270	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:25	14:27	40.74981	-70.31308	40.74981	-70.31308	49	8	NE	<2	B3	>5	Cloudy	None	4.3	286	Silent	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:27	14:36	40.74981	-70.31308	40.74981	-70.31308	49	8	NE	<2	B3	>5	Cloudy	None	4.7	300	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:36	14:37	40.74981	-70.31308	40.74981	-70.31308	49	15	NE	<2	B3	>5	Cloudy	None	3.8	83	Silent	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:37	14:59	40.74981	-70.31308	40.75017	-70.28057	49	15	NE	<2	B3	>5	Cloudy	None	3.8	83	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:59	16:00	40.75017	-70.28057	40.75094	-70.18838	47	14	E	<2	B3	>5	Cloudy	Moderate	4	100	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	16:00	17:00	40.75094	-70.18838	40.75205	-70.09877	42	16	ENE	<2	B3	>5	Cloudy	Moderate	3.9	104	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:53	40.75205	-70.09877	40.75284	-70.01875	40	13	E	<2	B3	>5	Cloudy	Moderate	3.9	98	Full Power	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	17:53	18:41	40.75284	-70.01875	40.72139	-70.05148	41	11	ESE	<2	B3	>5	Cloudy	Moderate	3.2	122	Deploying/Retrieving	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:41	19:00	40.72139	-70.05148	40.73880	-70.07341	41	9	N	<2	B3	>5	Cloudy	Moderate	4.3	299	Deploying/Retrieving	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:00	20:00	40.73880	-70.07341	40.80814	-70.14492	37	5	N	<2	B1	>5	Cloudy	None	5.3	330	Transit	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.80814	-70.14492	40.89841	-70.26431	33	3	N	<2	B1	>5	Cloudy	None	5.3	331	Transit	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	21:00	22:00	40.89841	-70.26431	40.99107	-70.39614	32	10	WNW	<2	B1	>5	Cloudy	None	8.1	316	Transit	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	40.99107	-70.39614	41.09366	-70.52154	42	10	WNW	<2	B1	>5	Cloudy	None	8.4	310	Transit	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	23:00	23:07	41.09366	-70.52154	41.10362	-70.53634	39	10	W	<2	B2	>5	Cloudy	None	8.2	307	Transit	N/A
2022-09-21	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	23:07	00:00	41.10362	-70.53634	41.18182	-70.65543	42	11	W	<2	B2	1-2	Cloudy	None	8.2	307	Transit	N/A
2022-09-22	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	00:00	00:59	41.18522	-70.66022	41.27443	-70.77609	33	14	W	<2	B2	0.5-1	Clear	None	8	311	Transit	N/A
2022-09-22	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	00:59	02:00	41.27443	-70.77609	41.38298	-70.87136	30	17	W	<2	B2	0.5-1	Clear	None	7.4	308	Transit	N/A
2022-09-22	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Runyan, Leanna	RPS	02:00	03:00	41.38298	-70.87136	41.52507	-70.84117	26	7	SSW	<2	B2	0.5-1	Clear	None	9.5	29	Transit	N/A
2022-09-22	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Diaz, Paola	RPS	03:00	04:00	41.52507	-70.84117	41.63206	-70.91401	26	11	SW	<2	B2	0.5-1	Clear	None	8.7	344	Transit	N/A
2022-09-22	*GO Explorer*	HRG	Visual	Azevedo, Camila; Runyan, Leanna	RPS	04:00	04:25	41.63206	-70.91401	41.62213	-70.91375	7	12	SSW	<2	B2	0.5-1	Clear	None	3.8	222	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	10:10	10:20	41.62204	-70.91363	41.62231	-70.91297	5	0	NNW	<2	B1	2-5	Cloudy	None	2.2	352	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	10:20	11:00	41.62231	-70.91297	41.62987	-70.90908	5	0	NNW	<2	B1	>5	Cloudy	None	2.2	352	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	11:00	11:30	41.62987	-70.90908	41.62416	-70.91434	9	4	S	<2	B1	>5	Clear	None	2.8	332	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Runyan, Leanna	RPS	11:30	12:25	41.62416	-70.91434	41.62448	-70.91379	5	4	S	<2	B1	>5	Clear	None	0	180	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:25	13:00	41.62448	-70.91379	41.60426	-70.89270	5	3	S	<2	B1	>5	Cloudy	Slight	2.8	330	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	41.60426	-70.89270	41.50165	-70.84949	10	17	S	<2	B2	>5	Cloudy	Slight	7	156	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	14:00	15:00	41.50165	-70.84949	41.45579	-70.99087	16	20	WSW	<2	B2	>5	Cloudy	Slight	7	240	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.45579	-70.99087	41.35953	-71.02982	21	19	WSW	<2	B3	>5	Cloudy	Slight	7.3	233	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	41.35953	-71.02982	41.25551	-70.95201	24	21	SW	<2	B5	>5	Clear	Moderate	7.8	162	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	41.25551	-70.95201	41.18912	-70.81739	35	14	SW	<2	B5	>5	Clear	Severe	7.7	130	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.18912	-70.81739	41.14897	-70.78675	27	17	SW	<2	B5	>5	Clear	Severe	7.2	144	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	19:59	41.14897	-70.78675	41.02960	-70.70455	33	17	ENE	<2	B5	>5	Clear	Severe	6.5	135	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	19:59	21:01	41.02960	-70.70455	40.93616	-70.66639	43	17	SW	<2	B5	>5	Clear	Severe	6	166	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:01	22:00	40.93616	-70.66639	40.87389	-70.55665	48	8	SW	<2	B5	>5	Clear	Severe	6.7	140	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	40.87389	-70.55665	40.84799	-70.41872	54	12	SW	<2	B5	>5	Clear	Severe	6.4	110	Transit	N/A
2022-09-27	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	23:00	00:00	40.84799	-70.41872	40.82183	-70.30289	51	12	SW	<2	B4	0.5-1	Clear	None	6.1	110	Transit	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	00:00	01:00	40.81905	-70.30005	40.79108	-70.26999	45	10	W	<2	B4	0.5-1	Clear	None	2.4	155	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.79108	-70.26999	40.76681	-70.28225	45	15	W	<2	B4	0.5-1	Clear	None	2.4	135	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	02:00	03:00	40.76681	-70.28225	40.73318	-70.30679	45	14	E	<2	B4	0.5-1	Clear	None	2	220	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	03:00	04:00	40.73318	-70.30679	40.71231	-70.31630	47	18	W	<2	B4	0.5-1	Clear	None	1.2	231	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.71231	-70.31630	40.70075	-70.26641	48	10	WNW	<2	B4	0.5-1	Clear	None	1.5	235	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:00	06:00	40.70075	-70.26641	40.72175	-70.23002	46	5	NW	<2	B3	0.5-1	Clear	None	2.9	80	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	07:00	40.72175	-70.23002	40.74319	-70.29246	45	11	WNW	<2	B3	0.5-1	Clear	None	3.7	300	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	40.74319	-70.29246	40.77606	-70.30369	47	13	NW	<2	B3	0.5-1	Clear	None	3.5	305	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.77606	-70.30369	40.76509	-70.29610	46	8	NW	<2	B3	0.5-1	Clear	None	3.6	45	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	09:00	09:57	40.76509	-70.29610	40.73891	-70.33947	46	15	W	<2	B3	0.5-1	Clear	None	3.6	245	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:57	10:19	40.73891	-70.33947	40.72849	-70.35447	45	12	W	<2	B3	0.5-1	Clear	None	3.4	239	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	10:19	11:00	40.72849	-70.35447	40.73200	-70.36537	48	12	W	<2	B3	2-5	Cloudy	None	2	235	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	11:00	11:48	40.73200	-70.36537	40.74996	-70.30990	48	14	W	<2	B4	>5	Clear	Slight	3.5	48	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	11:48	12:00	40.74996	-70.30990	40.75017	-70.29474	47	6	NW	<2	B5	>5	Clear	Severe	3.6	88	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.75017	-70.29474	40.75366	-70.21115	47	4	NW	<2	B4	>5	Clear	Severe	3	95	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	40.75366	-70.21115	40.76000	-70.12168	43	10	W	<2	B4	>5	Clear	Severe	3.5	90	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	14:00	14:30	40.76000	-70.12168	40.76209	-70.08374	39	10	W	<2	B4	>5	Clear	Severe	5	79	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	14:30	15:00	40.76209	-70.08374	40.76417	-70.07458	39	10	W	<2	B4	>5	Clear	Severe	1	37	Deploying/Retrieving	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.76417	-70.07458	40.75831	-70.13468	40	17	W	<2	B5	>5	Clear	Severe	1.9	247	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.75831	-70.13468	40.75539	-70.21233	40	21	W	<2	B5	>5	Clear	Severe	2.9	258	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	40.75539	-70.21233	40.76155	-70.20047	43	21	W	<2	B5	>5	Clear	Severe	3.5	270	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.76155	-70.20047	40.76319	-70.24565	43	16	W	<2	B5	>5	Clear	Severe	5.1	101	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.76319	-70.24565	40.76700	-70.29581	44	14	WNW	<2	B5	>5	Clear	Severe	4	54	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.76700	-70.29581	40.76876	-70.20451	46	9	W	<2	B5	>5	Clear	Severe	4.2	60	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.76876	-70.20451	40.77468	-70.24774	42	8	WNW	<2	B4	>5	Clear	Slight	3.7	90	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	23:00	40.77468	-70.24774	40.75040	-70.30231	45	15	W	<2	B3	>5	Clear	Slight	4.7	256	Standby	N/A
2022-09-28	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.75040	-70.30231	40.75153	-70.20659	43	7	W	<2	B3	0.5-1	Clear	None	4.9	90	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	01:00	40.75159	-70.20059	40.75227	-70.11654	43	7	W	<2	B3	0.5-1	Clear	None	4.9	90	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.75227	-70.11654	40.75060	-70.03689	40	6	W	<2	B3	0.5-1	Clear	None	3.4	105	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	03:00	40.75060	-70.03689	40.75336	-70.07659	40	8	NNW	<2	B3	0.5-1	Clear	None	4.2	98	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:00	04:00	40.75336	-70.07659	40.75248	-70.17151	39	11	NW	<2	B3	0.5-1	Clear	None	4.2	262	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.75248	-70.17151	40.75160	-70.26055	41	10	NW	<2	B3	0.5-1	Clear	None	3.6	260	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	06:00	40.75160	-70.26055	40.75054	-70.27107	46	13	NW	<2	B3	0.5-1	Clear	None	4.4	283	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	07:00	40.75054	-70.27107	40.75152	-70.17094	46	15	NE	<2	B3	0.5-1	Clear	None	4.2	85	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	40.75152	-70.17094	40.75257	-70.07819	41	15	NE	<2	B3	0.5-1	Clear	None	4.8	90	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.75257	-70.07819	40.74212	-70.04221	39	18	NE	<2	B3	0.5-1	Clear	None	3	81	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-29	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	40.74212	-70.04221	40.72291	-70.06079	40	14	NNE	<2	B3	0.5-1	Clear	None	1.1	233	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Runyan, Leanna; Dorado, Sam	RPS	10:00	10:20	40.72291	-70.06079	40.71687	-70.06681	40	18	NE	<2	B3	0.5-1	Clear	None	1.9	230	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:20	11:00	40.71687	-70.06681	40.72656	-70.14292	42	17	NE	<2	B3	2-5	Clear	None	1.2	293	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.72656	-70.14292	40.74511	-70.24018	42	9	NE	<2	B3	>5	Clear	None	6.8	290	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.74511	-70.24018	40.74495	-70.30100	44	20	NE	<2	B4	>5	Cloudy	None	1	250	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	40.74495	-70.30100	40.74817	-70.25517	47	8	NNE	<2	B4	>5	Clear	None	4.7	275	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:20	40.74817	-70.25517	40.77088	-70.24306	44	22	NE	2-4	B6	>5	Cloudy	Slight	4.3	50	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:20	15:00	40.77088	-70.24306	40.73522	-70.25912	44	9	NE	2-4	B5	>5	Cloudy	Moderate	4.4	177	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.73522	-70.25912	40.76585	-70.21000	44	23	NNE	2-4	B5	>5	Cloudy	Moderate	5	14	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.76585	-70.21000	40.76907	-70.29594	43	15	NNE	2-4	B5	>5	Cloudy	Slight	5.3	280	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	40.76907	-70.29594	40.78241	-70.20821	46	22	NE	2-4	B5	>5	Cloudy	Moderate	4.3	74	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.78241	-70.20821	40.78535	-70.20159	43	22	NE	2-4	B5	>5	Cloudy	Moderate	3.1	17	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.78535	-70.20159	40.71876	-70.25016	44	18	NE	2-4	B5	>5	Cloudy	Moderate	4.5	203	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.71876	-70.25016	40.73209	-70.25166	46	12	NE	<2	B5	>5	Cloudy	Moderate	5.2	213	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.73209	-70.25166	40.76584	-70.24013	46	21	NE	<2	B5	>5	Cloudy	None	2.1	10	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:57	40.76584	-70.24013	40.79624	-70.23646	44	19	NE	<2	B5	>5	Cloudy	None	3	16	Standby	N/A
2022-09-29	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	22:57	00:00	40.79624	-70.23646	40.82827	-70.23914	43	20	NE	<2	B5	0.5-1	Cloudy	None	2.6	34	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	01:00	40.82563	-70.24005	40.79657	-70.29634	43	15	NE	<2	B4	0.5-1	Cloudy	None	2.7	90	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.79657	-70.29634	40.77070	-70.35330	45	14	NE	<2	B4	0.5-1	Cloudy	None	3.4	238	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	03:00	40.77070	-70.35330	40.74316	-70.41093	49	11	ENE	<2	B4	0.5-1	Cloudy	None	3.6	262	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:00	04:00	40.74316	-70.41093	40.75833	-70.39080	50	14	NE	<2	B4	0.5-1	Clear	None	3.1	226	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.75833	-70.39080	40.77436	-70.36041	49	19	NE	<2	B4	0.5-1	Clear	None	1.5	55	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	06:00	40.77436	-70.36041	40.79046	-70.32532	50	20	NE	<2	B4	0.5-1	Clear	None	1.4	59	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	07:00	40.79046	-70.32532	40.80624	-70.29062	46	21	NE	<2	B4	0.5-1	Clear	None	1.5	59	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	40.80624	-70.29062	40.77448	-70.33170	45	20	ENE	<2	B4	0.5-1	Clear	None	2.2	55	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.77448	-70.33170	40.74061	-70.39044	48	15	ENE	<2	B3	0.5-1	Clear	None	4.1	228	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	40.74061	-70.39044	40.74946	-70.34027	50	19	ENE	<2	B3	0.5-1	Clear	None	1.7	67	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:22	40.74946	-70.34027	40.75711	-70.32438	49	23	NE	<2	B4	0.5-1	Clear	None	2.4	73	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:22	11:00	40.75711	-70.32438	40.77024	-70.29747	46	21	ENE	<2	B4	2-5	Clear	None	2.2	42	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.77024	-70.29747	40.78284	-70.26919	45	21	ENE	<2	B4	>5	Clear	Slight	2.1	60	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	12:50	40.78284	-70.26919	40.79839	-70.24210	44	18	ENE	<2	B4	>5	Clear	Slight	1.2	70	Standby	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:50	13:00	40.79839	-70.24210	40.79471	-70.23761	43	18	ENE	<2	B4	>5	Clear	Severe	2.2	70	Deploying/Retrieving	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:11	40.79471	-70.23761	40.78390	-70.24159	43	15	ENE	<2	B4	>5	Clear	Severe	4.2	181	Transit	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:11	13:30	40.78390	-70.24159	40.77414	-70.26134	44	12	ENE	<2	B4	>5	Clear	Severe	3.9	181	Soft Start	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:30	14:00	40.77414	-70.26134	40.77447	-70.28197	45	16	NE	<2	B4	>5	Cloudy	Severe	4.4	254	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:04	40.77447	-70.28197	40.77361	-70.27800	46	22	ENE	<2	B5	>5	Cloudy	Severe	3	121	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:04	14:07	40.77361	-70.27800	40.77357	-70.27365	45	22	ENE	<2	B5	>5	Cloudy	Moderate	4.4	100	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:07	14:57	40.77357	-70.27365	40.77446	-70.18939	45	23	E	<2	B5	>5	Cloudy	Moderate	4.4	80	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:57	14:59	40.77446	-70.18939	40.77454	-70.18530	43	23	E	<2	B5	>5	Cloudy	Moderate	4.7	90	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:59	15:00	40.77454	-70.18530	40.77468	-70.18433	43	23	E	<2	B5	>5	Cloudy	Moderate	4.7	90	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	15:07	40.77468	-70.18433	40.77076	-70.18272	43	23	E	<2	B5	>5	Cloudy	Moderate	4.7	90	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:07	15:09	40.77076	-70.18272	40.77057	-70.18674	43	23	E	<2	B5	>5	Cloudy	Moderate	5.4	262	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:09	16:00	40.77057	-70.18674	40.76941	-70.27190	43	15	ENE	<2	B5	>5	Cloudy	Moderate	5.7	269	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	16:10	40.76941	-70.27190	40.76935	-70.28931	45	14	E	<2	B5	>5	Cloudy	Moderate	4.5	259	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:10	16:11	40.76935	-70.28931	40.76936	-70.29012	45	12	ENE	<2	B5	>5	Cloudy	Moderate	4.5	269	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:11	17:00	40.76936	-70.29012	40.76637	-70.23024	45	12	ENE	<2	B5	>5	Cloudy	Moderate	4.5	269	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	40.76637	-70.23024	40.75501	-70.23408	43	24	E	<2	B5	>5	Cloudy	Moderate	4.9	90	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:33	40.75501	-70.23408	40.75359	-70.28000	44	16	NE	<2	B5	>5	Cloudy	Moderate	4.7	279	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:33	18:36	40.75359	-70.28000	40.75418	-70.27566	44	16	NE	<2	B5	>5	Cloudy	Moderate	4.7	279	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:36	19:00	40.75418	-70.27566	40.75461	-70.23580	44	22	E	<2	B5	>5	Cloudy	Moderate	4.5	88	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	19:28	40.75461	-70.23580	40.75507	-70.18963	44	23	ENE	<2	B5	>5	Cloudy	Moderate	4.7	88	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:28	19:29	40.75507	-70.18963	40.75497	-70.18915	42	24	ENE	<2	B5	>5	Cloudy	Moderate	4	94	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:29	19:43	40.75497	-70.18915	40.75361	-70.19270	42	24	ENE	<2	B5	>5	Cloudy	Moderate	4	74	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:43	19:45	40.75361	-70.19270	40.75349	-70.19511	42	24	ENE	<2	B5	>5	Cloudy	Moderate	4.1	74	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:45	20:00	40.75349	-70.19511	40.75311	-70.22257	42	24	ENE	<2	B5	>5	Cloudy	Moderate	4.1	264	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:39	40.75311	-70.22257	40.75235	-70.29150	44	12	NE	<2	B5	>5	Cloudy	None	4.8	276	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:39	20:41	40.75235	-70.29150	40.75237	-70.29355	47	16	NE	<2	B5	>5	Cloudy	None	5.2	283	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:41	21:00	40.75237	-70.29355	40.75360	-70.28410	47	12	NE	<2	B5	>5	Cloudy	None	5.2	283	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	21:26	40.75360	-70.28410	40.74662	-70.25485	46	12	E	2-4	B5	>5	Cloudy	None	4.1	103	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:26	21:27	40.74662	-70.25485	40.74678	-70.25362	46	21	E	2-4	B5	>5	Cloudy	None	3.1	77	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:27	21:36	40.74678	-70.25362	40.74699	-70.24127	46	22	ENE	2-4	B5	>5	Cloudy	None	3.8	93	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:36	21:39	40.74699	-70.24127	40.74727	-70.23666	46	25	ENE	2-4	B5	>5	Cloudy	None	3.7	81	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:39	22:00	40.74727	-70.23666	40.74710	-70.20834	44	21	ENE	2-4	B5	>5	Cloudy	None	3.7	89	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:44	40.74710	-70.20834	40.74831	-70.15331	44	23	ENE	2-4	B5	>5	Cloudy	None	4.2	85	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:44	22:46	40.74831	-70.15331	40.74822	-70.15076	44	23	ENE	2-4	B5	2-5	Cloudy	None	4.2	85	Silent	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:46	22:53	40.74822	-70.15076	40.74782	-70.14164	40	22	E	2-4	B5	1-2	Cloudy	None	4.1	78	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:53	23:00	40.74782	-70.14164	40.74785	-70.13365	40	20	E	<2	B5	0.5-1	Cloudy	None	3.7	83	Full Power	N/A
2022-09-30	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.74785	-70.13365	40.74869	-70.06879	39	21	ENE	<2	B5	0.5-1	Cloudy	None	2.5	68	Full Power	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:49	40.74877	-70.06544	40.74918	-70.02083	39	23	ENE	<2	B5	0.5-1	Cloudy	None	3.2	85	Full Power	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:49	00:51	40.74918	-70.02083	40.74933	-70.01898	40	22	ENE	<2	B5	0.5-1	Cloudy	None	3	71	Silent	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:51	00:59	40.74933	-70.01898	40.75247	-70.01205	40	22	ENE	<2	B5	0.5-1	Cloudy	None	3.1	79	Full Power	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	00:59	02:00	40.75247	-70.01205	40.74757	-70.10623	41	20	E	<2	B5	0.5-1	Cloudy	None	2.3	120	Full Power	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	02:15	40.74757	-70.10623	40.74739	-70.13412	39	19	ENE	<2	B5	0.5-1	Cloudy	None	4.3	260	Full Power	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:15	02:58	40.74739	-70.13412	40.75764	-70.17936	40	16	ENE	<2	B5	0.5-1	Cloudy	None	4.4	284	Silent	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:58	03:31	40.75764	-70.17936	40.76696	-70.20022	42	14	E	<2	B4	0.5-1	Cloudy	None	3.8	312	Deploying/Retrieving	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:31	04:00	40.76696	-70.20022	40.76626	-70.24903	42	17	ENE	<2	B4	0.5-1	Precipitation	None	4.6	259	Standby	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.76626	-70.24903	40.76732	-70.25759	43	15	ENE	<2	B4	0.5-1	Precipitation	None	4.8	260	Standby	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	05:58	40.76732	-70.25759	40.76466	-70.22178	44	21	E	<2	B4	0.5-1	Cloudy	None	4.1	95	Standby	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:58	06:39	40.76466	-70.22178	40.77483	-70.25544	43	14	ENE	<2	B4	0.5-1	Precipitation	None	3.8	261	Standby	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:39	06:55	40.77483	-70.25544	40.80633	-70.26877	45	23	NE	<2	B4	0.5-1	Precipitation	None	6.7	10	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	06:55	08:00	40.80633	-70.26877	40.91552	-70.38144	45	15	NE	<2	B4	0.5-1	Precipitation	None	7.9	332	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.91552	-70.38144	41.00833	-70.50167	44	8	NE	<2	B4	0.5-1	Precipitation	None	7.7	315	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	41.00833	-70.50167	41.09168	-70.64167	44	9	NE	<2	B4	0.5-1	Precipitation	None	8.1	311	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:29	41.09168	-70.64167	41.12326	-70.72633	44	7	NE	<2	B4	0.5-1	Precipitation	None	8.7	300	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:29	11:00	41.12326	-70.72633	41.16259	-70.80624	40	14	NE	<2	B4	2-5	Precipitation	None	8.9	302	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	41.16259	-70.80624	41.26594	-70.89265	29	11	NE	<2	B4	2-5	Precipitation	None	8.4	308	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	41.26594	-70.89265	41.39866	-70.86024	31	24	NE	<2	B4	2-5	Precipitation	None	7.9	350	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:57	41.39866	-70.86024	41.52558	-70.84225	27	30	NE	<2	B4	2-5	Precipitation	None	7.9	41	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	13:57	15:00	41.52558	-70.84225	41.62416	-70.91379	13	30	NE	<2	B4	2-5	Precipitation	None	8.5	345	Transit	N/A
2022-10-01	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	15:18	41.62416	-70.91379	41.62213	-70.91321	8	2	ENE	<2	B1	2-5	Precipitation	None	2.5	166	Transit	N/A
2022-10-05	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:35	41.62189	-70.91353	41.61659	-70.90127	9	12	NE	<2	B1	2-5	Fog	None	1.9	171	Transit	N/A
2022-10-05	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:35	22:52	41.61659	-70.90127	41.58102	-70.87964	9	8	NE	<2	B1	1-2	Precipitation	None	8.5	155	Transit	N/A
2022-10-05	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:52	23:00	41.58102	-70.87964	41.56457	-70.86918	10	11	NNE	<2	B2	0.5-1	Precipitation	None	9.2	157	Transit	N/A
2022-10-05	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	23:34	41.56457	-70.86918	41.49809	-70.85249	12	14	NE	<2	B5	0.5-1	Precipitation	None	8.4	146	Transit	N/A
2022-10-05	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:34	00:00	41.49809	-70.85249	41.48097	-70.90945	18	22	N	<2	B5	0.5-1	Precipitation	None	9.2	252	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:40	41.48001	-70.91361	41.45459	-70.96290	16	22	N	<2	B5	0.5-1	Precipitation	None	4	245	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:40	01:00	41.45459	-70.96290	41.43566	-70.96379	19	24	NE	<2	B5	0.5-1	Precipitation	None	3	191	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	41.43566	-70.96379	41.43874	-70.96510	21	22	NNE	<2	B5	0.5-1	Cloudy	None	4.8	170	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	03:00	41.43874	-70.96510	41.44988	-70.95073	29	12	NNE	<2	B5	0.5-1	Cloudy	None	4.2	173	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:00	04:00	41.44988	-70.95073	41.45291	-70.96820	29	18	NE	<2	B2	0.5-1	Cloudy	None	5.4	178	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	41.45291	-70.96820	41.42128	-71.03717	18	17	NNE	<2	B2	0.5-1	Cloudy	None	2	0	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	06:00	41.42128	-71.03717	41.30847	-70.98045	19	6	N	<2	B2	0.5-1	Cloudy	None	8.7	221	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	07:00	41.30847	-70.98045	41.20959	-70.86186	34	15	NE	<2	B2	0.5-1	Cloudy	None	8.4	133	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	41.20959	-70.86186	41.12319	-70.73872	18	14	NE	<2	B3	0.5-1	Cloudy	None	7.7	136	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	41.12319	-70.73872	41.04533	-70.60314	40	16	NE	<2	B3	0.5-1	Cloudy	None	9.2	124	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	41.04533	-70.60314	40.96787	-70.50752	52	14	NE	<2	B3	0.5-1	Cloudy	None	7.8	125	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:30	40.96787	-70.50752	40.91847	-70.47191	46	14	NE	<2	B3	0.5-1	Cloudy	None	6.7	152	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:30	11:00	40.91847	-70.47191	40.87355	-70.42509	47	13	NE	<2	B3	2-5	Cloudy	None	6.9	138	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.87355	-70.42509	40.78329	-70.33221	50	12	NE	<2	B3	2-5	Cloudy	None	7.1	145	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.78329	-70.33221	40.74395	-70.25584	47	11	NE	<2	B5	>5	Cloudy	None	7	143	Transit	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	40.74395	-70.25584	40.74673	-70.16415	46	13	NE	<2	B5	>5	Cloudy	None	4.9	80	Standby	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	40.74673	-70.16415	40.74450	-70.08020	41	14	NNE	<2	B5	>5	Fog	None	4.2	70	Standby	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	15:31	40.74450	-70.08020	40.74608	-70.05092	38	16	NNE	<2	B5	>5	Cloudy	None	4.5	80	Standby	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:31	16:00	40.74608	-70.05092	40.74563	-70.04380	37	17	NNW	<2	B5	>5	Cloudy	None	4.3	256	Deploying/Retrieving	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	16:31	40.74563	-70.04380	40.75036	-70.02091	37	17	NE	<2	B5	>5	Cloudy	None	2.8	80	Standby	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:31	17:00	40.75036	-70.02091	40.75604	-70.00498	39	17	NE	<2	B4	>5	Cloudy	None	2.1	80	Deploying/Retrieving	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	17:31	40.75604	-70.00498	40.76985	-69.99480	39	19	NE	<2	B4	>5	Cloudy	None	1.6	40	Deploying/Retrieving	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:31	17:52	40.76985	-69.99480	40.76917	-69.99045	29	18	N	<2	B4	>5	Cloudy	None	2.4	50	Soft Start	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:52	18:00	40.76917	-69.99045	40.76049	-69.99831	28	18	NW	<2	B4	>5	Cloudy	None	5.5	209	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.76049	-69.99831	40.75128	-70.01223	38	11	NW	<2	B4	>5	Cloudy	None	6.2	210	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	19:06	40.75128	-70.01223	40.74703	-70.01408	40	13	NE	<2	B4	>5	Cloudy	None	3.9	95	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:06	19:07	40.74703	-70.01408	40.74747	-70.01656	40	19	NNW	<2	B4	>5	Cloudy	None	5	250	Silent	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:07	20:00	40.74747	-70.01656	40.74653	-70.10750	40	20	NNW	<2	B4	>5	Cloudy	None	5.1	266	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.74653	-70.10750	40.74564	-70.20072	39	13	NNW	<2	B3	>5	Cloudy	None	4.6	270	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.74564	-70.20072	40.74460	-70.28483	43	6	NNW	<2	B3	>5	Cloudy	Severe	4	270	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:20	40.74460	-70.28483	40.74432	-70.31287	47	8	NW	<2	B3	>5	Cloudy	Moderate	3.8	264	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:20	22:21	40.74432	-70.31287	40.74433	-70.31365	48	10	NW	<2	B3	>5	Cloudy	Slight	3.6	271	Silent	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:21	22:32	40.74433	-70.31365	40.74990	-70.31811	48	10	NW	<2	B3	>5	Cloudy	None	3.5	278	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:32	22:34	40.74990	-70.31811	40.74965	-70.31521	48	6	E	<2	B3	>5	Cloudy	None	4	278	Silent	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:34	22:42	40.74965	-70.31521	40.74962	-70.30239	48	7	E	<2	B3	>5	Cloudy	None	4.3	102	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:42	23:00	40.74962	-70.30239	40.75000	-70.27090	48	1	E	<2	B2	1-2	Cloudy	None	4.9	91	Full Power	N/A
2022-10-06	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.75000	-70.27090	40.75113	-70.16326	46	2	E	<2	B2	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:58	40.75116	-70.15912	40.75221	-70.05385	41	2	N	<2	B2	0.5-1	Clear	None	5	90	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	00:58	01:17	40.75221	-70.05385	40.75252	-70.01752	40	3	SSE	<2	B2	0.5-1	Clear	None	5.3	80	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:17	01:18	40.75252	-70.01752	40.75255	-70.01671	40	3	SSE	<2	B2	0.5-1	Clear	None	5.5	91	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:18	02:00	40.75255	-70.01671	40.74761	-70.00006	40	3	SSE	<2	B2	0.5-1	Clear	None	5.5	91	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	02:05	40.74761	-70.00006	40.74725	-70.00720	38	9	SW	<2	B2	0.5-1	Clear	None	4.4	261	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:05	02:07	40.74725	-70.00720	40.74721	-70.01024	39	10	W	<2	B2	0.5-1	Cloudy	None	4.3	268	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:07	02:59	40.74721	-70.01024	40.74637	-70.09660	39	10	W	<2	B2	0.5-1	Cloudy	None	4.3	268	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:59	04:00	40.74637	-70.09660	40.74529	-70.20511	39	10	W	<2	B2	0.5-1	Cloudy	None	4.3	273	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.74529	-70.20511	40.74416	-70.30745	43	12	W	<2	B2	0.5-1	Clear	None	5.3	272	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	05:58	40.74416	-70.30745	40.74993	-70.25723	48	10	W	<2	B2	0.5-1	Clear	None	4.2	271	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:58	07:00	40.74993	-70.25723	40.75075	-70.17126	45	5	SW	<2	B2	0.5-1	Clear	None	4	87	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	40.75075	-70.17126	40.75153	-70.09166	41	6	SW	<2	B2	0.5-1	Clear	None	3.6	94	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	08:54	40.75153	-70.09166	40.75222	-70.02026	38	5	SW	<2	B2	0.5-1	Clear	None	3.5	101	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	08:54	09:00	40.75222	-70.02026	40.75180	-70.01173	40	9	SW	<2	B2	0.5-1	Clear	None	3.8	120	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	09:09	40.75180	-70.01173	40.74677	-70.01761	37	9	WSW	<2	B2	0.5-1	Clear	None	5	248	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:09	10:00	40.74677	-70.01761	40.74596	-70.09939	37	11	W	<2	B2	0.5-1	Clear	None	4.4	255	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:21	40.74596	-70.09939	40.74571	-70.13181	39	12	WSW	<2	B2	2-5	Cloudy	None	4.2	252	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:21	11:00	40.74571	-70.13181	40.74514	-70.18775	39	10	SSE	<2	B2	>5	Cloudy	None	4.1	257	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.74514	-70.18775	40.74437	-70.26617	42	9	SW	<2	B2	>5	Clear	None	3.8	259	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	12:37	40.74437	-70.26617	40.74383	-70.31287	46	10	SW	<2	B2	>5	Clear	Severe	3.4	262	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:37	12:39	40.74383	-70.31287	40.74380	-70.31534	48	9	SW	<2	B2	>5	Clear	Severe	3.4	264	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:39	12:53	40.74380	-70.31534	40.74889	-70.31953	48	9	SW	<2	B2	>5	Clear	Severe	3.4	264	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:53	12:55	40.74889	-70.31953	40.74903	-70.31604	48	8	S	<2	B2	>5	Clear	Severe	3.4	96	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:55	13:00	40.74903	-70.31604	40.74908	-70.30797	48	8	S	<2	B2	>5	Clear	Severe	3.4	96	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:43	40.74908	-70.30797	40.74990	-70.23591	48	9	S	<2	B2	>5	Clear	Severe	3.4	96	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Dorado, Sam; Ruiz, Arturo	RPS	13:43	13:53	40.74990	-70.23591	40.74797	-70.22055	44	6	S	<2	B2	0.1-0.3	Fog	Severe	4.6	91	Silent	Heavy Fog
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	13:53	14:00	40.74797	-70.22055	40.74634	-70.22946	43	16	SSW	<2	B2	0.1-0.3	Fog	Severe	3.8	227	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	14:00	14:24	40.74634	-70.22946	40.74599	-70.26460	46	12	SSW	<2	B2	0.1-0.3	Fog	Severe	4.1	274	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:24	14:40	40.74599	-70.26460	40.74785	-70.26663	46	5	SSW	<2	B2	1-2	Fog	Severe	3.5	340	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	14:40	14:48	40.74785	-70.26663	40.74976	-70.25691	46	8	S	<2	B2	0.1-0.3	Fog	Severe	3.9	38	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:48	15:00	40.74976	-70.25691	40.74551	-70.24672	45	11	S	<2	B3	2-5	Clear	Severe	4.3	84	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	15:18	40.74551	-70.24672	40.74908	-70.26719	46	13	SW	<2	B3	2-5	Clear	Severe	3.5	273	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:18	15:39	40.74908	-70.26719	40.74985	-70.23934	46	13	SSW	<2	B3	2-5	Clear	Severe	3.1	53	Soft Start	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:39	15:40	40.74985	-70.23934	40.74984	-70.23694	44	10	SW	<2	B3	>5	Clear	Severe	4.4	72	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:40	16:00	40.74984	-70.23694	40.75018	-70.20598	44	10	S	<2	B3	>5	Clear	Severe	4.1	92	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	16:27	40.75018	-70.20598	40.75061	-70.16243	43	8	S	<2	B3	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:27	16:30	40.75061	-70.16243	40.75071	-70.15749	41	11	S	<2	B3	0.5-1	Fog	Moderate	4	90	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:30	16:59	40.75071	-70.15749	40.74465	-70.14231	41	11	S	<2	B3	0.3-0.5	Fog	Slight	4	90	Silent	Heavy Fog

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:59	17:15	40.74465	-70.14231	40.74463	-70.16944	40	14	SW	<2	B3	0.3-0.5	Fog	Slight	4.5	270	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:15	17:47	40.74463	-70.16944	40.74978	-70.21551	41	12	SW	<2	B3	>5	Clear	Severe	4.4	270	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:47	18:00	40.74978	-70.21551	40.75000	-70.19671	43	14	S	<2	B3	>5	Clear	Severe	4	100	Soft Start	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:09	40.75000	-70.19671	40.75033	-70.18359	43	12	S	<2	B3	>5	Clear	Severe	3.8	92	Soft Start	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:09	18:17	40.75033	-70.18359	40.75060	-70.17238	41	12	S	<2	B3	>5	Clear	Severe	3.9	93	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:17	18:19	40.75060	-70.17238	40.75068	-70.16906	41	12	S	<2	B3	>5	Clear	Severe	4.3	91	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:19	19:00	40.75068	-70.16906	40.75104	-70.11299	42	12	S	<2	B3	>5	Clear	Severe	4.1	79	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.75104	-70.11299	40.75179	-70.03493	42	12	S	<2	B3	>5	Clear	Severe	3.5	83	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:13	40.75179	-70.03493	40.75198	-70.01913	40	9	S	<2	B3	>5	Clear	Severe	3.3	90	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:13	20:15	40.75198	-70.01913	40.75191	-70.01647	40	10	SW	<2	B3	>5	Clear	Severe	3.5	90	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:15	20:26	40.75191	-70.01647	40.74644	-70.01341	40	10	SW	<2	B3	>5	Clear	Severe	3.5	135	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:26	20:28	40.74644	-70.01341	40.74670	-70.01708	37	14	SW	<2	B3	>5	Clear	Severe	5.4	270	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:28	21:00	40.74670	-70.01708	40.74612	-70.07170	37	14	SW	<2	B3	>5	Clear	Severe	4.5	270	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.74612	-70.07170	40.74501	-70.16057	38	15	WSW	<2	B3	>5	Clear	Severe	4.2	270	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:40	40.74501	-70.16057	40.74460	-70.21459	42	16	WSW	<2	B3	>5	Clear	Slight	4	259	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:40	23:00	40.74460	-70.21459	40.74435	-70.24393	44	15	WSW	<2	B3	1-2	Clear	None	4.1	263	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	23:46	40.74435	-70.24393	40.74357	-70.31321	45	16	WSW	<2	B3	0.5-1	Clear	None	4	270	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:46	23:47	40.74357	-70.31321	40.74351	-70.31531	48	18	W	<2	B3	0.5-1	Clear	None	4	270	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:47	23:57	40.74351	-70.31531	40.74972	-70.31682	48	18	W	<2	B3	0.5-1	Clear	None	4.2	270	Full Power	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:57	23:58	40.74972	-70.31682	40.74967	-70.31601	48	10	WSW	<2	B3	0.5-1	Clear	None	4.5	90	Silent	N/A
2022-10-07	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:58	00:00	40.74967	-70.31601	40.74899	-70.31308	48	10	WSW	<2	B3	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	01:00	40.74876	-70.30740	40.74990	-70.20798	48	10	WSW	<2	B3	>5	Clear	None	4.5	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.74990	-70.20798	40.75095	-70.10414	42	9	WSW	<2	B3	0.5-1	Clear	None	4.9	83	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	02:51	40.75095	-70.10414	40.75178	-70.01858	39	8	WSW	<2	B3	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:51	02:52	40.75178	-70.01858	40.75176	-70.01691	40	9	WSW	<2	B3	0.5-1	Clear	None	4.9	118	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:52	03:00	40.75176	-70.01691	40.74587	-70.01083	40	12	WSW	<2	B3	0.5-1	Clear	None	4.8	112	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:00	03:01	40.74587	-70.01083	40.74536	-70.01280	36	14	W	<2	B3	0.5-1	Clear	None	4.1	238	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:01	03:03	40.74536	-70.01280	40.74562	-70.01462	36	14	W	<2	B3	0.5-1	Clear	None	3.7	286	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:03	04:00	40.74562	-70.01462	40.74551	-70.10315	37	13	W	<2	B3	0.5-1	Clear	None	4.2	291	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.74551	-70.10315	40.74445	-70.20780	39	22	W	<2	B4	0.5-1	Clear	None	5	277	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	06:00	40.74445	-70.20780	40.74346	-70.30906	38	17	WNW	<2	B4	0.5-1	Clear	None	4.4	250	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	06:01	40.74346	-70.30906	40.74335	-70.31125	48	15	NW	<2	B4	0.5-1	Clear	None	4.5	275	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:01	06:04	40.74335	-70.31125	40.74339	-70.31554	43	15	NW	<2	B4	0.5-1	Clear	None	4.3	308	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:04	07:00	40.74339	-70.31554	40.74912	-70.25993	43	15	NW	<2	B4	0.5-1	Clear	None	4.3	308	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	08:00	40.74912	-70.25993	40.74976	-70.18955	45	13	NE	<2	B4	0.5-1	Clear	None	3.4	79	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.74976	-70.18955	40.75045	-70.12363	42	16	N	<2	B4	0.5-1	Clear	None	3.8	88	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	40.75045	-70.12363	40.75103	-70.06223	44	13	N	<2	B4	0.5-1	Clear	None	3.2	66	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:20	40.75103	-70.06223	40.75125	-70.03759	38	10	N	<2	B4	0.5-1	Clear	None	3.6	98	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:20	10:35	40.75125	-70.03759	40.75145	-70.01846	38	12	NW	<2	B4	2-5	Clear	None	3.5	76	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:35	10:37	40.75145	-70.01846	40.75153	-70.01577	39	12	NW	<2	B4	>5	Clear	None	3.8	93	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:37	10:48	40.75153	-70.01577	40.74600	-70.01341	37	9	NW	<2	B4	>5	Clear	None	3.4	124	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:48	10:50	40.74600	-70.01341	40.74598	-70.01668	36	19	NW	<2	B4	>5	Clear	Slight	4.6	256	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:50	11:00	40.74598	-70.01668	40.74584	-70.03366	36	19	NW	<2	B4	>5	Clear	Slight	4.2	263	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.74584	-70.03366	40.74496	-70.13100	37	18	NW	<2	B4	>5	Clear	Slight	4.8	263	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.74496	-70.13100	40.74401	-70.22189	40	23	NW	<2	B4	>5	Cloudy	Moderate	3.5	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	40.74401	-70.22189	40.74303	-70.30870	44	17	NNW	<2	B4	>5	Cloudy	Slight	4.3	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:03	40.74303	-70.30870	40.74300	-70.31381	48	18	NW	<2	B5	>5	Cloudy	None	3.6	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:03	14:05	40.74300	-70.31381	40.74291	-70.31620	48	18	NW	<2	B5	>5	Cloudy	None	3.6	270	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:05	14:13	40.74291	-70.31620	40.74825	-70.31714	48	18	NW	<2	B5	>5	Cloudy	None	3.6	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:13	14:14	40.74825	-70.31714	40.74822	-70.31383	48	10	N	<2	B5	>5	Cloudy	None	4.7	74	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:14	15:00	40.74822	-70.31383	40.74899	-70.23382	48	10	N	<2	B5	>5	Cloudy	None	4.4	96	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.74899	-70.23382	40.75019	-70.12956	44	10	N	<2	B5	>5	Cloudy	None	5.1	84	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.75019	-70.12956	40.75115	-70.03083	39	10	N	<2	B4	>5	Cloudy	None	5.1	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	17:08	40.75115	-70.03083	40.75126	-70.01833	40	13	N	<2	B4	>5	Cloudy	None	5.1	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:08	17:10	40.75126	-70.01833	40.75086	-70.01537	39	12	NW	<2	B4	>5	Cloudy	Severe	4.1	90	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:10	17:31	40.75086	-70.01537	40.74527	-70.01087	39	5	NW	<2	B4	>5	Cloudy	Severe	4.5	130	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:31	17:32	40.74527	-70.01087	40.74584	-70.01347	36	15	NW	<2	B4	>5	Clear	Moderate	4.1	288	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:32	18:00	40.74584	-70.01347	40.74524	-70.05917	36	15	NW	<2	B4	>5	Clear	Moderate	4.1	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.74524	-70.05917	40.74429	-70.15867	38	13	NW	<2	B4	>5	Cloudy	Moderate	4.6	268	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.74429	-70.15867	40.74333	-70.25900	38	14	NW	<2	B4	>5	Cloudy	Moderate	4.9	266	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:32	40.74333	-70.25900	40.74279	-70.31314	46	15	WNW	<2	B4	>5	Clear	Moderate	4.7	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:32	20:33	40.74279	-70.31314	40.74274	-70.31529	48	15	WNW	<2	B4	>5	Clear	Severe	4.5	270	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:33	20:44	40.74274	-70.31529	40.74792	-70.31838	48	15	WNW	<2	B4	>5	Clear	Severe	4.5	270	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:44	20:45	40.74792	-70.31838	40.74793	-70.31698	48	6	W	<2	B4	>5	Clear	Severe	3.9	90	Silent	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:45	21:00	40.74793	-70.31698	40.74815	-70.29642	48	6	W	<2	B4	>5	Clear	Severe	3.9	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.74815	-70.29642	40.74897	-70.21109	47	1	W	<2	B3	>5	Clear	Severe	3.5	90	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:48	40.74897	-70.21109	40.74978	-70.14006	43	6	W	<2	B3	>5	Clear	Severe	4.2	91	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:48	23:00	40.74978	-70.14006	40.74986	-70.12321	40	5	W	<2	B2	1-2	Clear	None	4.9	99	Full Power	N/A
2022-10-08	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.74986	-70.12321	40.75082	-70.02920	39	9	WNW	<2	B2	0.5-1	Clear	None	3.8	90	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:06	40.75084	-70.02502	40.75088	-70.01892	40	4	NW	<2	B2	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:06	00:08	40.75088	-70.01892	40.75095	-70.01541	40	4	NW	<2	B2	0.5-1	Clear	None	4.6	90	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:08	00:22	40.75095	-70.01541	40.74658	-70.00506	40	4	NW	<2	B2	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:22	00:23	40.74658	-70.00506	40.74643	-70.00646	37	16	NW	<2	B2	0.5-1	Clear	None	4.3	260	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:23	01:00	40.74643	-70.00646	40.74538	-70.05979	37	16	NW	<2	B2	0.5-1	Clear	None	4.3	270	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.74538	-70.05979	40.74452	-70.14626	38	16	WNW	<2	B2	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	03:00	40.74452	-70.14626	40.74338	-70.23654	40	17	WNW	<2	B3	0.5-1	Clear	None	4	270	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:00	03:48	40.74338	-70.23654	40.74250	-70.31272	44	19	NW	<2	B3	0.5-1	Clear	None	4.4	278	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:48	03:55	40.74250	-70.31272	40.74602	-70.32067	48	18	NW	<2	B3	0.5-1	Clear	None	3.9	315	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:55	03:58	40.74602	-70.32067	40.74753	-70.31645	48	18	NW	<2	B3	0.5-1	Clear	None	4.4	320	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	03:58	04:00	40.74753	-70.31645	40.74764	-70.31327	48	7	NW	<2	B3	0.5-1	Clear	None	4.1	76	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:00	05:00	40.74764	-70.31327	40.74879	-70.21502	48	10	NW	<2	B3	0.5-1	Clear	None	4.2	76	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	06:00	40.74879	-70.21502	40.74972	-70.12285	43	10	NW	<2	B3	0.5-1	Clear	None	4.3	78	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:00	07:00	40.74972	-70.12285	40.75060	-70.04046	39	10	NW	<2	B3	0.5-1	Cloudy	None	4.2	78	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	07:19	40.75060	-70.04046	40.75071	-70.01860	40	14	NW	<2	B3	0.5-1	Clear	None	3.4	81	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:19	07:21	40.75071	-70.01860	40.75066	-70.01629	39	14	NW	<2	B3	0.5-1	Clear	None	3.4	81	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:21	07:31	40.75066	-70.01629	40.74481	-70.01480	39	19	NW	<2	B3	0.5-1	Clear	None	3.4	81	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:31	07:31	40.74481	-70.01480	40.74486	-70.01529	35	22	NW	<2	B3	0.5-1	Clear	None	4	280	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:31	07:34	40.74486	-70.01529	40.74505	-70.02050	40	14	NW	<2	B3	0.5-1	Clear	None	3.4	81	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:34	08:00	40.74505	-70.02050	40.74472	-70.06559	36	22	NW	<2	B3	0.5-1	Clear	None	4.2	280	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	09:00	40.74472	-70.06559	40.74386	-70.15868	38	20	NW	<2	B3	0.5-1	Clear	None	4.6	275	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	10:00	40.74386	-70.15868	40.74299	-70.25099	39	17	NW	<2	B3	0.5-1	Clear	None	4.2	263	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:22	40.74299	-70.25099	40.74251	-70.28679	47	22	W	<2	B3	0.5-1	Clear	None	4.5	268	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:22	10:38	40.74251	-70.28679	40.74226	-70.31148	46	21	NW	<2	B3	2-5	Clear	None	4.5	260	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:38	10:40	40.74226	-70.31148	40.74216	-70.31465	48	20	NNW	<2	B3	>5	Clear	None	4.2	267	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:40	10:48	40.74216	-70.31465	40.74737	-70.31894	48	20	NNW	<2	B3	>5	Clear	None	5.1	288	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:48	10:50	40.74737	-70.31894	40.74736	-70.31606	48	10	NW	<2	B3	>5	Clear	None	3.9	97	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:50	11:00	40.74736	-70.31606	40.74752	-70.30109	48	10	NW	<2	B3	>5	Clear	None	4.1	93	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.74752	-70.30109	40.74858	-70.20665	47	14	NW	<2	B3	>5	Clear	Slight	4	95	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.74858	-70.20665	40.74957	-70.10620	43	12	NW	<2	B3	>5	Clear	Severe	4.4	96	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:47	40.74957	-70.10620	40.75032	-70.01944	39	12	NNW	<2	B3	>5	Clear	Severe	4.7	97	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:47	13:49	40.75032	-70.01944	40.75040	-70.01550	39	12	NNW	<2	B3	>5	Clear	Severe	4.3	100	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:49	14:00	40.75040	-70.01550	40.74504	-70.01233	39	12	NNW	<2	B3	>5	Clear	Severe	5.1	113	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:01	40.74504	-70.01233	40.74487	-70.01354	36	22	WNW	<2	B5	>5	Clear	Severe	2.9	260	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:01	14:03	40.74487	-70.01354	40.74487	-70.01581	36	22	WNW	<2	B5	>5	Clear	Severe	2.9	260	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:03	15:00	40.74487	-70.01581	40.74422	-70.09100	36	24	WNW	<2	B5	>5	Clear	Severe	4	275	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.74422	-70.09100	40.74352	-70.17515	38	25	WNW	<2	B5	>5	Clear	Severe	4.1	252	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.74352	-70.17515	40.74247	-70.26431	42	25	W	<2	B5	>5	Clear	Severe	4.3	271	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	17:31	40.74247	-70.26431	40.74182	-70.31189	47	25	W	<2	B5	>5	Clear	Severe	3.7	270	Full Power	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:31	17:44	40.74182	-70.31189	40.74724	-70.30538	48	26	W	<2	B6	>5	Clear	Severe	3.7	270	Silent	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:44	18:00	40.74724	-70.30538	40.74618	-70.28541	48	18	W	<2	B6	>5	Clear	Severe	3.5	105	Deploying/Retrieving	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	40.74618	-70.28541	40.73356	-70.26946	47	23	W	2-4	B6	>5	Clear	Severe	3.6	89	Deploying/Retrieving	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.73356	-70.26946	40.70754	-70.31382	47	25	W	2-4	B6	>5	Clear	Severe	1.5	205	Standby	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.70754	-70.31382	40.70464	-70.29713	48	26	W	2-4	B6	>5	Clear	Severe	2.6	200	Standby	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.70464	-70.29713	40.73199	-70.21272	48	19	W	2-4	B6	>5	Clear	Severe	4.3	90	Standby	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:44	40.73199	-70.21272	40.74924	-70.14672	45	23	W	2-4	B6	>5	Clear	Moderate	4.5	62	Standby	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:44	23:00	40.74924	-70.14672	40.75283	-70.12284	40	20	NW	2-4	B6	1-2	Clear	None	4.8	85	Standby	N/A
2022-10-09	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.75283	-70.12284	40.75883	-70.02915	39	19	NW	2-4	B6	0.5-1	Clear	None	4.8	70	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	01:00	40.75888	-70.02622	40.75979	-69.94950	38	18	WNW	2-4	B6	0.5-1	Clear	None	4.5	94	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	02:00	40.75979	-69.94950	40.75743	-69.98015	37	23	WNW	2-4	B6	0.5-1	Clear	None	1.1	284	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Ruiz, Arturo	RPS	02:00	02:59	40.75743	-69.98015	40.75072	-70.01309	38	26	WNW	2-4	B6	0.5-1	Clear	None	1.8	254	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:59	03:58	40.75072	-70.01309	40.74257	-70.05793	39	22	WNW	2-4	B6	0.5-1	Clear	None	1.7	267	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	03:58	05:00	40.74257	-70.05793	40.73126	-70.03358	37	20	NNW	2-4	B6	0.5-1	Clear	None	2.7	270	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	05:54	40.73126	-70.03358	40.72202	-69.94740	37	9	NW	2-4	B6	0.5-1	Clear	None	5	85	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:54	06:16	40.72202	-69.94740	40.70698	-69.96522	42	18	WNW	2-4	B6	0.5-1	Clear	None	3.6	155	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	06:16	07:00	40.70698	-69.96522	40.68783	-70.01410	43	17	WNW	2-4	B6	0.5-1	Clear	None	3	246	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	07:55	40.68783	-70.01410	40.67892	-70.08453	45	14	W	2-4	B6	0.5-1	Clear	None	3.9	271	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:55	08:58	40.67892	-70.08453	40.70165	-70.11312	45	17	W	2-4	B6	0.5-1	Clear	None	4.1	269	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	08:58	09:59	40.70165	-70.11312	40.70605	-70.20922	45	18	NW	2-4	B6	0.5-1	Clear	None	5.2	250	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	09:59	10:23	40.70605	-70.20922	40.70932	-70.24636	45	15	NNW	2-4	B6	0.5-1	Clear	None	4.6	274	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:23	10:48	40.70932	-70.24636	40.71340	-70.27216	46	13	NW	2-4	B5	2-5	Clear	None	3.5	277	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:48	10:59	40.71340	-70.27216	40.71571	-70.28696	47	12	NW	<2	B4	>5	Clear	None	3.7	274	Deploying/Retrieving	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:59	11:56	40.71571	-70.28696	40.72986	-70.35818	47	12	NW	<2	B4	>5	Clear	Slight	3.1	276	Silent	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:56	12:00	40.72986	-70.35818	40.73080	-70.36329	49	9	W	<2	B3	>5	Clear	Severe	3.5	276	Soft Start	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	12:18	40.73080	-70.36329	40.73608	-70.35185	48	9	W	<2	B3	>5	Clear	Severe	3.7	276	Soft Start	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:18	13:00	40.73608	-70.35185	40.74012	-70.28552	48	2	SW	<2	B2	>5	Clear	Severe	4.1	93	Full Power	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:15	40.74012	-70.28552	40.74148	-70.26111	48	3	SW	<2	B2	>5	Clear	Severe	4.5	93	Full Power	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:15	13:48	40.74148	-70.26111	40.73869	-70.28750	47	2	SW	<2	B2	>5	Clear	Severe	4.1	93	Silent	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:48	14:00	40.73869	-70.28750	40.74002	-70.30009	47	9	W	<2	B2	>5	Clear	Severe	3.5	96	Deploying/Retrieving	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:06	40.74002	-70.30009	40.74073	-70.30446	48	9	SW	<2	B2	>5	Clear	Severe	0.9	251	Deploying/Retrieving	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:06	14:40	40.74073	-70.30446	40.74006	-70.32539	48	9	WSW	<2	B3	>5	Clear	Severe	2.2	313	Standby	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:40	15:00	40.74006	-70.32539	40.77453	-70.35952	48	10	WNW	<2	B3	>5	Clear	Severe	9.2	333	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.77453	-70.35952	40.89042	-70.47493	50	8.7	WNW	<2	B2	>5	Clear	Severe	6.9	313	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.89042	-70.47493	41.00403	-70.59684	51	18	WNW	<2	B3	>5	Clear	Severe	8.9	328	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	41.00403	-70.59684	41.11166	-70.72297	48	20	WNW	<2	B3	>5	Clear	Severe	9.1	320	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	19:00	41.11166	-70.72297	41.23029	-70.83398	42	18	WNW	<2	B4	>5	Clear	Severe	8.6	319	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	41.23029	-70.83398	41.36037	-70.88701	18	17	NW	<2	B4	>5	Clear	Severe	8.9	314	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	41.36037	-70.88701	41.49777	-70.83981	25	13	W	<2	B5	>5	Clear	Severe	8	15	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	41.49777	-70.83981	41.62784	-70.90772	17	16	W	<2	B5	>5	Clear	Severe	9.6	8	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:24	41.62784	-70.90772	41.62198	-70.91381	8	9	W	<2	B2	>5	Clear	Moderate	5.4	346	Transit	N/A
2022-10-10	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:39	00:00	41.62210	-70.91324	41.62281	-70.90480	3	7	WSW	<2	B1	0.5-1	Clear	None	1	4	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:39	41.62117	-70.90377	41.55902	-70.86369	10	9	SSW	<2	B1	0.5-1	Clear	None	5.5	154	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:39	00:58	41.55902	-70.86369	41.52287	-70.84040	10	16	SW	<2	B4	0.5-1	Clear	None	7.3	148	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	00:58	01:59	41.52287	-70.84040	41.44488	-70.76343	17	21	SW	<2	B4	0.5-1	Clear	None	7.8	170	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:59	02:58	41.44488	-70.76343	41.48437	-70.55260	23	6	NW	<2	B3	0.5-1	Clear	None	10.5	66	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:58	03:58	41.48437	-70.55260	41.40020	-70.42662	25	17	E	<2	B2	0.5-1	Clear	None	10.5	108	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	03:58	04:59	41.40020	-70.42662	41.24105	-70.40767	10	10	SW	<2	B2	0.5-1	Clear	None	9.6	180	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:59	05:55	41.24105	-70.40767	41.10193	-70.39270	30	12	SW	<2	B2	0.5-1	Clear	None	9.5	160	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:55	06:58	41.10193	-70.39270	40.94500	-70.40802	39	16	SW	<2	B2	0.5-1	Clear	None	8.6	184	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	06:58	07:58	40.94500	-70.40802	40.84980	-70.41951	44	13	SW	<2	B2	0.5-1	Clear	None	8.9	184	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:58	08:04	40.84980	-70.41951	40.84582	-70.42002	52	7	SW	<2	B2	0.5-1	Clear	None	3.1	185	Transit	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:04	08:30	40.84582	-70.42002	40.82390	-70.42614	52	8	SW	<2	B2	0.5-1	Clear	None	2.7	186	Deploying/Retrieving	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:30	08:55	40.82390	-70.42614	40.80330	-70.41059	52	7	SW	<2	B2	0.5-1	Clear	None	3.5	195	Standby	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:55	09:00	40.80330	-70.41059	40.79929	-70.40396	50	7	S	<2	B2	0.5-1	Clear	None	4.4	125	Soft Start	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:00	09:16	40.79929	-70.40396	40.78728	-70.38525	50	7	S	<2	B2	0.5-1	Clear	None	4.2	135	Soft Start	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	09:16	09:59	40.78728	-70.38525	40.75645	-70.33808	50	9	S	<2	B2	0.5-1	Clear	None	4.3	131	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	09:59	10:16	40.75645	-70.33808	40.74711	-70.31693	49	10	S	<2	B2	0.5-1	Clear	None	3.9	130	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:16	10:17	40.74711	-70.31693	40.74716	-70.31451	48	6	S	<2	B2	0.5-1	Clear	None	4.2	92	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:17	10:23	40.74716	-70.31451	40.74723	-70.30588	48	6	S	<2	B2	0.5-1	Clear	None	4.2	92	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:23	11:00	40.74723	-70.30588	40.74779	-70.25074	47	8	S	<2	B2	2-5	Clear	None	4.1	91	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	12:00	40.74779	-70.25074	40.74878	-70.15746	45	5	S	<2	B2	>5	Clear	Slight	4	96	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.74878	-70.15746	40.74967	-70.06407	45	10	S	<2	B2	>5	Clear	Severe	4.3	101	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	13:28	40.74967	-70.06407	40.74996	-70.01820	39	10	S	<2	B2	>5	Clear	Severe	4.3	104	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:28	13:29	40.74996	-70.01820	40.75001	-70.01643	39	3	SSW	<2	B2	>5	Clear	Severe	4.7	101	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:29	13:57	40.75001	-70.01643	40.74473	-70.01316	39	3	SSW	<2	B2	>5	Clear	Severe	4.7	101	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:57	13:58	40.74473	-70.01316	40.74465	-70.01476	35	12	SW	<2	B2	>5	Clear	Severe	4.1	259	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:58	14:00	40.74465	-70.01476	40.74459	-70.01857	35	12	SW	<2	B2	>5	Clear	Severe	4.1	259	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	15:00	40.74459	-70.01857	40.74383	-70.10933	36	14	SW	<2	B3	>5	Clear	Severe	4	267	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	40.74383	-70.10933	40.74296	-70.19720	39	12	SW	<2	B3	>5	Clear	Severe	3.9	274	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	16:04	40.74296	-70.19720	40.74289	-70.20291	43	14	W	<2	B3	>5	Clear	Severe	3.7	270	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:04	16:06	40.74289	-70.20291	40.74398	-70.20529	43	14	W	<2	B3	>5	Clear	Severe	3.7	270	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:06	16:23	40.74398	-70.20529	40.74296	-70.18845	43	14	W	<2	B3	>5	Clear	Severe	3.7	270	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:23	16:23	40.74296	-70.18845	40.74296	-70.18940	43	14	W	<2	B3	>5	Clear	Severe	3.8	270	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:23	17:00	40.74296	-70.18940	40.74100	-70.17079	43	14	W	<2	B3	>5	Clear	Severe	3.8	270	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	17:38	40.74100	-70.17079	40.74281	-70.22110	42	14	W	<2	B3	>5	Clear	Severe	4	265	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:38	17:39	40.74281	-70.22110	40.74269	-70.22246	44	14	W	<2	B3	>5	Clear	Severe	3.9	262	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:39	18:00	40.74269	-70.22246	40.74224	-70.25322	44	14	W	<2	B3	>5	Clear	Severe	4.1	272	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:39	40.74224	-70.25322	40.74166	-70.31334	46	14	NW	<2	B3	>5	Clear	Severe	4.2	269	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:39	18:40	40.74166	-70.31334	40.74163	-70.31476	48	15	WNW	<2	B3	>5	Clear	Severe	4.2	270	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:40	18:49	40.74163	-70.31476	40.74678	-70.31796	48	14	WNW	<2	B3	>5	Clear	Severe	3.8	277	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:49	18:51	40.74678	-70.31796	40.74688	-70.31415	48	14	WNW	<2	B3	>5	Clear	Severe	3.8	277	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:51	19:00	40.74688	-70.31415	40.74707	-70.29951	48	14	WNW	<2	B3	>5	Clear	Severe	3.8	277	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.74707	-70.29951	40.74812	-70.20010	48	8	NW	<2	B2	>5	Clear	Severe	4.7	91	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	21:00	40.74812	-70.20010	40.74903	-70.10889	43	4	NW	<2	B3	>5	Clear	Severe	4.2	95	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	22:00	40.74903	-70.10889	40.74959	-70.02949	39	6	NW	<2	B3	>5	Clear	Severe	4.2	96	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:00	22:10	40.74959	-70.02949	40.74973	-70.01784	39	9	W	<2	B3	>5	Clear	Moderate	3.2	97	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:10	22:12	40.74973	-70.01784	40.74975	-70.01540	39	9	W	<2	B3	>5	Clear	Moderate	3.2	97	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:12	22:23	40.74975	-70.01540	40.74428	-70.01457	39	9	W	<2	B3	>5	Clear	Moderate	3.2	16	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:23	22:24	40.74428	-70.01457	40.74440	-70.01601	39	9	W	<2	B3	>5	Clear	None	3.2	270	Silent	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:24	22:40	40.74440	-70.01601	40.74411	-70.04571	39	9	W	<2	B3	>5	Clear	None	3.2	270	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	22:40	23:00	40.74411	-70.04571	40.74376	-70.08092	36	15	W	<2	B3	1-2	Clear	None	5	266	Full Power	N/A
2022-10-11	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	23:00	00:00	40.74376	-70.08092	40.74283	-70.17749	38	17	W	<2	B3	0.5-1	Clear	None	4.9	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	01:00	40.74285	-70.17997	40.74177	-70.27553	42	16	WNW	<2	B3	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:00	01:24	40.74177	-70.27553	40.74138	-70.31395	42	15	WNW	<2	B3	0.5-1	Clear	None	4.4	272	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:24	01:26	40.74138	-70.31395	40.74127	-70.31790	42	15	WNW	<2	B3	0.5-1	Clear	None	4.4	268	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:26	01:35	40.74127	-70.31790	40.74658	-70.32007	48	14	WNW	<2	B3	0.5-1	Clear	None	4.4	272	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:35	01:37	40.74658	-70.32007	40.74665	-70.31792	48	8	W	<2	B3	0.5-1	Clear	None	4.4	82	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:37	02:00	40.74665	-70.31792	40.74701	-70.27697	48	9	W	<2	B3	0.5-1	Clear	None	4.6	87	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	02:58	40.74701	-70.27697	40.74803	-70.17556	46	5	W	<2	B3	0.5-1	Clear	None	4.8	96	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:58	03:58	40.74803	-70.17556	40.74903	-70.07166	41	4	W	<2	B3	0.5-1	Clear	None	4.7	94	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	03:58	04:29	40.74903	-70.07166	40.74951	-70.01681	39	4	WSW	<2	B3	0.5-1	Clear	None	4.7	91	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:29	04:30	40.74951	-70.01681	40.74952	-70.01465	40	5	WSW	<2	B3	0.5-1	Clear	None	4.6	110	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:30	04:41	40.74952	-70.01465	40.74410	-70.01420	40	5	WSW	<2	B3	0.5-1	Clear	None	4.6	110	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:41	04:43	40.74410	-70.01420	40.74412	-70.01702	40	12	W	<2	B3	0.5-1	Clear	None	3.7	273	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:43	04:59	40.74412	-70.01702	40.74385	-70.04013	40	12	W	<2	B3	0.5-1	Clear	None	3.7	273	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	04:59	05:59	40.74385	-70.04013	40.74318	-70.12982	37	10	W	<2	B3	0.5-1	Clear	None	4	265	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:59	06:59	40.74318	-70.12982	40.74211	-70.22407	40	11	W	<2	B3	0.5-1	Clear	None	4.2	274	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	06:59	07:52	40.74211	-70.22407	40.74118	-70.31219	44	11	W	<2	B3	0.5-1	Clear	None	4.5	274	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:52	07:54	40.74118	-70.31219	40.74107	-70.31553	48	13	W	<2	B3	0.5-1	Clear	None	4.6	269	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:54	08:00	40.74107	-70.31553	40.74516	-70.32070	48	13	W	<2	B3	0.5-1	Clear	None	4.7	269	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:00	08:03	40.74516	-70.32070	40.74622	-70.31646	48	7	SW	<2	B3	0.5-1	Clear	None	4.2	78	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:03	08:04	40.74622	-70.31646	40.74625	-70.31477	48	7	SW	<2	B3	0.5-1	Clear	None	4.2	86	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	08:04	08:59	40.74625	-70.31477	40.74726	-70.22594	48	7	SW	<2	B3	0.5-1	Clear	None	4.5	88	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	08:59	10:00	40.74726	-70.22594	40.74819	-70.13252	44	8	SW	<2	B3	0.5-1	Clear	None	4.1	86	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	10:00	10:22	40.74819	-70.13252	40.74856	-70.09801	39	8	SW	<2	B3	0.5-1	Clear	None	4.2	89	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	10:22	11:00	40.74856	-70.09801	40.74901	-70.04554	39	8	SW	<2	B3	2-5	Clear	None	4	89	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:00	11:20	40.74901	-70.04554	40.74931	-70.01815	38	7	WSW	<2	B3	>5	Clear	Slight	3.7	93	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:20	11:22	40.74931	-70.01815	40.74932	-70.01544	39	6	WSW	<2	B3	>5	Clear	Severe	3.6	93	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:22	11:31	40.74932	-70.01544	40.74384	-70.01350	39	6	WSW	<2	B3	>5	Clear	Severe	3.7	94	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:31	11:33	40.74384	-70.01350	40.74386	-70.01719	35	17	W	<2	B3	>5	Clear	Severe	5.1	266	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	11:33	12:00	40.74386	-70.01719	40.74345	-70.06226	35	15	W	<2	B3	>5	Clear	Severe	4.6	261	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	12:00	13:00	40.74345	-70.06226	40.74258	-70.15362	38	13	W	<2	B2	>5	Clear	Severe	4.3	261	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Dorado, Sam	RPS	13:00	14:00	40.74258	-70.15362	40.74154	-70.24732	40	13	W	<2	B2	>5	Clear	Severe	3.7	262	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:00	14:44	40.74154	-70.24732	40.74086	-70.31333	45	14	W	<2	B3	>5	Clear	Severe	4.2	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:44	14:45	40.74086	-70.31333	40.74091	-70.31467	48	15	W	<2	B3	>5	Clear	Severe	3.9	270	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	14:45	15:00	40.74091	-70.31467	40.73592	-70.33550	48	14	W	<2	B3	>5	Clear	Severe	4	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	15:06	40.73592	-70.33550	40.74040	-70.33207	48	10	W	<2	B3	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:06	15:08	40.74040	-70.33207	40.74040	-70.32831	48	10	W	<2	B3	>5	Clear	Severe	4.5	99	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	15:08	16:00	40.74040	-70.32831	40.74144	-70.23763	48	8	W	<2	B2	>5	Clear	Severe	4.7	95	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	16:00	17:00	40.74144	-70.23763	40.74266	-70.13250	44	4	W	<2	B2	>5	Clear	Severe	4.7	90	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	17:00	18:00	40.74266	-70.13250	40.74356	-70.02988	40	4	W	<2	B2	>5	Clear	Severe	4.7	90	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:00	18:07	40.74356	-70.02988	40.74367	-70.01917	36	10	W	<2	B3	>5	Clear	Severe	4.6	91	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:07	18:08	40.74367	-70.01917	40.74364	-70.01752	35	11	W	<2	B3	>5	Clear	Severe	4.6	90	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:08	18:19	40.74364	-70.01752	40.73759	-70.01496	35	10	W	<2	B3	>5	Clear	Severe	4.6	90	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:19	18:20	40.73759	-70.01496	40.73773	-70.01670	32	10	W	<2	B3	>5	Clear	Severe	3.9	263	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	18:20	19:00	40.73773	-70.01670	40.73719	-70.07596	33	12	W	<2	B3	>5	Clear	Severe	4.1	266	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	19:00	20:00	40.73719	-70.07596	40.73628	-70.17185	37	12	W	<2	B3	>5	Clear	Severe	4.3	273	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:00	20:03	40.73628	-70.17185	40.73627	-70.17682	42	12	W	<2	B3	>5	Clear	Severe	4.7	270	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:03	20:22	40.73627	-70.17682	40.74247	-70.17834	42	12	W	<2	B3	>5	Clear	Severe	4.7	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:22	20:23	40.74247	-70.17834	40.74271	-70.18009	42	12	W	<2	B3	>5	Clear	Severe	5.2	270	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	20:23	21:00	40.74271	-70.18009	40.74245	-70.24280	42	12	WSW	<2	B3	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:00	21:04	40.74245	-70.24280	40.74238	-70.24984	45	9	WSW	<2	B3	>5	Clear	Severe	4.9	270	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:04	21:05	40.74238	-70.24984	40.74237	-70.25161	45	9	SW	<2	B3	>5	Clear	Severe	4.7	270	Silent	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	21:05	21:59	40.74237	-70.25161	40.74327	-70.18393	46	2	S	<2	B3	>5	Clear	Severe	3.5	340	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	21:59	22:36	40.74327	-70.18393	40.73767	-70.13496	42	8	S	<2	B2	>5	Clear	Severe	4	90	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:36	22:38	40.73767	-70.13496	40.73673	-70.13708	41	8	SW	<2	B2	1-2	Clear	None	5	256	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:38	22:40	40.73673	-70.13708	40.73649	-70.14059	41	8	SW	<2	B2	1-2	Clear	None	5	256	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Bravo, Esmeralda	RPS	22:40	23:00	40.73649	-70.14059	40.73615	-70.17574	41	7	SW	<2	B2	1-2	Clear	None	5.2	285	Full Power	N/A
2022-10-12	*GO Explorer*	HRG	Visual	Ruiz, Arturo	RPS	23:00	00:00	40.73615	-70.17574	40.73515	-70.27670	43	8	SW	<2	B2	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:00	00:30	40.73508	-70.27924	40.73449	-70.32800	47	10	SSW	<2	B3	0.5-1	Clear	None	4.9	270	Full Power	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:30	00:34	40.73449	-70.32800	40.73502	-70.33440	48	10	SSW	<2	B3	0.5-1	Clear	None	4.6	270	Silent	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Ruiz, Arturo; Weller, Robert	RPS	00:34	00:59	40.73502	-70.33440	40.75131	-70.34329	48	10	SSW	<2	B3	0.5-1	Clear	None	4.6	270	Deploying/Retrieving	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	00:59	01:10	40.75131	-70.34329	40.75491	-70.34512	47	11	NW	<2	B3	0.5-1	Clear	None	1.5	312	Deploying/Retrieving	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	01:10	02:00	40.75491	-70.34512	40.88200	-70.35795	49	11	S	<2	B3	0.5-1	Clear	None	4.7	315	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Runyan, Leanna	RPS	02:00	02:59	40.88200	-70.35795	41.04680	-70.38072	49	12	SE	<2	B3	0.5-1	Clear	None	10.1	356	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Bravo, Esmeralda; Weller, Robert	RPS	02:59	03:59	41.04680	-70.38072	41.20781	-70.40560	39	6	S	<2	B3	0.5-1	Clear	None	10.1	352	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	03:59	05:00	41.20781	-70.40560	41.37309	-70.42062	33	7	S	<2	B3	0.5-1	Clear	None	9.5	353	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Dorado, Sam; Runyan, Leanna	RPS	05:00	05:59	41.37309	-70.42062	41.47470	-70.50682	30	6	S	<2	B3	0.5-1	Clear	None	9.8	350	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	05:59	07:00	41.47470	-70.50682	41.47592	-70.70040	20	16	SW	<2	B3	0.5-1	Cloudy	None	8.7	285	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:00	07:59	41.47592	-70.70040	41.48151	-70.84236	20	26	SSW	<2	B3	0.5-1	Cloudy	None	9.8	232	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Dorado, Sam; Weller, Robert	RPS	07:59	08:59	41.48151	-70.84236	41.60963	-70.89638	17	9	SSE	<2	B3	0.5-1	Cloudy	None	12	10	Transit	N/A
2022-10-13	*GO Explorer*	HRG	Visual	Runyan, Leanna; Weller, Robert	RPS	08:59	09:29	41.60963	-70.89638	41.62261	-70.91354	9	13	S	<2	B3	0.5-1	Cloudy	None	7.6	335	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:18	09:00	41.62148	-70.91351	41.60419	-70.89274	6	4	SW	<2	B0	0.5-1	Clear	None	3.8	348	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Estrada, Hector; OOW; Roberts, Britney	RPS	09:00	10:00	41.60419	-70.89274	41.47555	-70.84212	9	11	NE	<2	B1	0.5-1	Clear	None	6.7	230.2	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	41.47555	-70.84212	41.35132	-70.87350	40	15	SSW	<2	B1	0.5-1	Clear	None	8.2	187.8	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.35132	-70.87350	41.21837	-70.85540	73	18	SW	<2	B1	>5	Clear	None	8.7	184	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.21837	-70.85540	41.11512	-70.73690	51	18	SSW	<2	B1	>5	Clear	Severe	8	140	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:59	41.11512	-70.73690	41.01612	-70.61898	42	16	SSW	<2	B1	>5	Clear	Severe	8.5	137	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:59	14:56	41.01612	-70.61898	40.92070	-70.50124	42	13	SE	<2	B2	>5	Clear	Severe	8.5	137	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:56	16:00	40.92070	-70.50124	40.81169	-70.37656	44	12	S	<2	B2	>5	Clear	Severe	8.2	140	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:59	40.81169	-70.37656	40.74247	-70.30897	49	13	S	<2	B2	>5	Clear	Severe	8.3	151	Transit	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:45	40.74247	-70.30897	40.75142	-70.25005	49	6	S	<2	B2	>5	Clear	Severe	3.9	78	Deploying/Retrieving	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:45	17:57	40.75142	-70.25005	40.75360	-70.23393	49	6	S	<2	B2	>5	Clear	Severe	3.9	78	Soft Start	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:57	19:09	40.75360	-70.23393	40.74068	-70.33064	44	12	S	<2	B2	>5	Clear	Severe	3.4	110	Deploying/Retrieving	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:09	19:11	40.74068	-70.33064	40.74051	-70.32886	48	14	S	<2	B2	>5	Clear	Severe	4.5	104	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:11	19:12	40.74051	-70.32886	40.74027	-70.32724	48	14	S	<2	B2	>5	Clear	Severe	4.5	104	Silent	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:12	20:01	40.74027	-70.32724	40.74110	-70.24537	48	8	S	<2	B2	>5	Clear	Severe	4.5	92	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:01	20:58	40.74110	-70.24537	40.74213	-70.14897	48	11	S	<2	B2	>5	Clear	Slight	4.1	89	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:58	21:55	40.74213	-70.14897	40.74310	-70.05488	48	9	S	<2	B2	>5	Clear	Slight	4.8	98	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:55	22:18	40.74310	-70.05488	40.74338	-70.01941	35	3	S	<2	B2	>5	Precipitation	None	3.9	85	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:18	22:28	40.74338	-70.01941	40.74338	-70.01941	35	3	S	<2	B2	>5	Cloudy	None	3.9	85	Silent	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:28	22:31	40.74338	-70.01941	40.74338	-70.01941	35	3	S	<2	B2	>5	Cloudy	None	3.9	85	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:31	22:32	40.74338	-70.01941	40.74338	-70.01941	35	10	SW	<2	B2	>5	Cloudy	None	3.9	85	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:32	22:39	40.74338	-70.01941	40.74338	-70.01941	35	11	SW	<2	B2	>5	Cloudy	None	5	265	Silent	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:39	23:00	40.74338	-70.01941	40.73702	-70.06164	36	10	SW	<2	B2	>5	Cloudy	None	4.3	274	Full Power	N/A
2022-10-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:00	00:00	40.73702	-70.06164	40.73611	-70.16187	36	10	SW	<2	B2	>5	Cloudy	None	4.3	256	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	40.73610	-70.16998	40.73494	-70.26918	43	10	SW	<2	B2	0.5-1	Cloudy	None	4.4	274	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:00	02:00	40.73494	-70.26918	40.73567	-70.37095	44	10	WSW	<2	B2	0.5-1	Clear	None	4.5	274	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:31	40.73567	-70.37095	40.74005	-70.32984	47	3	WSW	<2	B2	0.5-1	Clear	None	4.3	274	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:31	02:32	40.74005	-70.32984	40.73984	-70.32839	48	4	W	<2	B2	0.5-1	Clear	None	3.8	92	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:32	02:59	40.73984	-70.32839	40.74034	-70.28876	48	4	W	<2	B2	0.5-1	Clear	None	4	92	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	03:58	40.74034	-70.28876	40.74131	-70.20368	47	3	WNW	<2	B2	0.5-1	Clear	None	4	92	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:58	04:59	40.74131	-70.20368	40.74226	-70.11117	46	4	W	<2	B2	0.5-1	Clear	None	4	97	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:59	06:00	40.74226	-70.11117	40.74303	-70.02225	47	3	NW	<2	B2	0.5-1	Cloudy	None	3.7	89.7	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:00	40.74303	-70.02225	40.73647	-70.08583	47	2	WNW	<2	B2	0.5-1	Clear	None	4	100	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:57	40.73647	-70.08583	40.73560	-70.16565	48	12	WNW	<2	B2	0.5-1	Clear	None	4	266	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:57	09:01	40.73560	-70.16565	40.73483	-70.25445	42	14	WNW	<2	B2	0.5-1	Clear	None	4	266	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:01	10:00	40.73483	-70.25445	40.73873	-70.33436	45	14	W	<2	B2	0.5-1	Clear	None	3.6	266.5	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.73873	-70.33436	40.74068	-70.24102	48	7	W	<2	B2	0.5-1	Clear	None	4	112	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.74068	-70.24102	40.74162	-70.14727	47	4	SSE	<2	B2	>5	Cloudy	Slight	4	112	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.74162	-70.14727	40.74255	-70.05649	42	1	S	<2	B2	>5	Cloudy	Slight	5.3	120	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:30	40.74255	-70.05649	40.74232	-70.01326	42	8	SW	<2	B2	>5	Cloudy	Slight	3.7	157	Full Power	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:30	13:59	40.74232	-70.01326	40.71700	-70.03199	42	12	SW	<2	B2	>5	Cloudy	None	1.8	170	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:59	14:57	40.71700	-70.03199	40.74509	-70.00614	42	12	SW	<2	B2	>5	Cloudy	None	1.7	173	Deploying/Retrieving	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:57	15:58	40.74509	-70.00614	40.74557	-70.11079	36	12	W	<2	B3	>5	Cloudy	None	4.7	303	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:58	16:59	40.74557	-70.11079	40.74450	-70.21081	36	12	SW	<2	B3	>5	Cloudy	None	4.4	280	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:55	40.74450	-70.21081	40.74353	-70.30009	36	13	SW	<2	B3	>5	Cloudy	Slight	4.7	260	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:55	18:40	40.74353	-70.30009	40.72232	-70.32757	48	12	SSW	<2	B3	>5	Cloudy	Slight	4.1	262	Silent	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:40	19:19	40.72232	-70.32757	40.78079	-70.36771	48	10	S	<2	B3	>5	Cloudy	Slight	4.4	260	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:19	19:58	40.78079	-70.36771	40.85866	-70.37995	49	11	SE	<2	B3	>5	Precipitation	None	7.4	351	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	20:59	40.85866	-70.37995	40.97813	-70.39618	49	5	SE	<2	B3	>5	Clear	None	7.3	355	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:59	21:58	40.97813	-70.39618	41.09483	-70.40834	49	6	SW	<2	B3	>5	Precipitation	None	7.1	353	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:58	22:24	41.09483	-70.40834	41.14358	-70.41329	40	8	S	<2	B3	>5	Precipitation	None	9	352	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:24	22:58	41.14358	-70.41329	41.20982	-70.41478	36	7	SSE	<2	B3	1-2	Precipitation	None	7	358	Transit	N/A
2022-10-17	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:58	00:00	41.20982	-70.41478	41.31084	-70.42903	36	6	SSE	<2	B3	1-2	Precipitation	None	6.7	6	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:01	41.31525	-70.42802	41.40372	-70.42682	10	7	SSE	<2	B3	0.5-1	Precipitation	None	5.2	15	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:01	01:48	41.40372	-70.42682	41.46125	-70.44878	11	3	E	<2	B3	0.5-1	Precipitation	None	6.6	0	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:48	02:58	41.46125	-70.44878	41.48621	-70.54697	17	9	E	<2	B3	0.5-1	Cloudy	None	4.2	289	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:58	04:01	41.48621	-70.54697	41.50109	-70.62850	21	9	S	<2	B3	0.5-1	Cloudy	None	4	289	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:01	04:59	41.50109	-70.62850	41.48911	-70.67938	19	11	SW	<2	B3	0.5-1	Precipitation	None	2.4	214	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:59	05:57	41.48911	-70.67938	41.46183	-70.73438	12	17	S	<2	B3	0.5-1	Precipitation	None	2.9	246	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:57	07:00	41.46183	-70.73438	41.43815	-70.78817	22	13	SW	<2	B3	0.5-1	Precipitation	None	3.2	230	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:59	41.43815	-70.78817	41.43654	-70.84163	27	9	SW	<2	B3	0.5-1	Precipitation	None	2.5	249	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:59	08:58	41.43654	-70.84163	41.48437	-70.86354	11	8	SE	<2	B3	0.5-1	Cloudy	None	2.8	323	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:58	10:00	41.48437	-70.86354	41.47393	-70.93100	9	3	SSW	<2	B3	0.5-1	Precipitation	None	3.2	323	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:58	41.47393	-70.93100	41.45388	-70.95501	18	9	SSW	<2	B3	0.5-1	Precipitation	None	5	250	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	10:58	11:59	41.45388	-70.95501	41.44392	-70.95239	18	10	S	<2	B3	>5	Fog	None	0.3	32	Deploying/Retrieving	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:59	13:01	41.44392	-70.95239	41.48518	-70.88721	30	12	S	<2	B3	>5	Clear	None	4	3	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:01	14:03	41.48518	-70.88721	41.43614	-70.80921	18	15	S	<2	B3	>5	Cloudy	None	8	100	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:03	14:55	41.43614	-70.80921	41.43282	-70.82429	18	13	SSW	<2	B3	>5	Cloudy	None	2.9	71	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:55	15:59	41.43282	-70.82429	41.49884	-70.84228	14	15	SW	<2	B3	>5	Clear	None	2.5	245	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:59	17:00	41.49884	-70.84228	41.62095	-70.90344	14	8	NW	<2	B3	>5	Clear	Moderate	8	358	Transit	N/A
2022-10-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	17:26	41.62095	-70.90344	41.62149	-70.91352	14	8	NW	<2	B3	>5	Clear	Moderate	8	358	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:54	19:00	41.62189	-70.91356	41.55240	-70.85854	2	14	W	<2	B1	>5	Clear	Moderate	1	359.4	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:00	19:58	41.55240	-70.85854	41.44845	-70.84738	13	30	SW	2-4	B6	>5	Clear	Severe	6.4	156.8	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	21:00	41.44845	-70.84738	41.47387	-70.73020	10	22	SW	2-4	B6	>5	Clear	Severe	9	177	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	21:58	41.47387	-70.73020	41.50471	-70.62033	21	14	SW	2-4	B6	>5	Clear	Severe	5.9	57	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:58	22:24	41.50471	-70.62033	41.49667	-70.57540	24	16	W	<2	B5	>5	Clear	None	5.6	85	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:24	23:00	41.49667	-70.57540	41.47901	-70.52063	25	19	WSW	<2	B5	0.5-1	Clear	None	4.9	121	Transit	N/A
2022-10-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:00	00:00	41.47901	-70.52063	41.45796	-70.43866	20	7	W	<2	B4	0.5-1	Clear	None	4.2	109	Transit	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:59	41.47449	-70.50131	41.47605	-70.50702	20	16	SW	<2	B3	0.5-1	Clear	None	3	290	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:59	02:00	41.47605	-70.50702	41.49235	-70.56334	20	16	W	<2	B3	0.5-1	Clear	None	3	285	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:56	41.49235	-70.56334	41.48057	-70.52769	22	13	W	<2	B3	0.5-1	Clear	None	3	108	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:56	03:58	41.48057	-70.52769	41.46606	-70.47339	22	6	WSW	<2	B3	0.5-1	Clear	None	2	120	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:58	04:58	41.46606	-70.47339	41.46278	-70.44860	18	16	W	<2	B3	0.5-1	Clear	None	3	102	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:58	05:58	41.46278	-70.44860	41.47769	-70.51409	21	16	W	<2	B3	0.5-1	Clear	None	3	285	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:58	06:57	41.47769	-70.51409	41.49347	-70.56237	21	14	W	<2	B3	0.5-1	Clear	None	3	285	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	06:57	08:00	41.49347	-70.56237	41.49745	-70.58934	25	22	W	<2	B3	0.5-1	Clear	None	1.6	273	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:59	41.49745	-70.58934	41.48666	-70.53826	25	18	SW	<2	B3	0.5-1	Clear	None	0.5	274	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	09:59	41.48666	-70.53826	41.46014	-70.44990	23	8	SSW	<2	B3	0.5-1	Clear	None	4	119	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	09:59	10:59	41.46014	-70.44990	41.45539	-70.40636	19	14	W	<2	B3	0.5-1	Clear	None	4	123	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	10:59	12:00	41.45539	-70.40636	41.46266	-70.44099	21	23	W	<2	B4	>5	Clear	None	2	277	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.46266	-70.44099	41.46821	-70.48438	19	19	W	<2	B4	>5	Clear	None	2	271	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:56	41.46821	-70.48438	41.48884	-70.54259	16	19	W	<2	B4	>5	Clear	Severe	2	274	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:56	14:59	41.48884	-70.54259	41.50669	-70.60526	16	20	W	<2	B4	>5	Clear	Severe	4	296	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:59	16:00	41.50669	-70.60526	41.48808	-70.53219	21	24	SW	<2	B5	>5	Clear	Severe	3.9	97	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	17:01	41.48808	-70.53219	41.47524	-70.46814	21	19	SW	<2	B5	>5	Clear	Severe	3.5	113	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:01	17:59	41.47524	-70.46814	41.46752	-70.40898	21	14	SW	<2	B4	>5	Clear	Severe	2.7	94	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:59	19:01	41.46752	-70.40898	41.47292	-70.44447	22	23	W	<2	B4	>5	Clear	Severe	3.6	107	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:01	20:00	41.47292	-70.44447	41.48308	-70.51194	14	26	WSW	<2	B4	>5	Clear	Severe	3.2	267	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	21:01	41.48308	-70.51194	41.50012	-70.56919	14	22	SW	<2	B4	>5	Clear	Severe	3	288	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:01	21:59	41.50012	-70.56919	41.50218	-70.61182	14	17	SW	<2	B4	>5	Clear	Severe	2.7	294	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:59	22:25	41.50218	-70.61182	41.50044	-70.62788	25	20	SW	<2	B3	>5	Clear	None	1.9	254	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:25	22:58	41.50044	-70.62788	41.49610	-70.64613	24	21	SW	<2	B3	1-2	Clear	None	1.6	250	Standby	N/A
2022-10-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:58	00:00	41.49610	-70.64613	41.48919	-70.66920	26	22	SW	<2	B3	1-2	Clear	None	0.9	240	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	41.49254	-70.66255	41.49234	-70.56338	18	18	SW	<2	B2	0.5-1	Clear	None	5.7	60	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:57	01:57	41.49234	-70.56338	41.47697	-70.48206	22	4	S	<2	B2	0.5-1	Clear	None	4.9	107	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:57	02:58	41.47697	-70.48206	41.46950	-70.43823	18	20	SW	<2	B3	0.5-1	Clear	None	2.5	104	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:58	03:58	41.46950	-70.43823	41.48154	-70.51601	16	23	WSW	<2	B3	0.5-1	Clear	None	4.3	274	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:58	04:59	41.48154	-70.51601	41.49966	-70.60118	22	14	W	<2	B3	0.5-1	Clear	None	3.8	283	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:59	06:00	41.49966	-70.60118	41.48747	-70.68210	27	18	SW	<2	B3	0.5-1	Clear	None	3.5	280	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:01	41.48747	-70.68210	41.44969	-70.76115	22	21	WSW	2-4	B4	0.5-1	Clear	None	4.6	236	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:01	07:59	41.44969	-70.76115	41.41559	-70.81658	26	25	SW	2-4	B4	0.5-1	Clear	None	4.4	236	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:59	08:59	41.41559	-70.81658	41.38232	-70.86887	21	18	W	2-4	B4	0.5-1	Clear	None	3.5	236	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	09:59	41.38232	-70.86887	41.32503	-70.85337	24	20	W	<2	B4	0.5-1	Clear	None	3	220	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	09:59	11:00	41.32503	-70.85337	41.25618	-70.75645	22	9	W	<2	B4	0.5-1	Clear	None	5	158	Standby	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:59	41.25618	-70.75645	41.16863	-70.61075	26	3	SW	<2	B3	>5	Clear	None	9	136	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:59	13:04	41.16863	-70.61075	41.06057	-70.46420	40	8	S	<2	B3	>5	Clear	Severe	9	133	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:04	14:01	41.06057	-70.46420	40.96489	-70.33976	41	5	S	<2	B3	>5	Clear	Severe	8	138	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:01	14:52	40.96489	-70.33976	40.88230	-70.21701	43	7	SSE	<2	B3	>5	Clear	Severe	8.3	132	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:52	16:01	40.88230	-70.21701	40.77395	-70.05764	37	9	SE	<2	B3	>5	Clear	Severe	8.5	130	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:01	17:00	40.77395	-70.05764	40.72284	-70.01984	30	7	SE	<2	B3	>5	Clear	Severe	8	119	Transit	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	17:42	40.72284	-70.01984	40.70563	-70.06046	40	3	SE	<2	B3	>5	Clear	Moderate	2.9	213	Deploying/Retrieving	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:42	17:56	40.70563	-70.06046	40.71801	-70.06280	42	3	NNE	<2	B2	>5	Clear	Moderate	3.7	327	Soft Start	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:56	18:04	40.71801	-70.06280	40.72545	-70.05740	41	5	E	<2	B2	>5	Clear	Moderate	3.7	36	Soft Start	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:04	19:17	40.72545	-70.05740	40.75181	-70.04631	43	6	E	<2	B2	>5	Clear	Moderate	4	35	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:17	19:58	40.75181	-70.04631	40.73581	-70.02224	39	4	NE	<2	B2	>5	Clear	Severe	4	21	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	21:02	40.73581	-70.02224	40.75387	-69.99542	32	7	SW	<2	B2	>5	Clear	Severe	4.8	236	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:02	21:54	40.75387	-69.99542	40.73691	-70.01650	32	7	S	<2	B2	>5	Clear	Moderate	3.7	106	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:54	22:00	40.73691	-70.01650	40.73679	-70.02715	32	10	SW	<2	B2	>5	Clear	None	3.9	270	Silent	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:31	40.73679	-70.02715	40.73624	-70.07464	33	8	WSW	<2	B2	>5	Clear	None	4.1	259	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:31	22:57	40.73624	-70.07464	40.73588	-70.11416	39	10	WSW	<2	B2	1-2	Clear	None	4.2	260	Full Power	N/A
2022-10-21	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:57	00:00	40.73588	-70.11416	40.73495	-70.20513	39	10	WSW	<2	B2	1-2	Clear	None	3.8	274	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	40.73483	-70.22422	40.73399	-70.29565	45	10	SW	<2	B2	1-2	Clear	None	9	256	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:57	02:01	40.73399	-70.29565	40.72447	-70.38248	46	10	W	<2	B2	0.5-1	Clear	None	4	247	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:01	02:36	40.72447	-70.38248	40.73987	-70.33024	48	3	S	<2	B2	0.5-1	Clear	None	4	61	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:36	02:39	40.73987	-70.33024	40.73932	-70.32581	47	5	S	<2	B2	0.5-1	Clear	None	4.6	87	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:39	02:59	40.73932	-70.32581	40.73979	-70.29215	47	5	S	<2	B2	0.5-1	Clear	None	4.6	87	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	03:59	40.73979	-70.29215	40.74083	-70.19942	47	4	S	<2	B2	0.5-1	Clear	None	4.2	88	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:59	04:59	40.74083	-70.19942	40.74176	-70.11006	42	4	S	<2	B1	0.5-1	Clear	None	4	108	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:59	05:59	40.74176	-70.11006	40.74250	-70.02938	39	4	S	<2	B1	0.5-1	Clear	None	3.6	90	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:59	07:01	40.74250	-70.02938	40.73607	-70.07792	33	2	S	<2	B1	0.5-1	Clear	None	3.4	88	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:01	08:00	40.73607	-70.07792	40.73508	-70.17717	40	4	W	<2	B1	0.5-1	Clear	None	5.2	265	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:57	40.73508	-70.17717	40.73408	-70.26649	43	2	NW	<2	B1	0.5-1	Clear	None	4.1	263	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:57	10:00	40.73408	-70.26649	40.73912	-70.32813	44	1	NNW	<2	B1	0.5-1	Clear	None	4.1	255	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.73912	-70.32813	40.74008	-70.23428	47	9	E	<2	B1	0.5-1	Clear	None	4.2	250	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.74008	-70.23428	40.74120	-70.13361	44	11	E	<2	B2	>5	Clear	Moderate	4.2	94	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.74120	-70.13361	40.74209	-70.02979	39	12	E	<2	B2	>5	Clear	Slight	5	94	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:06	40.74209	-70.02979	40.74220	-70.01808	36	13	E	<2	B2	>5	Clear	Severe	5.2	94	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:06	13:07	40.74220	-70.01808	40.74221	-70.01754	34	8	E	<2	B3	>5	Clear	Slight	5.2	89	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:07	13:21	40.74221	-70.01754	40.73640	-70.01182	34	8	E	<2	B3	>5	Clear	Slight	5.2	89	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:21	13:22	40.73640	-70.01182	40.73642	-70.01329	32	4	NE	<2	B3	>5	Clear	Slight	3.6	267	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:22	13:58	40.73642	-70.01329	40.73597	-70.06668	32	4	NE	<2	B3	>5	Clear	Slight	3.6	267	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:58	15:00	40.73597	-70.06668	40.73503	-70.16092	32	3	E	<2	B2	>5	Clear	Slight	3.6	267	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:00	16:00	40.73503	-70.16092	40.73401	-70.25976	42	3	E	<2	B2	>5	Clear	Slight	4.4	273	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:21	40.73401	-70.25976	40.73361	-70.29845	46	3	SE	<2	B2	>5	Clear	Moderate	4.6	269	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:21	16:53	40.73361	-70.29845	40.74462	-70.28390	46	2	E	<2	B2	>5	Clear	Moderate	4.4	270	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:53	17:14	40.74462	-70.28390	40.73374	-70.28297	46	9	SE	<2	B2	>5	Clear	Moderate	4.4	120	Soft Start	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:14	17:15	40.73374	-70.28297	40.73368	-70.28562	47	2	ESE	<2	B2	>5	Clear	Moderate	4.5	259	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:15	17:18	40.73368	-70.28562	40.73357	-70.28987	47	1	ESE	<2	B2	>5	Clear	Moderate	4.5	259	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:18	17:42	40.73357	-70.28987	40.73326	-70.32794	47	1	ESE	<2	B2	>5	Clear	Moderate	4.5	259	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:42	17:44	40.73326	-70.32794	40.73323	-70.33118	47	1	SE	<2	B2	>5	Clear	Moderate	4.4	263	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:44	17:56	40.73323	-70.33118	40.73866	-70.33951	47	1	SE	<2	B2	>5	Clear	Moderate	4.5	258	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:56	18:06	40.73866	-70.33951	40.73894	-70.32861	48	10	E	<2	B2	>5	Clear	Moderate	2.9	86	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:06	18:57	40.73894	-70.32861	40.73967	-70.25467	48	10	E	<2	B2	>5	Clear	Moderate	4.2	88	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:57	18:59	40.73967	-70.25467	40.73970	-70.25262	48	10	E	<2	B2	>5	Clear	Moderate	4.2	88	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:59	19:59	40.73970	-70.25262	40.74061	-70.16471	45	11	E	<2	B2	>5	Clear	Moderate	3.8	88	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:59	21:05	40.74061	-70.16471	40.74156	-70.06928	41	12	E	<2	B2	>5	Clear	Moderate	4.4	81	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:05	21:43	40.74156	-70.06928	40.74195	-70.01703	41	14	E	<2	B2	>5	Clear	Severe	4	87	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:43	21:44	40.74195	-70.01703	40.74199	-70.01524	41	14	E	<2	B2	>5	Clear	None	3.7	93	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:44	21:58	40.74199	-70.01524	40.73553	-70.00800	41	14	E	<2	B2	>5	Clear	None	3.7	93	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:58	22:03	40.73553	-70.00800	40.73606	-70.01657	32	8	SE	<2	B2	>5	Clear	None	4.6	268	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:03	22:06	40.73606	-70.01657	40.73595	-70.02057	32	8	SE	<2	B2	>5	Clear	None	4.6	252	Silent	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:06	22:23	40.73595	-70.02057	40.73572	-70.05098	32	8	SE	<2	B2	>5	Clear	None	4.6	252	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:23	22:58	40.73572	-70.05098	40.73525	-70.10640	37	7	NE	<2	B2	1-2	Clear	None	4.6	262	Full Power	N/A
2022-10-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:58	00:00	40.73525	-70.10640	40.73428	-70.19871	39	9	NE	<2	B2	1-2	Clear	None	4.4	251	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	40.73427	-70.20091	40.73341	-70.28429	44	7	NE	<2	B2	>5	Clear	None	3.9	266	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:57	02:00	40.73341	-70.28429	40.73803	-70.31240	45	10	E	<2	B2	0.5-1	Clear	None	3.9	266	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:59	40.73803	-70.31240	40.73910	-70.21258	47	15	E	<2	B3	0.5-1	Clear	None	4.1	88	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	04:00	40.73910	-70.21258	40.74008	-70.11531	44	15	E	<2	B3	0.5-1	Cloudy	None	4.2	86	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	05:02	40.74008	-70.11531	40.74093	-70.02490	38	15	E	<2	B3	0.5-1	Cloudy	None	3.2	83	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:02	05:59	40.74093	-70.02490	40.73530	-70.07099	35	13	E	<2	B3	0.5-1	Cloudy	None	3.5	78	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:59	07:00	40.73530	-70.07099	40.73429	-70.17559	38	8	ENE	<2	B3	0.5-1	Cloudy	None	4.8	275	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	08:00	40.73429	-70.17559	40.73313	-70.27414	43	10	NNE	<2	B3	0.5-1	Cloudy	None	4.4	270	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:32	40.73313	-70.27414	40.73275	-70.32781	47	8	ENE	<2	B3	0.5-1	Precipitation	None	4.6	266	Full Power	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:32	08:59	40.73275	-70.32781	40.73155	-70.32968	47	11	E	<2	B3	0.5-1	Cloudy	None	4.3	250	Silent	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	10:00	40.73155	-70.32968	40.73845	-70.31785	47	11	E	<2	B3	0.5-1	Cloudy	None	4.3	250	Silent	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.73845	-70.31785	40.76555	-70.44568	48	5	E	<2	B3	0.5-1	Cloudy	None	2	5	Deploying/Retrieving	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.76555	-70.44568	40.79272	-70.60783	51	7	E	<2	B3	>5	Cloudy	None	7.5	280	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.79272	-70.60783	40.82433	-70.76985	55	11	NE	<2	B3	>5	Cloudy	None	8.2	234	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:01	40.82433	-70.76985	40.87020	-70.93126	54	9	NE	<2	B3	>5	Cloudy	None	7.4	284	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:01	14:56	40.87020	-70.93126	40.91579	-71.07980	55	10	NE	<2	B3	>5	Precipitation	None	7.9	296	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:56	15:38	40.91579	-71.07980	40.95013	-71.19919	53	18	E	<2	B4	>5	Precipitation	None	8.1	292	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:38	16:00	40.95013	-71.19919	40.96838	-71.26246	52	10	E	<2	B4	>5	Precipitation	None	8.4	292	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:58	40.96838	-71.26246	41.01634	-71.42335	52	12	NE	<2	B4	>5	Precipitation	None	8.4	292	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:58	17:59	41.01634	-71.42335	41.06519	-71.58945	52	15	NE	<2	B4	>5	Cloudy	None	7.9	296	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:59	18:51	41.06519	-71.58945	41.10441	-71.72512	41	13	E	<2	B4	>5	Cloudy	None	7.4	296	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:51	19:35	41.10441	-71.72512	41.13565	-71.82562	29	12	NE	<2	B4	>5	Precipitation	None	7.6	298	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:35	19:58	41.13565	-71.82562	41.13839	-71.85858	21	13	NE	<2	B4	>5	Precipitation	None	3.9	294	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	20:56	41.13839	-71.85858	41.15048	-71.93991	20	17	NE	<2	B4	>5	Precipitation	None	4.5	272	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:56	21:57	41.15048	-71.93991	41.15602	-71.96206	34	19	NE	<2	B4	>5	Precipitation	None	5.2	263	Transit	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:57	22:20	41.15602	-71.96206	41.15602	-71.96206	25	27	NE	<2	B6	>5	Precipitation	None	3.3	85	Standby	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:20	22:59	41.15602	-71.96206	41.16293	-71.89298	20	26	ENE	<2	B6	1-2	Precipitation	None	3.5	78	Standby	N/A
2022-10-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:59	00:00	41.16293	-71.89298	41.19946	-71.84461	32	28	NE	<2	B6	1-2	Precipitation	None	3	67	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:56	41.19999	-71.84364	41.23056	-71.80770	34	26	NE	<2	B4	0.5-1	Cloudy	None	3.8	60	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:56	01:58	41.23056	-71.80770	41.27165	-71.77124	34	28	E	<2	B4	0.5-1	Cloudy	None	2.1	22	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:58	02:59	41.27165	-71.77124	41.28298	-71.77713	37	22	NE	<2	B4	0.5-1	Cloudy	None	2.7	52	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	04:01	41.28298	-71.77713	41.24129	-71.84036	37	18	NE	<2	B4	0.5-1	Cloudy	None	3.8	231	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:01	05:00	41.24129	-71.84036	41.19921	-71.88580	36	16	NE	<2	B4	0.5-1	Cloudy	None	3.8	224	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:58	41.19921	-71.88580	41.19789	-71.84680	32	13	NE	<2	B4	0.5-1	Precipitation	None	2.7	230	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:58	07:00	41.19789	-71.84680	41.22488	-71.76359	32	28	ENE	<2	B5	0.5-1	Precipitation	None	3.6	56	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	08:00	41.22488	-71.76359	41.24731	-71.70699	34	22	NE	<2	B5	0.5-1	Precipitation	None	4	55	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:59	41.24731	-71.70699	41.21906	-71.77557	35	17	NE	<2	B4	0.5-1	Cloudy	None	3.8	245	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	10:00	41.21906	-71.77557	41.19054	-71.84692	34	14	NE	<2	B4	0.5-1	Cloudy	None	3.8	255	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	41.19054	-71.84692	41.16910	-71.85928	34	14	NE	<2	B4	0.5-1	Cloudy	None	4.4	231	Standby	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.16910	-71.85928	41.18039	-71.84481	44	14	NE	<2	B4	2-5	Cloudy	None	3	158	Transit	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:04	41.18039	-71.84481	41.18256	-71.84233	34	22	NE	<2	B4	1-2	Fog	None	2.7	59	Deploying/Retrieving	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:04	13:01	41.18256	-71.84233	41.14605	-71.80398	34	16	NE	<2	B4	1-2	Fog	None	1.8	111	Soft Start	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:01	13:36	41.14605	-71.80398	41.12313	-71.78766	20	15	ENE	<2	B5	1-2	Fog	None	3.2	133	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:36	13:37	41.12313	-71.78766	41.12362	-71.78832	20	15	NE	<2	B5	1-2	Fog	None	4.4	301	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:37	14:52	41.12362	-71.78832	41.15423	-71.89908	20	22	NE	<2	B4	1-2	Fog	None	4.4	301	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:52	14:53	41.15423	-71.89908	41.15510	-71.90009	20	17	NE	<2	B4	1-2	Precipitation	None	4.4	301	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:53	14:59	41.15510	-71.90009	41.16050	-71.90059	20	18	NE	<2	B4	1-2	Precipitation	None	4.4	301	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:59	15:28	41.16050	-71.90059	41.15480	-71.86397	32	19	NE	<2	B4	1-2	Precipitation	None	4.2	51	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:28	15:29	41.15480	-71.86397	41.15449	-71.86535	27	19	NE	<2	B4	1-2	Precipitation	None	4	277	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:29	16:02	41.15449	-71.86535	41.15349	-71.91382	27	19	NE	<2	B4	1-2	Precipitation	None	4	275	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:02	17:00	41.15349	-71.91382	41.15731	-71.98317	27	12	NE	<2	B4	1-2	Precipitation	None	3.5	265	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	17:02	41.15731	-71.98317	41.15802	-71.98529	27	6	NE	<2	B4	1-2	Precipitation	None	3.1	289	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:02	17:29	41.15802	-71.98529	41.15980	-71.98603	27	6	NE	<2	B4	1-2	Precipitation	None	3.1	289	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:29	17:32	41.15980	-71.98603	41.15792	-71.98140	27	13	NE	<2	B4	1-2	Precipitation	None	4.7	117	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:32	17:58	41.15792	-71.98140	41.15272	-71.93787	27	13	NE	<2	B4	1-2	Precipitation	None	5.2	117	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:58	18:37	41.15272	-71.93787	41.15551	-71.87185	31	20	NE	<2	B4	1-2	Precipitation	None	4.4	71	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:37	18:40	41.15551	-71.87185	41.15564	-71.86676	31	19	E	<2	B4	1-2	Cloudy	None	4	44	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:40	18:59	41.15564	-71.86676	41.15433	-71.85890	27	19	E	<2	B4	1-2	Cloudy	None	4.6	90	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:59	19:10	41.15433	-71.85890	41.15408	-71.86873	29	10	ENE	<2	B4	1-2	Cloudy	None	2.9	270	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:10	19:14	41.15408	-71.86873	41.15403	-71.87251	28	10	ENE	<2	B4	1-2	Cloudy	None	2.5	270	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:14	20:00	41.15403	-71.87251	41.15252	-71.92496	32	10	ENE	<2	B4	1-2	Cloudy	None	2.8	270	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	20:47	41.15252	-71.92496	41.15781	-71.98437	32	10	ENE	<2	B4	2-5	Cloudy	None	3.6	270	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:47	20:48	41.15781	-71.98437	41.15821	-71.98556	25	4	NE	<2	B4	2-5	Cloudy	None	3.6	270	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:48	20:59	41.15821	-71.98556	41.16127	-72.00038	25	6	NE	<2	B3	2-5	Cloudy	None	3.6	270	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:59	21:11	41.16127	-72.00038	41.15951	-71.98639	21	10	NE	<2	B3	2-5	Cloudy	None	3.7	353	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:11	21:14	41.15951	-71.98639	41.15780	-71.98185	21	10	NE	<2	B3	2-5	Cloudy	None	3.7	353	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:14	21:25	41.15780	-71.98185	41.15328	-71.96773	21	10	NE	<2	B3	2-5	Cloudy	None	3.7	116	Full Power	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:25	21:59	41.15328	-71.96773	41.15116	-71.92807	21	17	NE	<2	B3	0.5-1	Cloudy	None	3.7	107	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:59	22:23	41.15116	-71.92807	41.15554	-71.90284	34	16	E	<2	B3	0.5-1	Fog	None	3.2	79	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:23	23:00	41.15554	-71.90284	41.16198	-71.86773	31	17	ENE	<2	B3	0.3-0.5	Fog	None	2.8	80	Silent	N/A
2022-10-24	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	23:00	00:00	41.16198	-71.86773	41.15396	-71.90850	30	20	ENE	<2	B3	0.3-0.5	Fog	None	2.3	50	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	41.15375	-71.91046	41.15988	-71.99299	30	13	NNE	<2	B3	0.3-0.5	Fog	None	5.4	260	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:00	01:55	41.15988	-71.99299	41.14988	-71.94911	26	19	E	<2	B3	0.3-0.5	Fog	None	2.4	110	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:55	02:59	41.14988	-71.94911	41.15578	-71.88242	32	18	E	<2	B3	0.3-0.5	Fog	None	2.2	85	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	04:00	41.15578	-71.88242	41.16714	-71.81168	35	20	E	<2	B3	0.3-0.5	Fog	None	3.4	79	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	05:00	41.16714	-71.81168	41.14228	-71.86777	35	10	ENE	<2	B3	0.3-0.5	Fog	None	3.5	231.4	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:00	41.14228	-71.86777	41.16617	-71.82094	25	7	E	<2	B3	0.3-0.5	Fog	None	4	353	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:00	41.16617	-71.82094	41.15387	-71.87273	37	9	ENE	<2	B3	0.3-0.5	Fog	None	4.1	200	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:53	41.15387	-71.87273	41.15400	-71.86477	32	10	E	<2	B3	0.3-0.5	Fog	None	2.7	270	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:53	08:00	41.15400	-71.86477	41.15364	-71.87177	27	10	NE	<2	B3	0.5-1	Fog	None	3	269	Soft Start	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:29	41.15364	-71.87177	41.15396	-71.86606	30	9	NE	<2	B3	0.5-1	Fog	None	3	269	Soft Start	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:29	08:30	41.15396	-71.86606	41.15388	-71.86728	30	9	NE	<2	B3	0.5-1	Fog	None	3	269	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:30	09:09	41.15388	-71.86728	41.15243	-71.92092	30	9	NE	<2	B3	0.5-1	Fog	None	3	269	Full Power	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:09	09:51	41.15243	-71.92092	41.15753	-71.98477	33	7	E	<2	B3	0.5-1	Fog	None	4.1	263	Full Power	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:51	09:52	41.15753	-71.98477	41.15787	-71.98570	21	11	ENE	<2	B3	0.5-1	Fog	None	3	4	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:52	10:00	41.15787	-71.98570	41.15868	-71.99893	21	11	ENE	<2	B3	0.5-1	Fog	None	3	4	Full Power	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:42	41.15868	-71.99893	41.15246	-71.96376	21	11	ENE	<2	B3	0.5-1	Fog	None	3	2	Full Power	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:42	11:00	41.15246	-71.96376	41.14878	-71.94743	27	12	E	<2	B3	0.5-1	Fog	None	3	106	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	11:00	12:00	41.14878	-71.94743	41.17682	-72.01169	35	12	E	<2	B3	0.3-0.5	Fog	None	3	128	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	12:00	12:49	41.17682	-72.01169	41.16183	-71.98393	35	15	NE	<2	B3	0.3-0.5	Fog	None	3.5	348	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Weller, Robert	RPS	12:49	13:56	41.16183	-71.98393	41.15975	-71.93240	23	12	E	<2	B2	0.1-0.3	Fog	Slight	2.9	129	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Penfield, Eren; Weller, Robert	RPS	13:56	14:58	41.15975	-71.93240	41.17513	-71.85664	27	16	ENE	<2	B2	0.1-0.3	Fog	None	2.8	56	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Penfield, Eren; Weller, Robert	RPS	14:58	16:00	41.17513	-71.85664	41.16066	-71.94107	42	18	E	<2	B2	0.1-0.3	Fog	None	4	84	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	16:00	17:01	41.16066	-71.94107	41.16984	-71.92055	23	10	E	<2	B2	0.1-0.3	Fog	None	4	263	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	17:01	17:41	41.16984	-71.92055	41.16531	-71.88651	30	17	E	<2	B3	0.1-0.3	Fog	Moderate	5	82	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	17:41	18:00	41.16531	-71.88651	41.15972	-71.90611	35	12	E	<2	B3	0.5-1	Fog	Moderate	3	260	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:00	18:12	41.15972	-71.90611	41.15625	-71.91650	31	7	NNE	<2	B3	0.5-1	Fog	None	2.5	259	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Lopez, Miguel; Weller, Robert	RPS	18:12	18:58	41.15625	-71.91650	41.15023	-71.95861	33	9	E	<2	B3	0.3-0.5	Fog	None	2.6	254	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	18:58	19:59	41.15023	-71.95861	41.15346	-71.90855	29	10	ENE	<2	B3	0.3-0.5	Fog	None	2.8	279	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	19:59	20:58	41.15346	-71.90855	41.15493	-71.89334	30	16	E	<2	B3	0.3-0.5	Fog	None	5.3	87	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Penfield, Eren; Roberts, Britney	RPS	20:58	21:44	41.15493	-71.89334	41.15032	-71.96072	32	11	E	<2	B3	0.3-0.5	Fog	None	3.7	269	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Penfield, Eren; Roberts, Britney	RPS	21:44	22:00	41.15032	-71.96072	41.15591	-71.98381	32	11	E	<2	B3	0.5-1	Fog	None	4.3	289	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:00	22:19	41.15591	-71.98381	41.16521	-71.99272	24	9	ENE	<2	B3	0.5-1	Fog	None	4.2	315	Standby	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:19	22:24	41.16521	-71.99272	41.16160	-71.98723	24	9	ENE	<2	B3	0.5-1	Fog	None	4.2	120	Soft Start	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:24	22:59	41.16160	-71.98723	41.15094	-71.94904	24	9	ENE	<2	B3	0.3-0.5	Fog	None	4.2	120	Silent	N/A
2022-10-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:59	00:00	41.15094	-71.94904	41.15738	-71.89426	30	15	ENE	<2	B3	0.3-0.5	Fog	None	2.9	87	Silent	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	41.15763	-71.89280	41.16955	-71.84295	33	13	E	<2	B3	0.3-0.5	Fog	None	2.2	82	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:00	01:54	41.16955	-71.84295	41.16533	-71.82404	43	10	E	<2	B3	<0.05	Fog	None	2.8	82	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:54	03:00	41.16533	-71.82404	41.14890	-71.92680	38	4	SE	<2	B3	<0.05	Fog	None	3.7	215	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:00	04:00	41.14890	-71.92680	41.16089	-71.99259	31	2	NNE	<2	B2	<0.05	Fog	None	4.5	271	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	04:57	41.16089	-71.99259	41.14855	-71.91098	24	11	E	<2	B3	0.3-0.5	Fog	None	4	130	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:57	05:59	41.14855	-71.91098	41.15215	-71.90185	32	14	E	<2	B3	<0.05	Fog	None	4.5	84	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:59	07:00	41.15215	-71.90185	41.14878	-71.95333	31	7	E	<2	B3	0.05-0.1	Fog	None	2.3	268	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:56	41.14878	-71.95333	41.15941	-72.00240	32	5	NE	<2	B3	0.05-0.1	Fog	None	2.3	275	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:56	08:59	41.15941	-72.00240	41.15069	-71.93170	26	4	ENE	<2	B3	0.05-0.1	Fog	None	2.6	294	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	10:00	41.15069	-71.93170	41.15288	-71.86954	32	13	E	<2	B3	0.05-0.1	Fog	None	3.6	65	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:59	41.15288	-71.86954	41.14761	-71.96031	30	1	NNE	<2	B3	0.05-0.1	Fog	None	3.7	270	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:59	12:00	41.14761	-71.96031	41.17673	-72.00213	30	1	N	<2	B2	0.05-0.1	Fog	None	4.6	289	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	12:00	12:47	41.17673	-72.00213	41.15944	-71.97109	30	9	E	<2	B2	0.05-0.1	Fog	None	2.2	114	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Weller, Robert	RPS	12:47	13:59	41.15944	-71.97109	41.18095	-71.99580	26	12	E	<2	B2	0.05-0.1	Fog	None	2.8	97	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Penfield, Eren; Weller, Robert	RPS	13:59	14:58	41.18095	-71.99580	41.18185	-72.00630	29	10	NE	<2	B2	0.05-0.1	Fog	None	4.8	347	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Penfield, Eren; Weller, Robert	RPS	14:58	16:00	41.18185	-72.00630	41.16328	-71.95802	30	9	NE	<2	B2	0.05-0.1	Fog	None	4.9	341	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	16:00	16:58	41.16328	-71.95802	41.13860	-71.87437	16	11	E	<2	B2	0.05-0.1	Fog	None	5	95	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Penfield, Eren	RPS	16:58	18:00	41.13860	-71.87437	41.13815	-71.87557	25	3	NE	<2	B2	0.05-0.1	Fog	None	3.2	259	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Lopez, Miguel; Weller, Robert	RPS	18:00	19:00	41.13815	-71.87557	41.12839	-71.80392	26	11	E	<2	B2	0.05-0.1	Fog	None	5.7	89	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	19:00	19:59	41.12839	-71.80392	41.13128	-71.77779	19	2	WNW	<2	B2	0.05-0.1	Fog	None	2.9	325	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	19:59	20:59	41.13128	-71.77779	41.14315	-71.84063	21	9	SW	<2	B2	0.05-0.1	Fog	None	3.1	226	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Penfield, Eren; Roberts, Britney	RPS	20:59	21:59	41.14315	-71.84063	41.14239	-71.86390	24	7	W	<2	B2	0.05-0.1	Fog	None	4	267	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	21:59	22:23	41.14239	-71.86390	41.15543	-71.89558	24	7	W	<2	B2	0.05-0.1	Fog	None	3.8	286	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:23	22:30	41.15543	-71.89558	41.15997	-71.90574	32	9	W	<2	B2	0.05-0.1	Fog	None	4.3	297	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:30	22:36	41.15997	-71.90574	41.16485	-71.91316	31	11	W	<2	B2	0.5-1	Fog	None	4.5	298	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:36	22:43	41.16485	-71.91316	41.16994	-71.92427	29	10	W	<2	B2	0.05-0.1	Fog	None	4.5	300	Standby	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:43	23:00	41.16994	-71.92427	41.18136	-71.94902	30	11	W	<2	B2	0.05-0.1	Fog	None	5.1	300	Transit	N/A
2022-10-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:00	00:00	41.18136	-71.94902	41.20719	-72.04643	29	9	WSW	<2	B2	0.05-0.1	Fog	None	4.8	290	Transit	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	41.21425	-72.04808	41.20510	-72.02333	28	5	SW	<2	B2	0.1-0.3	Fog	None	3	113	Standby	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:57	01:13	41.20510	-72.02333	41.19393	-72.01110	30	3	W	<2	B2	0.1-0.3	Fog	None	3	127	Standby	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:13	01:42	41.19393	-72.01110	41.17391	-71.99158	35	4	SW	<2	B2	0.5-1	Fog	None	2.7	124	Standby	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:42	01:59	41.17391	-71.99158	41.15820	-71.99028	35	4	SW	<2	B2	0.5-1	Fog	None	2.7	124	Soft Start	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:59	02:04	41.15820	-71.99028	41.16010	-72.00108	26	17	W	<2	B2	0.5-1	Cloudy	None	5.1	259	Soft Start	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:04	02:27	41.16010	-72.00108	41.15898	-71.98440	23	12	W	<2	B2	0.5-1	Cloudy	None	5	338	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:27	02:31	41.15898	-71.98440	41.15726	-71.97989	23	19	WSW	<2	B3	0.5-1	Cloudy	None	5.1	338	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:31	02:40	41.15726	-71.97989	41.15377	-71.96926	23	19	WSW	<2	B3	0.5-1	Cloudy	None	5	338	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:40	03:00	41.15377	-71.96926	41.14059	-71.95656	23	19	WSW	<2	B3	0.5-1	Cloudy	None	5	338	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:00	03:33	41.14059	-71.95656	41.15974	-71.98659	26	15	W	<2	B3	0.5-1	Cloudy	None	4.9	287	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:33	03:39	41.15974	-71.98659	41.15659	-71.97815	20	7	SW	<2	B2	0.5-1	Cloudy	None	4.1	115	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:39	04:00	41.15659	-71.97815	41.15154	-71.94997	25	9	SW	<2	B2	0.5-1	Cloudy	None	4.1	112	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	04:49	41.15154	-71.94997	41.15522	-71.86910	28	11	W	<2	B3	0.5-1	Clear	None	4.3	79	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:49	04:50	41.15522	-71.86910	41.15523	-71.86850	28	14	W	<2	B3	0.5-1	Clear	None	4.2	170	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:50	05:00	41.15523	-71.86850	41.15658	-71.85235	25	16	W	<2	B3	0.5-1	Clear	None	4.1	185	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:16	41.15658	-71.85235	41.15350	-71.86683	28	17	W	<2	B3	0.5-1	Clear	None	4.3	270	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:16	05:17	41.15350	-71.86683	41.15352	-71.86735	27	18	W	<2	B3	0.5-1	Clear	None	3.9	272	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:17	06:00	41.15352	-71.86735	41.15193	-71.92449	27	18	W	<2	B3	0.5-1	Clear	None	3.9	273	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:00	41.15193	-71.92449	41.15677	-71.98357	35	24	W	<2	B3	0.5-1	Clear	None	2.9	268	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:01	41.15677	-71.98357	41.15716	-71.98468	24	23	W	<2	B3	0.5-1	Clear	None	2.8	288	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:01	07:02	41.15716	-71.98468	41.15741	-71.98541	23	23	W	<2	B3	0.5-1	Clear	None	2.8	288	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:02	07:28	41.15741	-71.98541	41.16067	-71.98755	23	23	W	<2	B3	0.5-1	Clear	None	3	275	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:28	07:29	41.16067	-71.98755	41.15995	-71.98710	23	23	W	<2	B3	0.5-1	Clear	None	3	275	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:29	08:00	41.15995	-71.98710	41.15923	-71.98776	23	23	W	<2	B3	0.5-1	Clear	None	3	275	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:59	41.15923	-71.98776	41.15456	-71.87674	25	14	W	<2	B3	0.5-1	Clear	None	5	116	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	09:02	41.15456	-71.87674	41.15464	-71.86990	32	15	W	<2	B3	0.5-1	Clear	None	5.3	83	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:02	09:03	41.15464	-71.86990	41.15465	-71.86880	31	16	W	<2	B3	0.5-1	Clear	None	4.5	74	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:03	09:32	41.15465	-71.86880	41.15307	-71.86718	31	16	W	<2	B3	0.5-1	Clear	None	4.5	74	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:32	09:33	41.15307	-71.86718	41.15306	-71.86753	32	16	W	<2	B3	0.5-1	Clear	None	4.3	80	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:33	10:00	41.15306	-71.86753	41.15257	-71.90514	32	16	W	<2	B3	0.5-1	Clear	None	4.3	82	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:52	41.15257	-71.90514	41.15686	-71.98551	36	20	W	<2	B3	0.5-1	Clear	None	4.1	261	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:52	10:53	41.15686	-71.98551	41.15718	-71.98642	25	13	NW	<2	B3	>5	Clear	None	5	295	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:53	11:00	41.15718	-71.98642	41.15742	-71.99831	25	13	NW	<2	B3	>5	Clear	None	5	295	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:14	41.15742	-71.99831	41.15993	-71.99138	25	10	W	<2	B2	>5	Clear	None	5	279	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:14	11:15	41.15993	-71.99138	41.15874	-71.98969	20	10	W	<2	B2	>5	Clear	None	4.5	112	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:15	12:00	41.15874	-71.98969	41.15146	-71.92783	20	9	W	<2	B2	>5	Clear	None	4.5	112	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:43	41.15146	-71.92783	41.15328	-71.87055	33	9	WNW	<2	B2	>5	Clear	Severe	3.7	85	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:43	12:44	41.15328	-71.87055	41.15324	-71.86906	28	18	NW	<2	B4	>5	Clear	Severe	3.2	91	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:44	13:00	41.15324	-71.86906	41.16152	-71.85961	28	18	NW	<2	B4	>5	Clear	Severe	3.2	91	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:04	41.16152	-71.85961	41.15802	-71.86377	29	20	NW	<2	B4	>5	Clear	Severe	3.5	169	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:04	13:05	41.15802	-71.86377	41.15777	-71.86497	27	25	NW	<2	B4	>5	Clear	Severe	5	259	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:05	13:47	41.15777	-71.86497	41.15454	-71.94367	27	24	NW	<2	B4	>5	Clear	Severe	5	261	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:47	13:48	41.15454	-71.94367	41.15463	-71.94505	26	23	NW	<2	B4	>5	Clear	Severe	3.2	265	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:48	13:59	41.15463	-71.94505	41.16134	-71.94284	26	23	NW	<2	B4	>5	Clear	Severe	3.2	265	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:59	14:23	41.16134	-71.94284	41.15673	-71.91994	20	19	NW	<2	B4	>5	Clear	Severe	3.2	76	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:23	14:24	41.15673	-71.91994	41.15558	-71.92052	20	19	NW	<2	B4	>5	Clear	Severe	3.2	76	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:24	14:30	41.15558	-71.92052	41.15364	-71.92995	20	24	WSW	<2	B4	>5	Clear	Severe	3.2	76	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:30	14:50	41.15364	-71.92995	41.15333	-71.96630	20	24	WSW	<2	B4	>5	Clear	Severe	3.2	76	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:50	14:51	41.15333	-71.96630	41.15337	-71.96782	20	23	NW	<2	B4	>5	Clear	Severe	3.2	76	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:51	14:58	41.15337	-71.96782	41.15307	-71.98154	20	22	NW	<2	B4	>5	Clear	Severe	5.1	282	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:58	15:15	41.15307	-71.98154	41.15933	-71.98785	19	23	NW	<2	B4	>5	Clear	Severe	4.6	273	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:15	15:16	41.15933	-71.98785	41.15918	-71.98670	26	15	NW	<2	B4	>5	Clear	Severe	3.3	108	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:16	16:00	41.15918	-71.98670	41.15280	-71.93262	23	14	NW	<2	B4	>5	Clear	Severe	3.6	120	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:45	41.15280	-71.93262	41.15487	-71.86987	31	12	NW	<2	B4	>5	Clear	Severe	3.1	76	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:45	16:47	41.15487	-71.86987	41.15501	-71.86696	27	12	NNW	<2	B4	>5	Clear	Severe	3.1	85	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:47	17:04	41.15501	-71.86696	41.15841	-71.86840	27	12	NNW	<2	B4	>5	Clear	Severe	3.1	85	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:04	17:23	41.15841	-71.86840	41.15873	-71.86734	27	21	NNW	<2	B4	>5	Clear	Severe	3.8	345	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:23	17:28	41.15873	-71.86734	41.15792	-71.87251	27	21	NNW	<2	B4	>5	Clear	Severe	3.8	345	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:28	17:59	41.15792	-71.87251	41.15711	-71.91369	32	19	NNW	<2	B4	>5	Clear	Severe	3.8	276	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:59	18:24	41.15711	-71.91369	41.15504	-71.94065	31	18	NW	<2	B4	>5	Clear	Severe	3.2	275	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:24	18:26	41.15504	-71.94065	41.15491	-71.94256	31	18	NW	<2	B4	>5	Clear	Severe	3.2	275	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:26	19:00	41.15491	-71.94256	41.15451	-71.92234	31	18	NW	<2	B4	>5	Clear	Severe	3.2	275	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:00	19:03	41.15451	-71.92234	41.15436	-71.92458	33	19	NW	<2	B4	>5	Clear	Severe	2.4	276	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:03	19:08	41.15436	-71.92458	41.15412	-71.92883	33	19	NW	<2	B4	>5	Clear	Severe	2.4	276	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:08	19:48	41.15412	-71.92883	41.15342	-71.96426	32	20	NW	<2	B4	>5	Clear	Severe	2.2	275	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:48	19:50	41.15342	-71.96426	41.15361	-71.96611	24	19	NNW	<2	B4	>5	Clear	Severe	2.5	285	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:50	19:59	41.15361	-71.96611	41.15436	-71.97522	26	21	NNW	<2	B4	>5	Clear	Severe	2.6	285	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:59	20:25	41.15436	-71.97522	41.15994	-71.98075	27	18	NNW	<2	B4	>5	Clear	Severe	2.6	285	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:25	20:28	41.15994	-71.98075	41.15875	-71.97756	27	10	NNW	<2	B4	>5	Clear	Severe	4.3	122	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:28	20:57	41.15875	-71.97756	41.15562	-71.92664	27	10	NNW	<2	B4	>5	Clear	Severe	4.3	122	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:57	20:59	41.15562	-71.92664	41.15590	-71.92392	27	10	NNW	<2	B4	>5	Clear	Severe	4.3	122	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:59	21:02	41.15590	-71.92392	41.15785	-71.92078	27	24	NNE	<2	B5	>5	Clear	Severe	4.3	20	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:02	21:28	41.15785	-71.92078	41.15457	-71.92537	29	24	NNE	<2	B5	>5	Clear	Severe	3.9	20	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:28	21:31	41.15457	-71.92537	41.15434	-71.92951	29	8	NE	<2	B4	>5	Clear	Severe	3.9	20	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:31	22:00	41.15434	-71.92951	41.15375	-71.96471	31	6	NE	<2	B4	>5	Clear	Severe	3.4	269	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:01	41.15375	-71.96471	41.15387	-71.96598	28	6	NE	<2	B4	>5	Clear	Slight	3.8	274	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:01	22:02	41.15387	-71.96598	41.15407	-71.96807	28	6	NE	<2	B4	>5	Clear	None	3.8	274	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:02	22:03	41.15407	-71.96807	41.15418	-71.96916	31	6	NE	<2	B4	>5	Clear	Severe	3.4	269	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:03	22:21	41.15418	-71.96916	41.15776	-71.98767	31	6	NE	<2	B4	>5	Clear	Severe	3.4	269	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:21	22:27	41.15776	-71.98767	41.15944	-71.98034	26	21	NNE	<2	B4	0.5-1	Clear	None	3.8	32	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:27	22:29	41.15944	-71.98034	41.15833	-71.97698	27	15	NE	<2	B3	0.5-1	Clear	None	4.5	102	Silent	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:29	23:00	41.15833	-71.97698	41.15536	-71.92789	26	15	NE	<2	B3	0.5-1	Clear	None	4	93	Full Power	N/A
2022-10-27	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:00	00:00	41.15536	-71.92789	41.18941	-71.91428	32	18	NE	<2	B3	0.5-1	Clear	None	4	76	Silent	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:53	41.18958	-71.91531	41.20144	-72.01226	54	22	N	<2	B5	0.5-1	Clear	None	4.8	285	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:53	01:58	41.20144	-72.01226	41.22480	-72.13166	54	23	N	<2	B5	0.5-1	Clear	None	5.1	295	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:58	03:01	41.22480	-72.13166	41.19117	-72.24705	59	11	N	<2	B4	0.5-1	Clear	None	5.3	250	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:01	04:00	41.19117	-72.24705	41.16050	-72.35797	43	3	N	<2	B4	0.5-1	Clear	None	5.3	248	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	05:00	41.16050	-72.35797	41.12070	-72.44933	47	9	NE	<2	B3	0.5-1	Clear	None	5.3	247	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:01	41.12070	-72.44933	41.11932	-72.44709	40	18	N	<2	B3	0.5-1	Clear	None	4.1	243	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:01	07:00	41.11932	-72.44709	41.15509	-72.36265	33	22	N	<2	B4	0.5-1	Clear	None	4.1	54	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	08:00	41.15509	-72.36265	41.19055	-72.26434	31	24	NW	<2	B4	0.5-1	Clear	None	5	51	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	41.19055	-72.26434	41.20935	-72.18096	43	24	NW	<2	B4	0.5-1	Clear	None	4	52	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:00	10:00	41.20935	-72.18096	41.19743	-72.21214	51	23	N	<2	B4	0.5-1	Clear	None	3.9	51	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:01	41.19743	-72.21214	41.17878	-72.28981	53	19	NW	<2	B4	0.5-1	Clear	None	3.5	264	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:01	12:00	41.17878	-72.28981	41.15746	-72.37593	38	15	NW	<2	B3	>5	Clear	None	3.7	264	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:59	41.15746	-72.37593	41.11241	-72.48216	35	14	NNW	<2	B3	>5	Clear	Moderate	5	247	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:59	14:02	41.11241	-72.48216	41.12639	-72.44531	33	12	NE	<2	B3	>5	Clear	Severe	6	242	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:02	14:57	41.12639	-72.44531	41.12943	-72.43695	25	19	NE	<2	B3	>5	Clear	Severe	2.3	63	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:57	15:58	41.12943	-72.43695	41.12943	-72.43695	27	20	ENE	<2	B3	>5	Clear	Severe	2.4	62	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:58	17:00	41.12943	-72.43695	41.12943	-72.43695	27	16	ENE	<2	B3	>5	Clear	Severe	2.4	64	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	17:56	41.12943	-72.43695	41.12943	-72.43695	27	10	NE	<2	B3	>5	Clear	Slight	3.6	64	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:56	18:59	41.12943	-72.43695	41.12943	-72.43695	27	2	NE	<2	B2	>5	Cloudy	Moderate	5.2	250	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:59	19:59	41.12943	-72.43695	41.14314	-72.39408	31	7	NE	<2	B2	>5	Cloudy	Moderate	3.3	250	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:59	21:00	41.14314	-72.39408	41.11953	-72.45458	34	4	NE	<2	B2	>5	Cloudy	Moderate	3.2	242	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	21:59	41.11953	-72.45458	41.11632	-72.47344	25	6	NE	<2	B2	>5	Cloudy	Slight	3.3	239	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:59	22:15	41.11632	-72.47344	41.12675	-72.44980	28	16	NE	<2	B2	>5	Cloudy	None	4.9	62.1	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:15	23:02	41.12675	-72.44980	41.15313	-72.38402	26	18	N	<2	B2	0.5-1	Cloudy	None	4.6	60	Standby	N/A
2022-10-28	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:02	00:00	41.15313	-72.38402	41.17867	-72.30756	26	18	N	<2	B2	0.5-1	Cloudy	None	4.6	60	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	41.17917	-72.30585	41.20187	-72.21907	36	23	NE	<2	B3	0.5-1	Cloudy	None	4.7	66	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:57	01:58	41.20187	-72.21907	41.21945	-72.14159	49	20	E	<2	B3	0.5-1	Clear	None	3.6	83	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:58	03:01	41.21945	-72.14159	41.22085	-72.07748	42	18	E	<2	B3	0.5-1	Clear	None	2.9	70	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:01	04:00	41.22085	-72.07748	41.16937	-71.98813	25	14	N	<2	B3	0.5-1	Clear	None	1.8	126	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	05:00	41.16937	-71.98813	41.15634	-71.90668	23	15	E	<2	B3	0.5-1	Clear	None	6.4	139	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:59	41.15634	-71.90668	41.15455	-71.91287	35	14	ENE	<2	B3	0.5-1	Cloudy	None	3.8	82	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:59	07:00	41.15455	-71.91287	41.15491	-71.92134	30	13	N	<2	B3	0.5-1	Cloudy	None	4.7	264	Standby	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:41	41.15491	-71.92134	41.14901	-71.93312	33	18	NE	<2	B3	0.5-1	Cloudy	None	2.3	66	Deploying/Retrieving	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:41	08:00	41.14901	-71.93312	41.14882	-71.95666	31	10	NE	<2	B3	0.5-1	Clear	None	3.2	265	Soft Start	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:25	41.14882	-71.95666	41.15647	-71.97656	28	14	NE	<2	B3	0.5-1	Clear	None	3.5	276	Soft Start	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:25	08:26	41.15647	-71.97656	41.15680	-71.97595	23	19	NE	<2	B4	0.5-1	Clear	None	4.7	90	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:26	08:59	41.15680	-71.97595	41.14926	-71.97142	23	19	NE	<2	B4	0.5-1	Clear	None	4.7	90	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	09:45	41.14926	-71.97142	41.15502	-71.92751	28	12	NE	<2	B4	0.5-1	Clear	None	2.7	279	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:45	09:46	41.15502	-71.92751	41.15505	-71.92712	30	20	N	<2	B4	0.5-1	Clear	None	2.9	189	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:46	10:00	41.15505	-71.92712	41.16315	-71.91084	30	20	N	<2	B4	0.5-1	Clear	None	2.9	189	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:17	41.16315	-71.91084	41.15520	-71.92171	31	22	N	<2	B4	0.5-1	Clear	None	3.9	242	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:17	10:18	41.15520	-71.92171	41.15517	-71.92205	32	19	NE	<2	B4	0.5-1	Clear	None	3.4	268	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:18	10:51	41.15517	-71.92205	41.15404	-71.96451	32	19	NE	<2	B4	0.5-1	Clear	None	3.5	275	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:51	10:52	41.15404	-71.96451	41.15414	-71.96560	25	13	ENE	<2	B4	2-5	Clear	None	3	277	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:52	11:00	41.15414	-71.96560	41.15894	-71.97091	25	14	ENE	<2	B4	>5	Clear	None	3	277	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:11	41.15894	-71.97091	41.15676	-71.95753	26	15	NE	<2	B4	>5	Clear	Slight	4	28	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:11	11:12	41.15676	-71.95753	41.15606	-71.95523	26	15	NE	<2	B4	>5	Clear	Slight	4	137	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:12	12:00	41.15606	-71.95523	41.15900	-71.88657	26	15	NE	<2	B4	>5	Clear	Slight	4	137	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:12	41.15900	-71.88657	41.15922	-71.86946	32	21	NE	<2	B4	>5	Clear	Severe	3.7	84	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:12	12:13	41.15922	-71.86946	41.15926	-71.86821	31	12	NE	<2	B4	>5	Clear	Severe	3.5	92	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:13	12:39	41.15926	-71.86821	41.15808	-71.86062	31	12	NE	<2	B4	>5	Clear	Severe	3.5	92	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:39	13:00	41.15808	-71.86062	41.15776	-71.89602	27	14	NE	<2	B4	>5	Clear	Severe	4.2	291	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:21	41.15776	-71.89602	41.15572	-71.93622	30	12	NE	<2	B4	>5	Clear	Severe	5.2	270	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:21	13:22	41.15572	-71.93622	41.15566	-71.93694	29	14	NE	<2	B4	>5	Clear	Severe	5	265	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:22	13:40	41.15566	-71.93694	41.15774	-71.89877	29	14	NE	<2	B4	>5	Clear	Severe	5	265	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:40	13:59	41.15774	-71.89877	41.15632	-71.93974	27	14	NE	<2	B4	>5	Clear	Severe	4.2	291	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:59	14:00	41.15632	-71.93974	41.15637	-71.93833	29	17	NE	<2	B4	>5	Clear	Severe	3.1	79	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:00	14:55	41.15637	-71.93833	41.15884	-71.88205	29	17	NE	<2	B4	>5	Clear	Severe	3.1	79	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:55	15:07	41.15884	-71.88205	41.15906	-71.87039	34	16	ENE	<2	B4	>5	Clear	Severe	3	87	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:07	15:08	41.15906	-71.87039	41.15907	-71.86943	34	16	ENE	<2	B4	>5	Clear	Severe	3	87	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:08	15:34	41.15907	-71.86943	41.15935	-71.86118	34	16	ENE	<2	B4	>5	Clear	Severe	3	87	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:34	15:58	41.15935	-71.86118	41.15810	-71.90816	34	3	NE	<2	B4	>5	Clear	Severe	3	276	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:58	16:00	41.15810	-71.90816	41.15771	-71.91124	34	3	NE	<2	B4	>5	Clear	Severe	5.1	276	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:13	41.15771	-71.91124	41.15601	-71.93529	30	9	NE	<2	B4	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:13	16:14	41.15601	-71.93529	41.15571	-71.93825	30	9	NE	<2	B4	>5	Clear	Severe	5.1	264	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:14	16:49	41.15571	-71.93825	41.15612	-71.93812	30	9	NE	<2	B4	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:49	16:53	41.15612	-71.93812	41.15641	-71.93401	30	10	NE	<2	B4	>5	Clear	Severe	5.1	264	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:53	16:59	41.15641	-71.93401	41.15700	-71.92647	30	13	NE	<2	B4	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:45	41.15700	-71.92647	41.15894	-71.86951	30	13	NE	<2	B4	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:45	17:47	41.15894	-71.86951	41.15959	-71.86738	30	11	NE	<2	B4	>5	Clear	Severe	5.1	264	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:47	18:00	41.15959	-71.86738	41.15715	-71.85981	30	11	NE	<2	B4	>5	Clear	Severe	5.1	264	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:00	18:03	41.15715	-71.85981	41.15580	-71.86382	27	5	E	<2	B3	>5	Clear	Severe	4.1	237	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:03	18:08	41.15580	-71.86382	41.15557	-71.87158	27	5	E	<2	B3	>5	Clear	Severe	4.1	237	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:08	18:48	41.15557	-71.87158	41.15333	-71.93297	27	7	E	<2	B3	>5	Clear	Severe	4.2	267	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:48	18:49	41.15333	-71.93297	41.15317	-71.93440	31	7	E	<2	B3	>5	Clear	Severe	4.2	267	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:49	19:24	41.15317	-71.93440	41.15263	-71.91213	31	2	E	<2	B2	>5	Clear	Severe	3.3	312	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:24	19:29	41.15263	-71.91213	41.15224	-71.91799	34	6	E	<2	B3	>5	Clear	Severe	4.4	272	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:29	19:58	41.15224	-71.91799	41.14949	-71.95094	34	6	E	<2	B3	>5	Clear	Severe	4.4	272	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	20:30	41.14949	-71.95094	41.15608	-71.98228	33	4	ENE	<2	B3	>5	Clear	Severe	2.9	263	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:30	20:32	41.15608	-71.98228	41.15671	-71.98376	33	4	ENE	<2	B3	>5	Clear	Severe	2.9	263	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:32	21:03	41.15671	-71.98376	41.15003	-71.97496	33	4	ENE	<2	B2	>5	Clear	Severe	2.9	263	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:03	21:06	41.15003	-71.97496	41.15216	-71.97677	33	6	ENE	<2	B2	>5	Clear	Severe	2.9	316	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:06	21:09	41.15216	-71.97677	41.15484	-71.97903	33	6	ENE	<2	B2	>5	Clear	Severe	2.9	316	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:09	21:59	41.15484	-71.97903	41.19002	-72.00733	33	6	ENE	<2	B2	>5	Clear	Severe	2.9	316	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:59	22:21	41.19002	-72.00733	41.19992	-72.02321	34	1	NE	<2	B2	>5	Clear	None	2.8	306	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:21	22:58	41.19992	-72.02321	41.21121	-72.04751	35	0	NE	<2	B2	1-2	Clear	None	2.6	294	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:58	23:07	41.21121	-72.04751	41.21401	-72.05363	31	7	NW	<2	B2	1-2	Clear	None	1.6	292	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:07	23:09	41.21401	-72.05363	41.21479	-72.05495	31	7	NW	<2	B2	1-2	Clear	None	1.6	292	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:09	23:37	41.21479	-72.05495	41.21712	-72.04980	31	7	NW	<2	B2	1-2	Clear	None	1.6	292	Full Power	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:37	23:40	41.21712	-72.04980	41.21520	-72.04556	31	7	NW	<2	B2	1-2	Clear	None	1.6	292	Silent	N/A
2022-10-29	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:40	00:00	41.21520	-72.04556	41.20117	-72.01541	31	3	NW	<2	B2	1-2	Clear	None	1.6	130	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:46	41.20068	-72.01433	41.15559	-71.97310	33	2	NW	<2	B2	0.5-1	Clear	None	4.2	151	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:46	00:47	41.15559	-71.97310	41.15457	-71.97236	26	3	NNE	<2	B2	0.5-1	Clear	None	4.5	142	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:47	00:59	41.15457	-71.97236	41.14284	-71.97322	30	3	NNE	<2	B2	0.5-1	Clear	None	4.5	136	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:59	01:48	41.14284	-71.97322	41.17901	-71.99256	26	10	NW	<2	B2	0.5-1	Clear	None	4.3	276	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:48	01:53	41.17901	-71.99256	41.17369	-71.98830	25	9	E	<2	B2	0.5-1	Clear	None	4.4	136	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:53	02:00	41.17369	-71.98830	41.16633	-71.98243	26	7	E	<2	B2	0.5-1	Clear	None	4.3	148	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:05	41.16633	-71.98243	41.16179	-71.97883	25	4	E	<2	B2	0.5-1	Clear	None	4.6	161	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:05	02:06	41.16179	-71.97883	41.16086	-71.97807	25	3	E	<2	B2	0.5-1	Clear	None	4.6	161	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:06	02:57	41.16086	-71.97807	41.19922	-72.02615	25	3	E	<2	B2	0.5-1	Clear	None	4.5	161	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:57	03:01	41.19922	-72.02615	41.20196	-72.03220	25	2	N	<2	B2	0.5-1	Clear	None	4	161	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:01	03:15	41.20196	-72.03220	41.21171	-72.05313	31	2	N	<2	B2	0.5-1	Clear	None	4.2	161	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:15	03:17	41.21171	-72.05313	41.21323	-72.05637	24	11	NE	<2	B2	0.5-1	Clear	None	4.7	346	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:17	03:44	41.21323	-72.05637	41.21719	-72.05381	25	11	NE	<2	B2	0.5-1	Clear	None	3.7	47	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:44	03:49	41.21719	-72.05381	41.21503	-72.04921	30	9	E	<2	B2	0.5-1	Clear	None	3.2	113	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:49	04:00	41.21503	-72.04921	41.20983	-72.03807	30	9	E	<2	B2	0.5-1	Clear	None	2.8	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	04:12	41.20983	-72.03807	41.20495	-72.02729	31	10	E	<2	B2	0.5-1	Clear	None	3.2	128	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:12	04:13	41.20495	-72.02729	41.20442	-72.02627	33	9	E	<2	B2	0.5-1	Clear	None	3.1	118	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:13	04:55	41.20442	-72.02627	41.18631	-72.00415	31	9	E	<2	B2	0.5-1	Clear	None	2.9	119	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:55	04:57	41.18631	-72.00415	41.18776	-72.00640	34	12	N	<2	B2	0.5-1	Clear	None	4.7	289	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:57	05:00	41.18776	-72.00640	41.19112	-72.01054	34	12	N	<2	B2	0.5-1	Clear	None	4.8	306	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:51	41.19112	-72.01054	41.21841	-72.05596	34	13	N	<2	B2	0.5-1	Clear	None	4.9	303	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:51	05:52	41.21841	-72.05596	41.21795	-72.05484	28	8	E	<2	B2	0.5-1	Clear	None	2.6	105	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:52	06:00	41.21795	-72.05484	41.21361	-72.04559	28	7	E	<2	B2	0.5-1	Clear	None	2.6	105	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	06:17	41.21361	-72.04559	41.20454	-72.02607	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:17	06:18	41.20454	-72.02607	41.20450	-72.02599	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:18	06:36	41.20450	-72.02599	41.19663	-72.02031	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:36	06:56	41.19663	-72.02031	41.21198	-72.05229	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:56	06:57	41.21198	-72.05229	41.21276	-72.05405	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:57	07:00	41.21276	-72.05405	41.21467	-72.06005	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:00	07:00	41.21467	-72.06005	41.21469	-72.06033	30	8	ENE	<2	B2	0.5-1	Clear	None	4	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:17	41.21469	-72.06033	41.21949	-72.05861	29	13	NE	<2	B2	0.5-1	Clear	None	4.6	265	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:17	07:18	41.21949	-72.05861	41.21789	-72.05295	29	7	NE	<2	B2	0.5-1	Clear	None	4.2	115	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:18	07:39	41.21789	-72.05295	41.20539	-72.02720	29	7	NE	<2	B2	0.5-1	Clear	None	4.2	115	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:39	07:40	41.20539	-72.02720	41.20477	-72.02580	35	6	NE	<2	B2	0.5-1	Clear	None	5	125	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:40	08:00	41.20477	-72.02580	41.18926	-71.99676	35	6	NE	<2	B2	0.5-1	Clear	None	5	125	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:11	41.18926	-71.99676	41.18418	-72.00404	29	2	NE	<2	B2	0.5-1	Clear	None	5	129	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:11	08:12	41.18418	-72.00404	41.18594	-72.00556	29	2	NE	<2	B2	0.5-1	Clear	None	5	129	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:12	08:56	41.18594	-72.00556	41.21233	-72.05245	29	2	NE	<2	B2	0.5-1	Clear	None	5	129	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:56	08:57	41.21233	-72.05245	41.21311	-72.05404	32	15	N	<2	B2	0.5-1	Clear	None	3.2	302	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:57	09:01	41.21311	-72.05404	41.21474	-72.05805	32	15	N	<2	B2	0.5-1	Clear	None	3.2	302	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:01	09:24	41.21474	-72.05805	41.22012	-72.05740	29	7	N	<2	B2	0.5-1	Clear	None	2.8	281	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:24	09:25	41.22012	-72.05740	41.21931	-72.05559	28	7	N	<2	B2	0.5-1	Clear	None	3	281	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:25	09:42	41.21931	-72.05559	41.20628	-72.02773	28	7	N	<2	B2	0.5-1	Clear	None	3	281	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:42	09:43	41.20628	-72.02773	41.20564	-72.02594	28	7	N	<2	B2	0.5-1	Clear	None	3	281	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:43	10:00	41.20564	-72.02594	41.19104	-71.99999	28	7	N	<2	B2	0.5-1	Clear	None	3	281	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:16	41.19104	-71.99999	41.18460	-72.00404	30	2	NNE	<2	B2	0.5-1	Clear	None	3	131	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:16	10:17	41.18460	-72.00404	41.18519	-72.00464	30	2	NNE	<2	B2	0.5-1	Clear	None	3	131	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:17	11:00	41.18519	-72.00464	41.20486	-72.03606	30	2	NNE	<2	B2	0.5-1	Clear	None	3	131	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:22	41.20486	-72.03606	41.21265	-72.05236	34	7	N	<2	B2	2-5	Clear	None	2.6	301	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:22	11:23	41.21265	-72.05236	41.21304	-72.05311	36	6	NE	<2	B2	>5	Clear	Severe	2	309	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:23	11:42	41.21304	-72.05311	41.21993	-72.05802	36	6	NE	<2	B2	>5	Clear	Severe	2	309	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:42	11:43	41.21993	-72.05802	41.21964	-72.05620	36	6	NE	<2	B2	>5	Clear	Severe	2	309	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:43	12:00	41.21964	-72.05620	41.20695	-72.02872	36	6	NE	<2	B2	>5	Clear	Severe	2	309	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:02	41.20695	-72.02872	41.20578	-72.02598	29	7	E	<2	B2	>5	Clear	Severe	5.1	122	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:02	12:03	41.20578	-72.02598	41.20497	-72.02431	30	7	E	<2	B2	>5	Clear	Severe	5.3	123	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:03	12:37	41.20497	-72.02431	41.18924	-72.00738	30	7	E	<2	B2	>5	Clear	Severe	5	123	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:37	12:38	41.18924	-72.00738	41.18999	-72.00802	31	10	N	<2	B2	>5	Clear	Severe	3	326	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:38	13:00	41.18999	-72.00802	41.20195	-72.02878	31	10	N	<2	B2	>5	Clear	Severe	3	326	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:24	41.20195	-72.02878	41.21308	-72.05262	35	10	N	<2	B2	>5	Clear	Severe	3.2	304	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:24	13:26	41.21308	-72.05262	41.21416	-72.05494	32	8	NE	<2	B2	>5	Clear	Severe	3.6	301	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:26	14:01	41.21416	-72.05494	41.22213	-72.06211	32	8	NE	<2	B2	>5	Clear	Severe	3.6	301	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:01	14:03	41.22213	-72.06211	41.22248	-72.05845	25	8	NE	<2	B2	>5	Clear	Severe	3.8	75	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:03	14:04	41.22248	-72.05845	41.22241	-72.05765	25	8	NE	<2	B2	>5	Clear	Severe	3.8	75	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:04	14:13	41.22241	-72.05765	41.21637	-72.04741	25	8	NE	<2	B2	>5	Clear	Severe	3.8	75	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:13	14:33	41.21637	-72.04741	41.20681	-72.02700	25	8	NE	<2	B2	>5	Clear	Severe	3.8	75	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:33	14:34	41.20681	-72.02700	41.20594	-72.02502	25	2	SE	<2	B2	>5	Clear	Severe	3.4	113	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:34	14:56	41.20594	-72.02502	41.19651	-72.00393	25	2	SE	<2	B2	>5	Clear	Severe	3.4	113	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:56	15:11	41.19651	-72.00393	41.18654	-72.00039	30	4	ENE	<2	B2	>5	Clear	Severe	3.1	111	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:11	15:12	41.18654	-72.00039	41.18680	-72.00164	30	4	ENE	<2	B2	>5	Clear	Severe	3.1	111	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:12	15:27	41.18680	-72.00164	41.19970	-72.02128	30	4	ENE	<2	B2	>5	Clear	Severe	3.1	111	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:27	15:29	41.19970	-72.02128	41.20125	-72.02467	34	7	NW	<2	B2	>5	Clear	Severe	5.8	305	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:29	15:58	41.20125	-72.02467	41.22006	-72.05881	34	6	NW	<2	B2	>5	Clear	Severe	5.9	299	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:58	16:06	41.22006	-72.05881	41.22006	-72.05881	24	3	E	<2	B2	>5	Clear	Severe	2.1	105	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:06	16:07	41.22006	-72.05881	41.22006	-72.05881	24	3	E	<2	B2	>5	Clear	Severe	2.1	105	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:07	16:09	41.22006	-72.05881	41.22006	-72.05881	24	3	E	<2	B2	>5	Clear	Severe	2.1	105	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:09	16:35	41.22006	-72.05881	41.20681	-72.02572	24	3	E	<2	B2	>5	Clear	Severe	2.1	105	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:35	16:36	41.20681	-72.02572	41.20675	-72.02467	30	4	E	<2	B2	>5	Clear	Severe	2.8	105	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:36	17:02	41.20675	-72.02467	41.20876	-72.03847	30	4	SE	<2	B2	>5	Clear	Severe	2.8	125	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:02	17:09	41.20876	-72.03847	41.20772	-72.03242	30	4	SE	<2	B2	>5	Clear	Severe	3	75	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:09	17:14	41.20772	-72.03242	41.20565	-72.02786	24	6	SE	<2	B2	>5	Clear	Severe	3.9	145	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:14	17:58	41.20565	-72.02786	41.17728	-71.99207	30	7	ESE	<2	B2	>5	Clear	Severe	3	107	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:58	18:03	41.17728	-71.99207	41.17290	-71.98858	26	7	SSE	<2	B2	>5	Clear	Severe	3.7	137	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:03	18:05	41.17290	-71.98858	41.17089	-71.98712	26	7	SSE	<2	B2	>5	Clear	Severe	3.7	137	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:05	18:34	41.17089	-71.98712	41.14894	-71.97429	24	6	SE	<2	B2	>5	Clear	Severe	4	135	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:34	18:39	41.14894	-71.97429	41.15425	-71.97884	28	3	NW	<2	B1	>5	Clear	Severe	4.7	339	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:39	18:57	41.15425	-71.97884	41.17424	-71.99496	23	3	N	<2	B1	>5	Clear	Severe	4.7	337	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:57	19:30	41.17424	-71.99496	41.20395	-72.03252	30	2	NW	<2	B1	>5	Clear	Moderate	4.5	332	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:30	19:32	41.20395	-72.03252	41.20533	-72.03560	30	2	NW	<2	B1	>5	Clear	Moderate	4.5	332	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:32	19:58	41.20533	-72.03560	41.20271	-72.02780	30	2	NW	<2	B1	>5	Clear	Severe	4.5	332	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:58	20:00	41.20271	-72.02780	41.20150	-72.02508	30	2	NW	<2	B1	>5	Clear	Severe	4.5	332	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	20:03	41.20150	-72.02508	41.19966	-72.02090	37	7	SE	<2	B2	>5	Clear	Severe	4.3	118	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:03	20:12	41.19966	-72.02090	41.19345	-72.00906	38	9	SE	<2	B2	>5	Clear	Severe	4.5	120	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:12	20:14	41.19345	-72.00906	41.19077	-72.00598	34	8	SE	<2	B2	>5	Clear	Severe	4.3	142	Silent	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:14	21:03	41.19077	-72.00598	41.14989	-71.95262	33	9	SE	<2	B2	>5	Clear	Severe	4.8	145	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:03	22:00	41.14989	-71.95262	41.15509	-71.97108	33	9	SSE	<2	B2	>5	Clear	Severe	3.9	205	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:24	41.15509	-71.97108	41.14699	-71.95328	25	12	SE	<2	B2	>5	Clear	None	4.6	116	Full Power	N/A
2022-10-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:24	23:01	41.14699	-71.95328	41.15553	-71.99253	34	6	SSE	<2	B2	1-2	Clear	None	3	282	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-30	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:01	00:00	41.15553	-71.99253	41.14156	-71.93915	24	7	SE	<2	B2	0.5-1	Clear	None	3.3	322	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	41.14180	-71.94027	41.13960	-71.95900	23	7	SSW	<2	B2	0.5-1	Clear	None	3.2	269	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:00	01:58	41.13960	-71.95900	41.15652	-71.89176	26	7	W	<2	B2	0.5-1	Clear	None	3.7	273	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:58	03:00	41.15652	-71.89176	41.14853	-71.96676	32	3	S	<2	B2	0.5-1	Clear	None	4.4	54	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:00	04:01	41.14853	-71.96676	41.15205	-71.91225	30	10	WSW	<2	B2	0.5-1	Clear	None	4.7	215	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:01	05:01	41.15205	-71.91225	41.15537	-71.88407	32	1	SE	<2	B2	0.5-1	Clear	None	3	86	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:01	05:58	41.15537	-71.88407	41.14108	-71.88633	33	6	N	<2	B2	0.5-1	Fog	None	5.2	267	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:58	06:23	41.14108	-71.88633	41.13711	-71.86739	32	2	SSW	<2	B2	0.5-1	Fog	None	3.6	94	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:23	06:24	41.13711	-71.86739	41.13695	-71.86912	21	9	WNW	<2	B2	0.5-1	Fog	None	5	292	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:24	06:46	41.13695	-71.86912	41.15374	-71.89993	21	9	WNW	<2	B2	0.5-1	Fog	None	5	292	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:46	06:48	41.15374	-71.89993	41.15545	-71.90185	20	4	SE	<2	B2	0.5-1	Fog	None	4.6	138	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:48	07:00	41.15545	-71.90185	41.16366	-71.89912	20	4	SE	<2	B2	0.5-1	Fog	None	4.6	138	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:39	41.16366	-71.89912	41.14403	-71.85318	31	1	NE	<2	B2	0.5-1	Fog	None	3.5	115	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:39	07:40	41.14403	-71.85318	41.14392	-71.85146	24	2	NE	<2	B2	0.5-1	Fog	None	4.5	82	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:40	08:00	41.14392	-71.85146	41.14008	-71.82137	24	2	NE	<2	B2	0.5-1	Fog	None	4.5	82	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:22	41.14008	-71.82137	41.13095	-71.78892	20	6	ENE	<2	B2	0.5-1	Fog	None	4.3	109	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:22	08:23	41.13095	-71.78892	41.13050	-71.78734	20	4	NNW	<2	B2	0.5-1	Fog	None	3.7	285	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:23	09:00	41.13050	-71.78734	41.13228	-71.82127	20	4	NNW	<2	B2	0.5-1	Fog	None	3.7	285	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:00	09:45	41.13228	-71.82127	41.12288	-71.78367	23	8	E	<2	B2	0.5-1	Precipitation	None	3.7	127	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:45	09:46	41.12288	-71.78367	41.12302	-71.78416	20	3	W	<2	B2	0.5-1	Cloudy	None	3.2	285	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:46	10:00	41.12302	-71.78416	41.12750	-71.79929	20	4	W	<2	B2	0.5-1	Cloudy	None	3.2	287	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:54	41.12750	-71.79929	41.13821	-71.85284	19	2	SW	<2	B2	0.5-1	Cloudy	None	2.9	297	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:54	10:55	41.13821	-71.85284	41.13828	-71.85375	21	3	N	<2	B2	>5	Cloudy	None	3.8	355	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:55	11:00	41.13828	-71.85375	41.14093	-71.85911	21	3	N	<2	B2	>5	Cloudy	None	3.8	355	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:13	41.14093	-71.85911	41.13803	-71.85235	32	6	SW	<2	B1	>5	Cloudy	None	3.3	331	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:13	11:14	41.13803	-71.85235	41.13758	-71.85432	19	4	W	<2	B1	>5	Cloudy	None	3.2	265	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:14	11:48	41.13758	-71.85432	41.14810	-71.89233	19	5	W	<2	B1	>5	Cloudy	None	3.3	277	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:48	11:49	41.14810	-71.89233	41.14839	-71.89262	34	7	S	<2	B1	>5	Cloudy	None	4	320	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:49	12:00	41.14839	-71.89262	41.15787	-71.89991	34	7	S	<2	B1	>5	Cloudy	None	4	320	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:48	41.15787	-71.89991	41.14079	-71.87053	33	10	SE	<2	B1	>5	Cloudy	None	4.5	141	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:48	12:49	41.14079	-71.87053	41.14065	-71.87226	21	3	SW	<2	B2	>5	Fog	None	4.2	265	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:49	13:00	41.14065	-71.87226	41.14479	-71.88636	22	3	SW	<2	B2	>5	Fog	None	4.4	264	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:11	41.14479	-71.88636	41.15384	-71.89720	33	2	S	<2	B2	>5	Fog	None	4.2	301	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:11	13:12	41.15384	-71.89720	41.15549	-71.89901	31	2	S	<2	B2	2-5	Fog	None	4.3	321	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:12	13:48	41.15549	-71.89901	41.14020	-71.88366	31	2	S	<2	B2	2-5	Fog	None	4.2	321	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:48	13:49	41.14020	-71.88366	41.14133	-71.88537	32	2	S	<2	B2	2-5	Fog	None	4	292	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:49	14:00	41.14133	-71.88537	41.15091	-71.89492	32	5	S	<2	B2	2-5	Fog	None	4	292	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:00	14:54	41.15091	-71.89492	41.14345	-71.83676	32	11	SE	<2	B2	2-5	Fog	None	4.6	120	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:54	15:58	41.14345	-71.83676	41.13016	-71.79748	26	7	SSE	<2	B2	2-5	Fog	None	3.3	113	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:58	16:08	41.13016	-71.79748	41.13567	-71.79136	20	4	NW	<2	B1	2-5	Fog	None	4.2	19	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:08	16:42	41.13567	-71.79136	41.13708	-71.80414	20	6	NW	<2	B1	0.3-0.5	Fog	None	4.2	19	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:42	16:59	41.13708	-71.80414	41.13698	-71.78373	20	6	NW	<2	B1	0.5-1	Cloudy	None	4.2	106	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:12	41.13698	-71.78373	41.13230	-71.79382	20	6	SW	<2	B1	0.5-1	Cloudy	None	2.7	145	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:12	17:34	41.13230	-71.79382	41.14286	-71.83119	20	9	NW	<2	B1	0.5-1	Cloudy	None	5.2	281	Soft Start	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:34	17:58	41.14286	-71.83119	41.14170	-71.82038	20	9	NW	<2	B1	2-5	Cloudy	None	5.2	281	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	17:58	18:04	41.14170	-71.82038	41.13768	-71.82563	20	9	SSW	<2	B1	>5	Cloudy	None	3.2	171	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:04	18:08	41.13768	-71.82563	41.13776	-71.83276	24	6	SW	<2	B1	>5	Cloudy	None	4.5	261	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:08	18:20	41.13776	-71.83276	41.13867	-71.85338	22	6	SW	<2	B1	>5	Cloudy	None	4.5	261	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:20	18:22	41.13867	-71.85338	41.13883	-71.85684	20	5	SW	<2	B1	>5	Cloudy	None	4.5	267	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:22	18:58	41.13883	-71.85684	41.14045	-71.82396	20	5	SW	<2	B1	>5	Cloudy	None	4.5	267	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:58	19:03	41.14045	-71.82396	41.13852	-71.81722	20	7	SSE	<2	B1	>5	Cloudy	None	4.3	118	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:03	19:23	41.13852	-71.81722	41.13024	-71.78838	20	7	SSE	<2	B1	>5	Cloudy	None	4.3	118	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:23	19:25	41.13024	-71.78838	41.12939	-71.78557	20	7	SSE	<2	B1	>5	Cloudy	None	4.3	123	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:25	19:48	41.12939	-71.78557	41.12453	-71.78657	20	7	SSE	<2	B1	>5	Cloudy	None	4.3	123	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:48	19:51	41.12453	-71.78657	41.12583	-71.79126	20	5	WSW	<2	B1	>5	Cloudy	None	3.9	277	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:51	19:58	41.12583	-71.79126	41.12911	-71.80177	20	5	WSW	<2	B1	>5	Cloudy	None	3.9	277	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	20:13	41.12911	-71.80177	41.13525	-71.82388	20	5	WSW	<2	B1	>5	Cloudy	None	4.5	283	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:13	20:14	41.13525	-71.82388	41.13586	-71.82616	20	5	WSW	<2	B1	>5	Cloudy	None	4.5	283	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:14	20:17	41.13586	-71.82616	41.13674	-71.82980	20	5	WSW	<2	B1	>5	Cloudy	None	4.5	283	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:17	20:21	41.13674	-71.82980	41.13705	-71.83549	20	5	SW	<2	B1	>5	Cloudy	None	3.9	276	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:21	20:28	41.13705	-71.83549	41.13752	-71.84522	20	5	SW	<2	B1	>5	Cloudy	None	3.9	276	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:28	20:30	41.13752	-71.84522	41.13769	-71.84910	20	5	SW	<2	B1	>5	Cloudy	None	3.9	276	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:30	21:00	41.13769	-71.84910	41.14001	-71.82107	20	5	SW	<2	B1	>5	Cloudy	None	3.9	281	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	21:06	41.14001	-71.82107	41.13787	-71.82791	20	7	SW	<2	B1	>5	Cloudy	None	3.4	274	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:06	21:10	41.13787	-71.82791	41.13810	-71.83291	20	7	SW	<2	B1	>5	Cloudy	None	3.4	274	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:10	21:32	41.13810	-71.83291	41.13929	-71.85965	20	7	SW	<2	B1	>5	Cloudy	None	3.4	274	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:32	21:33	41.13929	-71.85965	41.13933	-71.86082	20	7	SW	<2	B1	>5	Cloudy	None	3.4	274	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:33	22:11	41.13933	-71.86082	41.13851	-71.82979	20	7	SW	<2	B1	>5	Cloudy	None	3.4	274	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:11	22:15	41.13851	-71.82979	41.13869	-71.83358	22	9	SSW	<2	B2	0.5-1	Cloudy	None	2.6	279	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:15	22:19	41.13869	-71.83358	41.13891	-71.83811	26	8	SW	<2	B2	0.5-1	Cloudy	None	3.2	279	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:19	22:27	41.13891	-71.83811	41.13928	-71.84728	22	10	SW	<2	B2	0.5-1	Cloudy	None	3.1	278	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:27	22:28	41.13928	-71.84728	41.13933	-71.84831	19	8	SW	<2	B2	0.5-1	Cloudy	None	2.4	300	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:28	22:59	41.13933	-71.84831	41.13944	-71.82122	19	8	SW	<2	B2	0.5-1	Cloudy	None	2.4	300	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:59	23:07	41.13944	-71.82122	41.13739	-71.82869	20	12	SW	<2	B2	0.5-1	Cloudy	None	4.4	240	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:07	23:11	41.13739	-71.82869	41.13757	-71.83275	20	12	SW	<2	B2	0.5-1	Cloudy	None	4.4	240	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:11	23:30	41.13757	-71.83275	41.13849	-71.85258	20	12	SW	<2	B2	0.5-1	Cloudy	None	4.4	240	Full Power	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:30	23:32	41.13849	-71.85258	41.13847	-71.85471	20	12	SW	<2	B2	0.5-1	Cloudy	None	4.4	242	Silent	N/A
2022-10-31	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:32	00:00	41.13847	-71.85471	41.14075	-71.83111	20	12	SW	<2	B2	0.5-1	Cloudy	None	4.4	284.4	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:59	41.13998	-71.83168	41.15073	-71.89161	22	12	WSW	<2	B2	0.5-1	Cloudy	None	2.9	273	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:59	01:28	41.15073	-71.89161	41.15877	-71.91074	33	15	WSW	<2	B2	0.5-1	Cloudy	None	2.7	267	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:28	01:31	41.15877	-71.91074	41.15902	-71.904	30	15	W	<2	B2	0.5-1	Cloudy	None	3.5	178	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:31	01:49	41.15902	-71.90400	41.15943	-71.8718	31	14	W	<2	B2	0.5-1	Cloudy	None	3.2	185	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:49	01:51	41.15943	-71.87180	41.15945	-71.86886	28	16	SW	<2	B2	0.5-1	Cloudy	None	4.4	208	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:51	02:00	41.15945	-71.86886	41.16097	-71.85441	29	16	SW	<2	B2	0.5-1	Cloudy	None	4.7	210	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:59	41.16097	-71.85441	41.14315	-71.92639	28	16	SW	<2	B2	0.5-1	Cloudy	None	3.4	262	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	03:11	41.14315	-71.92639	41.13823	-71.94334	26	15	WSW	<2	B2	0.5-1	Cloudy	None	4.2	250	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:11	03:25	41.13823	-71.94334	41.143	-71.95696	26	16	WSW	<2	B2	0.5-1	Precipitation	None	4.5	250	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:25	03:27	41.14300	-71.95696	41.14547	-71.9564	32	10	W	<2	B2	0.5-1	Precipitation	None	4.5	11	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:27	03:39	41.14547	-71.95640	41.15922	-71.95332	33	10	W	<2	B2	0.5-1	Precipitation	None	4.2	11	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:39	03:41	41.15922	-71.95332	41.1615	-71.95279	20	11	W	<2	B2	0.5-1	Precipitation	None	3.8	14	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:41	04:00	41.16150	-71.95279	41.18095	-71.94372	18	11	W	<2	B2	0.5-1	Precipitation	None	4.2	39	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	04:19	41.18095	-71.94372	41.16577	-71.94518	28	13	W	<2	B2	0.5-1	Precipitation	None	4.1	102	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:19	04:21	41.16577	-71.94518	41.16348	-71.9448	19	13	W	<2	B2	0.5-1	Precipitation	None	4	175	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:21	04:37	41.16348	-71.94480	41.14503	-71.94158	19	12	W	<2	B2	0.5-1	Precipitation	None	4.2	173	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:37	04:38	41.14503	-71.94158	41.14378	-71.94138	29	13	W	<2	B2	0.5-1	Precipitation	None	4.9	175	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:38	05:00	41.14378	-71.94138	41.14494	-71.92238	29	14	W	<2	B2	0.5-1	Precipitation	None	4.9	175	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:35	41.14494	-71.92238	41.1469	-71.97272	28	17	W	<2	B2	0.5-1	Precipitation	None	3.7	0	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:35	05:36	41.14690	-71.97272	41.14705	-71.97324	27	15	W	<2	B2	0.5-1	Precipitation	None	3.7	12	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:36	06:00	41.14705	-71.97324	41.17375	-71.9957	27	16	W	<2	B2	0.5-1	Precipitation	None	3.7	11	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	06:17	41.17375	-71.99570	41.19226	-72.01066	28	17	W	<2	B2	0.5-1	Precipitation	None	3.7	0	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:17	06:18	41.19226	-72.01066	41.19283	-72.01115	31	10	W	<2	B2	0.5-1	Precipitation	None	4.2	328	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:18	07:00	41.19283	-72.01115	41.20245	-72.01565	31	10	W	<2	B2	0.5-1	Precipitation	None	4.3	330	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:05	41.20245	-72.01565	41.20072	-72.01201	33	11	SW	<2	B2	0.5-1	Precipitation	None	2.7	100	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:05	07:06	41.20072	-72.01201	41.20019	-72.0118	29	5	SW	<2	B2	0.5-1	Precipitation	None	3	127	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:06	07:20	41.20019	-72.01180	41.18956	-72.00114	30	5	SW	<2	B2	0.5-1	Precipitation	None	3	127	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:20	07:23	41.18956	-72.00114	41.18585	-71.99682	31	10	SW	<2	B2	0.5-1	Precipitation	None	4.5	218	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:23	07:54	41.18585	-71.99682	41.20164	-72.01329	31	10	SW	<2	B2	0.5-1	Precipitation	None	7.1	126	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:54	07:55	41.20164	-72.01329	41.20109	-72.01238	33	9	SW	<2	B2	0.5-1	Precipitation	None	3.4	118	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:55	08:00	41.20109	-72.01238	41.19805	-72.0084	33	9	SW	<2	B2	0.5-1	Precipitation	None	3.4	118	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:10	41.19805	-72.00840	41.18976	-72.00084	31	7	SW	<2	B2	0.5-1	Precipitation	None	3.4	132	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:10	08:11	41.18976	-72.00084	41.18894	-72.00014	31	4	SW	<2	B2	0.5-1	Precipitation	None	4	153	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:11	08:43	41.18894	-72.00014	41.1711	-71.98828	31	4	SW	<2	B2	0.5-1	Precipitation	None	4	153	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:43	08:44	41.17110	-71.98828	41.17207	-71.98936	26	4	WNW	<2	B2	0.5-1	Precipitation	None	4	316	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:44	08:55	41.17207	-71.98936	41.18486	-71.9997	26	4	WNW	<2	B2	0.5-1	Precipitation	None	4	316	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:55	08:56	41.18486	-71.99970	41.18664	-72.00118	26	4	WNW	<2	B2	0.5-1	Precipitation	None	4	316	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:56	09:00	41.18664	-72.00118	41.19092	-72.00105	26	4	WNW	<2	B2	0.5-1	Precipitation	None	4	316	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:00	09:27	41.19092	-72.00105	41.17376	-71.98866	30	7	SW	<2	B2	0.5-1	Precipitation	None	4.2	153	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:27	09:28	41.17376	-71.98866	41.1751	-71.99018	31	11	SSW	<2	B2	0.5-1	Cloudy	None	4.4	178	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:28	09:42	41.17510	-71.99018	41.19029	-72.0021	31	11	SSW	<2	B2	0.5-1	Cloudy	None	4.3	178	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:42	09:43	41.19029	-72.00210	41.19042	-72.00221	30	13	SW	<2	B2	0.5-1	Cloudy	None	4.4	189	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:43	10:00	41.19042	-72.00221	41.18849	-71.99693	30	13	SW	<2	B2	0.5-1	Cloudy	None	4.4	189	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	10:32	41.18849	-71.99693	41.20296	-72.02298	33	15	W	<2	B2	0.5-1	Precipitation	None	4.3	209	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:32	10:33	41.20296	-72.02298	41.2026	-72.01992	32	16	SSW	<2	B2	0.5-1	Precipitation	None	4.1	133	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:33	10:47	41.20260	-72.01992	41.18998	-72.00364	32	16	SSW	<2	B2	0.5-1	Precipitation	None	4.1	135	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:47	10:48	41.18998	-72.00364	41.18844	-72.00238	32	17	S	<2	B2	1-2	Precipitation	None	4.5	131	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:48	11:00	41.18844	-72.00238	41.18064	-71.98358	32	17	S	<2	B2	1-2	Precipitation	None	4.5	133	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.18064	-71.98358	41.19802	-71.99308	25	11	SW	<2	B2	2-5	Precipitation	None	5	132	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.19802	-71.99308	41.19831	-72.00883	30	14	S	<2	B3	2-5	Fog	None	5	174	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:57	41.19831	-72.00883	41.18944	-71.99147	34	10	SW	<2	B3	2-5	Fog	None	3.1	294	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:57	14:24	41.18944	-71.99147	41.1802	-71.99298	31	17	SSW	<2	B3	2-5	Fog	None	5.5	144	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:24	14:25	41.18020	-71.99298	41.18174	-71.99439	31	8	SW	<2	B3	2-5	Fog	None	5.5	144	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:25	14:57	41.18174	-71.99439	41.2049	-72.02406	31	8	SW	<2	B3	2-5	Fog	None	5.5	144	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:57	15:01	41.20490	-72.02406	41.20653	-72.0279	31	12	SW	<2	B3	2-5	Fog	None	4	298	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:01	15:02	41.20653	-72.02790	41.20735	-72.02964	31	12	SW	<2	B3	2-5	Fog	None	4	298	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	15:02	15:58	41.20735	-72.02964	41.2169	-72.05424	31	12	SW	<2	B3	2-5	Fog	None	4	298	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:58	16:58	41.21690	-72.05424	41.20356	-72.02401	31	12	SW	<2	B3	2-5	Fog	None	3.5	275	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:58	18:00	41.20356	-72.02401	41.21121	-72.03786	32	12	SW	<2	B3	2-5	Fog	None	5.3	315	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:00	19:00	41.21121	-72.03786	41.21903	-72.04654	30	6	W	<2	B2	2-5	Fog	None	3	114	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	19:00	19:58	41.21903	-72.04654	41.21264	-72.05334	30	7	W	<2	B2	2-5	Fog	None	3.2	110	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	21:01	41.21264	-72.05334	41.18864	-72.00604	31	15	WNW	<2	B2	2-5	Fog	None	5	291	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:01	21:28	41.18864	-72.00604	41.18543	-71.99682	31	12	W	<2	B2	2-5	Fog	None	3.9	142	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:28	21:32	41.18543	-71.99682	41.18243	-71.99428	33	10	W	<2	B2	2-5	Fog	None	4.1	142	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:32	21:56	41.18243	-71.99428	41.15703	-71.97494	33	10	W	<2	B2	2-5	Fog	None	4.1	142	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:56	21:58	41.15703	-71.97494	41.15426	-71.97218	28	3	W	<2	B2	2-5	Fog	None	4.6	149	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:58	21:59	41.15426	-71.97218	41.15319	-71.97079	28	3	W	<2	B2	2-5	Fog	None	4.6	149	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	21:59	22:14	41.15319	-71.97079	41.15668	-71.97484	26	4.2	S	<2	B2	2-5	Fog	None	4.4	152	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:14	22:28	41.15668	-71.97484	41.15241	-71.952	26	4.2	S	<2	B2	0.5-1	Fog	None	4.4	152	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:28	22:32	41.15241	-71.95200	41.14114	-71.97239	30	5	W	<2	B2	0.5-1	Fog	None	4.1	157	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:32	22:56	41.14114	-71.97239	41.14037	-71.96988	30	13	NW	<2	B2	0.5-1	Fog	None	3.8	292	Full Power	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:56	22:58	41.14037	-71.96988	41.15913	-71.89267	30	13	NW	<2	B2	0.5-1	Fog	None	3.8	292	Silent	N/A
2022-11-01	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:58	00:00	41.15913	-71.89267	41.15861	-71.89027	30	13	NW	<2	B2	0.5-1	Fog	None	3.8	292	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:03	41.15565	-71.89860	41.14762	-71.92818	30	13	WNW	<2	B2	0.5-1	Clear	None	2.7	274	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	00:03	01:03	41.14762	-71.92818	41.14067	-71.88507	30	15	NW	<2	B2	0.5-1	Clear	None	3.1	300	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:03	01:59	41.14762	-71.92818	41.14067	-71.88507	30	15	NW	<2	B2	0.5-1	Clear	None	3.1	300	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:59	02:00	41.14067	-71.88507	41.14156	-71.88597	32	18	NW	<2	B2	0.5-1	Clear	None	2.4	302	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:00	02:04	41.14156	-71.88597	41.14366	-71.88886	32	18	NW	<2	B2	0.5-1	Clear	None	2.4	303	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:04	02:17	41.14366	-71.88886	41.15315	-71.8994	32	21	NW	<2	B2	0.5-1	Clear	None	3.5	320	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:17	02:19	41.15315	-71.89940	41.15471	-71.90114	32	21	NW	<2	B2	0.5-1	Clear	None	3.5	320	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:19	02:58	41.15471	-71.90114	41.14135	-71.88356	32	21	NW	<2	B2	0.5-1	Clear	None	3.5	320	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	02:58	03:02	41.14135	-71.88356	41.14444	-71.88715	33	21	NW	<2	B2	0.5-1	Clear	None	3.8	317	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:02	03:07	41.14444	-71.88715	41.14838	-71.89165	34	21	WNW	<2	B2	0.5-1	Clear	None	3.8	310	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:07	03:08	41.14838	-71.89165	41.14922	-71.89256	34	21	WNW	<2	B2	0.5-1	Clear	None	3.8	310	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	03:08	04:00	41.14922	-71.89256	41.13783	-71.86985	34	21	WNW	<2	B2	0.5-1	Clear	None	3.8	310	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	04:40	41.13783	-71.86985	41.13708	-71.82251	19	11	NW	<2	B2	0.5-1	Clear	None	4.6	80	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:40	04:42	41.13708	-71.82251	41.13697	-71.82569	21	13	NW	<2	B2	0.5-1	Clear	None	4.7	261	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:42	04:51	41.13697	-71.82569	41.13753	-71.84127	21	13	NW	<2	B2	0.5-1	Clear	None	4.7	261	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:51	04:52	41.13753	-71.84127	41.13761	-71.84251	19	14	NW	<2	B2	0.5-1	Clear	None	5.4	274	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:52	05:00	41.13761	-71.84251	41.14617	-71.84462	19	14	NW	<2	B2	0.5-1	Clear	None	5.4	274	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:00	41.14617	-71.84462	41.12493	-71.77818	26	10	NW	<2	B2	0.5-1	Clear	None	4.3	64	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	06:03	41.12493	-71.77818	41.12361	-71.78178	19	14	W	<2	B2	0.5-1	Clear	None	3.5	234	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:03	06:05	41.12361	-71.78178	41.12427	-71.78479	19	15	WNW	<2	B2	0.5-1	Clear	None	3.8	277	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:05	06:18	41.12427	-71.78479	41.13012	-71.80514	19	15	WNW	<2	B2	0.5-1	Clear	None	3.8	284	Full Power	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:18	07:00	41.13012	-71.80514	41.15059	-71.84757	19	15	WNW	<2	B2	0.5-1	Clear	None	4.7	291	Silent	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:10	41.15059	-71.84757	41.15011	-71.84865	27	11	NE	<2	B2	0.5-1	Clear	None	1.1	42	Deploying/Retrieving	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:10	08:00	41.15011	-71.84865	41.099	-71.72882	27	11	NE	<2	B2	0.5-1	Clear	None	1.1	42	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:59	41.09900	-71.72882	41.00863	-71.58586	45	4	NW	<2	B2	0.5-1	Clear	None	8.4	129	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	10:00	41.00863	-71.58586	40.91492	-71.43709	42	7	N	<2	B2	0.5-1	Clear	None	8.9	127	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.91492	-71.43709	40.82862	-71.27656	58	10	N	<2	B2	0.5-1	Clear	None	8.8	123	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.82862	-71.27656	40.74188	-71.12632	60	15	NE	<2	B3	>5	Clear	None	9	123	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.74188	-71.12632	40.6569	-70.97295	58	17	NE	<2	B4	>5	Clear	Severe	8.3	122	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	40.65690	-70.97295	40.60328	-70.85806	66	14	NE	<2	B4	>5	Clear	Severe	9	123	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:00	14:55	40.60328	-70.85806	40.61552	-70.81432	68	14	NE	<2	B5	>5	Clear	Severe	4	85	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	14:55	15:59	40.61552	-70.81432	40.66805	-70.79925	64	16	NNE	<2	B5	>5	Clear	Severe	3	8	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:59	17:00	40.66805	-70.79925	40.59162	-70.82207	64	18	NE	<2	B5	>5	Clear	Severe	3.8	36	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	18:00	40.59162	-70.82207	40.58253	-70.83257	67	10	NE	<2	B4	>5	Clear	Severe	5.1	189	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:00	18:56	40.58253	-70.83257	40.55795	-70.8592	70	14	NE	<2	B4	>5	Clear	Severe	4.8	196	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	18:56	19:58	40.55795	-70.85920	40.62085	-70.861	70	23	NE	<2	B5	>5	Clear	Severe	3.5	10	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	19:58	21:00	40.62085	-70.86100	40.68129	-70.86508	67	23	NE	<2	B5	>5	Clear	Severe	3.9	7	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	22:00	40.68129	-70.86508	40.76328	-70.85541	67	23	NE	<2	B5	>5	Clear	Slight	3.9	7	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:15	40.76328	-70.85541	40.78848	-70.8522	58	22	NE	<2	B5	>5	Clear	None	6	9	Transit	N/A
2022-11-02	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	22:15	23:15	40.78848	-70.85220	40.9768	-70.8502	58	22	NE	<2	B5	1-2	Clear	None	6	9	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:15	00:00	40.97680	-70.85020	40.9768	-70.8502	53	17	NE	<2	B4	0.5-1	Clear	None	6.8	2	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	40.97883	-70.85028	41.09026	-70.86008	51	18	NE	<2	B4	0.5-1	Clear	None	6.6	0	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:00	01:57	41.09026	-70.86008	41.19338	-70.8765	38	13	NE	<2	B4	0.5-1	Clear	None	6.9	358	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Roberts, Britney; Weller, Robert	RPS	01:57	02:59	41.19338	-70.87650	41.27554	-70.9024	19	15	NE	<2	B3	0.5-1	Clear	None	6.5	349	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	02:59	04:00	41.27554	-70.90240	41.32154	-70.99161	31	9	NNE	<2	B3	0.5-1	Clear	None	4.8	349	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:00	05:00	41.32154	-70.99161	41.38512	-71.0695	29	8	N	<2	B2	0.5-1	Clear	None	5.2	314	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:00	41.38512	-71.06950	41.44673	-70.99959	24	9	N	<2	B2	0.5-1	Clear	None	5.3	318	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:00	41.44673	-70.99959	41.49051	-70.88694	17	7	NE	<2	B2	0.5-1	Clear	None	5.8	53	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	07:59	41.49051	-70.88694	41.52332	-70.80892	18	9	NE	<2	B1	0.5-1	Clear	None	5.5	67	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:59	09:00	41.52332	-70.80892	41.58336	-70.88043	16	4	NW	<2	B1	0.5-1	Clear	None	4.9	237	Transit	N/A
2022-11-03	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:00	10:00	41.58336	-70.88043	41.62149	-70.91358	10	15	N	<2	B1	0.5-1	Clear	None	7.2	236	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:56	41.62201	-70.91350	41.57718	-70.87687	5	4	NW	<2	B1	0.5-1	Clear	None	4.3	348	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	00:56	01:59	41.57718	-70.87687	41.45733	-70.8469	5	22	SSW	<2	B2	0.5-1	Clear	None	4.3	149	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:59	02:59	41.45733	-70.84690	41.35507	-70.8726	12	13	S	<2	B2	0.5-1	Clear	None	5.4	169	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	02:59	03:57	41.35507	-70.87260	41.26164	-70.86346	22	20	SSW	<2	B2	0.5-1	Clear	None	6.1	185	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:57	05:00	41.26164	-70.86346	41.16245	-70.85924	20	19	S	<2	B3	0.5-1	Clear	None	5.8	175	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:00	41.16245	-70.85924	41.05938	-70.86057	29	18	S	<2	B3	0.5-1	Clear	None	6.3	174	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:00	07:00	41.05938	-70.86057	40.95915	-70.85534	35	14	SSW	<2	B3	0.5-1	Clear	None	6.2	174	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:00	08:04	40.95915	-70.85534	40.85109	-70.85407	51	13	S	<2	B3	0.5-1	Clear	None	6.3	179	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:04	08:59	40.85109	-70.85407	40.75856	-70.85924	50	12	S	<2	B3	0.5-1	Clear	None	6.2	182	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	08:59	10:00	40.75856	-70.85924	40.65747	-70.89247	59	12	S	<2	B3	0.5-1	Clear	None	6.7	204	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.65747	-70.89247	40.60799	-70.9144	67	6	S	<2	B2	0.5-1	Clear	None	3.8	212	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.60799	-70.91440	40.59358	-70.79657	69	8	SSE	<2	B2	>5	Clear	None	4.1	104	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.59358	-70.79657	40.57645	-70.6841	67	13	SW	<2	B2	>5	Clear	Severe	6.5	103	Transit	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:55	40.57645	-70.68410	40.56059	-70.66057	66	8	SW	<2	B2	>5	Clear	Severe	2.3	270	Deploying/Retrieving	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	13:55	14:16	40.56059	-70.66057	40.56156	-70.66301	66	11	SSW	<2	B2	>5	Clear	Severe	3.3	194	Soft Start	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:16	14:29	40.56156	-70.66301	40.57042	-70.67111	66	11	SSW	<2	B2	>5	Clear	Severe	3.3	194	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:29	14:30	40.57042	-70.67111	40.57078	-70.67355	66	11	SSW	<2	B2	>5	Clear	Severe	3.3	194	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:30	14:57	40.57078	-70.67355	40.57768	-70.71711	66	11	SSW	<2	B2	>5	Clear	Severe	3.3	194	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	14:57	16:00	40.57768	-70.71711	40.59442	-70.82291	67	7	SW	<2	B2	>5	Clear	Severe	4.7	280	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:00	16:37	40.59442	-70.82291	40.60454	-70.88709	67	10	SW	<2	B2	>5	Clear	Severe	4.9	282	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:37	16:38	40.60454	-70.88709	40.60475	-70.8888	67	10	SW	<2	B2	>5	Clear	Severe	4.9	282	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:38	17:04	40.60475	-70.88880	40.60994	-70.89045	67	10	SW	<2	B2	>5	Clear	Severe	5.1	282	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:04	17:05	40.60994	-70.89045	40.60988	-70.88947	67	4	S	<2	B2	>5	Clear	Severe	5.1	105	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:05	17:58	40.60988	-70.88947	40.59763	-70.81155	67	7	S	<2	B2	>5	Clear	Severe	5.1	105	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	17:58	19:02	40.59763	-70.81155	40.58227	-70.71456	67	9	S	<2	B2	>5	Clear	Severe	4.1	110	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:02	19:30	40.58227	-70.71456	40.57554	-70.67224	67	17	S	<2	B2	>5	Clear	Severe	4.7	110	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:30	19:31	40.57554	-70.67224	40.57527	-70.67063	67	17	S	<2	B2	>5	Clear	Severe	4.7	270	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:31	20:00	40.57527	-70.67063	40.56087	-70.65778	67	17	S	<2	B2	>5	Clear	Severe	4.7	275	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	20:30	40.56087	-70.65778	40.5707	-70.66955	67	8	S	<2	B2	>5	Clear	Severe	4.7	314	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:30	20:31	40.57070	-70.66955	40.57061	-70.67109	67	12	SW	<2	B2	>5	Clear	Severe	4.7	314	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:31	21:00	40.57061	-70.67109	40.57819	-70.71885	67	12	SW	<2	B2	>5	Clear	Severe	4.7	314	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	21:55	40.57819	-70.71885	40.59202	-70.80612	67	12	SW	<2	B2	>5	Clear	Moderate	4.4	276	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	21:55	22:14	40.59202	-70.80612	40.59658	-70.835	68	12	SW	<2	B2	>5	Clear	Slight	4.2	290	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:14	22:47	40.59658	-70.83500	40.6049	-70.88807	67	10	SW	<2	B2	0.5-1	Clear	None	4.5	276	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:47	22:48	40.60490	-70.88807	40.60542	-70.89087	67	10	SW	<2	B2	0.5-1	Clear	None	4.5	276	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:48	22:59	40.60542	-70.89087	40.6112	-70.90207	67	10	SW	<2	B2	0.5-1	Clear	None	4.5	276	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	22:59	23:08	40.61120	-70.90207	40.61276	-70.89762	67	10	S	<2	B2	0.5-1	Clear	None	4.2	48	Full Power	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:08	23:10	40.61276	-70.89762	40.61276	-70.89762	67	10	S	<2	B2	0.5-1	Clear	None	4.2	48	Silent	N/A
2022-11-04	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:10	00:00	40.61276	-70.89762	40.59686	-70.80872	67	10	S	<2	B2	0.5-1	Clear	None	4.2	48	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:53	40.59672	-70.80785	40.58271	-70.71906	67	17	S	<2	B3	0.5-1	Clear	None	4.9	105	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	00:53	01:56	40.58271	-70.71906	40.57601	-70.68407	67	15	S	<2	B3	0.5-1	Clear	None	5.1	114	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:56	02:59	40.57601	-70.68407	40.5835	-70.74108	67	14	S	<2	B3	0.5-1	Clear	None	4.6	294	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	02:59	03:58	40.58350	-70.74108	40.58892	-70.76547	67	18	S	<2	B3	0.5-1	Clear	None	4.6	120	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:58	05:06	40.58892	-70.76547	40.60685	-70.87988	67	12	S	<2	B3	0.5-1	Clear	None	4.9	272	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:06	05:09	40.60685	-70.87988	40.60779	-70.88543	68	14	S	<2	B3	0.5-1	Clear	None	5.3	295	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:09	05:10	40.60779	-70.88543	40.60797	-70.88643	68	15	S	<2	B3	0.5-1	Clear	None	5.3	289	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:10	05:58	40.60797	-70.88643	40.61858	-70.90913	68	15	S	<2	B3	0.5-1	Clear	None	5.3	288	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:58	07:01	40.61858	-70.90913	40.59902	-70.84945	69	15	S	<2	B3	0.5-1	Clear	None	3.2	126	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	07:01	08:00	40.59902	-70.84945	40.6005	-70.88818	67	16	SW	<2	B3	0.5-1	Clear	None	3.8	193	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	40.60050	-70.88818	40.59558	-70.85539	69	14	SW	<2	B3	0.5-1	Clear	None	3.8	270	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:00	10:00	40.59558	-70.85539	40.60479	-70.86727	68	9	S	<2	B3	0.5-1	Clear	None	3.7	284	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	10:00	11:00	40.60479	-70.86727	40.60738	-70.89359	68	16	S	<2	B3	0.5-1	Clear	None	3.2	112	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:01	40.60738	-70.89359	40.60824	-70.89159	68	11	S	<2	B3	>5	Clear	None	4.4	108	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:01	12:00	40.60824	-70.89159	40.60009	-70.88373	68	9	S	<2	B3	>5	Clear	None	4.4	108	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.60009	-70.88373	40.61433	-70.92368	68	13	SW	<2	B3	>5	Clear	Severe	3.4	283	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:23	40.61433	-70.92368	40.6083	-70.8901	69	9	S	<2	B3	>5	Clear	Severe	3.7	104	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:23	13:24	40.60830	-70.89010	40.60801	-70.88843	68	9	S	<2	B3	>5	Clear	Severe	5	100	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:24	14:00	40.60801	-70.88843	40.59906	-70.83132	68	9	S	<2	B3	>5	Clear	Severe	5	100	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:00	14:57	40.59906	-70.83132	40.58388	-70.73502	68	16	S	<2	B3	>5	Clear	Severe	4.4	100	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	14:57	15:34	40.58388	-70.73502	40.57426	-70.67496	67	13	S	<2	B3	>5	Clear	Severe	4.3	81	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:34	15:37	40.57426	-70.67496	40.57355	-70.67041	67	13	S	<2	B3	>5	Clear	Severe	4	81	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:37	15:59	40.57355	-70.67041	40.56658	-70.68594	67	13	S	<2	B3	>5	Clear	Severe	4	81	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:59	16:20	40.56658	-70.68594	40.56785	-70.71612	67	13	S	<2	B3	>5	Clear	Severe	4.1	264	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:20	16:21	40.56785	-70.71612	40.56908	-70.71618	67	13	S	<2	B3	>5	Clear	Severe	4.1	14	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:21	16:36	40.56908	-70.71618	40.58604	-70.7116	67	13	S	<2	B3	>5	Clear	Severe	4.1	14	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:36	16:37	40.58604	-70.71160	40.58716	-70.71128	67	10	S	<2	B3	>5	Clear	Moderate	4.1	40	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:37	17:01	40.58716	-70.71128	40.58652	-70.6801	67	10	S	<2	B3	>5	Clear	Moderate	4.1	40	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:01	17:03	40.58652	-70.68010	40.58428	-70.67939	67	10	S	<2	B3	>5	Clear	Moderate	4.1	40	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:03	17:16	40.58428	-70.67939	40.56781	-70.67822	67	10	S	<2	B3	>5	Clear	Moderate	4.1	40	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:16	17:17	40.56781	-70.67822	40.56662	-70.67815	67	16	S	<2	B3	>5	Clear	Moderate	4.1	178	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:17	17:57	40.56662	-70.67815	40.57128	-70.73307	67	16	S	<2	B3	>5	Clear	Moderate	4.1	178	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	17:57	19:02	40.57128	-70.73307	40.59822	-70.83638	68	11	SSW	<2	B3	>5	Clear	Moderate	4.2	273	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:02	20:00	40.59822	-70.83638	40.64	-70.92185	67	12	SW	<2	B3	>5	Clear	Moderate	4.5	300	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	21:01	40.64000	-70.92185	40.61782	-70.92425	67	10	SW	<2	B3	>5	Clear	Slight	4.6	306	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:01	22:01	40.61782	-70.92425	40.6053	-70.8639	67	18	S	<2	B3	>5	Clear	None	4.6	139	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	22:01	22:15	40.60530	-70.86390	40.60419	-70.84779	68	12	S	<2	B3	>5	Clear	None	4.1	104	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:15	22:26	40.60419	-70.84779	40.60048	-70.8345	68	12	S	<2	B3	0.5-1	Clear	None	4.1	104	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:26	22:38	40.60048	-70.83450	40.59737	-70.81775	68	14	S	<2	B3	0.5-1	Clear	None	4.1	104	Silent	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:38	23:01	40.59737	-70.81775	40.59224	-70.78498	68	15	S	<2	B3	0.5-1	Clear	None	4.1	104	Full Power	N/A
2022-11-05	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:01	00:00	40.59224	-70.78498	40.57613	-70.68491	68	18	S	<2	B3	0.5-1	Clear	None	4.1	104	Full Power	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:05	40.57591	-70.68352	40.5746	-70.67517	67	12	S	<2	B3	0.5-1	Clear	None	4.3	283	Full Power	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:05	00:55	40.57460	-70.67517	40.57872	-70.70511	67	12	S	<2	B3	0.5-1	Clear	None	4.3	283	Silent	N/A
2022-11-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	00:55	01:56	40.57872	-70.70511	40.59457	-70.80023	67	13	S	<2	B3	0.5-1	Clear	None	4.5	286	Silent	N/A
2022-11-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:56	03:00	40.59457	-70.80023	40.58172	-70.844	67	13	S	<2	B3	0.5-1	Clear	None	5.3	310	Silent	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	03:00	03:37	40.58172	-70.84400	40.56804	-70.83832	69	14	S	<2	B3	0.5-1	Clear	None	1.8	176	Deploying/Retrieving	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	03:37	03:59	40.56804	-70.83832	40.58973	-70.7837	70	7	SSE	<2	B3	0.5-1	Clear	None	7.7	76	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	03:59	05:00	40.58973	-70.78370	40.58587	-70.69525	67	4	S	<2	B3	0.5-1	Clear	None	6.7	62	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:01	40.58587	-70.69525	40.65256	-70.64122	66	9	SSE	<2	B3	0.5-1	Clear	None	4.1	31	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:01	06:57	40.65256	-70.64122	40.68039	-70.57305	61	4	S	<2	B3	0.5-1	Clear	None	5.3	80	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:57	08:01	40.68039	-70.57305	40.72218	-70.50535	58	18	S	<2	B3	0.5-1	Clear	None	3.9	105	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:01	09:00	40.72218	-70.50535	40.74751	-70.44664	54	9	S	<2	B3	0.5-1	Clear	None	3.8	30	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	10:00	40.74751	-70.44664	40.7673	-70.38023	51	18	S	<2	B3	0.5-1	Clear	None	4.2	110	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	10:46	40.76730	-70.38023	40.77636	-70.33032	49	9	S	<2	B3	0.5-1	Clear	None	4.7	49	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Roberts, Britney	RPS	10:46	11:00	40.77636	-70.33032	40.76922	-70.30993	48	18	S	<2	B3	2-5	Clear	None	4.1	124	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.76922	-70.30993	40.74848	-70.22585	49	18	S	<2	B3	>5	Clear	None	3.7	176	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.74848	-70.22585	40.7475	-70.09578	43	20	SSW	<2	B3	>5	Clear	Severe	6.1	94	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	40.74750	-70.09578	40.74402	-70.02005	38	13	S	<2	B3	>5	Clear	Severe	6.4	94	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:59	40.74402	-70.02005	40.73635	-70.07297	35	15	S	<2	B3	>5	Clear	Severe	2.3	158	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:59	15:56	40.73635	-70.07297	40.73536	-70.16044	38	15	S	<2	B3	>5	Clear	Moderate	4.1	275	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:56	17:00	40.73536	-70.16044	40.73425	-70.26763	42	14	SW	<2	B3	>5	Clear	Severe	4.4	280	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	17:59	40.73425	-70.26763	40.73654	-70.3713	42	12	SW	<2	B3	>5	Clear	Moderate	4.4	280	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:59	18:56	40.73654	-70.37130	40.74684	-70.37627	42	12	SW	<2	B3	>5	Clear	Moderate	4.4	280	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:56	19:57	40.74684	-70.37627	40.74833	-70.28684	49	7	SSW	<2	B3	>5	Clear	Moderate	3.9	104	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:57	21:00	40.74833	-70.28684	40.7494	-70.19869	47	4	SSW	<2	B3	>5	Cloudy	Moderate	4.5	103	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	22:00	40.74940	-70.19869	40.75018	-70.124	42	7	SSW	<2	B3	>5	Cloudy	None	3.8	97	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:00	22:58	40.75018	-70.12400	40.75065	-70.04925	42	6	SSW	<2	B3	0.5-1	Cloudy	None	3.8	97	Transit	N/A
2022-11-06	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:58	00:00	40.75065	-70.04925	40.7453	-70.05328	39	6	ESE	<2	B3	0.5-1	Cloudy	None	4.7	26	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	40.74251	-70.27563	40.74251	-70.27563	47	13	SW	<2	B2	0.5-1	Precipitation	None	4	271	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:00	02:00	40.74251	-70.27563	40.74251	-70.27563	47	10	SW	<2	B2	0.5-1	Precipitation	None	4	274	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:00	02:51	40.74251	-70.27563	40.74221	-70.30453	47	15	WSW	<2	B2	0.5-1	Precipitation	None	4	271	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:51	04:00	40.74221	-70.30453	40.74184	-70.26533	48	14	SW	<2	B2	0.5-1	Precipitation	None	4	277	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:00	04:57	40.74184	-70.26533	40.78623	-70.2491	46	5	S	<2	B3	0.5-1	Cloudy	None	4.6	89	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:57	06:00	40.78623	-70.24910	40.92056	-70.29594	43	5	S	<2	B3	0.5-1	Cloudy	None	7.8	346	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:00	06:58	40.92056	-70.29594	41.04507	-70.34069	41	10	SW	<2	B3	0.5-1	Clear	None	8	351	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:58	08:00	41.04507	-70.34069	41.18181	-70.39187	39	11	WSW	<2	B3	0.5-1	Clear	None	8	351	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:54	41.18181	-70.39187	41.3042	-70.42964	35	10	SW	<2	B3	0.5-1	Clear	None	8	351	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:54	10:00	41.30420	-70.42964	41.45561	-70.41889	9	11	SW	<2	B3	0.5-1	Clear	None	8	8	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	10:46	41.45561	-70.41889	41.46492	-70.4625	21	22	W	<2	B3	0.5-1	Clear	None	5	292	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Roberts, Britney	RPS	10:46	11:00	41.46492	-70.46250	41.46729	-70.47457	18	22	SSW	<2	B3	2-5	Cloudy	None	5	275	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.46729	-70.47457	41.47745	-70.51678	17	20	SW	<2	B3	>5	Cloudy	None	2.5	275	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.47745	-70.51678	41.48472	-70.54368	20	20	WSW	<2	B3	>5	Cloudy	None	1.2	286	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.48472	-70.54368	41.49305	-70.57787	23	20	SW	<2	B3	>5	Cloudy	None	1.2	284	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	15:01	41.49305	-70.57787	41.50061	-70.61218	26	16	SW	<2	B3	>5	Cloudy	Slight	1.9	280	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:01	15:56	41.50061	-70.61218	41.485	-70.67521	26	27	SW	<2	B4	>5	Cloudy	Slight	2.5	250	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:56	17:00	41.48500	-70.67521	41.4449	-70.75738	25	19	SW	<2	B4	>5	Cloudy	Slight	4.4	254	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	18:00	41.44490	-70.75738	41.41624	-70.82312	23	9	SW	<2	B4	2-5	Fog	Severe	4.4	55	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:00	18:57	41.41624	-70.82312	41.42851	-70.79128	22	18	SW	<2	B4	2-5	Fog	Severe	4.4	242	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	20:09	41.42851	-70.79128	41.44983	-70.74066	22	13	SW	<2	B4	2-5	Fog	Severe	2.2	74	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:09	21:00	41.44983	-70.74066	41.47081	-70.70567	24	11	SW	<2	B4	2-5	Fog	Severe	2.5	57	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	22:00	41.47081	-70.70567	41.49906	-70.65099	24	11	SW	<2	B3	2-5	Fog	Severe	2.5	57	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:00	22:11	41.49906	-70.65099	41.50197	-70.63742	26	11	SW	<2	B3	2-5	Fog	None	2.5	66	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:11	22:59	41.50197	-70.63742	41.4883	-70.56109	23	12	SW	<2	B3	1-2	Clear	None	4	90	Transit	N/A
2022-11-07	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:59	00:00	41.48830	-70.56109	41.47532	-70.51137	23	7	WSW	<2	B3	0.5-1	Clear	None	4.8	128	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	41.47890	-70.52346	41.48147	-70.53432	22	12	NW	<2	B2	0.5-1	Clear	None	1.8	291	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:00	01:57	41.48147	-70.53432	41.48317	-70.54627	22	15	NW	<2	B2	0.5-1	Clear	None	1.8	291	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:57	02:55	41.48317	-70.54627	41.48576	-70.55768	23	22	NW	<2	B3	0.5-1	Clear	None	2	312	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:55	04:00	41.48576	-70.55768	41.49835	-70.5798	23	22	NNW	<2	B3	0.5-1	Clear	None	1.4	303	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:00	04:56	41.49835	-70.57980	41.49933	-70.60791	24	24	NNW	<2	B3	0.5-1	Clear	None	1.9	289	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:56	05:57	41.49933	-70.60791	41.49517	-70.5588	27	20	NNW	<2	B3	0.5-1	Clear	None	1.9	101	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:57	06:58	41.49517	-70.55880	41.47446	-70.50643	23	20	N	<2	B3	0.5-1	Clear	None	2.1	110	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:58	08:00	41.47446	-70.50643	41.46666	-70.46443	20	18	NNW	<2	B3	0.5-1	Clear	None	1.8	120	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:01	41.46666	-70.46443	41.46408	-70.42212	18	16	NW	<2	B3	0.5-1	Clear	None	2	90	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:01	10:00	41.46408	-70.42212	41.47001	-70.42293	18	14	N	<2	B4	0.5-1	Clear	None	1.7	90	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	10:43	41.47001	-70.42293	41.47579	-70.47253	16	29	N	<2	B5	0.5-1	Clear	None	3.4	279	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Roberts, Britney	RPS	10:43	11:00	41.47579	-70.47253	41.47827	-70.49009	11	29	NNW	<2	B5	2-5	Clear	None	3.4	288	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.47827	-70.49009	41.48581	-70.53591	13	24	NNW	<2	B5	>5	Clear	None	3	291	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.48581	-70.53591	41.49063	-70.55914	25	25	NNW	<2	B5	>5	Clear	Severe	1.5	295	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.49063	-70.55914	41.47485	-70.53609	24	20	NNW	<2	B5	>5	Clear	Severe	2.7	109	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:58	41.47485	-70.53609	41.48308	-70.54577	22	26	N	<2	B5	>5	Clear	Severe	1.9	295	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:58	15:58	41.48308	-70.54577	41.50695	-70.59234	20	28	N	<2	B5	>5	Clear	Severe	2.2	320	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:58	16:58	41.50695	-70.59234	41.48804	-70.67542	17	21	N	<2	B5	>5	Clear	Severe	3.2	315	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:58	17:59	41.48804	-70.67542	41.44222	-70.75699	17	6	N	<2	B4	>5	Clear	Severe	3.2	243	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:59	18:56	41.44222	-70.75699	41.4056	-70.83195	22	6	N	<2	B4	>5	Clear	Severe	3.2	243	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:56	19:56	41.40560	-70.83195	41.40603	-70.84521	19	8	WNW	<2	B4	>5	Clear	Severe	3.5	243	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:56	20:59	41.40603	-70.84521	41.52664	-70.8435	18	23	N	<2	B4	>5	Clear	Severe	3	22	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:59	22:00	41.52664	-70.84350	41.63059	-70.91363	18	26	N	<2	B3	>5	Clear	Slight	3	345	Transit	N/A
2022-11-08	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:00	22:25	41.63059	-70.91363	41.62207	-70.91364	3	6	N	<2	B3	>5	Clear	None	3	167	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:55	15:59	41.62216	-70.91351	41.62232	-70.91331	2	5	E	<2	B2	>5	Clear	Moderate	0.5	352	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:59	16:59	41.62232	-70.91331	41.53448	-70.8489	3	3	ESE	<2	B2	>5	Clear	Moderate	0.8	213	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:59	41.53448	-70.84890	41.39902	-70.8504	15	3	SE	<2	B2	>5	Clear	Severe	9	150	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:59	18:57	41.39902	-70.85040	41.27666	-70.78659	27	6	SW	<2	B2	>5	Clear	Severe	9.8	196	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	20:00	41.27666	-70.78659	41.19942	-70.67557	10	12	SE	<2	B2	>5	Clear	Severe	8.7	145	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:00	21:00	41.19942	-70.67557	41.05455	-70.52047	44	13	SE	<2	B2	>5	Clear	Moderate	8.2	139	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	22:00	41.05455	-70.52047	40.93983	-70.40329	44	13	SE	<2	B2	>5	Clear	Moderate	8	139	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	22:00	22:08	40.93983	-70.40329	40.9248	-70.38725	44	8	E	<2	B2	1-2	Clear	None	7.9	138	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:08	23:02	40.92480	-70.38725	40.82871	-70.28301	44	11	SE	<2	B2	0.5-1	Clear	None	8.7	155	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:02	23:30	40.82871	-70.28301	40.772	-70.25342	45	12	ESE	<2	B2	0.5-1	Clear	None	8.6	155	Transit	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:30	23:58	40.77200	-70.25342	40.76739	-70.24125	44	3	SSE	<2	B2	0.5-1	Clear	None	3.9	164	Standby	N/A
2022-11-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:58	00:00	40.76739	-70.24125	40.76752	-70.24065	44	6	SE	<2	B2	0.5-1	Clear	None	1.6	97	Standby	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:57	40.76760	-70.24038	40.75188	-70.25148	43	4	S	<2	B2	0.5-1	Clear	None	3	139	Deploying/Retrieving	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:57	01:56	40.75188	-70.25148	40.75074	-70.16417	44	8	ESE	<2	B2	0.5-1	Clear	None	4.7	115	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:56	02:58	40.75074	-70.16417	40.74724	-70.14066	41	6	ESE	<2	B2	0.5-1	Clear	None	4.1	85	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:58	03:57	40.74724	-70.14066	40.74733	-70.23527	40	5	SW	<2	B2	0.5-1	Clear	None	4.9	261	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	03:57	04:58	40.74733	-70.23527	40.75201	-70.31263	44	12	WSW	<2	B2	0.5-1	Clear	None	4.3	268	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	04:58	05:59	40.75201	-70.31263	40.74499	-70.25239	48	4	W	<2	B2	0.5-1	Cloudy	None	4.7	136	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:59	07:00	40.74499	-70.25239	40.746	-70.15565	44	7	W	<2	B2	0.5-1	Cloudy	None	4.3	77	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:00	08:00	40.74600	-70.15565	40.74689	-70.06996	41	7	SW	<2	B2	0.5-1	Cloudy	None	4.6	84	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:06	40.74689	-70.06996	40.73181	-70.07126	38	4	S	<2	B2	0.5-1	Cloudy	None	3.5	84	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:06	10:00	40.73181	-70.07126	40.74992	-70.0725	39	17	SSW	<2	B3	0.5-1	Cloudy	None	4.4	241	Deploying/Retrieving	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	10:40	40.74992	-70.07250	40.75092	-70.11489	38	17	SSW	<2	B3	0.5-1	Cloudy	None	4.4	223	Deploying/Retrieving	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Roberts, Britney	RPS	10:40	11:00	40.75092	-70.11489	40.75113	-70.08715	39	5	SSW	<2	B3	2-5	Clear	None	3.6	95	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	11:20	40.75113	-70.08715	40.75142	-70.05807	39	6	SSW	<2	B3	>5	Clear	None	4.1	97	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:20	11:41	40.75142	-70.05807	40.75163	-70.02636	39	6	SSW	<2	B3	>5	Clear	Severe	4	95	Soft Start	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:41	12:00	40.75163	-70.02636	40.74759	-70.00427	40	6	SW	<2	B3	>5	Clear	Severe	4.5	89	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:04	40.74759	-70.00427	40.74628	-70.00983	38	19	SW	<2	B4	>5	Clear	Severe	2.8	213	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:04	12:05	40.74628	-70.00983	40.74631	-70.01163	36	18	SW	<2	B4	>5	Clear	Severe	4.6	264	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:05	13:00	40.74631	-70.01163	40.74566	-70.10286	36	18	SW	<2	B4	>5	Clear	Severe	4.6	264	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	40.74566	-70.10286	40.74467	-70.19682	35	17	SW	<2	B4	>5	Clear	Severe	4.5	255	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:10	40.74467	-70.19682	40.74448	-70.21114	43	17	WSW	<2	B4	>5	Clear	Severe	4.1	261	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:10	14:11	40.74448	-70.21114	40.74446	-70.21294	43	18	SW	<2	B4	>5	Clear	Severe	3.7	247	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:11	14:49	40.74446	-70.21294	40.74715	-70.26118	43	18	SW	<2	B4	>5	Clear	Severe	3.7	247	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:49	14:50	40.74715	-70.26118	40.74846	-70.25954	45	11	SW	<2	B4	>5	Clear	Severe	5.1	42	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:50	15:00	40.74846	-70.25954	40.74842	-70.2428	45	11	SW	<2	B4	>5	Clear	Severe	5.1	42	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:00	15:58	40.74842	-70.24280	40.7495	-70.13634	43	11	SW	<2	B4	>5	Clear	Severe	4.8	94	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:58	16:59	40.74950	-70.13634	40.75072	-70.02803	39	12	SW	<2	B4	>5	Clear	Severe	4.7	87	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:04	40.75072	-70.02803	40.7508	-70.01842	40	10	SW	<2	B4	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:04	18:00	40.75080	-70.01842	40.74364	-70.02293	40	10	SW	<2	B4	>5	Clear	Severe	5.2	86	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:00	18:57	40.74364	-70.02293	40.74363	-70.10332	35	16	WSW	<2	B4	>5	Clear	Severe	3.8	276	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	19:59	40.74363	-70.10332	40.74329	-70.20057	38	16	WSW	<2	B4	>5	Clear	Severe	4.3	260	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:59	21:03	40.74329	-70.20057	40.74281	-70.30749	43	15	WSW	<2	B4	>5	Clear	Severe	4.6	275	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:03	22:00	40.74281	-70.30749	40.73491	-70.29426	48	18	WSW	<2	B4	>5	Clear	Slight	4.8	265	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:00	22:57	40.73491	-70.29426	40.74233	-70.29357	48	17	SW	<2	B4	0.5-1	Clear	None	4.5	274	Silent	N/A
2022-11-10	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	22:57	00:00	40.74233	-70.29357	40.74303	-70.20837	47	13	SW	<2	B4	0.5-1	Clear	None	4	92	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	00:59	40.74315	-70.20551	40.7435	-70.16622	43	11	SW	<2	B3	0.5-1	Clear	None	3.8	107	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:59	01:59	40.74350	-70.16622	40.7415	-70.10249	41	7	SW	<2	B3	0.5-1	Clear	None	4.5	94	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:59	02:55	40.74150	-70.10249	40.74245	-70.19073	38	17	W	<2	B3	0.5-1	Clear	None	4.6	267	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:55	04:02	40.74245	-70.19073	40.74192	-70.29013	42	15	SW	<2	B3	0.5-1	Clear	None	4.8	289	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:02	05:03	40.74192	-70.29013	40.74765	-70.25415	47	16	SW	<2	B3	0.5-1	Clear	None	3.8	256	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:03	05:12	40.74765	-70.25415	40.74777	-70.23734	44	4	S	<2	B3	0.5-1	Clear	None	4.9	95	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:12	06:00	40.74777	-70.23734	40.74879	-70.14741	44	4	SSW	<2	B3	0.5-1	Clear	None	5.3	90	Soft Start	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:00	07:00	40.74879	-70.14741	40.74996	-70.03961	39	6	S	<2	B3	0.5-1	Clear	None	5.3	85	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:00	07:32	40.74996	-70.03961	40.74599	-70.01156	39	9	S	<2	B3	0.5-1	Clear	None	5.1	90	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:32	07:33	40.74599	-70.01156	40.74596	-70.0128	35	12	SW	<2	B3	0.5-1	Clear	None	3.9	271	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:33	08:00	40.74596	-70.01280	40.74569	-70.05289	35	12	SW	<2	B3	0.5-1	Clear	None	3.9	271	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	40.74569	-70.05289	40.74719	-70.11748	37	14	SW	<2	B3	0.5-1	Clear	None	4.2	276	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	10:00	40.74719	-70.11748	40.73474	-70.10473	39	4	S	<2	B3	0.5-1	Clear	None	4.1	96	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	10:40	40.73474	-70.10473	40.7351	-70.10203	39	9	S	<2	B3	0.5-1	Clear	None	4.4	281	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Roberts, Britney	RPS	10:40	11:00	40.73510	-70.10203	40.73493	-70.13592	39	11	S	<2	B3	0.5-1	Cloudy	None	4.6	272	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.73493	-70.13592	40.73583	-70.15922	41	12	S	<2	B3	1-2	Cloudy	None	4.3	271	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	40.73583	-70.15922	40.75054	-70.09785	41	11	SW	<2	B3	>5	Cloudy	Moderate	4.6	255	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:46	40.75054	-70.09785	40.75123	-70.01946	39	8	S	<2	B3	>5	Cloudy	Slight	5	92	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:46	13:47	40.75123	-70.01946	40.75124	-70.01634	39	9	S	<2	B3	>5	Cloudy	None	5.2	88	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:47	14:00	40.75124	-70.01634	40.74695	-70.0102	39	9	S	<2	B3	>5	Cloudy	None	5.2	88	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:04	40.74695	-70.01020	40.74802	-70.01591	37	9	SSW	<2	B3	>5	Cloudy	None	4.3	271	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:04	14:05	40.74802	-70.01591	40.7483	-70.01735	37	11	SSW	<2	B3	>5	Cloudy	None	3.8	274	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:05	14:45	40.74830	-70.01735	40.74806	-70.07574	37	11	SSW	<2	B3	>5	Cloudy	None	3.8	275	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:45	14:46	40.74806	-70.07574	40.74802	-70.07793	38	12	SSW	<2	B3	>5	Cloudy	None	4.1	268	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:46	15:01	40.74802	-70.07793	40.748	-70.09979	38	12	SSW	<2	B3	>5	Cloudy	None	4.1	268	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:01	15:14	40.74800	-70.09979	40.748	-70.1179	38	13	SW	<2	B3	>5	Cloudy	None	4.4	268	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:14	15:15	40.74800	-70.11790	40.74796	-70.11923	38	13	SW	<2	B3	>5	Cloudy	None	4.4	268	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:15	15:30	40.74796	-70.11923	40.74762	-70.14101	38	13	SW	<2	B3	>5	Cloudy	None	4.4	268	Full Power	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:30	15:57	40.74762	-70.14101	40.73713	-70.13068	38	13	SW	<2	B3	>5	Cloudy	None	4.4	268	Silent	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:57	16:59	40.73713	-70.13068	40.80619	-70.19044	41	17	S	<2	B3	>5	Cloudy	None	2	150	Deploying/Retrieving	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:59	17:59	40.80619	-70.19044	40.91287	-70.32047	39	7	S	<2	B2	>5	Cloudy	None	8.8	320	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:59	18:57	40.91287	-70.32047	41.01895	-70.45143	42	7	S	<2	B2	>5	Cloudy	None	8.8	316	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	19:58	41.01895	-70.45143	41.13132	-70.59198	43	6	SSW	<2	B2	>5	Cloudy	None	9.2	319	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:58	21:02	41.13132	-70.59198	41.25089	-70.74643	42	10	SSW	<2	B2	>5	Cloudy	None	9.2	317	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:02	21:57	41.25089	-70.74643	41.3604	-70.87233	26	7	SSW	<2	B2	>5	Cloudy	None	9.6	317	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	21:57	23:00	41.36040	-70.87233	41.51742	-70.84123	28	4	SSE	<2	B2	0.5-1	Cloudy	None	8.3	358	Transit	N/A
2022-11-11	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:00	00:00	41.51742	-70.84123	41.62622	-70.91433	16	12	S	<2	B2	0.5-1	Cloudy	None	9.6	352	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	17:02	17:03	41.62032	-70.92282	41.62109	-70.92264	2	14	NW	<2	B2	>5	Clear	Severe	0	146	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:03	18:03	41.62109	-70.92264	41.5252	-70.84252	5	13	NW	<2	B2	>5	Clear	Severe	4.1	347	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:03	18:57	41.5252	-70.84252	41.39472	-70.85382	15	9	SW	<2	B3	>5	Clear	Severe	9.2	170	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	19:57	41.39472	-70.85382	41.26821	-70.77631	27	21	W	<2	B3	>5	Clear	Severe	8.7	205	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:57	20:59	41.26821	-70.77631	41.13492	-70.65132	30	20	N	<2	B3	>5	Clear	Severe	9.8	122	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:59	21:58	41.13492	-70.65132	41.00691	-70.54168	42	3	W	<2	B3	>5	Clear	Moderate	9.4	149	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	21:58	23:00	41.00691	-70.54168	40.86975	-70.42514	49	3	NW	<2	B3	0.5-1	Clear	None	9.4	149	Transit	N/A
2022-11-14	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:00	00:00	40.86975	-70.42514	40.74631	-70.33299	50	3	WNW	<2	B3	0.5-1	Clear	None	9.4	145	Transit	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	40.74587	-70.33387	40.73356	-70.37978	48	13	ENE	<2	B3	0.5-1	Clear	None	2.4	281	Deploying/Retrieving	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	01:00	01:53	40.73356	-70.37978	40.73389	-70.31577	49	13	ENE	<2	B3	0.5-1	Clear	None	3.9	261	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:53	02:55	40.73389	-70.31577	40.74112	-70.293	48	10	NE	<2	B3	0.5-1	Clear	None	4.3	91	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:55	04:03	40.74112	-70.29300	40.74228	-70.18474	47	9	ENE	<2	B3	0.5-1	Clear	None	4.2	87	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:03	05:00	40.74228	-70.18474	40.74308	-70.09314	42	11	ENE	<2	B3	0.5-1	Clear	None	4.2	89	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	05:15	40.74308	-70.09314	40.74334	-70.06902	38	7	NE	<2	B3	0.5-1	Clear	None	4.6	96	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:15	05:37	40.74334	-70.06902	40.74363	-70.03364	37	2	NE	<2	B3	0.5-1	Clear	None	4.7	88	Soft Start	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:37	05:58	40.74363	-70.03364	40.7358	-70.01433	35	5	N	<2	B3	0.5-1	Clear	None	4.6	91	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:58	05:59	40.73580	-70.01433	40.73563	-70.01647	32	4	N	<2	B3	0.5-1	Clear	None	4.6	266	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:59	07:01	40.73563	-70.01647	40.73458	-70.11609	32	4	N	<2	B3	0.5-1	Clear	None	4.6	266	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:01	08:00	40.73458	-70.11609	40.7337	-70.207	40	2	NNE	<2	B3	0.5-1	Clear	None	4	268	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	40.73370	-70.20700	40.73268	-70.30136	43	3	NW	<2	B3	0.5-1	Clear	None	4.4	272	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	09:16	40.73268	-70.30136	40.7324	-70.32703	47	5	NW	<2	B3	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:16	09:18	40.73240	-70.32703	40.73234	-70.33029	47	5	NW	<2	B3	0.5-1	Clear	None	4.5	270	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:18	09:33	40.73234	-70.33029	40.73817	-70.33557	47	5	NW	<2	B3	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:33	09:34	40.73817	-70.33557	40.73789	-70.33419	47	6	NW	<2	B3	0.5-1	Clear	None	4.6	110	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:34	10:00	40.73789	-70.33419	40.73807	-70.28923	47	6	NW	<2	B3	0.5-1	Clear	None	4.9	100	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	11:00	40.73807	-70.28923	40.73914	-70.18704	46	8	NE	<2	B3	0.5-1	Cloudy	None	4.8	77	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	40.73914	-70.18704	40.74004	-70.08854	43	10	NE	<2	B3	1-2	Cloudy	None	4.9	81	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	12:45	40.74004	-70.08854	40.74071	-70.01906	38	10	NE	<2	B3	>5	Cloudy	None	4.3	82	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:45	12:46	40.74071	-70.01906	40.74078	-70.01691	33	9	E	<2	B3	>5	Cloudy	Severe	4	89	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:46	13:00	40.74078	-70.01691	40.73568	-70.00795	33	9	E	<2	B3	>5	Cloudy	Severe	3.5	89	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	13:01	40.73568	-70.00795	40.73542	-70.01068	32	2	NE	<2	B3	>5	Cloudy	Moderate	4.6	271	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:01	13:02	40.73542	-70.01068	40.73538	-70.01262	32	3	NE	<2	B3	>5	Cloudy	Moderate	4.8	271	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:02	14:00	40.73538	-70.01262	40.73446	-70.11112	32	3	NE	<2	B3	>5	Cloudy	Moderate	4.8	271	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	15:00	40.73446	-70.11112	40.73347	-70.21167	40	5	NE	<2	B3	>5	Clear	Severe	4.6	275	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:00	16:01	40.73347	-70.21167	40.73241	-70.31367	40	9	E	<2	B3	>5	Clear	Severe	4.6	275	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:01	16:09	40.73241	-70.31367	40.73215	-70.32691	48	9	NE	<2	B3	>5	Clear	Severe	4.7	275	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:09	16:10	40.73215	-70.32691	40.73213	-70.33016	48	5	E	<2	B3	>5	Clear	Severe	4.7	269	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:10	16:23	40.73213	-70.33016	40.73693	-70.33785	48	7	E	<2	B3	>5	Cloudy	Slight	4.7	269	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:23	16:24	40.73693	-70.33785	40.73697	-70.3366	48	13	E	<2	B3	>5	Cloudy	None	4.7	80	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:24	17:06	40.73697	-70.33660	40.73811	-70.26591	48	13	E	<2	B3	>5	Cloudy	None	4.7	80	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:06	18:00	40.73811	-70.26591	40.73908	-70.17342	46	13	E	<2	B3	>5	Cloudy	None	4.9	89	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:00	18:57	40.73908	-70.17342	40.7399	-70.0738	46	13	E	<2	B3	>5	Cloudy	None	4.9	89	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	19:29	40.73990	-70.07380	40.74028	-70.01989	38	14	ENE	<2	B3	>5	Cloudy	Severe	5	91	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:29	19:30	40.74028	-70.01989	40.74031	-70.01672	38	14	ENE	<2	B3	>5	Cloudy	None	5	91	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:30	19:45	40.74031	-70.01672	40.73513	-70.01026	38	14	ENE	<2	B3	>5	Cloudy	None	5	91	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:45	19:46	40.73513	-70.01026	40.73521	-70.01199	38	14	W	<2	B3	>5	Cloudy	None	5	91	Silent	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:46	19:58	40.73521	-70.01199	40.7349	-70.03181	38	14	W	<2	B3	>5	Cloudy	Moderate	5	91	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:58	21:01	40.73490	-70.03181	40.73395	-70.13205	33	10	NE	<2	B3	>5	Cloudy	Moderate	4.2	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:01	21:59	40.73395	-70.13205	40.73301	-70.22839	41	10	NE	<2	B3	>5	Cloudy	None	4.2	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	21:59	22:57	40.73301	-70.22839	40.73186	-70.32948	44	10	NE	<2	B3	0.5-1	Cloudy	None	4.9	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:57	23:00	40.73186	-70.32948	40.73183	-70.33352	44	10	NE	<2	B3	0.5-1	Cloudy	None	4.9	270	Full Power	N/A
2022-11-15	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:00	00:00	40.73183	-70.33352	40.74268	-70.31573	44	10	NE	<2	B3	0.5-1	Cloudy	None	4.9	270	Silent	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:01	40.74320	-70.31473	40.84996	-70.39733	47	23	E	<2	B4	0.5-1	Cloudy	None	3.2	54	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:01	01:57	40.84996	-70.39733	40.96127	-70.49740	50	5	E	<2	B4	0.5-1	Cloudy	None	8.5	334	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:57	02:55	40.96127	-70.49740	41.07251	-70.60748	47	6	NE	<2	B4	0.5-1	Cloudy	None	8.5	324	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:55	03:59	41.07251	-70.60748	41.19969	-70.71536	43	12	NE	<2	B4	0.5-1	Precipitation	None	8.8	325	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	03:59	05:00	41.19969	-70.71536	41.30225	-70.82673	28	27	NE	<2	B4	0.5-1	Precipitation	None	8.4	334	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:01	41.30225	-70.82673	41.36469	-70.88178	16	22	NE	<2	B4	0.5-1	Precipitation	None	5.7	320	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:01	07:00	41.36469	-70.88178	41.40881	-70.84402	24	34	NE	<2	B4	0.5-1	Precipitation	None	3.2	352	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:00	08:00	41.40881	-70.84402	41.44102	-70.77731	17	32	ENE	<2	B4	0.5-1	Precipitation	None	3.6	53	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	41.44102	-70.77731	41.47573	-70.70852	24	25	E	<2	B4	0.5-1	Precipitation	None	3.6	68	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	10:00	41.47573	-70.70852	41.47325	-70.70470	20	28	E	<2	B4	0.5-1	Precipitation	None	4	67	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	11:00	41.47325	-70.70470	41.42661	-70.79556	21	29	E	<2	B4	0.5-1	Precipitation	None	4.7	233	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.42661	-70.79556	41.42832	-70.79747	20	24	SE	<2	B4	1-2	Precipitation	None	5.2	227	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.42832	-70.79747	41.43463	-70.80602	23	35	SE	<2	B5	2-5	Fog	None	2	84	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.43463	-70.80602	41.53672	-70.85581	24	18	SE	<2	B5	2-5	Fog	None	8.3	261	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	15:00	41.53672	-70.85581	41.62738	-70.91462	14	18	SE	<2	B4	1-2	Fog	None	7	352	Transit	N/A
2022-11-16	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	15:00	15:14	41.53672	-70.85581	41.62738	-70.91462	14	18	SE	<2	B4	1-2	Fog	None	7	352	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:55	18:01	41.62212	-70.91358	41.56428	-70.86761	2	10	W	<2	B2	>5	Clear	None	0.7	146	Transit	N/A
2022-11-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:01	18:56	41.56428	-70.86761	41.43934	-70.84417	10	13	W	<2	B3	>5	Cloudy	Severe	8.1	153	Transit	N/A
2022-11-17	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:56	19:53	41.43934	-70.84417	41.45658	-70.72007	10	13	WSW	<2	B3	>5	Cloudy	Severe	10	145	Transit	N/A
2022-11-17	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:53	21:01	41.45658	-70.72007	41.49242	-70.57739	19	20	WNW	<2	B3	>5	Cloudy	Moderate	6.1	55	Standby	N/A
2022-11-17	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:01	22:00	41.49242	-70.57739	41.46385	-70.47436	25	16	NW	<2	B3	>5	Cloudy	Slight	5.8	110	Standby	N/A
2022-11-17	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:00	23:02	41.46385	-70.47436	41.46010	-70.44697	18	16	NW	<2	B3	0.5-1	Cloudy	None	4.6	103	Standby	N/A
2022-11-17	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:02	00:00	41.46010	-70.44697	41.46848	-70.49441	20	22	WNW	<2	B3	0.5-1	Cloudy	None	2	278	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:03	41.46893	-70.49580	41.49282	-70.56385	20	28	NW	<2	B4	0.5-1	Cloudy	None	3.5	290	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:03	01:55	41.49282	-70.56385	41.48389	-70.53936	23	24	NW	<2	B4	0.5-1	Cloudy	None	3.8	295	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:55	02:57	41.48389	-70.53936	41.46332	-70.46657	23	28	NW	<2	B4	0.5-1	Cloudy	None	3.2	105	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:57	03:55	41.46332	-70.46657	41.46360	-70.46612	19	27	NW	<2	B4	0.5-1	Clear	None	3.8	100	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	03:55	05:00	41.46360	-70.46612	41.48393	-70.53597	18	25	NW	<2	B4	0.5-1	Clear	None	1.6	260	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	05:00	05:56	41.48393	-70.53597	41.49997	-70.59606	27	28	WNW	<2	B4	0.5-1	Clear	None	2.1	250	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:56	06:58	41.49997	-70.59606	41.49223	-70.64842	22	29	SE	<2	B4	0.5-1	Clear	None	2.3	285	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:58	08:01	41.49223	-70.64842	41.48449	-70.68987	22	29	SE	<2	B4	0.5-1	Clear	None	2.3	285	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:01	09:00	41.48449	-70.68987	41.46777	-70.72643	21	22	SE	<2	B4	0.5-1	Clear	None	1.5	246	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	09:59	41.46777	-70.72643	41.44273	-70.77166	21	22	SE	<2	B4	0.5-1	Clear	None	2.6	242	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	09:59	11:00	41.44273	-70.77166	41.48382	-70.69823	24	21	W	<2	B4	0.5-1	Clear	None	2.3	226	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.48382	-70.69823	41.49914	-70.60269	21	10	W	<2	B4	1-2	Clear	None	4.8	53	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.49914	-70.60269	41.47872	-70.52394	27	18	NW	<2	B4	>5	Clear	None	4.5	101	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.47872	-70.52394	41.49001	-70.54479	21	26	SSW	<2	B4	>5	Clear	Severe	2.8	291	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:59	41.49001	-70.54479	41.46793	-70.46400	21	12	WNW	<2	B3	>5	Cloudy	Slight	4	105	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	14:59	15:57	41.46793	-70.46400	41.45796	-70.39006	21	8	WNW	<2	B3	>5	Cloudy	Slight	4	105	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:57	17:00	41.45796	-70.39006	41.45340	-70.38158	21	9	SW	<2	B3	>5	Cloudy	None	2.9	111	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	17:00	18:00	41.45340	-70.38158	41.46179	-70.46630	21	19	W	<2	B4	>5	Cloudy	None	2.4	265	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:00	19:00	41.46179	-70.46630	41.48181	-70.53788	21	27	W	<2	B5	>5	Cloudy	Severe	2.4	273	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:03	41.48181	-70.53788	41.49649	-70.56484	22	25	W	<2	B5	>5	Cloudy	Severe	3.4	290	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:03	21:00	41.49649	-70.56484	41.46412	-70.48431	24	21	SW	<2	B4	>5	Cloudy	Slight	4.3	115	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	21:00	22:00	41.46412	-70.48431	41.45988	-70.45530	17	14	SW	<2	B4	>5	Cloudy	Slight	4	127	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:00	23:02	41.45988	-70.45530	41.46929	-70.49596	18	24	SW	<2	B4	0.5-1	Cloudy	None	1.4	266	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:02	23:57	41.46929	-70.49596	41.48330	-70.52209	18	15	W	<2	B4	0.5-1	Cloudy	None	1.8	285	Standby	N/A
2022-11-18	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:57	00:00	41.48330	-70.52209	41.48397	-70.52281	18	15	W	<2	B4	0.5-1	Cloudy	None	1.8	285	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:03	41.48409	-70.52309	41.49127	-70.56623	20	31	WNW	<2	B4	0.5-1	Cloudy	None	1.3	288	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:03	01:55	41.49127	-70.56623	41.48905	-70.54966	25	28	WNW	<2	B4	0.5-1	Cloudy	None	3.8	281	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	01:55	02:58	41.48905	-70.54966	41.46058	-70.47747	22	22	W	<2	B4	0.5-1	Cloudy	None	3.8	110	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:58	04:01	41.46058	-70.47747	41.47229	-70.50328	19	23	NW	<2	B4	0.5-1	Clear	None	3.7	110	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:01	05:00	41.47229	-70.50328	41.49437	-70.56791	20	38	WNW	<2	B4	0.5-1	Clear	None	3.6	288	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:02	41.49437	-70.56791	41.49246	-70.58408	25	30	WNW	<2	B4	0.5-1	Cloudy	None	2.5	289	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:02	06:57	41.49246	-70.58408	41.46614	-70.50114	23	21	NW	<2	B4	0.5-1	Clear	None	4.9	115	Transit	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	06:57	08:00	41.46614	-70.50114	41.45585	-70.39970	19	15	NW	<2	B4	0.5-1	Clear	None	4.1	113	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	08:58	41.45585	-70.39970	41.46117	-70.46040	20	23	NW	<2	B4	0.5-1	Clear	None	1.2	272	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:58	10:00	41.46117	-70.46040	41.47982	-70.52008	18	24	NW	<2	B4	0.5-1	Clear	None	2.9	280	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	11:00	41.47982	-70.52008	41.49658	-70.57055	20	19	NW	<2	B3	0.5-1	Cloudy	None	3.4	294	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.49658	-70.57055	41.49756	-70.63345	22	16	NW	<2	B3	1-2	Cloudy	None	2.8	291	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.49756	-70.63345	41.46895	-70.71101	24	11	NW	<2	B3	>5	Cloudy	None	3.6	256	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.46895	-70.71101	41.43488	-70.77738	21	11	WNW	<2	B3	>5	Clear	Severe	3.4	240	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	15:04	41.43488	-70.77738	41.40891	-70.83540	21	8	W	<2	B3	>5	Clear	Severe	4.1	240	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	15:04	15:59	41.40891	-70.83540	41.43584	-70.77501	18	8	W	<2	B3	>5	Clear	Severe	3.6	59	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:59	16:58	41.43584	-70.77501	41.46251	-70.71713	22	8	NW	<2	B3	>5	Clear	Severe	3.2	68	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	16:58	18:02	41.46251	-70.71713	41.49859	-70.65753	18	8	W	<2	B3	>5	Cloudy	Severe	2.8	51	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	18:02	18:59	41.49859	-70.65753	41.49502	-70.57393	18	12	W	<2	B3	>5	Cloudy	Severe	2.8	92	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:59	20:00	41.49502	-70.57393	41.47125	-70.50128	26	10	SW	<2	B3	>5	Cloudy	Severe	4	110	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	20:57	41.47125	-70.50128	41.46410	-70.47289	19	10	WSW	<2	B3	>5	Cloudy	Severe	3.7	120	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Penfield, Eren	RPS	20:57	22:03	41.46410	-70.47289	41.48404	-70.53720	17	26	WSW	<2	B4	>5	Cloudy	None	3.5	285	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Penfield, Eren	RPS	22:03	23:02	41.48404	-70.53720	41.45543	-70.45953	22	15	W	<2	B4	0.5-1	Cloudy	None	2.6	285	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	23:02	23:57	41.45543	-70.45953	41.46407	-70.47195	17	20	WSW	<2	B4	0.5-1	Cloudy	None	4.5	106	Standby	N/A
2022-11-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	23:57	00:00	41.46407	-70.47195	41.46430	-70.47383	17	26	W	<2	B4	0.5-1	Cloudy	None	3.1	275	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	00:00	01:00	41.46445	-70.47494	41.48401	-70.52749	17	25	W	<2	B5	0.5-1	Cloudy	None	2.9	275	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Penfield, Eren	RPS	01:00	02:00	41.48401	-70.52749	41.49827	-70.57020	22	28	W	<2	B5	0.5-1	Cloudy	None	1.5	283	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	02:00	03:00	41.49827	-70.57020	41.50171	-70.60090	22	33	W	<2	B5	0.5-1	Cloudy	None	2.9	290	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Roberts, Britney	RPS	03:00	04:00	41.50171	-70.60090	41.48714	-70.54489	24	23	W	<2	B5	0.5-1	Cloudy	None	4.1	106	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; O'Sullivan, Sean	RPS	04:00	05:00	41.48714	-70.54489	41.46687	-70.49000	21	15	NNW	<2	B4	0.5-1	Cloudy	None	2.4	113	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	05:00	06:00	41.46687	-70.49000	41.45330	-70.41853	17	13	NW	<2	B4	0.5-1	Cloudy	None	3.1	107	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel; Roberts, Britney	RPS	06:00	07:00	41.45330	-70.41853	41.45872	-70.45112	19	15	NW	<2	B3	0.5-1	Cloudy	None	3.2	101	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	07:00	08:00	41.45872	-70.45112	41.47708	-70.51224	18	12	NW	<2	B3	0.5-1	Clear	None	3.1	281	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	08:00	09:00	41.47708	-70.51224	41.49371	-70.56281	20	5	W	<2	B2	0.5-1	Clear	None	2.7	295	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Lopez, Miguel	RPS	09:00	10:00	41.49371	-70.56281	41.50574	-70.61079	24	3	W	<2	B2	0.5-1	Cloudy	None	3.2	291	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Roberts, Britney	RPS	10:00	11:00	41.50574	-70.61079	41.49746	-70.64570	24	7	NW	<2	B2	0.5-1	Cloudy	None	2.1	250	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	11:00	12:00	41.49746	-70.64570	41.44430	-70.75990	27	13	NW	<2	B2	1-2	Cloudy	None	2.1	250	Standby	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	12:00	13:00	41.44430	-70.75990	41.48407	-70.83877	22	35	NW	<2	B5	>5	Cloudy	Moderate	6.5	260	Transit	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	13:00	14:00	41.48407	-70.83877	41.62381	-70.90546	17	28	NW	<2	B5	>5	Clear	Severe	9.7	11	Transit	N/A
2022-11-20	*GO Explorer*	HRG	Visual	Lopez, Miguel	RPS	14:00	14:26	41.62381	-70.90546	41.62203	-70.91375	17	28	NW	<2	B5	>5	Clear	Severe	5	160	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:47	19:00	41.62351	-70.91369	41.63310	-70.91538	2	8	S	<2	B2	>5	Clear	Severe	0	345	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.63310	-70.91538	41.57023	-70.87124	3	12	S	<2	B2	>5	Clear	Severe	3.1	356	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.57023	-70.87124	41.45525	-70.84830	11	18	SW	<2	B2	>5	Clear	Severe	6	155	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.45525	-70.84830	41.34806	-70.86539	20	21	SW	<2	B2	>5	Clear	Moderate	7.1	214	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.34806	-70.86539	41.26265	-70.76688	21	23	SW	<2	B3	0.5-1	Clear	None	6.8	176	Transit	N/A
2022-11-22	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.26265	-70.76688	41.17548	-70.65499	8	7	SW	<2	B3	0.5-1	Clear	None	7.3	130	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.17141	-70.65044	41.10372	-70.56968	35	10	WSW	<2	B3	0.5-1	Clear	None	5.8	127	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.10372	-70.56968	41.04557	-70.49705	42	7	W	<2	B3	0.5-1	Clear	None	5	148	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.04557	-70.49705	40.98527	-70.42588	46	20	W	<2	B3	0.5-1	Clear	None	5.4	125	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:07	40.98527	-70.42588	40.91057	-70.36885	43	18	W	2-4	B4	0.5-1	Clear	None	4.3	150	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:07	05:00	40.91057	-70.36885	40.85974	-70.35047	44	10	W	2-4	B4	0.5-1	Clear	None	6.5	150	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	40.85974	-70.35047	40.78637	-70.33466	45	14	NE	2-4	B4	0.5-1	Clear	None	5	172	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	06:58	40.78637	-70.33466	40.75998	-70.36920	47	21	E	2-4	B4	0.5-1	Clear	None	3	240	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	06:58	08:00	40.75998	-70.36920	40.74576	-70.33503	50	23	E	2-4	B4	0.5-1	Clear	None	2.8	240	Transit	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.74576	-70.33503	40.74352	-70.37940	48	18	E	2-4	B4	0.5-1	Clear	None	3.1	167	Standby	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.74352	-70.37940	40.74194	-70.33937	49	21	SE	2-4	B4	0.5-1	Clear	None	2.1	258	Deploying/Retrieving	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	40.74194	-70.33937	40.74196	-70.23851	47	17	E	<2	B3	0.5-1	Clear	None	4.4	100	Standby	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	12:00	40.74196	-70.23851	40.74306	-70.13238	45	16	E	<2	B3	1-2	Clear	None	4.7	95	Testing	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:25	40.74306	-70.13238	40.74352	-70.08744	40	13	N	<2	B3	2-5	Clear	Severe	4.7	94	Testing	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:25	13:00	40.74352	-70.08744	40.74408	-70.02162	38	11	N	<2	B3	>5	Clear	Severe	4.9	95	Standby	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	13:58	40.74408	-70.02162	40.74120	-70.04081	36	12	N	<2	B3	>5	Clear	Severe	5.8	93	Standby	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:58	14:06	40.74120	-70.04081	40.74098	-70.04838	35	16	SE	<2	B4	>5	Clear	Severe	1.7	93	Deploying/Retrieving	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:06	14:27	40.74098	-70.04838	40.74100	-70.02656	34	16	SE	<2	B4	>5	Clear	Severe	1.7	93	Soft Start	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:27	15:00	40.74100	-70.02656	40.73325	-69.99625	34	16	SE	<2	B4	>5	Clear	Severe	1.7	93	Testing	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:15	40.73325	-69.99625	40.73488	-70.01394	33	16	NW	<2	B3	>5	Clear	Severe	2.9	283	Testing	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:15	15:16	40.73488	-70.01394	40.73484	-70.01522	33	16	NW	<2	B3	>5	Clear	Severe	2.9	283	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:16	16:00	40.73484	-70.01522	40.73429	-70.07363	33	16	NW	<2	B3	>5	Clear	Severe	2.9	283	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	40.73429	-70.07363	40.73341	-70.16053	33	17	NW	<2	B3	>5	Clear	Severe	3	283	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	40.73341	-70.16053	40.73247	-70.25562	42	19	NW	<2	B3	>5	Clear	Severe	4.9	278	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:44	40.73247	-70.25562	40.73161	-70.32817	45	22	NW	<2	B2	>5	Clear	Severe	4.6	280	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:44	18:45	40.73161	-70.32817	40.73159	-70.32987	45	22	NW	<2	B2	>5	Clear	Severe	4.6	280	Silent	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:45	19:00	40.73159	-70.32987	40.73723	-70.33582	45	23	NW	<2	B2	>5	Clear	Severe	4.6	280	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	19:01	40.73723	-70.33582	40.73682	-70.33370	48	15	NW	<2	B3	>5	Clear	Severe	4	90	Silent	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:01	20:00	40.73682	-70.33370	40.73793	-70.24790	48	14	NW	<2	B3	>5	Clear	Severe	4.4	95	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	40.73793	-70.24790	40.73885	-70.16040	46	12	NW	<2	B3	>5	Clear	Severe	4.2	90	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	40.73885	-70.16040	40.73963	-70.07465	42	10	N	<2	B2	>5	Clear	Slight	3.7	92	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	22:40	40.73963	-70.07465	40.74012	-70.01887	38	11	N	<2	B2	0.5-1	Clear	None	3.6	96	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:40	22:41	40.74012	-70.01887	40.74014	-70.01759	33	13	N	<2	B2	0.5-1	Clear	None	3.6	111	Silent	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:41	22:52	40.74014	-70.01759	40.73355	-70.01094	33	13	N	<2	B2	0.5-1	Clear	None	3.6	111	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:52	22:53	40.73355	-70.01094	40.73323	-70.01313	33	13	N	<2	B2	0.5-1	Clear	None	3.6	111	Silent	N/A
2022-11-23	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:53	23:00	40.73323	-70.01313	40.73306	-70.02437	33	13	N	<2	B2	0.5-1	Clear	None	3.6	111	Full Power	N/A
2022-11-23	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	40.73306	-70.02437	40.73210	-70.12189	33	13	N	<2	B2	0.5-1	Clear	None	3.6	111	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.73204	-70.12389	40.73128	-70.21323	40	12	N	<2	B2	0.5-1	Clear	None	3.9	268	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:01	40.73128	-70.21323	40.73025	-70.30433	43	7	N	<2	B2	0.5-1	Clear	None	4.4	266	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:01	03:00	40.73025	-70.30433	40.73725	-70.28662	47	6	NE	<2	B2	0.5-1	Clear	None	4.5	263	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	40.73725	-70.28662	40.73834	-70.17371	47	13	NE	<2	B3	0.5-1	Clear	None	5.5	98	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	40.73834	-70.17371	40.73949	-70.07257	42	19	NW	<2	B3	0.5-1	Clear	None	4.6	77	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:01	40.73949	-70.07257	40.74314	-70.01919	38	23	NE	<2	B3	0.5-1	Clear	None	4.6	72	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:01	07:00	40.74314	-70.01919	40.74231	-70.11592	35	17	NE	<2	B3	0.5-1	Clear	None	4.3	280	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	07:58	40.74231	-70.11592	40.74116	-70.21771	40	17	NE	<2	B3	0.5-1	Clear	None	4.4	280	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	07:58	09:00	40.74116	-70.21771	40.72831	-70.32065	44	16	N	<2	B3	0.5-1	Clear	None	4.8	280	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.72831	-70.32065	40.73563	-70.26174	48	12	N	<2	B2	0.5-1	Clear	None	4.6	267	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	10:59	40.73563	-70.26174	40.73662	-70.16304	46	14	NE	<2	B2	0.5-1	Clear	None	4.7	89	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	10:59	12:00	40.73662	-70.16304	40.73767	-70.06015	42	14	NE	<2	B2	1-2	Clear	Slight	4.5	94	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:24	40.73767	-70.06015	40.73796	-70.01899	36	11	NE	<2	B2	>5	Clear	Slight	4.6	91	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:24	12:25	40.73796	-70.01899	40.73797	-70.01637	37	9	NE	<2	B2	>5	Clear	Moderate	4.5	91	Silent	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:25	12:39	40.73797	-70.01637	40.74974	-70.01883	37	8	NE	<2	B2	>5	Clear	Moderate	4.5	91	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:39	12:40	40.74974	-70.01883	40.74985	-70.02030	37	7	NE	<2	B2	>5	Clear	Severe	4.5	91	Silent	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:40	13:01	40.74985	-70.02030	40.74961	-70.05291	37	6	N	<2	B2	>5	Clear	Severe	4.5	91	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:01	14:00	40.74961	-70.05291	40.74868	-70.14199	38	5	N	<2	B2	>5	Clear	Severe	4.5	268	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	40.74868	-70.14199	40.74775	-70.23472	40	6	N	<2	B2	>5	Clear	Severe	4.4	271	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	40.74775	-70.23472	40.74766	-70.31849	43	3	N	<2	B2	>5	Clear	Severe	4.3	272	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	40.74766	-70.31849	40.74902	-70.22133	49	8	E	<2	B2	>5	Clear	Severe	4.7	84	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	40.74902	-70.22133	40.75001	-70.13095	43	3	SE	<2	B2	>5	Clear	Severe	4.7	91	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	40.75001	-70.13095	40.75034	-70.04993	40	5	N	<2	B2	>5	Clear	Severe	3.9	100	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	40.75034	-70.04993	40.73407	-70.05836	41	6	N	<2	B2	>5	Clear	Severe	3.9	91	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	40.73407	-70.05836	40.73313	-70.16339	41	6	N	<2	B2	>5	Clear	Severe	5.2	260	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	21:00	22:00	40.73313	-70.16339	40.73209	-70.25883	42	12	N	<2	B2	>5	Clear	Moderate	4.5	263	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	22:44	40.73209	-70.25883	40.73125	-70.32898	45	11	N	<2	B2	0.5-1	Clear	None	4.3	273	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:44	22:45	40.73125	-70.32898	40.73114	-70.33135	48	10	SW	<2	B2	0.5-1	Clear	None	4.2	271	Silent	N/A
2022-11-24	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:45	23:00	40.73114	-70.33135	40.73729	-70.33669	48	13	SW	<2	B2	0.5-1	Clear	None	4.4	250	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:03	40.73729	-70.33669	40.73667	-70.33289	47	4	SW	<2	B2	0.5-1	Clear	None	4	100	Full Power	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:03	23:04	40.73667	-70.33289	40.73651	-70.33135	47	3	SW	<2	B2	0.5-1	Clear	None	3.7	100	Silent	N/A
2022-11-24	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:04	00:00	40.73651	-70.33135	40.73711	-70.25726	46	4	SW	<2	B2	0.5-1	Clear	None	3.7	90	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.73721	-70.25245	40.73818	-70.16121	46	3	S	<2	B1	0.5-1	Clear	None	4.3	101	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	40.73818	-70.16121	40.73917	-70.06020	42	7	W	<2	B2	0.5-1	Clear	None	4	100	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	02:55	40.73917	-70.06020	40.73407	-70.02758	37	8	S	<2	B2	0.5-1	Clear	None	4.8	103	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:55	03:58	40.73407	-70.02758	40.73328	-70.11487	34	12	SW	<2	B2	0.5-1	Clear	None	3.7	275	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	03:58	05:00	40.73328	-70.11487	40.73226	-70.20597	40	13	SW	<2	B2	0.5-1	Clear	None	4	270	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:01	40.73226	-70.20597	40.73133	-70.30477	43	13	WSW	<2	B2	0.5-1	Clear	None	4.2	270	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:01	07:00	40.73133	-70.30477	40.73675	-70.28556	45	13	N	<2	B2	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	40.73675	-70.28556	40.73777	-70.18834	47	9	S	<2	B2	0.5-1	Clear	None	4.6	89	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.73777	-70.18834	40.73868	-70.09371	43	14	S	<2	B2	0.5-1	Cloudy	None	4.2	89	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.73868	-70.09371	40.73657	-70.00548	42	14	S	<2	B2	0.5-1	Cloudy	None	4.5	88	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	40.73657	-70.00548	40.73310	-70.10774	33	18	SW	<2	B2	0.5-1	Cloudy	None	5	233	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:18	40.73310	-70.10774	40.73276	-70.13643	40	7	SW	<2	B2	0.5-1	Cloudy	None	4.1	263	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:18	11:41	40.73276	-70.13643	40.73245	-70.17219	41	14	SW	<2	B2	1-2	Cloudy	None	4.9	260	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:41	12:00	40.73245	-70.17219	40.73218	-70.20100	42	11	SW	<2	B2	2-5	Cloudy	None	4.3	261	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	13:00	40.73218	-70.20100	40.73120	-70.28810	44	9	SW	<2	B3	>5	Cloudy	None	4.3	260	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	13:29	40.73120	-70.28810	40.73072	-70.32802	47	21	SW	<2	B4	>5	Cloudy	None	3.7	260	Full Power	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:29	14:06	40.73072	-70.32802	40.71323	-70.33382	48	18	SW	<2	B4	>5	Cloudy	None	3.7	260	Deploying/Retrieving	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:06	14:29	40.71323	-70.33382	40.70132	-70.32782	49	18	SW	<2	B4	>5	Cloudy	None	2.4	260	Standby	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:29	15:00	40.70132	-70.32782	40.77392	-70.33487	49	15	SW	<2	B4	>5	Cloudy	None	3.3	260	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:59	40.77392	-70.33487	40.91700	-70.35212	47	13	N	<2	B3	>5	Cloudy	None	8.6	12	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:59	17:00	40.91700	-70.35212	41.05839	-70.37237	44	18	WSW	<2	B3	>5	Precipitation	None	8.6	350	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.05839	-70.37237	41.19586	-70.40116	39	14	W	<2	B3	>5	Precipitation	None	8.5	350	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:58	41.19586	-70.40116	41.31077	-70.42972	31	19	W	<2	B4	>5	Precipitation	None	8.4	351	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:58	19:58	41.31077	-70.42972	41.40352	-70.42677	15	15	SW	<2	B4	>5	Precipitation	None	4.6	0	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:58	21:00	41.40352	-70.42677	41.50548	-70.53508	9	21	W	<2	B4	>5	Precipitation	None	7.3	0	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.50548	-70.53508	41.49493	-70.64414	22	27	N	<2	B3	>5	Precipitation	None	6.3	270	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.49493	-70.64414	41.47291	-70.70546	26	17	N	<2	B3	0.5-1	Clear	None	5.6	259	Transit	N/A
2022-11-25	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.47291	-70.70546	41.45321	-70.75200	21	39	W	<2	B4	0.5-1	Clear	None	2.7	230	Transit	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	00:00	00:00	41.45321	-70.75200	41.45321	-70.75200	25	25	NW	<2	B3	0.5-1	Clear	None	1.8	255	Transit	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.45140	-70.75667	41.46759	-70.70862	25	25	NW	<2	B3	0.5-1	Clear	None	1.8	255	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:01	41.46759	-70.70862	41.49071	-70.64469	30	22	NW	<2	B3	0.5-1	Clear	None	5.2	61	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:01	02:57	41.49071	-70.64469	41.48580	-70.67645	30	27	WNW	<2	B3	0.5-1	Clear	None	1.6	261	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:57	04:00	41.48580	-70.67645	41.46815	-70.72018	23	28	NW	<2	B3	0.5-1	Clear	None	1.6	230	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.46815	-70.72018	41.44370	-70.77858	20	21	NW	<2	B3	0.5-1	Clear	None	2.7	248	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.44370	-70.77858	41.45064	-70.76267	30	25	NW	<2	B4	0.5-1	Clear	None	2.2	248	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:02	41.45064	-70.76267	41.47875	-70.69587	25	16	NW	<2	B4	0.5-1	Clear	None	3.9	248	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:02	08:00	41.47875	-70.69587	41.49317	-70.65648	30	11	NW	<2	B4	0.5-1	Clear	None	2.6	53	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.49317	-70.65648	41.48988	-70.67216	25	28	NW	<2	B4	0.5-1	Clear	None	1.6	57	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.48988	-70.67216	41.45437	-70.75174	25	21	WNW	<2	B4	0.5-1	Clear	None	5	251	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:03	41.45437	-70.75174	41.45586	-70.74727	24	18	NW	<2	B4	0.5-1	Clear	None	3.8	55	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:03	11:30	41.45586	-70.74727	41.46981	-70.71499	27	20	NW	<2	B4	0.5-1	Clear	None	4	55	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	11:38	41.46981	-70.71499	41.47496	-70.70404	20	5	NW	<2	B3	1-2	Clear	None	4.2	55	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:38	12:00	41.47496	-70.70404	41.48829	-70.67363	21	21	NW	<2	B3	>5	Clear	None	4	54	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:59	41.48829	-70.67363	41.47652	-70.54410	23	15	NW	<2	B3	>5	Clear	Severe	4.8	58	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	12:59	14:00	41.47652	-70.54410	41.45898	-70.49515	24	24	NW	<2	B4	>5	Clear	Severe	6.6	122	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.45898	-70.49515	41.47913	-70.54803	15	28	NW	<2	B4	>5	Clear	Severe	3.3	297	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:59	41.47913	-70.54803	41.46073	-70.49168	24	17	NW	<2	B4	>5	Clear	Severe	2.6	198	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:59	17:00	41.46073	-70.49168	41.46200	-70.49805	17	21	NW	<2	B4	>5	Clear	Severe	2.7	112	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.46200	-70.49805	41.48825	-70.56519	17	22	NW	<2	B4	>5	Clear	Severe	3	298	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:59	41.48825	-70.56519	41.48565	-70.56617	24	24	NW	<2	B4	>5	Clear	Severe	3.9	298	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:59	19:59	41.48565	-70.56617	41.47061	-70.50326	22	16	NW	<2	B4	>5	Clear	Severe	3.2	123	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:59	21:00	41.47061	-70.50326	41.45617	-70.45712	21	15	W	<2	B4	>5	Clear	Severe	3.2	107	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.45617	-70.45712	41.46161	-70.48018	17	16	W	<2	B4	>5	Clear	Moderate	2.5	110	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.46161	-70.48018	41.48969	-70.55673	18	22	WNW	<2	B4	0.5-1	Clear	None	3.7	290	Standby	N/A
2022-11-26	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.48969	-70.55673	41.49884	-70.58963	25	22	W	<2	B4	0.5-1	Clear	None	3.9	255	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:02	41.49734	-70.58406	41.47483	-70.51204	22	12	W	<2	B3	0.5-1	Clear	None	2.8	110	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:02	01:59	41.47483	-70.51204	41.45499	-70.43008	20	14	W	<2	B3	0.5-1	Clear	None	4	117	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:59	02:57	41.45499	-70.43008	41.46385	-70.47387	24	23	W	<2	B3	0.5-1	Clear	None	1.1	53	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:57	03:58	41.46385	-70.47387	41.47429	-70.51498	18	24	W	<2	B3	0.5-1	Clear	None	2.1	275	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	03:58	04:59	41.47429	-70.51498	41.48549	-70.54844	21	24	W	<2	B3	0.5-1	Clear	None	1.6	296	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	04:59	06:00	41.48549	-70.54844	41.47694	-70.52262	22	21	W	<2	B3	0.5-1	Clear	None	1.7	289	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.47694	-70.52262	41.45390	-70.44887	21	14	W	<2	B3	0.5-1	Clear	None	4.6	113	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.45390	-70.44887	41.46893	-70.49592	19	21	W	<2	B3	0.5-1	Clear	None	3	115	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:05	41.46893	-70.49592	41.49134	-70.57441	18	21	W	<2	B3	0.5-1	Clear	None	2.7	280	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:05	09:59	41.49134	-70.57441	41.48212	-70.54112	26	22	W	<2	B3	0.5-1	Clear	None	4.4	282	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	11:00	41.48212	-70.54112	41.46005	-70.47587	22	15	W	<2	B3	0.5-1	Clear	None	2.8	115	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:30	41.46005	-70.47587	41.45301	-70.45648	18	7	W	<2	B2	1-2	Clear	None	3.5	112	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	11:59	41.45301	-70.45648	41.46714	-70.49071	13	14	WSW	<2	B2	2-5	Clear	None	4.2	300	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:59	13:00	41.46714	-70.49071	41.48615	-70.55184	17	15	W	<2	B2	>5	Clear	Slight	3.6	300	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.48615	-70.55184	41.45569	-70.45707	21	10	W	<2	B2	>5	Fog	Severe	4.6	120	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.45569	-70.45707	41.46856	-70.51721	16	8	SW	<2	B2	>5	Cloudy	Severe	4.9	116	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:57	41.46856	-70.51721	41.47999	-70.54374	23	11	W	<2	B2	>5	Cloudy	Moderate	2.3	300	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	15:57	17:00	41.47999	-70.54374	41.45911	-70.48646	27	10	W	<2	B2	>5	Cloudy	None	5	115	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:59	41.45911	-70.48646	41.48217	-70.56239	17	20	W	<2	B2	>5	Cloudy	Slight	4	290	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:59	18:58	41.48217	-70.56239	41.50105	-70.63982	22	15	W	<2	B2	>5	Cloudy	Slight	4	294	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:58	19:57	41.50105	-70.63982	41.47651	-70.71429	25	24	SW	<2	B2	>5	Cloudy	None	4.7	249	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:57	21:00	41.47651	-70.71429	41.43699	-70.78133	22	24	SW	<2	B2	>5	Cloudy	None	4.1	242	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.43699	-70.78133	41.43509	-70.78534	22	18	SW	<2	B3	>5	Precipitation	None	3	228	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.43509	-70.78534	41.46009	-70.72599	23	21	SW	<2	B3	>5	Precipitation	None	2.2	61	Standby	N/A
2022-11-27	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.46009	-70.72599	41.47712	-70.69459	22	20	SW	<2	B3	>5	Precipitation	None	1.7	56	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.47751	-70.69389	41.48262	-70.68553	24	21	S	<2	B3	0.5-1	Precipitation	None	2.1	66.2	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:58	41.48262	-70.68553	41.46387	-70.73732	24	25	SW	<2	B4	0.5-1	Precipitation	None	3.8	230	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:58	03:00	41.46387	-70.73732	41.49462	-70.67046	21	31	S	<2	B4	0.5-1	Precipitation	None	1.8	214	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	03:58	41.49462	-70.67046	41.49333	-70.56456	25	33	S	<2	B4	0.5-1	Precipitation	None	4.9	62	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	03:58	04:59	41.49333	-70.56456	41.45622	-70.47085	24	40	SW	<2	B4	0.5-1	Precipitation	None	6.3	120	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	04:59	06:00	41.45622	-70.47085	41.47270	-70.52623	12	34	W	<2	B4	0.5-1	Cloudy	None	2	300	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.47270	-70.52623	41.48996	-70.58126	12	41	W	<2	B4	0.5-1	Clear	None	3.5	287	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.48996	-70.58126	41.46900	-70.51408	23	28	W	<2	B4	0.5-1	Clear	None	2.4	278	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.46900	-70.51408	41.45408	-70.45751	20	25	W	<2	B4	0.5-1	Clear	None	3.4	120	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:59	41.45408	-70.45751	41.47561	-70.53297	11	29	W	<2	B4	0.5-1	Clear	None	3.5	284	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	10:59	41.47561	-70.53297	41.48053	-70.54906	22	27	W	<2	B4	0.5-1	Clear	None	4.1	282	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:59	11:00	41.48053	-70.54906	41.48034	-70.54841	22	27	W	<2	B4	0.5-1	Clear	None	4.1	282	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:30	41.48034	-70.54841	41.46832	-70.51480	22	21	W	<2	B3	1-2	Clear	None	3.2	116	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	11:58	41.46832	-70.51480	41.45805	-70.47879	18	15	W	<2	B3	2-5	Clear	None	3.5	122	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:58	13:02	41.45805	-70.47879	41.46431	-70.50235	17	20	W	<2	B3	>5	Clear	Severe	4.2	95	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:02	14:01	41.46431	-70.50235	41.49059	-70.57546	19	22	NW	<2	B3	>5	Clear	Severe	3.9	292	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:01	15:00	41.49059	-70.57546	41.47665	-70.53747	24	22	NW	<2	B3	>5	Clear	Severe	3.2	292	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.47665	-70.53747	41.46546	-70.50760	20	15	NW	<2	B3	>5	Clear	Moderate	5.2	120	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:02	41.46546	-70.50760	41.48143	-70.54825	19	25	NW	<2	B3	>5	Cloudy	Moderate	2.5	300	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:02	18:00	41.48143	-70.54825	41.49087	-70.56125	25	22	NW	<2	B3	>5	Cloudy	Slight	0.8	275	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:58	41.49087	-70.56125	41.49319	-70.58655	25	16	NW	<2	B2	>5	Clear	Severe	1	295	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:58	19:57	41.49319	-70.58655	41.49030	-70.64171	24	22	NW	<2	B3	>5	Clear	Severe	1.7	280	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:57	21:00	41.49030	-70.64171	41.48956	-70.64023	24	20	NW	<2	B3	>5	Clear	Severe	3.6	258	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.48956	-70.64023	41.46964	-70.70384	21	20	NW	<2	B3	>5	Clear	Moderate	0.8	70	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.46964	-70.70384	41.44536	-70.76545	23	18	NW	<2	B3	>5	Clear	None	4.5	268	Standby	N/A
2022-11-28	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.44536	-70.76545	41.45908	-70.72597	26	8	N	<2	B3	>5	Clear	None	2.5	268	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	00:00	01:00	41.45908	-70.72597	41.45908	-70.72597	26	8	N	<2	B3	>5	Clear	None	2.5	48.5	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:59	41.47728	-70.69599	41.49863	-70.64314	22	21	N	<2	B3	0.5-1	Clear	None	1.5	48.5	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:59	02:59	41.49863	-70.64314	41.47841	-70.69225	28	16	N	<2	B3	0.5-1	Clear	None	1.9	226	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:59	04:00	41.47841	-70.69225	41.46725	-70.72495	23	14	N	<2	B3	0.5-1	Clear	None	1.9	252	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.46725	-70.72495	41.45714	-70.74939	21	15	N	<2	B3	0.5-1	Clear	None	1.1	244.5	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	05:59	41.45714	-70.74939	41.49181	-70.59286	21	11	NNE	<2	B3	0.5-1	Clear	None	1.9	237	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:59	07:00	41.49181	-70.59286	41.42085	-70.42726	25	7	NE	<2	B3	0.5-1	Clear	None	9.7	105	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	07:32	41.42085	-70.42726	41.33895	-70.42295	8	12	N	<2	B3	0.5-1	Clear	None	9.2	179.5	Standby	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:32	08:01	41.33895	-70.42295	41.26541	-70.42217	16	13	NNW	<2	B3	0.5-1	Clear	None	9	192	Transit	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:01	09:00	41.26541	-70.42217	41.11323	-70.38830	11	6	N	<2	B3	0.5-1	Clear	None	9.3	168	Transit	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:59	41.11323	-70.38830	40.95885	-70.36060	37	7	NW	<2	B3	0.5-1	Clear	None	9.7	173.5	Transit	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	10:59	40.95885	-70.36060	40.80105	-70.34463	43	6	NNW	<2	B3	0.5-1	Clear	None	9.5	171	Transit	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	10:59	11:21	40.80105	-70.34463	40.74462	-70.34260	49	3	NW	<2	B3	0.5-1	Clear	None	9.6	178	Transit	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:21	11:59	40.74462	-70.34260	40.75356	-70.34136	48	9	NNE	<2	B2	0.5-1	Cloudy	None	1.7	61	Deploying/Retrieving	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:59	12:23	40.75356	-70.34136	40.76987	-70.34237	49	14	N	<2	B3	>5	Cloudy	None	2.7	1.5	Deploying/Retrieving	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:23	13:03	40.76987	-70.34237	40.74736	-70.33345	48	10	N	<2	B2	>5	Cloudy	None	3.4	1	Soft Start	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:03	14:00	40.74736	-70.33345	40.73582	-70.33289	48	7	NE	<2	B2	>5	Cloudy	Slight	4.6	173	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	14:35	40.73582	-70.33289	40.73657	-70.28238	48	9	NE	<2	B2	>5	Cloudy	None	4.5	90	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:35	15:00	40.73657	-70.28238	40.73703	-70.23850	47	4	NE	<2	B2	>5	Cloudy	None	4.2	89	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:58	40.73703	-70.23850	40.73798	-70.14208	44	5	NE	<2	B2	>5	Cloudy	Slight	5	90	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:58	16:02	40.73798	-70.14208	40.73798	-70.13558	41	3	N	<2	B2	>5	Cloudy	Slight	4.7	93	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:02	17:11	40.73798	-70.13558	40.73904	-70.01709	41	3	N	<2	B2	>5	Cloudy	Slight	4.7	93	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	17:11	17:14	40.73904	-70.01709	40.73907	-70.01177	34	7	N	<2	B2	>5	Cloudy	Slight	4.9	91	Silent	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	17:14	18:00	40.73907	-70.01177	40.73312	-69.99003	32	9	N	<2	B2	>5	Cloudy	Slight	5.2	90	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:18	40.73312	-69.99003	40.73375	-70.01477	32	10	N	<2	B2	>5	Cloudy	None	4.2	91	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:18	18:19	40.73375	-70.01477	40.73368	-70.01561	34	8	N	<2	B2	>5	Cloudy	None	4	91	Silent	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:19	18:59	40.73368	-70.01561	40.73310	-70.07334	34	18	NW	<2	B2	>5	Cloudy	None	3.8	270	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:59	19:58	40.73310	-70.07334	40.73225	-70.16054	37	12	NW	<2	B2	>5	Clear	None	4.3	265	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:58	21:00	40.73225	-70.16054	40.73126	-70.25969	41	10	NW	<2	B2	>5	Clear	None	4.4	280	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:40	40.73126	-70.25969	40.73045	-70.32930	45	10	WNW	<2	B2	>5	Clear	None	4.2	274	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:40	21:41	40.73045	-70.32930	40.73041	-70.33034	47	13	NW	<2	B2	>5	Clear	None	4.4	287	Silent	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:41	21:58	40.73041	-70.33034	40.73585	-70.33343	47	13	NW	<2	B2	>5	Clear	None	4.4	287	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:58	21:59	40.73585	-70.33343	40.73583	-70.33319	47	2	NW	<2	B2	>5	Clear	None	4.4	84	Silent	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:59	22:02	40.73583	-70.33319	40.73567	-70.32726	47	2	NW	<2	B2	>5	Clear	None	4.4	84	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:02	22:58	40.73567	-70.32726	40.73666	-70.24145	47	4	NW	<2	B2	>5	Clear	None	4.1	84	Full Power	N/A
2022-11-29	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	22:58	00:00	40.73666	-70.24145	40.73743	-70.16186	45	2	N	<2	B2	>5	Clear	None	3.5	91	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.73753	-70.15751	40.73824	-70.08046	41	2	NE	<2	B2	0.5-1	Clear	None	4.3	85	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:55	40.73824	-70.08046	40.73884	-70.01881	38	2	NE	<2	B1	0.5-1	Clear	None	2.6	87	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:55	01:56	40.73884	-70.01881	40.73881	-70.01821	32	0	NE	<2	B1	0.5-1	Clear	None	3.3	83.1	Silent	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:56	02:00	40.73881	-70.01821	40.73932	-70.01378	33	0	E	<2	B1	0.5-1	Clear	None	2.6	95.3	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	02:17	40.73932	-70.01378	40.73346	-70.01348	34	0	S	<2	B1	0.5-1	Clear	None	3.6	147	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:17	02:18	40.73346	-70.01348	40.73346	-70.01552	35	6	W	<2	B1	0.5-1	Clear	None	4.8	262	Silent	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:18	02:59	40.73346	-70.01552	40.73268	-70.09077	35	6	W	<2	B1	0.5-1	Clear	None	4.8	262	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:59	04:00	40.73268	-70.09077	40.73167	-70.19056	40	5	NW	<2	B1	0.5-1	Clear	None	4.9	280	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	04:59	40.73167	-70.19056	40.73073	-70.27683	43	2	SW	<2	B1	0.5-1	Clear	None	4.4	256	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	04:59	05:59	40.73073	-70.27683	40.73543	-70.31839	47	1	E	<2	B1	0.5-1	Clear	None	4	257	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:59	07:00	40.73543	-70.31839	40.73655	-70.21699	48	10	E	<2	B1	0.5-1	Clear	None	4.5	98	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:01	40.73655	-70.21699	40.73769	-70.10628	44	15	E	<2	B2	0.5-1	Clear	None	4.9	95	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:01	08:49	40.73769	-70.10628	40.73844	-70.01973	39	16	E	<2	B2	0.5-1	Clear	None	5.1	94	Full Power	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:49	09:00	40.73844	-70.01973	40.73811	-70.00454	33	19	E	<2	B3	0.5-1	Clear	None	4.8	91	Silent	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:45	40.73811	-70.00454	40.73353	-69.96548	34	19	E	<2	B3	0.5-1	Clear	None	3	96	Deploying/Retrieving	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:45	09:59	40.73353	-69.96548	40.75511	-69.98781	33	15	NNE	<2	B3	0.5-1	Clear	None	5.8	319	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	11:00	40.75511	-69.98781	40.87264	-70.10072	38	13	E	<2	B3	0.5-1	Cloudy	None	9	322	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:30	40.87264	-70.10072	40.93514	-70.15517	26	9	E	<2	B3	1-2	Cloudy	None	8.6	329	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	11:58	40.93514	-70.15517	40.99370	-70.20704	26	10	ESE	<2	B3	2-5	Cloudy	None	9.2	332	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:58	13:00	40.99370	-70.20704	41.13123	-70.32495	27	10	ESE	<2	B3	>5	Cloudy	None	9.3	332	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.13123	-70.32495	41.26973	-70.42413	34	8	SE	<2	B3	>5	Cloudy	None	9.7	331	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.26973	-70.42413	41.41758	-70.42725	10	11	SE	<2	B3	>5	Cloudy	None	8.8	354	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.41758	-70.42725	41.47631	-70.49450	15	17	SW	<2	B3	>5	Cloudy	None	5	291	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.47631	-70.49450	41.49281	-70.55704	18	18	SE	<2	B3	>5	Cloudy	None	3.7	291	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.49281	-70.55704	41.50111	-70.58417	25	20	S	<2	B3	>5	Cloudy	None	2.5	280	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.50111	-70.58417	41.49729	-70.57296	16	34	SSE	<2	B5	>5	Cloudy	None	4.2	138	Transit	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.49729	-70.57296	41.50381	-70.61641	25	25	S	<2	B5	>5	Cloudy	None	2.9	285	Standby	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.50381	-70.61641	41.50479	-70.65477	23	29	SSE	2-4	B5	>5	Cloudy	None	2.4	285	Standby	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:45	41.50479	-70.65477	41.49503	-70.67799	25	25	E	2-4	B5	>5	Precipitation	None	1.3	275	Standby	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	21:45	22:00	41.49503	-70.67799	41.48482	-70.68925	22	26	S	2-4	B5	0.5-1	Precipitation	None	2.8	206	Standby	N/A
2022-11-30	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.48482	-70.68925	41.46142	-70.74179	20	30	SSW	2-4	B5	0.5-1	Precipitation	None	1.9	230	Standby	N/A
2022-11-30	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.46142	-70.74179	41.45514	-70.75668	31	36	SW	2-4	B5	0.5-1	Precipitation	None	3.6	240	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.45621	-70.75420	41.47653	-70.70783	26	41	S	2-4	B6	0.3-0.5	Precipitation	None	2.7	66	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.47653	-70.70783	41.49087	-70.66336	20	35	SSW	2-4	B6	0.3-0.5	Precipitation	None	2.6	78	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.49087	-70.66336	41.47478	-70.69790	24	15	WSW	2-4	B5	0.3-0.5	Cloudy	None	2.8	66	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.47478	-70.69790	41.45147	-70.75704	25	18	W	2-4	B5	0.3-0.5	Cloudy	None	5	250	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:01	41.45147	-70.75704	41.47961	-70.68179	24	17	NW	2-4	B5	0.5-1	Cloudy	None	3.5	254	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:01	06:02	41.47961	-70.68179	41.49279	-70.59500	22	21	NW	2-4	B5	0.5-1	Cloudy	None	5	52	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:02	07:00	41.49279	-70.59500	41.45776	-70.48281	25	20	NW	2-4	B5	0.5-1	Cloudy	None	6.8	110	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	07:59	41.45776	-70.48281	41.47305	-70.53127	17	21	NW	2-4	B5	0.5-1	Cloudy	None	1.6	252	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	07:59	09:00	41.47305	-70.53127	41.47264	-70.52864	23	30	NW	2-4	B5	0.5-1	Clear	None	2.4	294	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.47264	-70.52864	41.46076	-70.49443	21	17	S	<2	B4	0.5-1	Clear	None	5.6	112	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.46076	-70.49443	41.47983	-70.55095	17	29	NW	<2	B4	0.5-1	Clear	None	3.1	302	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:29	41.47983	-70.55095	41.46734	-70.51227	24	26	NW	<2	B4	1-2	Clear	None	3.8	113	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:29	12:00	41.46734	-70.51227	41.45558	-70.48092	20	30	NW	<2	B4	>5	Clear	None	4.3	113	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	13:00	41.45558	-70.48092	41.48153	-70.56662	13	30	NW	<2	B5	>5	Clear	Slight	3.7	300	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.48153	-70.56662	41.46574	-70.51098	22	36	NW	2-4	B5	>5	Clear	Severe	4.8	262	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.46574	-70.51098	41.46802	-70.51254	17	30	NW	2-4	B5	>5	Clear	Severe	3.5	114	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.46802	-70.51254	41.47692	-70.55958	20	28	SSE	<2	B5	>5	Clear	Severe	3	299	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.47692	-70.55958	41.45247	-70.46961	19	22	NW	<2	B5	>5	Clear	Severe	4.5	100	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.45247	-70.46961	41.47032	-70.51403	8	26	WNW	<2	B5	>5	Clear	Severe	4.8	116	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.47032	-70.51403	41.48441	-70.55106	19	33	SSE	<2	B4	>5	Clear	Slight	2.4	292	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.48441	-70.55106	41.49162	-70.57276	25	30	N	<2	B5	>5	Clear	Severe	1.4	295	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.49162	-70.57276	41.49863	-70.58815	27	31	NW	<2	B5	>5	Clear	Severe	1.3	319	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.49863	-70.58815	41.48501	-70.53973	22	31	NW	<2	B4	>5	Clear	Moderate	1.2	289	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.48501	-70.53973	41.45413	-70.43574	20	20	NW	<2	B3	0.5-1	Clear	None	5	110	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	41.45413	-70.43574	41.46412	-70.47605	23	26	NW	<2	B3	0.5-1	Clear	None	4.7	110	Standby	N/A
2022-12-01	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.46412	-70.47605	41.46548	-70.47977	23	26	NW	<2	B3	0.5-1	Clear	None	4.7	110	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.46657	-70.48304	41.48963	-70.56063	15	30	NW	<2	B4	0.5-1	Clear	None	3.6	298	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.48963	-70.56063	41.49818	-70.61915	23	34	N	<2	B4	0.5-1	Clear	None	4.9	290	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.49818	-70.61915	41.49105	-70.56182	23	25	NW	<2	B4	0.5-1	Clear	None	2.5	90	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.49105	-70.56182	41.47122	-70.49277	25	23	NW	<2	B4	0.5-1	Clear	None	3.1	112	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.47122	-70.49277	41.42878	-70.42573	19	12	NW	<2	B4	0.5-1	Clear	None	3.3	109	Standby	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.42878	-70.42573	41.31461	-70.42772	8	15	NW	<2	B4	0.5-1	Clear	None	7.8	191	Transit	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.31461	-70.42772	41.19147	-70.35940	14	14	WNW	<2	B4	0.5-1	Clear	None	7	192	Transit	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.19147	-70.35940	41.05937	-70.24741	32	6	NW	<2	B4	0.5-1	Clear	None	9.5	152	Transit	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.05937	-70.24741	40.92887	-70.13249	31	6	NW	<2	B4	0.5-1	Clear	None	9.5	152	Transit	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:42	40.92887	-70.13249	40.83493	-70.05396	25	5	NW	<2	B3	0.5-1	Clear	None	9.5	154	Transit	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:42	10:00	40.83493	-70.05396	40.83830	-70.05905	25	15	NW	<2	B3	0.5-1	Clear	None	2.3	298	Deploying/Retrieving	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	10:52	40.83830	-70.05905	40.84414	-70.08873	25	12	NNW	<2	B3	0.5-1	Clear	None	1.8	234	Deploying/Retrieving	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:52	11:00	40.84414	-70.08873	40.84181	-70.09875	25	16	NNW	<2	B3	0.5-1	Clear	None	4.1	280	Soft Start	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:13	40.84181	-70.09875	40.82877	-70.11248	27	5	NW	2-4	B3	0.5-1	Clear	None	3.3	236	Soft Start	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:13	11:25	40.82877	-70.11248	40.81645	-70.12596	27	5	NW	2-4	B3	0.5-1	Clear	None	3.3	236	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:25	12:00	40.81645	-70.12596	40.78146	-70.16277	33	10	NW	2-4	B3	2-5	Clear	None	4.2	230	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:31	40.78146	-70.16277	40.74806	-70.19800	38	7	W	2-4	B3	>5	Clear	None	4.7	231	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:31	12:32	40.74806	-70.19800	40.74740	-70.19863	42	8	W	2-4	B3	>5	Clear	None	5	279	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:32	12:59	40.74740	-70.19863	40.74424	-70.24260	43	9	W	2-4	B3	>5	Clear	None	4.9	278	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	12:59	13:39	40.74424	-70.24260	40.74357	-70.30841	44	13	W	2-4	B3	>5	Clear	None	5.2	278	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:39	13:40	40.74357	-70.30841	40.74353	-70.31009	48	7	W	2-4	B3	>5	Clear	None	4.9	266	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:40	14:05	40.74353	-70.31009	40.73427	-70.33374	48	6	W	2-4	B3	>5	Clear	None	5.1	266	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:05	14:06	40.73427	-70.33374	40.73478	-70.33278	48	8	N	<2	B3	>5	Clear	None	4.8	353	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:06	15:00	40.73478	-70.33278	40.73605	-70.25023	48	8	N	<2	B3	>5	Clear	None	4.8	353	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	40.73605	-70.25023	40.73691	-70.16167	42	0	SE	<2	B2	>5	Clear	None	3.8	92	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	40.73691	-70.16167	40.73783	-70.07645	42	4	SE	<2	B2	>5	Clear	Severe	4.6	83	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:46	40.73783	-70.07645	40.73833	-70.01885	38	1	S	<2	B2	>5	Cloudy	Severe	3.4	92	Full Power	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:46	18:00	40.73833	-70.01885	40.73204	-70.02100	38	13	SW	<2	B2	>5	Cloudy	Severe	3.9	172	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	40.73204	-70.02100	40.73843	-70.12761	40	10	SW	<2	B2	>5	Cloudy	Severe	4.1	210	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	40.73843	-70.12761	40.73756	-70.22037	40	10	SW	<2	B2	>5	Cloudy	Severe	4.9	254	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	40.73756	-70.22037	40.73658	-70.31061	40	8	SW	<2	B2	0.5-1	Clear	None	5.1	68	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	40.73658	-70.31061	40.74830	-70.26324	47	16	SW	<2	B2	>5	Clear	Moderate	4.1	260	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	40.74830	-70.26324	40.75094	-70.15438	46	10	SW	<2	B2	0.5-1	Clear	None	5	90	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	40.75094	-70.15438	40.75175	-70.18060	46	10	SW	<2	B2	0.5-1	Clear	None	5	90	Silent	N/A
2022-12-02	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	40.75175	-70.18060	40.75387	-70.18109	46	11	SW	<2	B2	0.5-1	Clear	None	4	341	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.75695	-70.17904	40.74994	-70.09169	41	10	SSW	<2	B2	0.5-1	Clear	None	4.6	81	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:59	40.74994	-70.09169	40.74855	-70.19043	38	16	SE	<2	B3	0.5-1	Clear	None	3.8	268	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:59	02:20	40.74855	-70.19043	40.74823	-70.23016	42	20	SW	<2	B3	0.5-1	Clear	None	4.5	268	Soft Start	N/A
2022-12-03	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:20	02:55	40.74823	-70.23016	40.75203	-70.25109	43	18	SW	<2	B3	0.5-1	Clear	None	4.9	268	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:55	02:56	40.75203	-70.25109	40.75191	-70.24915	44	19	E	<2	B3	0.5-1	Clear	None	4	96	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:56	04:00	40.75191	-70.24915	40.75267	-70.16012	44	19	E	<2	B3	0.5-1	Clear	None	4	96	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	04:58	40.75267	-70.16012	40.75321	-70.08247	41	18	SSW	<2	B3	0.5-1	Clear	None	3.4	97	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:58	04:59	40.75321	-70.08247	40.75348	-70.08246	38	16	SW	<2	B3	0.5-1	Clear	None	3.6	103	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:59	05:00	40.75348	-70.08246	40.75339	-70.08141	38	12	SW	<2	B3	0.5-1	Clear	None	3.6	103	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	40.75339	-70.08141	40.74579	-70.01280	38	10	SW	<2	B3	0.5-1	Clear	None	3.2	88	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	06:01	40.74579	-70.01280	40.74549	-70.01409	36	17	SW	<2	B3	0.5-1	Clear	None	5	259	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:01	06:34	40.74549	-70.01409	40.74485	-70.07323	36	17	SW	<2	B3	0.5-1	Clear	None	5	259	Full Power	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:34	06:39	40.74485	-70.07323	40.74339	-70.08051	37	20	SW	<2	B3	0.5-1	Clear	None	4.8	252	Silent	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:39	07:00	40.74339	-70.08051	40.73796	-70.09221	37	22	SW	<2	B4	0.5-1	Clear	None	2.7	215	Deploying/Retrieving	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	07:23	40.73796	-70.09221	40.74741	-70.09607	39	22	NNE	<2	B4	0.5-1	Clear	None	2.8	260	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:23	08:00	40.74741	-70.09607	40.82978	-70.16547	39	16	W	<2	B4	0.5-1	Clear	None	9.5	322	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.82978	-70.16547	40.95332	-70.28656	37	14	W	<2	B3	0.5-1	Clear	None	9.2	321	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.95332	-70.28656	41.06884	-70.40885	39	12	SW	<2	B3	0.5-1	Clear	None	9.5	317	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.06884	-70.40885	41.21829	-70.42061	39	14	SW	<2	B3	0.5-1	Clear	None	9.3	316	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:26	41.21829	-70.42061	41.28456	-70.42641	34	10	SW	<2	B3	1-2	Cloudy	None	9.5	1	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:26	11:59	41.28456	-70.42641	41.36714	-70.42140	11	9	SSW	<2	B3	1-2	Cloudy	None	9.3	343	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:59	12:58	41.36714	-70.42140	41.47418	-70.50266	16	14	SSW	<2	B3	>5	Cloudy	None	9.4	345	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	12:58	14:06	41.47418	-70.50266	41.46428	-70.72527	19	24	SW	<2	B4	>5	Cloudy	None	8.7	288	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:06	15:00	41.46428	-70.72527	41.47201	-70.84367	21	42	SW	2-4	B5	>5	Cloudy	None	9.8	238	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.47201	-70.84367	41.56928	-70.87198	11	29	S	<2	B4	>5	Precipitation	None	5.6	9	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.56928	-70.87198	41.62375	-70.91427	11	23	SSW	<2	B4	>5	Cloudy	None	8	331	Transit	N/A
2022-12-03	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:10	41.62375	-70.91427	41.62367	-70.91425	8	25	SSW	<2	B4	>5	Cloudy	None	5	167	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	14:44	15:04	41.62345	-70.91421	41.62967	-70.91013	9	8	N	<2	B1	>5	Clear	Severe	4	353	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:04	16:00	41.62967	-70.91013	41.56010	-70.86323	9	13	N	<2	B1	>5	Clear	Severe	4	146	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.56010	-70.86323	41.48870	-70.83746	10	9	N	<2	B1	>5	Clear	Severe	4.7	150	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.48870	-70.83746	41.43084	-70.83808	15	15	N	<2	B2	>5	Clear	Severe	4	185	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.43084	-70.83808	41.36458	-70.87108	14	2	N	<2	B1	>5	Clear	Severe	4.5	168	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.36458	-70.87108	41.26959	-70.77460	24	6	N	<2	B2	>5	Clear	Severe	4.9	180	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.26959	-70.77460	41.17468	-70.63332	9	9	S	<2	B2	>5	Clear	Slight	7.6	135	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:50	41.17468	-70.63332	41.09452	-70.51257	33	3	SE	<2	B2	>5	Cloudy	Slight	8.6	132	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	21:50	22:00	41.09452	-70.51257	41.07701	-70.48827	41	1	SE	<2	B1	0.5-1	Clear	None	8.5	139	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	23:00	41.07701	-70.48827	40.97315	-70.35678	41	1	SE	<2	B1	0.5-1	Clear	None	8.5	139	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	40.97315	-70.35678	40.88295	-70.23928	42	4	S	<2	B1	0.5-1	Clear	None	8.4	138	Transit	N/A
2022-12-04	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	40.88295	-70.23928	40.87592	-70.22997	42	4	S	<2	B1	0.5-1	Clear	None	9	139	Transit	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.86786	-70.21948	40.78774	-70.12814	39	5	E	<2	B2	0.5-1	Clear	None	8.6	139	Transit	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:24	40.78774	-70.12814	40.76924	-70.11709	39	5	E	<2	B2	0.5-1	Clear	None	8.6	139	Transit	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:24	02:00	40.76924	-70.11709	40.73871	-70.10189	37	5	E	<2	B1	0.5-1	Cloudy	None	0	140	Deploying/Retrieving	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	02:30	40.73871	-70.10189	40.73795	-70.14366	40	4	ENE	<2	B2	0.5-1	Clear	None	3.2	203	Standby	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:30	02:51	40.73795	-70.14366	40.73764	-70.17529	41	2	N	<2	B2	0.5-1	Clear	None	4.2	269	Soft Start	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:51	02:58	40.73764	-70.17529	40.73754	-70.18666	42	2	N	<2	B2	0.5-1	Clear	None	4.2	262	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:58	03:59	40.73754	-70.18666	40.73630	-70.28477	43	1	N	<2	B2	0.5-1	Clear	None	3.9	262	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	03:59	04:46	40.73630	-70.28477	40.74248	-70.31723	47	5	W	<2	B2	0.5-1	Clear	None	4.6	274	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:46	04:47	40.74248	-70.31723	40.74234	-70.31552	48	5	NW	<2	B2	0.5-1	Clear	None	4.1	85	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:47	05:00	40.74234	-70.31552	40.74254	-70.29657	48	6	NW	<2	B2	0.5-1	Clear	None	4.1	85	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	40.74254	-70.29657	40.74356	-70.20708	48	6	E	<2	B2	0.5-1	Clear	None	4.2	86	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	06:59	40.74356	-70.20708	40.74436	-70.12215	43	6	E	<2	B2	0.5-1	Clear	None	4.3	87	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	06:59	08:00	40.74436	-70.12215	40.75076	-70.03714	43	4	E	<2	B2	0.5-1	Clear	None	4	82	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.75076	-70.03714	40.74203	-70.02103	39	5	E	<2	B2	0.5-1	Clear	None	3.7	89	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.74203	-70.02103	40.73336	-70.08907	34	9	E	<2	B1	0.5-1	Clear	None	4.6	95	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	10:05	40.73336	-70.08907	40.73291	-70.09821	40	2	SE	<2	B1	0.5-1	Clear	None	4.3	257	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:05	10:06	40.73291	-70.09821	40.73292	-70.09864	40	2	SW	<2	B1	0.5-1	Clear	None	4.6	262	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:06	11:00	40.73292	-70.09864	40.73207	-70.18421	40	2	SW	<2	B1	0.5-1	Clear	None	4.6	262	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:30	40.73207	-70.18421	40.73161	-70.23197	43	6	SW	<2	B1	1-2	Clear	None	4.3	265	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	12:00	40.73161	-70.23197	40.73113	-70.27746	45	4	SSW	<2	B1	2-5	Clear	None	4.1	265	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:33	40.73113	-70.27746	40.73058	-70.32861	46	2	S	<2	B1	>5	Clear	Slight	4.2	267	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:33	12:34	40.73058	-70.32861	40.73055	-70.33076	47	3	ESE	<2	B2	>5	Clear	Severe	4.1	266	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:34	13:00	40.73055	-70.33076	40.73897	-70.30122	47	3	ESE	<2	B2	>5	Clear	Severe	4.2	270	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	40.73897	-70.30122	40.74343	-70.19521	48	13	SE	<2	B2	>5	Clear	Severe	4.6	89	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	14:15	40.74343	-70.19521	40.74462	-70.17107	43	11	SE	<2	B2	>5	Clear	Severe	4.8	84	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:15	14:16	40.74462	-70.17107	40.74462	-70.16939	41	13	SE	<2	B2	>5	Clear	Severe	5.2	86	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:16	14:49	40.74462	-70.16939	40.74551	-70.11384	41	13	SE	<2	B2	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:49	14:50	40.74551	-70.11384	40.74548	-70.11219	39	11	SE	<2	B2	>5	Clear	Severe	4.9	105	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:50	15:00	40.74548	-70.11219	40.74007	-70.09504	39	11	SE	<2	B2	>5	Clear	Severe	4.9	105	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:55	40.74007	-70.09504	40.72359	-70.01206	37	11	NW	<2	B2	>5	Clear	Severe	4.4	83	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:55	15:56	40.72359	-70.01206	40.72249	-70.01400	40	8	SSW	<2	B2	>5	Clear	Severe	4.4	278	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:56	16:00	40.72249	-70.01400	40.72219	-70.01926	40	8	SSW	<2	B2	>5	Clear	Severe	4.5	278	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	16:57	40.72219	-70.01926	40.72135	-70.11129	40	8	SSW	<2	B2	>5	Clear	Severe	4.5	278	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:57	17:01	40.72135	-70.11129	40.72255	-70.11656	41	5	S	<2	B2	>5	Clear	Severe	4.4	291	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:01	18:00	40.72255	-70.11656	40.74171	-70.05909	41	5	S	<2	B2	>5	Clear	Severe	4.4	291	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	40.74171	-70.05909	40.73356	-70.06771	41	5	S	<2	B2	>5	Clear	Severe	4.4	291	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	40.73356	-70.06771	40.74816	-70.02735	37	9	SW	<2	B2	>5	Clear	Severe	4.5	253	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:02	40.74816	-70.02735	40.74190	-70.03493	38	12	SE	<2	B2	>5	Clear	Severe	3.6	64	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:02	21:29	40.74190	-70.03493	40.72363	-70.01190	35	12	SSE	<2	B2	>5	Clear	Severe	3.6	129	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:29	21:30	40.72363	-70.01190	40.72273	-70.01363	41	8	SSE	<2	B2	>5	Clear	Moderate	4.4	256	Silent	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:30	21:59	40.72273	-70.01363	40.72169	-70.06121	41	8	SSE	<2	B2	>5	Clear	Moderate	4.4	256	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	21:59	23:00	40.72169	-70.06121	40.72075	-70.15088	41	8	SSE	<2	B2	0.5-1	Clear	None	4.4	256	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	40.72075	-70.15088	40.71995	-70.23121	43	8	SE	<2	B2	0.5-1	Clear	None	3.8	269	Full Power	N/A
2022-12-05	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	40.71995	-70.23121	40.71994	-70.23131	43	8	SE	<2	B2	0.5-1	Clear	None	3.8	269	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.71989	-70.23502	40.71895	-70.31499	48	7	SE	<2	B2	0.5-1	Clear	None	3.6	258	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	40.71895	-70.31499	40.72501	-70.31233	48	10	SE	<2	B3	0.5-1	Clear	None	3.6	260	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	40.72501	-70.31233	40.72607	-70.22324	48	20	SE	<2	B3	0.5-1	Clear	None	4.3	90	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	40.72607	-70.22324	40.72673	-70.14383	45	20	SE	<2	B3	0.5-1	Clear	None	4	93	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	04:56	40.72673	-70.14383	40.72759	-70.06507	43	17	SE	<2	B3	0.5-1	Clear	None	4	100	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	04:56	05:33	40.72759	-70.06507	40.72801	-70.01889	41	15	SE	<2	B3	0.5-1	Clear	None	3.5	86	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:33	05:34	40.72801	-70.01889	40.72804	-70.01718	39	13	SE	<2	B3	0.5-1	Clear	None	3.5	85	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:34	05:48	40.72804	-70.01718	40.72242	-70.01292	39	12	SE	<2	B3	0.5-1	Clear	None	3.5	85	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:48	05:49	40.72242	-70.01292	40.72245	-70.01335	39	10	SE	<2	B3	0.5-1	Clear	None	5.1	278	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:49	06:00	40.72245	-70.01335	40.72229	-70.03327	39	10	SE	<2	B3	0.5-1	Clear	None	5.1	280	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	40.72229	-70.03327	40.72128	-70.13456	41	10	SE	<2	B3	0.5-1	Clear	None	4.8	273	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	40.72128	-70.13456	40.72022	-70.23844	41	10	SE	<2	B3	0.5-1	Clear	None	4.7	270	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.72022	-70.23844	40.71911	-70.33865	45	9	SE	<2	B3	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:02	40.71911	-70.33865	40.71905	-70.34201	48	9	SE	<2	B3	0.5-1	Clear	None	5	261	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:02	09:03	40.71905	-70.34201	40.71901	-70.34367	48	9	SE	<2	B3	0.5-1	Clear	None	5	261	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:03	09:18	40.71901	-70.34367	40.72468	-70.34725	48	9	SE	<2	B3	0.5-1	Clear	None	5	261	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:18	09:19	40.72468	-70.34725	40.72476	-70.34570	49	19	SE	<2	B3	0.5-1	Clear	None	4.9	87	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:19	10:00	40.72476	-70.34570	40.72568	-70.28066	49	19	SE	<2	B3	0.5-1	Clear	None	4.9	87	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	40.72568	-70.28066	40.72668	-70.18255	47	21	SE	<2	B3	0.5-1	Clear	None	4.1	97	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:30	40.72668	-70.18255	40.72715	-70.13205	44	18	SE	<2	B3	1-2	Clear	None	4.5	99	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:30	12:00	40.72715	-70.13205	40.72765	-70.08166	41	19	SE	<2	B3	2-5	Clear	None	4.6	96	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:37	40.72765	-70.08166	40.72823	-70.01868	40	22	ESE	<2	B3	>5	Clear	Slight	4.6	97	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:37	12:38	40.72823	-70.01868	40.72824	-70.01690	37	21	SE	<2	B4	>5	Clear	Severe	4.6	97	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:38	12:51	40.72824	-70.01690	40.72260	-70.01282	37	20	SE	<2	B4	>5	Clear	Severe	4.7	97	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:51	12:52	40.72260	-70.01282	40.72258	-70.01373	41	16	SE	<2	B4	>5	Clear	Severe	4.4	267	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:52	12:58	40.72258	-70.01373	40.72261	-70.02280	41	16	SE	<2	B4	>5	Clear	Severe	4.6	272	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	12:58	14:00	40.72261	-70.02280	40.72198	-70.11213	41	12	SE	<2	B4	>5	Clear	Severe	3.9	265	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	40.72198	-70.11213	40.72087	-70.20541	41	13	SE	<2	B4	>5	Fog	Severe	4.4	270	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:01	40.72087	-70.20541	40.71974	-70.30525	44	15	SE	<2	B3	>5	Fog	Moderate	4.6	270	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:01	16:23	40.71974	-70.30525	40.71934	-70.34281	48	14	SE	<2	B3	>5	Cloudy	Moderate	4.6	271	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:23	16:24	40.71934	-70.34281	40.71929	-70.34453	49	17	SE	<2	B3	>5	Cloudy	Moderate	4.8	273	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:24	16:40	40.71929	-70.34453	40.72525	-70.34467	49	17	SE	<2	B3	>5	Cloudy	Slight	4.6	275	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:40	16:41	40.72525	-70.34467	40.72525	-70.34382	48	25	SE	<2	B3	>5	Cloudy	Slight	4.6	82	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:41	17:00	40.72525	-70.34382	40.72556	-70.31548	48	24	SE	<2	B3	>5	Cloudy	Slight	4.1	81	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	40.72556	-70.31548	40.72650	-70.23089	47	24	NW	<2	B4	>5	Cloudy	Slight	3.8	98	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:58	40.72650	-70.23089	40.72725	-70.15343	45	22	SE	<2	B4	>5	Cloudy	Slight	3	94	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:58	20:03	40.72725	-70.15343	40.72807	-70.07056	43	24	SE	<2	B4	>5	Cloudy	Moderate	4	80	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:03	20:45	40.72807	-70.07056	40.72857	-70.01782	40	25	SE	<2	B4	>5	Cloudy	Moderate	3.7	72	Full Power	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:45	20:47	40.72857	-70.01782	40.72838	-70.01624	39	21	SE	<2	B4	>5	Cloudy	Slight	4.2	82	Silent	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:47	21:00	40.72838	-70.01624	40.72567	-70.03150	39	21	SE	<2	B4	>5	Cloudy	Slight	3.1	127	Deploying/Retrieving	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:18	40.72567	-70.03150	40.73261	-70.05958	40	13	SSE	<2	B3	>5	Cloudy	Slight	4.1	285	Deploying/Retrieving	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:18	22:00	40.73261	-70.05958	40.74942	-70.09244	41	15	SE	<2	B3	>5	Clear	Slight	3.6	99	Transit	N/A
2022-12-06	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	22:59	40.74942	-70.09244	40.74779	-70.06983	41	15	SE	<2	B3	0.5-1	Clear	None	3.6	99	Transit	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	22:59	23:59	40.74779	-70.06983	40.73757	-70.03469	39	21	SE	<2	B4	0.5-1	Clear	None	3.6	130	Transit	N/A
2022-12-06	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	40.73757	-70.03469	40.73755	-70.03494	39	21	SE	<2	B4	0.5-1	Clear	None	3.6	130	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.73752	-70.04036	40.73668	-70.12946	34	18	SE	<2	B3	0.5-1	Clear	None	4	257	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	40.73668	-70.12946	40.73642	-70.21590	41	20	SE	<2	B3	0.5-1	Clear	None	3.9	258	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	40.73642	-70.21590	40.73544	-70.29952	43	19	SE	<2	B4	0.5-1	Clear	None	4.1	262	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	40.73544	-70.29952	40.73766	-70.31510	47	21	SE	<2	B4	0.5-1	Cloudy	None	4.1	299	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	40.73766	-70.31510	40.73259	-70.26259	47	24	SE	<2	B4	0.5-1	Cloudy	None	4.3	95	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	40.73259	-70.26259	40.73498	-70.31494	45	20	SE	2-4	B4	0.5-1	Cloudy	None	4.8	265	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:01	40.73498	-70.31494	40.73940	-70.23429	48	20	SE	2-4	B4	0.5-1	Cloudy	None	4.1	96	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:01	08:00	40.73940	-70.23429	40.73223	-70.29927	44	20	SE	2-4	B4	0.5-1	Cloudy	None	4.5	90	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	40.73223	-70.29927	40.72951	-70.31250	47	18	SE	2-4	B4	0.5-1	Cloudy	None	4.4	265	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	40.72951	-70.31250	40.73508	-70.24435	48	17	SE	2-4	B4	0.5-1	Precipitation	None	5.3	280	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	40.73508	-70.24435	40.72907	-70.19855	45	20	SE	2-4	B4	0.5-1	Precipitation	None	5	100	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:35	40.72907	-70.19855	40.73595	-70.16627	44	16	SE	2-4	B4	0.5-1	Precipitation	None	4.6	259	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:35	11:57	40.73595	-70.16627	40.73629	-70.12952	42	19	SE	2-4	B4	1-2	Precipitation	None	4.6	97	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:57	13:00	40.73629	-70.12952	40.72973	-70.06720	41	19	SE	2-4	B4	1-2	Precipitation	None	4.3	100	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:12	40.72973	-70.06720	40.72857	-70.14630	39	10	SE	2-4	B4	2-5	Cloudy	None	3.9	257	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:12	15:00	40.72857	-70.14630	40.73288	-70.06410	43	18	SE	2-4	B4	>5	Precipitation	None	4.5	280	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	40.73288	-70.06410	40.72799	-70.04763	32	20	SSE	<2	B3	>5	Cloudy	None	4.1	84	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	18:11	40.72799	-70.04763	40.72594	-70.26460	39	12	SE	<2	B3	>5	Cloudy	None	3.8	264	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:11	19:00	40.72594	-70.26460	40.72714	-70.32740	47	13	S	<2	B3	>5	Cloudy	None	4.7	271	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	40.72714	-70.32740	40.75892	-70.45620	48	17	S	<2	B3	>5	Cloudy	None	2.9	33	Standby	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	40.75892	-70.45620	40.79878	-70.60497	52	15	SSW	<2	B3	>5	Cloudy	None	7	289	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:44	40.79878	-70.60497	40.83086	-70.71643	54	23	SW	<2	B4	2-5	Precipitation	None	7.2	286	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	21:44	22:00	40.83086	-70.71643	40.84211	-70.75632	55	15	SW	<2	B3	0.5-1	Precipitation	None	7.2	287	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	22:58	40.84211	-70.75632	40.88448	-70.89586	53	17	SW	<2	B3	0.5-1	Precipitation	None	7.2	287	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	22:58	23:59	40.88448	-70.89586	40.92830	-71.02853	55	19	SW	<2	B3	0.5-1	Precipitation	None	7	308	Transit	N/A
2022-12-07	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	40.92830	-71.02853	40.92892	-71.03033	55	22	SW	<2	B3	0.5-1	Precipitation	None	7	280	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.93113	-71.03690	40.96886	-71.17624	50	26	WSW	<2	B4	0.3-0.5	Fog	None	6.8	286	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	40.96886	-71.17624	40.99896	-71.31226	51	24	WSW	<2	B4	0.5-1	Fog	None	6.7	287	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	40.99896	-71.31226	41.02707	-71.45115	47	24	W	<2	B4	0.5-1	Fog	None	6.5	282	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.02707	-71.45115	41.05714	-71.58399	45	26	W	<2	B4	0.5-1	Fog	None	6.5	283	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.05714	-71.58399	41.10043	-71.72075	41	25	W	<2	B4	0.5-1	Precipitation	None	6.9	300	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.10043	-71.72075	41.12863	-71.81251	27	28	WNW	<2	B4	0.5-1	Cloudy	None	5.9	290	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.12863	-71.81251	41.14201	-71.88989	18	22	WNW	<2	B3	0.5-1	Cloudy	None	3.4	291	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.14201	-71.88989	41.14419	-71.98307	32	18	NW	<2	B3	0.5-1	Clear	None	4.1	270	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.14419	-71.98307	41.14587	-71.95260	27	16	NW	<2	B3	0.5-1	Clear	None	4.3	279	Transit	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.14587	-71.95260	41.14799	-71.89758	36	19	NW	<2	B3	0.5-1	Clear	None	5.4	83	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.14799	-71.89758	41.14251	-71.96765	33	24	NW	<2	B3	0.5-1	Clear	None	4.2	275	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:31	41.14251	-71.96765	41.14808	-71.93721	29	19	NW	<2	B3	1-2	Clear	None	1.5	81	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:31	12:00	41.14808	-71.93721	41.15519	-71.90264	33	15	N	<2	B3	2-5	Clear	Slight	3.5	57	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	13:00	41.15519	-71.90264	41.14143	-71.84581	31	14	NW	<2	B3	>5	Clear	Severe	3.6	79	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.14143	-71.84581	41.12946	-71.80355	21	26	N	<2	B4	>5	Clear	Severe	3.1	31	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.12946	-71.80355	41.15534	-71.93973	19	27	NW	<2	B4	>5	Clear	Severe	6.3	285	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.15534	-71.93973	41.16067	-71.98462	23	30	NNW	<2	B4	>5	Clear	Severe	5.9	303	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.16067	-71.98462	41.18678	-71.99200	24	24	N	<2	B4	>5	Clear	Severe	2.4	313	Deploying/Retrieving	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:02	41.18678	-71.99200	41.18345	-71.98934	27	22	N	<2	B4	>5	Clear	Severe	4.8	300	Standby	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:02	17:23	41.18345	-71.98934	41.15860	-71.98236	27	20	N	<2	B4	>5	Clear	Severe	4.8	300	Soft Start	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:23	18:11	41.15860	-71.98236	41.15585	-71.93084	27	24	N	<2	B4	>5	Clear	Severe	4.8	53	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:11	18:13	41.15585	-71.93084	41.15613	-71.92639	27	22	N	<2	B4	>5	Clear	Severe	4.8	23	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:13	18:49	41.15613	-71.92639	41.15647	-71.92565	27	24	N	<2	B4	>5	Clear	Severe	4.8	23	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:49	18:50	41.15647	-71.92565	41.15639	-71.92708	33	27	NNW	<2	B4	>5	Cloudy	Severe	3.6	274	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:50	19:00	41.15639	-71.92708	41.15554	-71.93857	33	26	NNW	<2	B4	>5	Cloudy	Severe	3.6	274	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	19:40	41.15554	-71.93857	41.16074	-71.98050	30	24	NW	<2	B4	>5	Cloudy	Severe	3.4	268	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:40	19:44	41.16074	-71.98050	41.16123	-71.98568	30	24	NW	<2	B4	>5	Cloudy	Moderate	3.4	284	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:44	20:00	41.16123	-71.98568	41.16720	-71.99002	32	22	NW	<2	B4	>5	Cloudy	Moderate	3.7	265	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	20:01	41.16720	-71.99002	41.16664	-71.98876	33	21	NW	<2	B4	>5	Cloudy	Moderate	3.7	138	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:01	20:02	41.16664	-71.98876	41.16458	-71.98622	33	20	NW	<2	B4	>5	Cloudy	Moderate	3.7	138	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:02	20:33	41.16458	-71.98622	41.15688	-71.93180	33	20	NW	<2	B4	>5	Cloudy	Moderate	3.7	132	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:33	20:34	41.15688	-71.93180	41.15701	-71.92958	31	25	W	<2	B4	>5	Cloudy	Slight	4.8	52	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:34	20:59	41.15701	-71.92958	41.15659	-71.92684	30	25	W	<2	B4	>5	Cloudy	Slight	5.1	48	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	20:59	21:00	41.15659	-71.92684	41.15649	-71.92750	30	22	NNW	<2	B3	>5	Cloudy	Slight	3.8	272	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:38	41.15649	-71.92750	41.16109	-71.98018	30	22	NNW	<2	B3	>5	Cloudy	Slight	3.8	272	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:38	21:39	41.16109	-71.98018	41.16152	-71.98168	25	22	NNW	<2	B3	>5	Cloudy	Slight	3.8	272	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:39	21:54	41.16152	-71.98168	41.16466	-71.98899	25	22	NNW	<2	B3	>5	Cloudy	Slight	4.8	272	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:54	21:55	41.16466	-71.98899	41.16388	-71.98577	25	13	N	<2	B3	>5	Cloudy	Slight	4.8	272	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:55	22:00	41.16388	-71.98577	41.16140	-71.97878	25	13	N	<2	B3	>5	Cloudy	None	4.8	272	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:00	22:31	41.16140	-71.97878	41.15723	-71.92992	25	13	N	<2	B3	0.5-1	Cloudy	None	4.8	272	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:31	22:32	41.15723	-71.92992	41.15735	-71.92870	30	14	N	<2	B3	0.5-1	Clear	None	4	66	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:32	22:51	41.15735	-71.92870	41.15594	-71.92639	30	16	N	<2	B3	0.5-1	Clear	None	4	69	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:51	22:52	41.15594	-71.92639	41.15584	-71.92845	30	16	N	<2	B3	0.5-1	Clear	None	4	69	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Serrano, Itzel	RPS	22:52	23:06	41.15584	-71.92845	41.15362	-71.95521	30	16	N	<2	B3	0.5-1	Clear	None	4	69	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:06	23:21	41.15362	-71.95521	41.16045	-71.98102	25	20	N	<2	B3	0.5-1	Clear	None	5	295	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:21	23:22	41.16045	-71.98102	41.16094	-71.98240	25	20	N	<2	B3	0.5-1	Clear	None	4.9	280	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:22	23:46	41.16094	-71.98240	41.16399	-71.98611	25	20	N	<2	B3	0.5-1	Clear	None	5	279	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:46	23:47	41.16399	-71.98611	41.16344	-71.98537	24	13	N	<2	B3	0.5-1	Clear	None	3.5	104	Silent	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:47	23:59	41.16344	-71.98537	41.15994	-71.97659	24	12	N	<2	B3	0.5-1	Clear	None	3.5	104	Full Power	N/A
2022-12-08	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.15994	-71.97659	41.15959	-71.97566	24	12	N	<2	B3	0.5-1	Clear	None	3.5	104	Full Power	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	00:44	41.15805	-71.97149	41.15667	-71.93025	26	13	N	<2	B3	0.5-1	Clear	None	2.9	65	Full Power	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:44	01:00	41.15667	-71.93025	41.14506	-71.93077	26	14	N	<2	B3	0.5-1	Clear	None	2.9	65	Silent	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:22	41.14506	-71.93077	41.12713	-71.94191	11	16	N	<2	B3	0.5-1	Clear	None	1	65	Deploying/Retrieving	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:22	01:57	41.12713	-71.94191	41.13387	-71.98229	11	15	N	<2	B3	0.5-1	Clear	None	4	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:57	03:00	41.13387	-71.98229	41.15197	-72.07127	21	10	NNE	<2	B3	0.5-1	Clear	None	5.2	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.15197	-72.07127	41.17705	-72.03472	31	18	NNE	<2	B3	0.5-1	Clear	None	3.7	278	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.17705	-72.03472	41.21149	-71.99352	47	17	ENE	<2	B3	0.5-1	Clear	None	2.4	35	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.21149	-71.99352	41.17128	-71.98443	41	10	NNE	<2	B3	0.5-1	Clear	None	3.1	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:03	41.17128	-71.98443	41.17041	-71.92106	24	16	NE	<2	B3	0.5-1	Clear	None	3.4	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:03	08:00	41.17041	-71.92106	41.18759	-71.85896	31	16	NE	<2	B3	0.5-1	Clear	None	3.2	89	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.18759	-71.85896	41.21013	-71.79136	35	16	NE	<2	B3	0.5-1	Clear	None	3.4	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.21013	-71.79136	41.17606	-71.82285	36	10	NNE	<2	B3	0.5-1	Clear	None	3.4	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:01	41.17606	-71.82285	41.14825	-71.87807	36	10	NNE	<2	B3	0.5-1	Clear	None	3.7	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:01	11:33	41.14825	-71.87807	41.15135	-71.90649	34	16	NE	<2	B3	0.5-1	Clear	None	3.1	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:33	12:01	41.15135	-71.90649	41.14584	-71.88298	33	26	NE	2-4	B4	2-5	Clear	None	3.1	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:01	13:00	41.14584	-71.88298	41.19581	-71.90635	34	28	N	2-4	B5	>5	Clear	Slight	7.8	344	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:01	41.19581	-71.90635	41.21248	-71.93479	39	16	N	2-4	B5	>5	Clear	Severe	5.6	89	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:01	15:00	41.21248	-71.93479	41.14066	-71.86731	29	11	N	<2	B3	>5	Clear	Severe	4.5	156	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.14066	-71.86731	41.12701	-71.81426	29	11	N	<2	B3	>5	Clear	Severe	4.5	156	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.12701	-71.81426	41.15589	-71.96018	19	11	N	<2	B3	>5	Clear	Severe	8	283	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.15589	-71.96018	41.16340	-71.98063	28	20	N	<2	B4	>5	Clear	Severe	3.3	285	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:57	41.16340	-71.98063	41.19735	-72.03972	24	21	N	<2	B4	>5	Clear	Severe	3.4	290	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	18:57	19:58	41.19735	-72.03972	41.21808	-72.07624	43	21	N	<2	B4	>5	Clear	Severe	2.9	298	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:58	21:00	41.21808	-72.07624	41.22413	-72.07598	56	21	N	<2	B4	>5	Clear	Severe	0.3	68	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.22413	-72.07598	41.21482	-72.16238	12	24	NNW	<2	B4	2-5	Clear	Moderate	5	280	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Serrano, Itzel; Cabello, Diana	RPS	22:00	23:00	41.21482	-72.16238	41.19462	-72.24585	56	16	NW	<2	B3	0.5-1	Clear	None	4.2	260	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	41.19462	-72.24585	41.17303	-72.34217	48	15	N	<2	B3	0.5-1	Clear	None	4.5	255	Standby	N/A
2022-12-09	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.17303	-72.34217	41.17260	-72.34362	48	7	N	<2	B3	0.5-1	Clear	None	4.5	255	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.17065	-72.34957	41.14908	-72.39533	36	7	N	<2	B2	0.5-1	Clear	None	4	248	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.14908	-72.39533	41.17984	-72.36413	31	24	N	<2	B3	0.5-1	Clear	None	2.9	40	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.17984	-72.36413	41.21472	-72.33515	44	22	N	<2	B3	0.5-1	Clear	None	2.3	40	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.21472	-72.33515	41.22831	-72.32367	52	20	N	<2	B3	0.5-1	Clear	None	2.8	33	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.22831	-72.32367	41.17126	-72.37516	43	13	N	<2	B3	0.5-1	Clear	None	3.5	227	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	05:59	41.17126	-72.37516	41.21614	-72.31882	44	22	NE	<2	B3	0.5-1	Clear	None	3.7	39	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:59	07:00	41.21614	-72.31882	41.24886	-72.24680	47	19	NE	<2	B3	0.5-1	Clear	None	3.4	39	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.24886	-72.24680	41.24735	-72.24797	35	18	NNE	<2	B3	0.5-1	Clear	None	3.7	50	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.24735	-72.24797	41.23256	-72.28947	36	15	NE	<2	B3	0.5-1	Clear	None	2.4	256	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	09:57	41.23256	-72.28947	41.22123	-72.34283	36	13	NE	<2	B3	0.5-1	Clear	None	1.8	280	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:57	11:00	41.22123	-72.34283	41.22010	-72.35093	41	14	NE	<2	B3	0.5-1	Clear	None	2.9	266	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:31	41.22010	-72.35093	41.22407	-72.33162	49	20	NE	<2	B3	0.5-1	Clear	None	2.3	59	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:31	12:00	41.22407	-72.33162	41.22861	-72.31720	39	18	NE	<2	B3	1-2	Cloudy	None	1.4	56	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	13:00	41.22861	-72.31720	41.23656	-72.28244	44	20	NE	<2	B3	>5	Cloudy	None	1.4	65	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.23656	-72.28244	41.24192	-72.25822	34	19	NE	<2	B3	>5	Cloudy	None	1.5	64	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.24192	-72.25822	41.25198	-72.24113	35	22	NE	<2	B3	>5	Cloudy	Severe	1	56	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.25198	-72.24113	41.25179	-72.25603	32	18	NE	<2	B3	>5	Cloudy	Severe	1.4	56	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.25179	-72.25603	41.21564	-72.34878	30	15	NNE	<2	B3	>5	Cloudy	Severe	4.8	239	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.21564	-72.34878	41.18562	-72.42789	43	14	NE	<2	B3	>5	Cloudy	Moderate	4.5	241	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.18562	-72.42789	41.19966	-72.38153	21	14	NNE	<2	B3	>5	Cloudy	Moderate	3.8	245	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.19966	-72.38153	41.23059	-72.28786	46	17	NE	<2	B3	>5	Cloudy	None	4.1	68	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.23059	-72.28786	41.23989	-72.25006	36	15	NE	<2	B3	>5	Cloudy	None	4.5	69	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.23989	-72.25006	41.22321	-72.32137	38	5	NE	<2	B3	2-5	Cloudy	None	3.1	252	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	Serrano, Itzel; Cabello, Diana	RPS	22:00	22:59	41.22321	-72.32137	41.20055	-72.40521	52	9	NNE	<2	B2	0.5-1	Cloudy	None	4.3	252	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	22:59	23:59	41.20055	-72.40521	41.21787	-72.34247	45	15	NE	<2	B2	0.5-1	Cloudy	None	4.3	245	Standby	N/A
2022-12-10	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	23:59	00:00	41.21787	-72.34247	41.21787	-72.34247	50	16	NE	<2	B2	0.5-1	Clear	None	2.7	63	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.21876	-72.33970	41.24237	-72.28231	45	18	NE	<2	B3	0.5-1	Clear	None	3	59	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.24237	-72.28231	41.24348	-72.25908	32	15	NE	<2	B3	0.5-1	Clear	None	3	69	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.24348	-72.25908	41.20796	-72.38410	35	9	NNE	<2	B3	0.5-1	Clear	None	6.8	249	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.20796	-72.38410	41.21212	-72.36409	52	7	NE	<2	B3	0.5-1	Clear	None	5.3	252	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.21212	-72.36409	41.23277	-72.29990	55	19	NE	<2	B3	0.5-1	Clear	None	2.8	82	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.23277	-72.29990	41.24362	-72.26712	38	18	NE	<2	B3	0.5-1	Clear	None	3.3	67	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.24362	-72.26712	41.22466	-72.33460	34	12	NE	<2	B3	0.5-1	Clear	None	3.7	259	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:02	41.22466	-72.33460	41.21674	-72.36078	39	14	NE	<2	B3	0.5-1	Clear	None	2.8	260	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:02	08:59	41.21674	-72.36078	41.24005	-72.28130	36	17	NE	<2	B3	0.5-1	Clear	None	3.1	55	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:59	09:59	41.24005	-72.28130	41.24825	-72.20597	35	22	NE	<2	B3	0.5-1	Clear	None	3.6	56	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	11:00	41.24825	-72.20597	41.21271	-72.08077	37	18	NE	<2	B3	0.5-1	Cloudy	None	4.2	102	Transit	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:35	41.21271	-72.08077	41.17876	-72.01295	34	25	E	2-4	B4	0.5-1	Cloudy	None	5.6	112	Transit	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:35	11:58	41.17876	-72.01295	41.17998	-72.01908	27	29	ENE	2-4	B4	1-2	Cloudy	None	5.3	115	Transit	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:58	13:00	41.17998	-72.01908	41.25721	-72.17149	26	22	NE	2-4	B4	2-5	Cloudy	None	8.1	314	Transit	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:03	41.25721	-72.17149	41.23338	-72.27885	34	14	NE	<2	B4	>5	Cloudy	None	3.4	350	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:03	15:00	41.23338	-72.27885	41.13987	-72.36532	35	12	NE	<2	B4	>5	Cloudy	Slight	6.8	220	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.13987	-72.36532	41.09443	-72.45678	35	14	E	<2	B4	>5	Cloudy	Slight	6.8	220	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.09443	-72.45678	41.05178	-72.54700	23	10	E	<2	B4	>5	Cloudy	None	5.5	243	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.05178	-72.54700	41.06690	-72.51692	24	14	E	<2	B4	>5	Cloudy	None	4.8	238	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.06690	-72.51692	41.09985	-72.45067	30	24	E	<2	B4	>5	Cloudy	None	2.1	60	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.09985	-72.45067	41.13898	-72.37538	19	27	E	<2	B4	>5	Cloudy	None	4.5	60	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	20:58	41.13898	-72.37538	41.14851	-72.36705	29	23	E	<2	B4	>5	Cloudy	None	3.1	41	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	20:58	21:46	41.14851	-72.36705	41.10321	-72.44393	29	23	E	<2	B4	>5	Cloudy	None	3.1	41	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:46	22:00	41.10321	-72.44393	41.09780	-72.45776	23	23	E	<2	B4	2-5	Precipitation	None	3.1	241	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:00	23:00	41.09780	-72.45776	41.06514	-72.52346	21	21	ENE	<2	B4	0.5-1	Precipitation	None	3.2	245	Standby	N/A
2022-12-11	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	00:00	41.06514	-72.52346	41.03849	-72.57790	22	18	E	<2	B4	0.5-1	Precipitation	None	3.9	232	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.03884	-72.57739	41.06617	-72.52078	20	25	E	<2	B4	0.5-1	Precipitation	None	3	59	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:59	41.06617	-72.52078	41.09501	-72.46275	24	27	E	<2	B4	0.5-1	Precipitation	None	3	59	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:59	03:00	41.09501	-72.46275	41.12077	-72.41322	21	26	E	<2	B4	0.5-1	Cloudy	None	3	58	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.12077	-72.41322	41.11783	-72.41702	21	26	NE	<2	B4	0.5-1	Cloudy	None	2.8	56	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	04:59	41.11783	-72.41702	41.07362	-72.50735	21	14	NE	<2	B4	0.5-1	Cloudy	None	5.2	238	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	04:59	06:00	41.07362	-72.50735	41.07072	-72.51109	22	18	NE	<2	B4	0.5-1	Cloudy	None	4.6	239	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	06:59	41.07072	-72.51109	41.10609	-72.43874	23	23	NE	<2	B4	0.5-1	Cloudy	None	4	50	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	06:59	08:02	41.10609	-72.43874	41.15582	-72.36422	23	25	N	<2	B4	0.5-1	Precipitation	None	4.1	50	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:02	08:57	41.15582	-72.36422	41.16046	-72.37331	31	22	NE	<2	B4	0.5-1	Precipitation	None	5.1	20	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:57	10:00	41.16046	-72.37331	41.22324	-72.32899	35	14	NE	<2	B4	0.5-1	Precipitation	None	4.1	225	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.22324	-72.32899	41.25182	-72.28008	40	23	NE	<2	B4	0.5-1	Precipitation	None	4	36	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:40	41.25182	-72.28008	41.23300	-72.33137	33	13	N	<2	B4	0.5-1	Cloudy	None	3.8	255	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:40	12:00	41.23300	-72.33137	41.22318	-72.36584	47	17	N	<2	B3	1-2	Cloudy	None	5.1	262	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:15	41.22318	-72.36584	41.21373	-72.39439	42	13	N	<2	B3	2-5	Cloudy	None	5.2	250	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:15	13:00	41.21373	-72.39439	41.20311	-72.44927	45	11	N	<2	B3	>5	Cloudy	None	5.4	250	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.20311	-72.44927	41.22014	-72.37902	41	21	NE	<2	B3	>5	Cloudy	None	3.8	70	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.22014	-72.37902	41.23486	-72.31478	42	15	NE	<2	B2	>5	Cloudy	Slight	2.9	70	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.23486	-72.31478	41.21672	-72.39535	42	15	NNE	<2	B2	>5	Cloudy	Moderate	3	70	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.21672	-72.39535	41.20717	-72.42699	45	8	N	<2	B2	>5	Cloudy	Severe	4.8	248	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:30	41.20717	-72.42699	41.22101	-72.37764	40	12	NE	<2	B2	>5	Clear	Severe	3.4	70	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:30	18:00	41.22101	-72.37764	41.23634	-72.30479	42	14	NNE	<2	B2	>5	Clear	Severe	7	75	Transit	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.23634	-72.30479	41.23832	-72.14542	37	14	NNE	<2	B2	>5	Clear	Severe	7.2	75	Transit	N/A
2022-12-12	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	20:00	41.23832	-72.14542	41.17092	-71.98193	50	12	N	<2	B2	>5	Clear	Severe	8.2	112	Transit	N/A
2022-12-12	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.17092	-71.98193	41.14338	-71.91437	39	11	NE	<2	B2	>5	Clear	Severe	8.5	121	Deploying/Retrieving	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:09	41.14338	-71.91437	41.13882	-71.86003	28	24	NE	<2	B2	>5	Clear	Moderate	3.5	306	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:09	22:58	41.13882	-71.86003	41.13976	-71.82372	20	7	N	<2	B2	0.5-1	Clear	None	3.3	283	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	22:58	23:59	41.13976	-71.82372	41.16619	-71.80334	19	17	NE	<2	B2	0.5-1	Clear	None	5.4	131	Standby	N/A
2022-12-12	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.16619	-71.80334	41.16647	-71.80335	42	17	NE	<2	B2	0.5-1	Clear	None	3.8	351	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.16777	-71.80336	41.23469	-71.81005	22	20	N	<2	B3	0.5-1	Clear	None	3.8	352	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:59	41.23469	-71.81005	41.30247	-71.80073	22	20	N	<2	B3	0.5-1	Clear	None	3.8	352	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	01:59	03:00	41.30247	-71.80073	41.31933	-71.73549	29	10	N	<2	B3	0.5-1	Clear	None	3.1	55	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	03:57	41.31933	-71.73549	41.31118	-71.77193	13	7	NW	<2	B3	0.5-1	Clear	None	3.3	66	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	03:57	05:00	41.31118	-71.77193	41.30383	-71.78793	17	13	NW	<2	B3	0.5-1	Clear	None	4	256	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.30383	-71.78793	41.32021	-71.72289	23	12	NNW	<2	B3	0.5-1	Clear	None	2.9	73	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.32021	-71.72289	41.30711	-71.78313	20	10	N	<2	B3	0.5-1	Clear	None	3.5	69	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.30711	-71.78313	41.31208	-71.75881	19	11	NNW	<2	B3	0.5-1	Clear	None	3.6	259	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	08:59	41.31208	-71.75881	41.31384	-71.74423	18	14	N	<2	B3	0.5-1	Clear	None	3.7	70	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:59	09:59	41.31384	-71.74423	41.30147	-71.79534	22	19	NW	<2	B3	0.5-1	Clear	None	2.4	264	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	11:00	41.30147	-71.79534	41.22927	-71.84385	24	13	NNW	<2	B3	0.5-1	Clear	None	2.5	264	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:35	41.22927	-71.84385	41.18619	-71.86191	35	13	N	<2	B3	0.5-1	Clear	None	4.6	211	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:35	12:00	41.18619	-71.86191	41.14222	-71.87874	32	13	N	<2	B3	1-2	Clear	None	4.8	212	Transit	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:15	41.14222	-71.87874	41.13950	-71.84196	35	20	N	<2	B3	2-5	Clear	None	5.7	123	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:15	12:38	41.13950	-71.84196	41.12462	-71.78795	22	18	N	<2	B3	>5	Clear	Slight	5.9	215	Standby	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:38	13:00	41.12462	-71.78795	41.12031	-71.78096	20	18	N	<2	B3	>5	Clear	Severe	1	236	Deploying/Retrieving	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	13:43	41.12031	-71.78096	41.15087	-71.79514	20	19	N	<2	B3	>5	Clear	Severe	2	238	Deploying/Retrieving	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:43	14:04	41.15087	-71.79514	41.14496	-71.78444	38	25	NW	2-4	B4	>5	Clear	Severe	3.3	339	Soft Start	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:04	14:23	41.14496	-71.78444	41.12481	-71.78300	24	18	NW	2-4	B4	>5	Clear	Severe	4.2	168	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:23	14:24	41.12481	-71.78300	41.12467	-71.78335	19	21	NW	2-4	B4	>5	Clear	Severe	4.4	246	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:24	14:39	41.12467	-71.78335	41.13098	-71.80816	19	21	NW	2-4	B4	>5	Clear	Severe	4.4	246	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:39	14:40	41.13098	-71.80816	41.13174	-71.81065	19	25	NW	2-4	B4	>5	Clear	Severe	4.8	294	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:40	14:46	41.13174	-71.81065	41.13455	-71.81880	19	25	NW	2-4	B4	>5	Clear	Severe	4.8	294	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:46	14:47	41.13455	-71.81880	41.13548	-71.82138	21	23	NW	2-4	B4	>5	Clear	Severe	5	299	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:47	15:00	41.13548	-71.82138	41.13955	-71.84238	21	23	NW	2-4	B4	>5	Clear	Severe	5	299	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:05	41.13955	-71.84238	41.13987	-71.85054	21	23	NW	2-4	B4	>5	Clear	Severe	5	299	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:05	15:06	41.13987	-71.85054	41.13996	-71.85221	21	23	NNE	2-4	B4	>5	Clear	Severe	4.7	280	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:06	15:39	41.13996	-71.85221	41.13925	-71.82508	21	23	NNE	2-4	B4	>5	Clear	Severe	4.7	280	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:39	15:40	41.13925	-71.82508	41.13835	-71.82758	21	23	NNE	2-4	B4	>5	Clear	Severe	4.7	280	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:40	16:00	41.13835	-71.82758	41.13965	-71.86174	21	23	NNE	2-4	B4	>5	Clear	Severe	4.7	280	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	16:25	41.13965	-71.86174	41.15490	-71.89704	22	27	NNE	2-4	B4	>5	Clear	Severe	4.7	287	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:25	16:26	41.15490	-71.89704	41.15579	-71.89800	32	24	NNE	2-4	B4	>5	Clear	Severe	4.3	320	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:26	17:00	41.15579	-71.89800	41.14527	-71.87675	32	25	NNE	2-4	B4	>5	Clear	Severe	4.4	320	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	17:30	41.14527	-71.87675	41.13726	-71.85420	31	25	N	<2	B4	>5	Clear	Severe	3.6	91	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:30	17:31	41.13726	-71.85420	41.13752	-71.85636	18	21	NNE	<2	B4	>5	Clear	Severe	5	91	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:31	18:00	41.13752	-71.85636	41.15329	-71.89787	18	21	NNE	<2	B4	>5	Clear	Severe	5	91	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:01	41.15329	-71.89787	41.15466	-71.89971	32	15	N	<2	B4	>5	Clear	Severe	4	20	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:01	19:00	41.15466	-71.89971	41.15918	-71.89870	32	15	N	<2	B4	>5	Clear	Severe	4	20	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	19:59	41.15918	-71.89870	41.15862	-71.86908	33	18	NE	<2	B4	>5	Clear	Severe	4.1	324	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:59	21:00	41.15862	-71.86908	41.16322	-71.92848	33	19	NE	<2	B4	>5	Clear	Severe	4.8	70	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:27	41.16322	-71.92848	41.15533	-71.93859	27	22	NW	<2	B3	>5	Clear	Severe	3.4	278	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:27	21:28	41.15533	-71.93859	41.15533	-71.93859	29	21	NW	<2	B3	>5	Clear	Severe	3	290	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:28	21:42	41.15533	-71.93859	41.15533	-71.93859	29	21	NW	<2	B3	>5	Clear	Severe	3	290	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:42	21:43	41.15533	-71.93859	41.15533	-71.93859	29	21	NW	<2	B3	2-5	Clear	Moderate	3	290	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:43	22:10	41.15533	-71.93859	41.15171	-71.94201	29	21	NW	<2	B3	2-5	Clear	Moderate	3	290	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:10	22:36	41.15171	-71.94201	41.15382	-71.97212	33	23	NW	<2	B3	0.5-1	Clear	None	3.3	284	Full Power	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:36	23:04	41.15382	-71.97212	41.14815	-71.93723	26	21	NW	<2	B3	0.5-1	Clear	None	2.4	311	Silent	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:04	23:59	41.14815	-71.93723	41.14929	-71.87046	26	21	NW	<2	B3	0.5-1	Clear	None	2.4	311	Deploying/Retrieving	N/A
2022-12-13	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.14929	-71.87046	41.14929	-71.87046	30	20	NNW	<2	B3	0.5-1	Clear	None	4	28	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.15326	-71.87092	41.20075	-71.90207	28	26	NW	<2	B3	0.5-1	Clear	None	3	318	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.20075	-71.90207	41.20467	-71.89565	35	28	NW	<2	B3	0.5-1	Clear	None	3.3	320	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	02:59	41.20467	-71.89565	41.24096	-71.90449	32	19	NW	<2	B3	0.5-1	Clear	None	4.4	160	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:59	04:01	41.24096	-71.90449	41.28251	-71.83910	40	23	NW	<2	B3	0.5-1	Clear	None	2.5	33	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:01	05:00	41.28251	-71.83910	41.31282	-71.76439	38	9	NW	<2	B3	0.5-1	Fog	None	3.9	51	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.31282	-71.76439	41.31352	-71.74591	17	14	NW	<2	B3	0.5-1	Fog	None	3.1	74	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.31352	-71.74591	41.29731	-71.81256	19	17	NW	<2	B3	0.5-1	Fog	None	3.4	261	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.29731	-71.81256	41.31468	-71.74651	27	12	NW	<2	B3	0.5-1	Clear	None	2.8	58	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.31468	-71.74651	41.31381	-71.74935	20	15	NW	<2	B3	0.5-1	Clear	None	3.5	67	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.31381	-71.74935	41.30207	-71.78967	19	35	NW	<2	B4	0.5-1	Precipitation	None	2.3	67	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	10:00	11:00	41.30207	-71.78967	41.26352	-71.82402	22	18	NW	<2	B3	0.5-1	Clear	None	2.2	273	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:33	41.26352	-71.82402	41.22185	-71.86134	37	25	NW	2-4	B4	0.5-1	Clear	None	5.7	226	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:33	12:00	41.22185	-71.86134	41.19472	-71.89138	41	23	NW	2-4	B4	1-2	Clear	None	5	239	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:00	12:15	41.19472	-71.89138	41.18079	-71.91735	35	24	NW	2-4	B4	2-5	Clear	None	5.5	247	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:15	12:36	41.18079	-71.91735	41.15607	-71.95516	38	25	NW	2-4	B4	>5	Clear	Severe	5.9	247	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:36	13:00	41.15607	-71.95516	41.15532	-71.96225	21	27	NW	2-4	B4	>5	Clear	Severe	1	247	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:00	14:00	41.15532	-71.96225	41.19978	-71.92931	24	25	N	2-4	B4	>5	Clear	Severe	3.7	250	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	41.19978	-71.92931	41.25230	-71.87864	44	38	N	2-4	B4	>5	Clear	Severe	4.6	6	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.25230	-71.87864	41.22000	-71.89738	33	30	N	<2	B4	>5	Clear	Severe	8.7	6	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.22000	-71.89738	41.15255	-71.95966	38	25	NNW	<2	B4	>5	Clear	Severe	4.9	213	Transit	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.15255	-71.95966	41.15696	-71.93049	30	20	NNE	<2	B4	>5	Clear	Severe	4.5	244	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.15696	-71.93049	41.15557	-71.94532	26	21	NNE	<2	B4	>5	Clear	Severe	4.3	102	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:00	19:59	41.15557	-71.94532	41.15577	-71.94504	24	16	NNE	<2	B3	>5	Clear	Severe	3.6	71	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-14	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:59	21:00	41.15577	-71.94504	41.15321	-71.94410	24	22	NW	<2	B3	>5	Clear	Severe	4.1	65	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.15321	-71.94410	41.15276	-71.93749	25	20	NNW	<2	B3	>5	Clear	Slight	3.4	248	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:00	23:00	41.15276	-71.93749	41.14162	-71.84991	32	15	NNW	<2	B3	0.5-1	Clear	None	5.8	81	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	41.14162	-71.84991	41.14021	-71.87133	22	21	N	<2	B3	0.5-1	Clear	None	3.8	312	Standby	N/A
2022-12-14	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.14021	-71.87133	41.14021	-71.87133	28	20	NW	<2	B3	0.5-1	Clear	None	2.8	275	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.14264	-71.87827	41.16931	-71.88596	33	23	NW	<2	B2	0.5-1	Clear	None	3.6	315	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.16931	-71.88596	41.20635	-71.82978	36	23	NW	<2	B2	0.5-1	Clear	None	3.7	24	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:00	03:00	41.20635	-71.82978	41.24836	-71.80458	33	21	NNW	<2	B2	0.5-1	Clear	None	3.6	24	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.24836	-71.80458	41.30106	-71.79416	31	16	WNW	<2	B2	0.5-1	Clear	None	2.8	1	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.30106	-71.79416	41.31736	-71.74081	32	21	NNE	<2	B2	0.5-1	Clear	None	4.2	60	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.31736	-71.74081	41.30146	-71.79573	31	10	N	<2	B2	0.5-1	Clear	None	4.3	251	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.30146	-71.79573	41.31574	-71.74168	24	19	NNE	<2	B2	0.5-1	Clear	None	2.5	65	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.31574	-71.74168	41.30446	-71.78411	21	16	NE	<2	B2	0.5-1	Clear	None	2.9	71	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	08:00	09:00	41.30446	-71.78411	41.30987	-71.77255	21	12	N	<2	B2	0.5-1	Clear	None	3.9	256	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Fuller, Emily	RPS	09:00	10:00	41.30987	-71.77255	41.31407	-71.75141	17	13	NE	<2	B2	0.5-1	Clear	None	3.2	66	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.31407	-71.75141	41.22010	-71.82388	21	7	N	<2	B2	0.5-1	Clear	None	3.4	252	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	11:00	11:34	41.22010	-71.82388	41.16137	-71.82537	46	9	NE	<2	B2	0.5-1	Clear	None	6.5	205	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	11:34	12:01	41.16137	-71.82537	41.11672	-71.76318	43	21	E	<2	B2	1-2	Clear	None	9.4	134	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:01	12:25	41.11672	-71.76318	41.08499	-71.74184	18	22	NE	<2	B2	2-5	Clear	None	4.7	54	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	12:25	13:05	41.08499	-71.74184	41.02304	-71.68071	19	8	ENE	<2	B3	>5	Cloudy	Slight	8.9	166	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	13:05	14:00	41.02304	-71.68071	40.99109	-71.58551	43	18	E	2-4	B4	>5	Cloudy	Slight	7.8	115	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Fuller, Emily	RPS	14:00	15:00	40.99109	-71.58551	41.01938	-71.58669	43	21	N	2-4	B4	>5	Cloudy	None	2.8	47	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.01938	-71.58669	41.01929	-71.67812	42	14	NE	2-4	B4	>5	Cloudy	None	4.5	239	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	16:00	17:00	41.01929	-71.67812	41.07956	-71.73545	45	20	NE	2-4	B4	>5	Cloudy	None	4.4	340	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.07956	-71.73545	41.13200	-71.82072	16	18	ENE	<2	B3	>5	Cloudy	None	5.7	340	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:01	41.13200	-71.82072	41.15873	-71.89163	34	11	NE	<2	B3	>5	Cloudy	None	4.5	337	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:01	19:45	41.15873	-71.89163	41.14430	-71.86588	32	18	N	<2	B3	>5	Cloudy	None	4.2	149	Standby	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	19:45	20:00	41.14430	-71.86588	41.14799	-71.86794	23	15	N	<2	B3	>5	Cloudy	None	5.1	284	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	O'Sullivan, Sean	RPS	20:00	21:00	41.14799	-71.86794	41.19759	-71.75426	32	23	N	<2	B3	>5	Cloudy	None	5.8	49	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	21:50	41.19759	-71.75426	41.23844	-71.67439	31	29	E	<2	B3	>5	Cloudy	None	6	64	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	21:50	22:00	41.23844	-71.67439	41.24708	-71.65979	36	32	E	<2	B4	0.5-1	Cloudy	None	5	57	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	22:00	23:00	41.24708	-71.65979	41.27869	-71.55823	36	36	E	<2	B4	0.5-1	Cloudy	None	5	57	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:00	23:59	41.27869	-71.55823	41.29931	-71.46869	36	36	E	<2	B4	0.5-1	Cloudy	None	5	57	Transit	N/A
2022-12-15	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	23:59	00:00	41.29931	-71.46869	41.29931	-71.46869	36	36	E	<2	B4	0.5-1	Cloudy	None	5	57	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.30196	-71.45648	41.32410	-71.35154	19	31	E	<2	B4	0.5-1	Cloudy	None	4.5	75	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:01	41.32410	-71.35154	41.34366	-71.24758	29	32	NW	<2	B4	0.5-1	Cloudy	None	5	88	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	02:01	03:00	41.34366	-71.24758	41.37948	-71.15100	29	31	E	<2	B4	0.5-1	Cloudy	None	5.1	70	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	O'Sullivan, Sean; Zavala, Andrea	RPS	03:00	04:00	41.37948	-71.15100	41.42226	-71.04635	25	31	E	<2	B4	0.5-1	Cloudy	None	4.9	69	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Cabello, Diana; O'Sullivan, Sean	RPS	04:00	05:00	41.42226	-71.04635	41.47808	-70.92369	19	25	E	<2	B4	0.5-1	Cloudy	None	6.1	70	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	05:00	06:00	41.47808	-70.92369	41.54919	-70.85527	17	25	E	<2	B4	0.5-1	Cloudy	None	6.6	70	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Fuller, Emily; Zavala, Andrea	RPS	06:00	07:00	41.54919	-70.85527	41.62301	-70.91360	14	14	E	<2	B4	0.5-1	Precipitation	None	6.4	338	Transit	N/A
2022-12-16	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	07:12	41.62301	-70.91360	41.62210	-70.91374	6	4	E	<2	B2	0.5-1	Precipitation	None	2.6	168	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	05:09	06:00	41.62205	-70.91378	41.60142	-70.89097	6	9	NW	<2	B2	0.5-1	Clear	None	0	165	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:00	06:42	41.60142	-70.89097	41.54365	-70.85088	10	9	S	<2	B2	0.5-1	Clear	None	5.3	157	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:42	07:00	41.54365	-70.85088	41.51565	-70.83972	14	11	W	<2	B3	0.5-1	Clear	None	6.2	163	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.51565	-70.83972	41.46805	-70.95599	18	17	WNW	<2	B3	0.5-1	Clear	None	4.7	220	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	08:00	09:00	41.46805	-70.95599	41.41103	-71.06183	30	17	WNW	<2	B3	0.5-1	Cloudy	None	6	250	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	09:00	10:00	41.41103	-71.06183	41.34816	-71.20105	20	20	NW	<2	B3	0.5-1	Cloudy	None	7.6	241	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.34816	-71.20105	41.30291	-71.35222	28	23	NW	<2	B4	0.5-1	Cloudy	None	7.9	245	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	11:00	11:35	41.30291	-71.35222	41.28965	-71.45107	33	23	WNW	<2	B4	0.5-1	Cloudy	None	7.8	251	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:35	11:50	41.28965	-71.45107	41.28538	-71.49265	24	21	WNW	<2	B4	1-2	Cloudy	None	7.9	265	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:50	12:00	41.28538	-71.49265	41.28035	-71.52324	36	20	WNW	<2	B4	2-5	Cloudy	None	7.7	264	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	12:00	13:00	41.28035	-71.52324	41.22539	-71.66693	44	20	WNW	<2	B4	>5	Cloudy	Slight	7.8	256	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	13:00	14:00	41.22539	-71.66693	41.12827	-71.77753	35	17	W	<2	B3	>5	Cloudy	Moderate	7.8	222	Transit	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	14:00	15:00	41.12827	-71.77753	41.11878	-71.76118	21	12	W	<2	B3	>5	Cloudy	Severe	4.2	222	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.11878	-71.76118	41.11373	-71.75528	17	12	N	<2	B3	>5	Clear	Severe	3.3	255	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	16:00	17:00	41.11373	-71.75528	41.11236	-71.75513	19	9	W	<2	B2	>5	Cloudy	Severe	3.7	148	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.11236	-71.75513	41.10292	-71.74864	17	14	N	<2	B2	>5	Cloudy	Severe	4	322	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.10292	-71.74864	41.10718	-71.75506	19	16	N	<2	B2	>5	Cloudy	Moderate	3.9	317	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	19:00	20:00	41.10718	-71.75506	41.10844	-71.76018	17	22	NW	<2	B3	>5	Cloudy	Moderate	4.1	332	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	21:00	41.10844	-71.76018	41.08132	-71.73838	18	14	NW	<2	B3	>5	Cloudy	Severe	3.3	149	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.08132	-71.73838	41.03944	-71.69488	16	11	WNW	<2	B3	>5	Cloudy	Moderate	3.3	158	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Serrano, Itzel	RPS	22:00	23:00	41.03944	-71.69488	41.07927	-71.73800	41	12	WNW	<2	B3	1-2	Cloudy	None	3.5	141	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:00	23:59	41.07927	-71.73800	41.12684	-71.78161	16	19	NW	<2	B3	1-2	Cloudy	None	4	335	Standby	N/A
2022-12-18	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:59	00:00	41.12684	-71.78161	41.12684	-71.78161	17	28	N	<2	B3	1-2	Clear	None	3.7	290	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.12851	-71.78526	41.12962	-71.81919	20	25	NW	<2	B4	0.5-1	Clear	None	2	297	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.12962	-71.81919	41.15295	-71.89390	17	30	NW	<2	B4	0.5-1	Clear	None	3.3	295	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	02:00	03:00	41.15295	-71.89390	41.19797	-72.01008	32	28	NW	<2	B5	0.5-1	Clear	None	4.7	296	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	03:00	03:58	41.19797	-72.01008	41.23808	-72.11611	32	26	NW	<2	B5	0.5-1	Clear	None	5.8	295	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	03:58	05:00	41.23808	-72.11611	41.24884	-72.17447	78	26	WNW	<2	B5	0.5-1	Clear	None	4.9	284	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	05:00	06:00	41.24884	-72.17447	41.25533	-72.21625	50	20	WNW	<2	B5	0.5-1	Clear	None	1.5	280	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:00	06:59	41.25533	-72.21625	41.24219	-72.27724	36	24	WNW	<2	B5	0.5-1	Clear	None	3.6	267	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	06:59	08:00	41.24219	-72.27724	41.21695	-72.34562	34	25	WNW	<2	B4	0.5-1	Clear	None	2.8	267	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	08:00	09:00	41.21695	-72.34562	41.20786	-72.40767	47	23	WNW	<2	B4	0.5-1	Clear	None	3.7	259	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	09:00	10:00	41.20786	-72.40767	41.21625	-72.35375	47	16	NW	<2	B4	0.5-1	Clear	None	2.5	87	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.21625	-72.35375	41.22777	-72.30419	50	15	NW	<2	B4	0.5-1	Clear	None	2.6	75	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	11:00	11:35	41.22777	-72.30419	41.23574	-72.26788	44	18	WNW	<2	B4	0.5-1	Clear	None	2.8	74	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:35	11:51	41.23574	-72.26788	41.23950	-72.24844	37	16	WNW	<2	B4	1-2	Clear	None	3.3	76	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:51	11:56	41.23950	-72.24844	41.24101	-72.24216	36	16	WNW	<2	B4	2-5	Clear	None	3.4	75	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	11:56	13:00	41.24101	-72.24216	41.23651	-72.24382	37	15	NW	<2	B3	2-5	Clear	Slight	3.7	75	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	13:00	14:01	41.23651	-72.24382	41.23694	-72.26294	36	23	WNW	<2	B4	2-5	Clear	Moderate	1.5	253	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	14:01	15:00	41.23694	-72.26294	41.23295	-72.27177	36	21	WNW	<2	B4	2-5	Clear	Severe	1.3	263	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	41.23295	-72.27177	41.21973	-72.31701	38	23	N	<2	B4	>5	Clear	Severe	2	259	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	16:00	17:00	41.21973	-72.31701	41.20551	-72.36590	49	22	NW	<2	B4	>5	Clear	Severe	2.1	249	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	41.20551	-72.36590	41.18940	-72.42530	55	25	NW	<2	B4	>5	Clear	Severe	2.3	259	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	41.18940	-72.42530	41.16871	-72.50933	29	22	NW	<2	B4	>5	Clear	Severe	4	260	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	19:00	20:00	41.16871	-72.50933	41.16908	-72.50336	22	26	NW	<2	B5	>5	Clear	Severe	4.6	251	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	21:00	41.16908	-72.50336	41.19203	-72.43164	22	16	WNW	<2	B5	>5	Clear	Severe	4.2	65	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	41.19203	-72.43164	41.20411	-72.39472	27	17	WNW	<2	B4	>5	Clear	Slight	3	65	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel; Alvarado, Edgar	RPS	22:00	23:00	41.20411	-72.39472	41.22735	-72.32418	46	15	W	<2	B4	0.5-1	Clear	None	2.5	65	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:00	23:04	41.22735	-72.32418	41.22838	-72.32092	20	24	WNW	<2	B4	0.5-1	Clear	None	2.9	68	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Serrano, Itzel; Alvarado, Edgar	RPS	23:04	23:59	41.22838	-72.32092	41.24473	-72.26906	46	15	W	<2	B4	0.5-1	Clear	None	2.5	65	Standby	N/A
2022-12-19	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:59	00:00	41.24473	-72.26906	41.24473	-72.26906	35	22	WNW	<2	B4	0.5-1	Clear	None	3.2	69	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	41.24623	-72.26346	41.23780	-72.30054	35	19	NNE	<2	B4	0.5-1	Clear	None	3.4	69	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	41.23780	-72.30054	41.22323	-72.32937	40	21	WNW	<2	B4	0.5-1	Clear	None	1.6	255	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	02:00	03:00	41.22323	-72.32937	41.21179	-72.34810	40	22	WNW	<2	B4	0.5-1	Clear	None	1.1	254	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	03:00	04:00	41.21179	-72.34810	41.20784	-72.36759	47	15	WNW	<2	B4	0.5-1	Clear	None	1.2	274	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	04:00	05:00	41.20784	-72.36759	41.23338	-72.28631	55	10	NW	<2	B4	0.5-1	Clear	None	4.3	67	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	05:00	06:00	41.23338	-72.28631	41.22850	-72.15515	37	8	NW	<2	B4	0.5-1	Clear	None	3.9	64	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:00	07:00	41.22850	-72.15515	41.20801	-72.02574	63	15	NW	<2	B4	0.5-1	Clear	None	6.5	90	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.20801	-72.02574	41.17947	-71.90783	31	16	NW	<2	B4	0.5-1	Clear	None	5.2	99	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	08:00	09:00	41.17947	-71.90783	41.14309	-71.79807	44	15	NW	<2	B4	0.5-1	Clear	None	6	112	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	09:00	10:00	41.14309	-71.79807	41.08962	-71.70237	23	13	NW	<2	B4	0.5-1	Clear	None	5.2	125	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.08962	-71.70237	41.00848	-71.57693	32	17	NNW	<2	B4	0.5-1	Clear	None	7.4	137	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	11:00	11:31	41.00848	-71.57693	40.96400	-71.50309	43	17	NNW	<2	B4	0.5-1	Clear	None	7.9	137	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:31	11:48	40.96400	-71.50309	40.93922	-71.46061	52	18	NNW	<2	B4	1-2	Clear	None	8.9	131	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:48	12:04	40.93922	-71.46061	40.91553	-71.42139	55	12	NNW	<2	B4	2-5	Clear	Slight	8.7	131	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	12:04	13:00	40.91553	-71.42139	40.83461	-71.28879	58	16	NNW	<2	B4	2-5	Clear	Moderate	8.5	132	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	13:00	14:00	40.83461	-71.28879	40.75430	-71.19911	59	15	NNE	<2	B4	2-5	Clear	Severe	8.2	129	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	14:00	15:00	40.75430	-71.19911	40.68561	-71.13157	59	13	NW	<2	B4	2-5	Clear	Severe	5.9	150	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	16:00	40.68561	-71.13157	40.62998	-71.07175	60	12	NW	<2	B4	>5	Clear	Severe	5	136	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	16:00	17:00	40.62998	-71.07175	40.57422	-71.01741	66	11	NNW	<2	B4	>5	Clear	Severe	4.5	126	Transit	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	40.57422	-71.01741	40.56012	-70.97405	71	10	NNW	<2	B4	>5	Clear	Severe	4	143	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	18:59	40.56012	-70.97405	40.61377	-70.92503	72	16	N	2-4	B5	>5	Clear	Severe	4.5	20	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	18:59	20:01	40.61377	-70.92503	40.60083	-70.85192	72	12	N	<2	B4	>5	Clear	Severe	3.2	116	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:01	21:00	40.60083	-70.85192	40.58479	-70.72929	67	9	NE	<2	B3	>5	Cloudy	Severe	4.4	87	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	40.58479	-70.72929	40.58776	-70.77094	66	8	NNE	<2	B3	2-5	Clear	Moderate	5.4	150	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Serrano, Itzel	RPS	22:00	22:40	40.58776	-70.77094	40.59953	-70.86748	67	16	NW	<2	B3	0.5-1	Clear	None	7.2	285	Standby	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	22:40	23:00	40.59953	-70.86748	40.59888	-70.86724	67	10	N	<2	B3	0.5-1	Clear	None	3.2	225	Deploying/Retrieving	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:00	23:56	40.59888	-70.86724	40.63759	-70.88909	68	10	N	<2	B3	0.5-1	Clear	None	3	334	Silent	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:56	23:59	40.63759	-70.88909	40.63938	-70.89008	68	9	N	<2	B3	0.5-1	Clear	None	3	334	Soft Start	N/A
2022-12-20	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:59	00:00	40.63938	-70.89008	40.63938	-70.89008	68	9	N	<2	B3	0.5-1	Clear	None	3	334	Soft Start	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	00:17	40.64070	-70.89082	40.65388	-70.89768	69	12	NE	<2	B3	0.5-1	Clear	None	4.7	340	Soft Start	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:17	01:00	40.65388	-70.89768	40.62589	-70.92304	69	12	NE	<2	B3	0.5-1	Clear	None	4.7	95	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	02:00	40.62589	-70.92304	40.60200	-70.83611	68	11	NE	<2	B3	0.5-1	Clear	None	4.1	95	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	02:00	03:00	40.60200	-70.83611	40.59971	-70.86431	67	12	NE	<2	B3	0.5-1	Clear	None	4.5	94	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	03:00	04:01	40.59971	-70.86431	40.60301	-70.84397	68	8	N	<2	B3	0.5-1	Cloudy	None	4.7	288	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	04:01	05:00	40.60301	-70.84397	40.60289	-70.88221	67	8	NE	<2	B3	0.5-1	Cloudy	None	4.6	101	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	05:00	06:00	40.60289	-70.88221	40.60025	-70.82124	68	8	N	<2	B3	0.5-1	Cloudy	None	4.7	286	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:00	06:56	40.60025	-70.82124	40.60781	-70.89583	67	3	N	<2	B2	0.5-1	Cloudy	None	4.7	94	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	06:56	08:00	40.60781	-70.89583	40.59688	-70.83492	69	13	NE	<2	B2	0.5-1	Cloudy	None	3.7	45	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	08:00	09:00	40.59688	-70.83492	40.60639	-70.87465	68	12	N	<2	B2	0.5-1	Cloudy	None	4.7	280	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	09:00	09:59	40.60639	-70.87465	40.59248	-70.81551	68	7	NE	<2	B2	0.5-1	Cloudy	None	3.5	95	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	09:59	11:00	40.59248	-70.81551	40.60861	-70.88529	67	11	N	<2	B2	0.5-1	Cloudy	None	4.2	286	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	11:00	11:34	40.60861	-70.88529	40.59575	-70.83069	68	8	NNE	<2	B2	0.5-1	Cloudy	None	4.6	113	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:34	11:50	40.59575	-70.83069	40.59137	-70.80278	68	8	NNE	<2	B2	1-2	Cloudy	Slight	4.6	102	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Zavala, Andrea	RPS	11:50	12:00	40.59137	-70.80278	40.58872	-70.78557	68	6	NE	<2	B2	2-5	Cloudy	Slight	5.1	96	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	12:00	13:00	40.58872	-70.78557	40.57265	-70.68339	68	4	NE	<2	B2	>5	Cloudy	Slight	5	98	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	13:00	13:03	40.57265	-70.68339	40.57198	-70.67875	67	8	NE	<2	B2	>5	Cloudy	Slight	4.9	97	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	13:03	14:00	40.57198	-70.67875	40.57686	-70.71580	68	7	NNE	<2	B2	>5	Cloudy	Moderate	4.6	81	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	14:00	15:00	40.57686	-70.71580	40.58646	-70.75253	67	10	NW	<2	B2	>5	Cloudy	Severe	4.4	287	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:00	15:01	40.58646	-70.75253	40.58708	-70.75512	67	10	NW	<2	B2	>5	Cloudy	Severe	4.4	287	Silent	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	15:01	16:04	40.58708	-70.75512	40.60253	-70.85229	67	10	NW	<2	B2	>5	Cloudy	Moderate	4.4	287	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	16:04	17:00	40.60253	-70.85229	40.60742	-70.88310	67	5	W	<2	B2	>5	Cloudy	Severe	4.1	284	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	17:00	18:00	40.60742	-70.88310	40.59325	-70.79361	68	5	N	<2	B1	>5	Cloudy	Moderate	4.1	99	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	18:00	19:00	40.59325	-70.79361	40.57976	-70.70806	68	3	NE	<2	B1	>5	Cloudy	Moderate	4.1	95	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	19:00	20:01	40.57976	-70.70806	40.57971	-70.70755	67	1	N	<2	B1	>5	Cloudy	Severe	4.3	113	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:01	21:00	40.57971	-70.70755	40.59658	-70.80798	66	9	NW	<2	B2	>5	Cloudy	Severe	5	301	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Serrano, Itzel	RPS	21:00	22:00	40.59658	-70.80798	40.59248	-70.78531	66	10	NW	<2	B2	>5	Cloudy	Moderate	4.6	310	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Serrano, Itzel	RPS	22:00	23:00	40.59248	-70.78531	40.57768	-70.69216	67	4	E	<2	B2	0.5-1	Clear	Moderate	4.6	104	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:00	23:30	40.57768	-70.69216	40.56916	-70.66043	67	4	E	<2	B2	0.5-1	Clear	None	4.4	103	Full Power	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:30	23:59	40.56916	-70.66043	40.57981	-70.70803	67	4	E	<2	B2	0.5-1	Clear	None	4.4	103	Silent	N/A
2022-12-21	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	23:59	00:00	40.57981	-70.70803	40.57981	-70.70803	67	4	E	<2	B2	0.5-1	Clear	None	4.4	103	Silent	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	00:00	01:00	40.58010	-70.70992	40.57660	-70.67921	66	8	E	<2	B2	0.5-1	Clear	None	4.7	279	Silent	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:00	01:28	40.57660	-70.67921	40.57184	-70.65269	66	6	E	<2	B2	0.5-1	Clear	None	3.3	101	Deploying/Retrieving	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Serrano, Itzel	RPS	01:28	02:00	40.57184	-70.65269	40.56789	-70.64000	66	6	E	<2	B2	0.5-1	Clear	None	3.3	101	Standby	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	02:00	03:00	40.56789	-70.64000	40.68534	-70.67303	67	5	N	<2	B2	0.5-1	Clear	None	3.3	152	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Zavala, Andrea	RPS	03:00	04:00	40.68534	-70.67303	40.80957	-70.71772	61	7	NNE	<2	B2	0.5-1	Clear	None	7.6	342	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Cabello, Diana	RPS	04:00	05:00	40.80957	-70.71772	40.93414	-70.75945	58	6	NE	<2	B2	0.5-1	Clear	None	7.9	353	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	05:00	06:00	40.93414	-70.75945	41.06398	-70.80928	50	6	NNE	<2	B2	0.5-1	Clear	None	7.9	345	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	06:00	07:00	41.06398	-70.80928	41.19149	-70.85788	42	8	N	<2	B2	0.5-1	Clear	None	8.1	346	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	07:00	08:00	41.19149	-70.85788	41.32912	-70.87701	23	5	N	<2	B2	0.5-1	Clear	None	8.1	357	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	08:00	09:00	41.32912	-70.87701	41.45879	-70.84572	30	11	NNE	<2	B2	0.5-1	Clear	None	8.4	6	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	09:00	10:00	41.45879	-70.84572	41.56318	-70.86615	18	10	NNE	<2	B2	0.5-1	Clear	None	8.4	9	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Cabello, Diana; Zavala, Andrea	RPS	10:00	11:00	41.56318	-70.86615	41.62215	-70.91362	11	12	N	<2	B2	0.5-1	Clear	None	7.5	326	Transit	N/A
2022-12-22	*GO Explorer*	HRG	Visual	Ortega, Jimena; Zavala, Andrea	RPS	11:00	11:08	41.62215	-70.91362	41.62208	-70.91370	6	6	NE	<2	B2	0.5-1	Clear	None	0.1	167	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	17:00	41.62209	-70.91384	41.56134	-70.86584	6	12	NW	<2	B1	>5	Cloudy	Slight	0	170	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	18:00	41.56134	-70.86584	41.41684	-70.83643	11	3	W	<2	B2	>5	Cloudy	Moderate	8.5	152	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	41.41684	-70.83643	41.31419	-70.85976	12	19	W	<2	B4	>5	Clear	Severe	7.8	188	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	41.31419	-70.85976	41.18193	-70.84336	30	16	W	<2	B4	>5	Clear	Severe	8.2	192	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-27	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	21:00	41.18193	-70.84336	41.04844	-70.81761	24	4	W	<2	B4	>5	Clear	Severe	7.9	184	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:00	22:00	41.04844	-70.81761	40.90829	-70.79396	46	12	W	<2	B4	>5	Clear	Moderate	9	177	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	40.90829	-70.79396	40.76996	-70.76679	51	10	WSW	<2	B4	0.5-1	Clear	None	8.2	162	Transit	N/A
2022-12-27	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	00:00	40.76996	-70.76679	40.63810	-70.73653	66	10	W	<2	B4	0.5-1	Clear	None	8.6	183	Transit	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	00:29	40.63092	-70.73484	40.56528	-70.72417	64	9	W	<2	B4	0.5-1	Clear	None	8.8	171	Transit	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:29	01:00	40.56528	-70.72417	40.55810	-70.74409	68	14	NW	<2	B3	0.5-1	Clear	None	4.6	196	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	02:00	40.55810	-70.74409	40.54646	-70.76722	70	17	NW	<2	B3	0.5-1	Clear	None	1.8	269	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	03:00	40.54646	-70.76722	40.53625	-70.77904	71	16	NW	<2	B3	0.5-1	Clear	None	0.9	132	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:00	04:00	40.53625	-70.77904	40.56930	-70.71612	72	15	NW	<2	B3	0.5-1	Clear	None	2.2	254	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:00	05:00	40.56930	-70.71612	40.58909	-70.75264	72	12	WNW	<2	B4	0.5-1	Clear	None	2.2	22	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	06:00	40.58909	-70.75264	40.60661	-70.82547	67	8	NW	<2	B3	0.5-1	Clear	None	4.4	285	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	07:00	40.60661	-70.82547	40.61341	-70.88637	66	12	SE	<2	B3	0.5-1	Clear	None	4.5	90	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	08:00	40.61341	-70.88637	40.59870	-70.84893	69	7	S	<2	B2	0.5-1	Clear	None	4	280	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:00	09:00	40.59870	-70.84893	40.61903	-70.93374	68	10	NW	<2	B2	0.5-1	Cloudy	None	4	291	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	10:00	40.61903	-70.93374	40.63495	-70.97601	70	9	NW	<2	B2	0.5-1	Clear	None	4.1	299	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:00	11:00	40.63495	-70.97601	40.65344	-71.02127	68	3	SSE	<2	B1	0.5-1	Clear	None	2.4	289	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:35	40.65344	-71.02127	40.66991	-71.04443	65	6	W	<2	B1	0.5-1	Clear	None	2.8	331	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:35	12:00	40.66991	-71.04443	40.65679	-71.01403	64	3	S	<2	B1	2-5	Clear	None	2.2	30	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	13:00	40.65679	-71.01403	40.65555	-70.92172	66	9	ESE	<2	B1	>5	Clear	None	4.7	100	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	14:00	40.65555	-70.92172	40.68142	-70.75417	67	3	NW	<2	B2	>5	Clear	Severe	0.9	82	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	15:00	40.68142	-70.75417	40.70029	-70.58373	64	12	NW	<2	B3	>5	Clear	Severe	8.5	81	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	16:00	40.70029	-70.58373	40.71828	-70.43615	58	10	SE	<2	B3	>5	Clear	Severe	8.5	85	Standby	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	16:28	40.71828	-70.43615	40.72787	-70.40819	52	4	SE	<2	B3	>5	Clear	Severe	2.7	105	Deploying/Retrieving	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:28	16:55	40.72787	-70.40819	40.74838	-70.40625	52	4	SE	<2	B3	>5	Clear	Severe	2.7	105	Silent	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:55	17:00	40.74838	-70.40625	40.74970	-70.40645	52	4	SE	<2	B3	>5	Clear	Severe	2.9	357	Soft Start	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	17:17	40.74970	-70.40645	40.75639	-70.39509	50	12	SW	<2	B3	>5	Clear	Severe	2.9	357	Soft Start	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:17	17:57	40.75639	-70.39509	40.72545	-70.34793	50	12	SW	<2	B3	>5	Clear	Severe	2.9	357	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:57	17:58	40.72545	-70.34793	40.72541	-70.34582	48	12	SW	<2	B3	>5	Clear	Severe	5.1	96	Silent	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:58	18:00	40.72541	-70.34582	40.72548	-70.34216	48	12	SW	<2	B3	>5	Clear	Severe	5.1	96	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	40.72548	-70.34216	40.72674	-70.23285	48	12	SW	<2	B3	>5	Cloudy	Severe	5.1	96	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	40.72674	-70.23285	40.72786	-70.12203	45	13	SW	<2	B3	>5	Clear	Severe	5.2	97	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:56	40.72786	-70.12203	40.72877	-70.01785	41	13	SW	<2	B3	>5	Cloudy	Moderate	5.2	96	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:56	20:57	40.72877	-70.01785	40.72886	-70.01599	32	13	SW	<2	B3	>5	Cloudy	Moderate	4.8	81	Silent	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:57	21:00	40.72886	-70.01599	40.72845	-70.01073	32	13	SW	<2	B3	>5	Cloudy	Moderate	4.8	135	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:00	21:07	40.72845	-70.01073	40.72299	-70.01218	32	13	SW	<2	B3	>5	Cloudy	Moderate	4.8	180	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:07	21:08	40.72299	-70.01218	40.72295	-70.01340	32	13	SW	<2	B3	>5	Cloudy	Moderate	4.8	234	Silent	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:08	22:00	40.72295	-70.01340	40.72235	-70.08121	32	13	SW	<2	B3	>5	Cloudy	Moderate	4.8	272	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	40.72235	-70.08121	40.72154	-70.16577	41	22	W	<2	B4	0.5-1	Cloudy	Moderate	4.3	265	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	23:59	40.72154	-70.16577	40.72068	-70.24881	44	22	W	<2	B4	0.5-1	Cloudy	None	1.9	260	Full Power	N/A
2022-12-28	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:59	00:00	40.72068	-70.24881	40.72068	-70.24881	44	22	W	<2	B4	0.5-1	Cloudy	None	1.9	260	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	01:00	40.72056	-70.25505	40.71969	-70.33947	46	26	W	<2	B4	0.5-1	Cloudy	None	4.1	270	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	01:02	40.71969	-70.33947	40.71966	-70.34251	49	26	W	<2	B4	0.5-1	Cloudy	None	4.2	270	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:02	01:04	40.71966	-70.34251	40.71978	-70.34468	49	26	W	<2	B4	0.5-1	Cloudy	None	4.1	270	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:04	01:16	40.71978	-70.34468	40.72577	-70.34913	49	26	W	<2	B4	0.5-1	Cloudy	None	4.1	270	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:16	01:18	40.72577	-70.34913	40.72579	-70.34631	48	17	W	<2	B4	0.5-1	Cloudy	None	3.9	93	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:18	02:00	40.72579	-70.34631	40.72645	-70.29073	48	17	W	<2	B4	0.5-1	Cloudy	None	3.8	95	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	03:00	40.72645	-70.29073	40.72735	-70.20419	47	14	NW	<2	B4	0.5-1	Cloudy	None	3.6	70	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:00	04:00	40.72735	-70.20419	40.72809	-70.11821	44	17	WSW	<2	B4	0.5-1	Clear	None	4	100	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:00	05:00	40.72809	-70.11821	40.72895	-70.03125	41	17	WSW	<2	B4	0.5-1	Clear	None	4.5	100	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	05:09	40.72895	-70.03125	40.72916	-70.01733	38	15	WSW	<2	B3	0.5-1	Clear	None	3.9	81	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:09	05:10	40.72916	-70.01733	40.72917	-70.01547	37	4	WSW	<2	B3	0.5-1	Clear	None	3.9	81	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:10	05:23	40.72917	-70.01547	40.72320	-70.01549	37	8	WSW	<2	B3	0.5-1	Clear	None	4.2	83	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:23	05:25	40.72320	-70.01549	40.72313	-70.01765	40	13	W	<2	B3	0.5-1	Clear	None	5	283	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:25	06:00	40.72313	-70.01765	40.72269	-70.06118	40	17	W	<2	B3	0.5-1	Clear	None	5	283	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	07:00	40.72269	-70.06118	40.72219	-70.13070	41	19	W	<2	B3	0.5-1	Clear	None	1.8	257	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	08:00	40.72219	-70.13070	40.72141	-70.20146	41	21	W	<2	B4	0.5-1	Clear	None	3	262	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:00	09:00	40.72141	-70.20146	40.72059	-70.27379	44	19	W	<2	B4	0.5-1	Clear	None	3.4	262	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	09:51	40.72059	-70.27379	40.71991	-70.34218	47	20	W	<2	B4	0.5-1	Clear	None	3.1	272	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:51	09:52	40.71991	-70.34218	40.71989	-70.34360	49	15	W	<2	B4	0.5-1	Clear	None	4.1	272	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:52	10:00	40.71989	-70.34360	40.72521	-70.34807	49	15	W	<2	B4	0.5-1	Clear	None	4.3	273	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:00	10:02	40.72521	-70.34807	40.72606	-70.34540	48	11	W	<2	B4	0.5-1	Clear	None	3.8	273	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:02	10:03	40.72606	-70.34540	40.72603	-70.34394	48	11	W	<2	B4	0.5-1	Clear	None	3.8	273	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:03	11:00	40.72603	-70.34394	40.72704	-70.25698	48	11	W	<2	B4	0.5-1	Clear	None	3.8	91	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:38	40.72704	-70.25698	40.72765	-70.19211	45	7	W	<2	B3	0.5-1	Clear	None	4.6	103	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:38	12:00	40.72765	-70.19211	40.72807	-70.15846	44	7	W	<2	B3	2-5	Clear	None	4.6	95	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	13:00	40.72807	-70.15846	40.72898	-70.06410	42	7	W	<2	B2	>5	Clear	None	4.6	90	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	13:33	40.72898	-70.06410	40.72954	-70.01890	40	8	W	<2	B3	>5	Cloudy	Slight	4.1	77	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:33	13:35	40.72954	-70.01890	40.72958	-70.01627	40	6	W	<2	B3	>5	Clear	Moderate	4.1	82	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:35	13:55	40.72958	-70.01627	40.72341	-70.01406	40	6	W	<2	B3	>5	Clear	Moderate	4.1	82	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:55	13:56	40.72341	-70.01406	40.72342	-70.01566	41	14	W	<2	B3	>5	Clear	Moderate	4.1	273	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:56	14:00	40.72342	-70.01566	40.72335	-70.02266	41	14	W	<2	B3	>5	Clear	Moderate	4.1	273	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	15:00	40.72335	-70.02266	40.72266	-70.11179	41	14	W	<2	B3	>5	Clear	Moderate	5	271	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	16:00	40.72266	-70.11179	40.72167	-70.20229	41	16	W	<2	B3	>5	Clear	Moderate	5	271	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	17:00	40.72167	-70.20229	40.72081	-70.28216	44	14	W	<2	B4	>5	Clear	Severe	4.3	265	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	17:41	40.72081	-70.28216	40.72014	-70.34124	47	16	WSW	<2	B4	>5	Clear	Severe	3.8	260	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:41	17:43	40.72014	-70.34124	40.72002	-70.34386	47	18	WSW	<2	B4	>5	Clear	Severe	3.8	260	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:43	18:00	40.72002	-70.34386	40.72648	-70.35804	47	18	WSW	<2	B4	>5	Clear	Severe	3.8	260	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	18:06	40.72648	-70.35804	40.72639	-70.34882	49	13	WSW	<2	B4	>5	Clear	Severe	4.7	45	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:06	18:08	40.72639	-70.34882	40.72622	-70.34381	49	13	WSW	<2	B4	>5	Clear	Severe	4.7	71	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:08	19:00	40.72622	-70.34381	40.72721	-70.25468	49	13	WSW	<2	B4	>5	Clear	Severe	4.7	79	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	40.72721	-70.25468	40.72833	-70.14998	46	9	SW	<2	B3	>5	Clear	Severe	4.8	94	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	21:00	40.72833	-70.14998	40.72944	-70.03939	48	9	SW	<2	B3	>5	Clear	Severe	4	97	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:00	21:13	40.72944	-70.03939	40.72961	-70.01754	39	8	SW	<2	B3	>5	Clear	Moderate	5	84	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:13	21:14	40.72961	-70.01754	40.72960	-70.01576	36	7	SW	<2	B3	>5	Clear	Slight	4.6	82	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:14	21:29	40.72960	-70.01576	40.72376	-70.01312	36	7	SW	<2	B3	>5	Clear	Slight	4.6	82	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:29	21:30	40.72376	-70.01312	40.72373	-70.01475	36	14	W	<2	B3	2-5	Clear	Slight	4.6	82	Silent	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:30	22:00	40.72373	-70.01475	40.72341	-70.05879	40	14	W	<2	B3	2-5	Clear	Slight	4.6	82	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	40.72341	-70.05879	40.72266	-70.14334	41	12	WSW	<2	B3	0.5-1	Cloudy	None	4.1	274	Full Power	N/A
2022-12-29	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	00:00	40.72266	-70.14334	40.72161	-70.23970	43	15	W	<2	B3	0.5-1	Cloudy	None	4.4	257	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	00:00	00:00	40.72161	-70.23970	40.72161	-70.23970	43	15	W	<2	B3	0.5-1	Cloudy	None	4.4	257	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	01:00	40.72153	-70.24532	40.72048	-70.33930	46	17	WSW	<2	B3	0.5-1	Clear	None	5.3	268	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	01:02	40.72048	-70.33930	40.72042	-70.34270	48	17	W	<2	B3	0.5-1	Clear	None	4.4	265	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:02	01:03	40.72042	-70.34270	40.72043	-70.34458	48	17	W	<2	B3	0.5-1	Clear	None	4.4	266	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:03	01:52	40.72043	-70.34458	40.72661	-70.34804	47	23	WSW	<2	B3	0.5-1	Clear	None	4.2	271	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:52	01:53	40.72661	-70.34804	40.72661	-70.34667	49	12	WSW	<2	B3	0.5-1	Clear	None	3.8	93	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:53	02:00	40.72661	-70.34667	40.72670	-70.33770	49	14	W	<2	B3	0.5-1	Clear	None	4.3	94	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	03:00	40.72670	-70.33770	40.72763	-70.25176	48	15	WSW	<2	B3	0.5-1	Clear	None	4.1	77	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:00	04:00	40.72763	-70.25176	40.72847	-70.16856	11	11	W	<2	B3	0.5-1	Clear	None	4.7	96	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:00	05:00	40.72847	-70.16856	40.72930	-70.08300	43	9	W	<2	B3	0.5-1	Clear	None	4	96	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	06:00	40.72930	-70.08300	40.72426	-70.01154	41	10	W	<2	B3	0.5-1	Clear	None	4.2	102	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	07:00	40.72426	-70.01154	40.72326	-70.09622	45	18	W	<2	B3	0.5-1	Clear	None	4.5	287	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	08:00	40.72326	-70.09622	40.72254	-70.16765	41	18	W	<2	B4	0.5-1	Clear	None	4.5	258	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:00	09:00	40.72254	-70.16765	40.72165	-70.24955	43	18	W	<2	B4	0.5-1	Clear	None	3.2	262	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	10:00	40.72165	-70.24955	40.72079	-70.33018	43	18	W	<2	B4	0.5-1	Clear	None	3.7	239	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:00	10:08	40.72079	-70.33018	40.72066	-70.34105	48	17	W	<2	B4	0.5-1	Clear	None	4.5	268	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:08	10:10	40.72066	-70.34105	40.72068	-70.34397	48	15	W	<2	B4	0.5-1	Clear	None	3.6	268	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:10	10:25	40.72068	-70.34397	40.72679	-70.34680	48	15	W	<2	B4	0.5-1	Clear	None	3.6	267	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:25	10:27	40.72679	-70.34680	40.72685	-70.34342	48	10	WSW	<2	B4	0.5-1	Clear	None	4.7	85	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:27	11:00	40.72685	-70.34342	40.72737	-70.29708	48	10	WSW	<2	B4	0.5-1	Clear	None	4.7	85	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:39	40.72737	-70.29708	40.72816	-70.22394	47	10	SW	<2	B4	0.5-1	Clear	None	4.9	85	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:39	12:00	40.72816	-70.22394	40.72842	-70.19006	45	9	SW	<2	B3	2-5	Clear	None	4.9	87	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	13:00	40.72842	-70.19006	40.72998	-70.09532	45	9	SW	<2	B3	2-5	Clear	None	4.9	87	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	13:55	40.72998	-70.09532	40.73036	-70.01767	41	9	SW	<2	B4	>5	Clear	Severe	4	78	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:55	13:57	40.73036	-70.01767	40.73019	-70.01502	35	12	SW	<2	B3	>5	Clear	Severe	3.7	81	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:57	14:00	40.73019	-70.01502	40.72958	-70.01147	35	12	SW	<2	B3	>5	Clear	Severe	3.7	81	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	14:07	40.72958	-70.01147	40.72435	-70.01321	35	12	SW	<2	B3	>5	Clear	Severe	3.7	81	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:07	14:08	40.72435	-70.01321	40.72427	-70.01497	35	12	SW	<2	B3	>5	Clear	Severe	3.7	270	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:08	15:00	40.72427	-70.01497	40.72357	-70.10157	35	12	SW	<2	B3	>5	Clear	Severe	3.7	270	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	16:00	40.72357	-70.10157	40.72257	-70.20540	41	16	SW	<2	B3	>5	Clear	Severe	5	270	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	17:00	40.72257	-70.20540	40.72141	-70.30495	44	17	SW	<2	B4	>5	Clear	Severe	4	260	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	17:24	40.72141	-70.30495	40.72098	-70.34268	47	16	WSW	<2	B4	>5	Clear	Severe	4.6	280	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:24	17:25	40.72098	-70.34268	40.72094	-70.34442	47	16	WSW	<2	B4	>5	Clear	Severe	4.6	280	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:25	17:35	40.72094	-70.34442	40.72708	-70.34853	47	16	WSW	<2	B4	>5	Clear	Severe	4.6	280	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:35	17:36	40.72708	-70.34853	40.72707	-70.34683	47	8	SW	<2	B4	>5	Clear	Severe	4.7	81	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:36	18:00	40.72707	-70.34683	40.72753	-70.30871	47	9	SW	<2	B4	>5	Clear	Severe	4.6	280	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	40.72753	-70.30871	40.72856	-70.21043	47	13	SW	<2	B4	>5	Clear	Severe	4.2	99	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	40.72856	-70.21043	40.72959	-70.11190	44	11	SW	<2	B3	>5	Clear	Severe	4.8	96	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:55	40.72959	-70.11190	40.73041	-70.01970	5	11	SW	<2	B3	>5	Clear	Severe	7.6	96	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:55	20:56	40.73041	-70.01970	40.73043	-70.01794	38	7	S	<2	B3	>5	Clear	Moderate	4.8	93	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	20:56	21:00	40.73043	-70.01794	40.73049	-70.01425	38	7	S	<2	B3	>5	Clear	Moderate	4.8	93	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:00	21:17	40.73049	-70.01425	40.72539	-70.01251	38	7	S	<2	B3	>5	Clear	Moderate	4.8	93	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:17	21:18	40.72539	-70.01251	40.72532	-70.01371	39	15	SW	<2	B3	>5	Clear	Moderate	4.2	267	Silent	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	21:18	22:00	40.72532	-70.01371	40.72484	-70.07076	39	15	SW	<2	B3	2-5	Clear	Slight	4.2	267	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	40.72484	-70.07076	40.72402	-70.15148	41	16	SW	<2	B3	0.5-1	Clear	None	4.3	267	Full Power	N/A
2022-12-30	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	00:00	40.72402	-70.15148	40.72300	-70.24563	43	15	SW	<2	B3	0.5-1	Clear	None	3.9	259	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	00:00	00:00	40.72300	-70.24563	40.72300	-70.24563	43	15	SW	<2	B3	0.5-1	Clear	None	3.9	259	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	00:58	40.72303	-70.24706	40.72199	-70.34085	46	16	SW	<2	B3	0.5-1	Clear	None	3.9	269	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:58	01:00	40.72199	-70.34085	40.72190	-70.34449	48	13	SW	<2	B3	0.5-1	Clear	None	5	268	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	01:13	40.72190	-70.34449	40.72734	-70.34981	48	13	SW	<2	B3	0.5-1	Clear	None	5	268	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:13	01:15	40.72734	-70.34981	40.72735	-70.34655	48	10	WSW	<2	B2	0.5-1	Clear	None	4.3	89	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:15	02:00	40.72735	-70.34655	40.72822	-70.27930	48	10	S	<2	B2	0.5-1	Clear	None	4.4	89	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	02:59	40.72822	-70.27930	40.72929	-70.18662	47	10	SW	<2	B2	0.5-1	Clear	None	4.6	91	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	02:59	03:54	40.72929	-70.18662	40.72991	-70.10654	44	12	S	<2	B2	0.5-1	Clear	None	4	90	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	03:54	04:58	40.72991	-70.10654	40.73074	-70.01832	41	12	S	<2	B2	0.5-1	Clear	None	3.7	95	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:58	04:59	40.73074	-70.01832	40.73078	-70.01698	41	12	S	<2	B2	0.5-1	Clear	None	3.7	95	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:59	05:00	40.73078	-70.01698	40.73094	-70.01494	41	12	S	<2	B2	0.5-1	Clear	None	3.7	95	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	05:18	40.73094	-70.01494	40.72549	-70.01527	36	4	SW	<2	B2	0.5-1	Clear	None	3.2	98	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:18	05:19	40.72549	-70.01527	40.72550	-70.01671	40	15	SW	<2	B3	0.5-1	Clear	None	4.9	256	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:19	06:00	40.72550	-70.01671	40.72498	-70.08066	40	15	SW	<2	B3	0.5-1	Clear	None	4.9	256	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	07:00	40.72498	-70.08066	40.72409	-70.16944	41	18	SW	<2	B3	0.5-1	Clear	None	4.1	269	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	08:00	40.72409	-70.16944	40.72313	-70.26153	43	16	SW	<2	B3	0.5-1	Clear	None	4.1	259	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:00	08:54	40.72313	-70.26153	40.72221	-70.34128	47	17	SW	<2	B3	0.5-1	Clear	None	4.3	260	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:54	08:55	40.72221	-70.34128	40.72219	-70.34272	47	17	SW	<2	B3	0.5-1	Clear	None	4.3	260	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:55	09:00	40.72219	-70.34272	40.72263	-70.34960	47	17	SW	<2	B3	0.5-1	Clear	None	4.3	260	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	09:07	40.72263	-70.34960	40.72776	-70.34500	49	11	SW	<2	B3	0.5-1	Clear	None	4.1	292	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:07	09:08	40.72776	-70.34500	40.72766	-70.34341	49	11	SW	<2	B3	0.5-1	Clear	None	4.1	292	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:08	10:00	40.72766	-70.34341	40.72868	-70.25006	49	11	SW	<2	B3	0.5-1	Clear	None	4.1	292	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:00	11:00	40.72868	-70.25006	40.72987	-70.13959	46	9	S	<2	B3	0.5-1	Clear	None	5.3	94	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:36	40.72987	-70.13959	40.73042	-70.07413	42	6	S	<2	B3	0.5-1	Clear	None	5	78	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:36	12:00	40.73042	-70.07413	40.73085	-70.03129	41	7	S	<2	B3	2-5	Clear	None	4.8	85	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	12:07	40.73085	-70.03129	40.73062	-70.01957	41	7	S	<2	B3	2-5	Clear	None	4.8	85	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:07	12:08	40.73062	-70.01957	40.73120	-70.01665	41	7	S	<2	B3	2-5	Clear	None	4.8	85	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:08	12:24	40.73120	-70.01665	40.72588	-70.01545	41	7	S	<2	B3	2-5	Clear	None	4.8	85	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:24	12:25	40.72588	-70.01545	40.72585	-70.01808	41	7	S	<2	B3	2-5	Clear	None	3.9	266	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:25	13:00	40.72585	-70.01808	40.72542	-70.06817	41	7	S	<2	B3	2-5	Clear	None	3.9	266	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	14:00	40.72542	-70.06817	40.72456	-70.16079	41	14	SW	<2	B4	>5	Cloudy	Slight	4.7	278	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	15:00	40.72456	-70.16079	40.72355	-70.25165	43	15	SW	<2	B4	>5	Cloudy	Slight	4.3	272	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	15:24	40.72355	-70.25165	40.72308	-70.29580	45	17	S	<2	B4	>5	Cloudy	None	4.6	272	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:24	15:53	40.72308	-70.29580	40.72258	-70.34221	45	19	SW	<2	B4	>5	Precipitation	None	4.6	272	Full Power	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:53	16:00	40.72258	-70.34221	40.72022	-70.35076	48	17	SW	<2	B4	>5	Precipitation	None	4.6	270	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-31	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	16:23	40.72022	-70.35076	40.71069	-70.36524	48	18	SW	<2	B4	1-2	Precipitation	None	3	221	Silent	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:23	16:46	40.71069	-70.36524	40.70218	-70.37901	48	18	SW	<2	B4	1-2	Precipitation	None	3	221	Deploying/Retrieving	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:46	17:00	40.70218	-70.37901	40.69692	-70.38731	48	18	SW	<2	B4	1-2	Precipitation	None	3	221	Standby	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	17:26	40.69692	-70.38731	40.69847	-70.39002	48	18	SW	<2	B4	1-2	Precipitation	None	2.5	33	Standby	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:26	18:00	40.69847	-70.39002	40.77635	-70.39734	48	15	WSW	<2	B4	1-2	Precipitation	None	5.4	312	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	40.77635	-70.39734	40.93408	-70.39393	50	10	WSW	<2	B3	1-2	Precipitation	None	9	3	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	40.93408	-70.39393	41.07632	-70.40582	45	8	SW	<2	B3	1-2	Cloudy	None	9.1	1	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:58	41.07632	-70.40582	41.22712	-70.41189	39	8	SW	<2	B3	1-2	Cloudy	None	9	0	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	20:58	22:00	41.22712	-70.41189	41.37786	-70.42459	32	4	SW	<2	B3	0.5-1	Precipitation	None	8.7	351	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	22:31	41.37786	-70.42459	41.45053	-70.41306	11	2	SW	<2	B3	0.3-0.5	Precipitation	None	9	350	Transit	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:31	23:00	41.45053	-70.41306	41.45896	-70.44764	11	8	S	<2	B3	0.05-0.1	Precipitation	None	4.2	350	Standby	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	23:59	41.45896	-70.44764	41.47944	-70.51848	23	13	SE	<2	B3	0.05-0.1	Precipitation	None	3.6	280	Standby	N/A
2022-12-31	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:59	00:00	41.47944	-70.51848	41.47944	-70.51848	23	13	SE	<2	B3	0.05-0.1	Precipitation	None	3.6	280	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	01:00	41.48119	-70.52428	41.50635	-70.60403	21	15	SW	<2	B3	0.1-0.3	Precipitation	None	4	290	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	02:00	41.50635	-70.60403	41.49871	-70.57880	20	16	SW	<2	B3	0.1-0.3	Precipitation	None	3.6	287	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	03:00	41.49871	-70.57880	41.49140	-70.55467	25	5	SW	<2	B3	0.1-0.3	Precipitation	None	1.3	116	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:00	04:00	41.49140	-70.55467	41.48042	-70.51998	25	8	SW	<2	B3	0.1-0.3	Precipitation	None	1.3	108	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	04:00	05:00	41.48042	-70.51998	41.46486	-70.47524	21	7	SW	<2	B3	0.1-0.3	Precipitation	None	1.9	115	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	06:00	41.46486	-70.47524	41.45387	-70.41982	18	7	SW	<2	B3	0.1-0.3	Precipitation	None	2.3	117	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	07:00	41.45387	-70.41982	41.46432	-70.47332	12	13	SW	<2	B3	0.1-0.3	Precipitation	None	3.3	94	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	08:00	41.46432	-70.47332	41.47809	-70.51402	17	15	W	<2	B3	0.1-0.3	Precipitation	None	2.7	282	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	08:00	09:00	41.47809	-70.51402	41.49043	-70.55247	22	17	W	<2	B2	0.3-0.5	Precipitation	None	1.6	285	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	10:00	41.49043	-70.55247	41.49935	-70.58266	22	22	W	<2	B3	0.3-0.5	Precipitation	None	1.9	282	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:00	11:00	41.49935	-70.58266	41.46564	-70.48016	18	19	W	<2	B3	0.3-0.5	Fog	None	1.5	282	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:33	41.46564	-70.48016	41.45470	-70.43061	16	11	W	<2	B3	0.5-1	Fog	None	4.6	112	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:33	12:00	41.45470	-70.43061	41.45227	-70.41987	18	11	W	<2	B3	1-2	Fog	None	4.1	106	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	12:55	41.45227	-70.41987	41.46345	-70.47494	20	11	W	<2	B3	>5	Fog	None	3	270	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:55	13:00	41.46345	-70.47494	41.46493	-70.47998	20	11	W	<2	B3	>5	Fog	None	3	270	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	14:00	41.46493	-70.47998	41.49228	-70.55176	14	11	W	<2	B3	>5	Clear	Moderate	3	123	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	15:00	41.49228	-70.55176	41.50675	-70.61506	23	11	W	<2	B3	>5	Clear	Severe	4.2	123	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	16:00	41.50675	-70.61506	41.49288	-70.55386	21	11	W	<2	B3	>5	Clear	Severe	2.7	85	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:00	17:00	41.49288	-70.55386	41.47399	-70.50516	23	11	W	<2	B4	>5	Clear	Severe	3.2	123	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	18:00	41.47399	-70.50516	41.45231	-70.44677	20	11	W	<2	B3	>5	Clear	Severe	2.5	113	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	41.45231	-70.44677	41.46471	-70.48390	14	11	W	<2	B3	>5	Clear	Severe	2.9	120	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	41.46471	-70.48390	41.46706	-70.48959	18	11	W	<2	B3	>5	Clear	Severe	2.8	123	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:57	41.46706	-70.48959	41.49300	-70.56332	17	11	W	<2	B3	>5	Clear	Severe	1.8	287	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	20:57	22:00	41.49300	-70.56332	41.50147	-70.57649	26	12	W	<2	B3	>5	Clear	Moderate	1	123	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	41.50147	-70.57649	41.46853	-70.49140	21	11	W	<2	B3	0.5-1	Clear	None	1	301	Standby	N/A
2023-01-01	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	00:00	41.46853	-70.49140	41.44959	-70.42684	17	12	W	<2	B3	0.5-1	Clear	None	4.7	114	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	01:00	41.45041	-70.42854	41.46554	-70.48086	14	12	W	<2	B3	0.5-1	Clear	None	2.2	123	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	02:00	41.46554	-70.48086	41.48855	-70.54067	15	11	W	<2	B3	0.5-1	Clear	None	2.9	123	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	02:56	41.48855	-70.54067	41.50406	-70.60183	22	11	W	<2	B3	0.5-1	Clear	None	3.7	302	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	02:56	03:53	41.50406	-70.60183	41.49513	-70.56709	22	12	W	<2	B3	0.5-1	Cloudy	None	2.4	302	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	03:53	05:00	41.49513	-70.56709	41.47474	-70.50454	24	14	W	<2	B3	0.5-1	Cloudy	None	1.9	101	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	06:00	41.47474	-70.50454	41.41319	-70.42697	20	7	WSW	<2	B3	0.5-1	Cloudy	None	6.5	101	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:00	06:56	41.41319	-70.42697	41.30501	-70.42966	18	14	WSW	<2	B3	0.5-1	Cloudy	None	7.6	177	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	06:56	07:55	41.30501	-70.42966	41.18225	-70.40822	10	11	W	<2	B2	0.5-1	Clear	None	7.6	190	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	07:55	09:00	41.18225	-70.40822	41.05810	-70.37412	33	13	SW	<2	B3	0.5-1	Clear	None	8.4	175	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	09:56	41.05810	-70.37412	40.93204	-70.35205	39	13	SW	<2	B3	0.5-1	Clear	None	8.2	170	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	09:56	11:00	40.93204	-70.35205	40.79782	-70.36455	43	13	W	<2	B3	0.5-1	Clear	None	8.2	181	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:18	40.79782	-70.36455	40.75382	-70.37101	47	10	WSW	<2	B3	0.5-1	Clear	None	7.9	184	Transit	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:18	11:35	40.75382	-70.37101	40.75162	-70.36546	49	10	WSW	<2	B3	0.5-1	Clear	None	3.8	176	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:35	11:45	40.75162	-70.36546	40.75122	-70.36477	49	11	NW	<2	B3	2-5	Clear	None	3	155	Standby	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:45	12:00	40.75122	-70.36477	40.74783	-70.37342	49	9	WNW	<2	B3	>5	Clear	None	3	155	Deploying/Retrieving	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	12:08	40.74783	-70.37342	40.74596	-70.37788	49	9	WNW	<2	B3	>5	Clear	None	3	155	Deploying/Retrieving	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:08	12:21	40.74596	-70.37788	40.73699	-70.38438	49	9	WNW	<2	B3	>5	Clear	None	3	155	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:21	12:42	40.73699	-70.38438	40.72940	-70.35653	49	10	NW	<2	B3	>5	Clear	None	5	77	Soft Start	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:42	12:53	40.72940	-70.35653	40.72792	-70.34403	49	10	NW	<2	B3	>5	Clear	None	5	77	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:53	12:54	40.72792	-70.34403	40.72794	-70.34118	49	10	NW	<2	B3	>5	Clear	None	5	99	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:54	13:00	40.72794	-70.34118	40.72804	-70.33131	49	10	NW	<2	B3	>5	Cloudy	None	5	99	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:00	13:58	40.72804	-70.33131	40.72918	-70.23153	47	10	NW	<2	B3	>5	Cloudy	Slight	5	84	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:58	15:00	40.72918	-70.23153	40.73019	-70.13608	45	10	NW	<2	B3	>5	Cloudy	Slight	5	80	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	15:59	40.73019	-70.13608	40.73100	-70.03908	42	8	NW	<2	B3	>5	Cloudy	Severe	4.4	95	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	15:59	16:14	40.73100	-70.03908	40.73131	-70.01925	36	7	NW	<2	B2	>5	Cloudy	Slight	4	80	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:14	16:16	40.73131	-70.01925	40.73135	-70.01677	36	7	NW	<2	B2	>5	Cloudy	Slight	4	80	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:16	16:28	40.73135	-70.01677	40.72604	-70.01317	36	7	NW	<2	B2	>5	Cloudy	Slight	4	80	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:28	16:29	40.72604	-70.01317	40.72618	-70.01506	36	7	NW	<2	B2	>5	Cloudy	Slight	4	278	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	16:29	17:00	40.72618	-70.01506	40.72570	-70.06829	36	7	NW	<2	B2	>5	Cloudy	Slight	4	278	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	18:00	40.72570	-70.06829	40.72454	-70.18392	36	7	NW	<2	B2	>5	Cloudy	Slight	5	262	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	19:00	40.72454	-70.18392	40.72340	-70.29399	44	15	NW	<2	B3	>5	Clear	Severe	5.1	276	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	19:25	40.72340	-70.29399	40.72282	-70.33963	47	10	WNW	<2	B3	>5	Cloudy	Severe	5.2	268	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:25	19:27	40.72282	-70.33963	40.72316	-70.34399	47	10	WNW	<2	B3	>5	Cloudy	Severe	5.2	268	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:27	19:43	40.72316	-70.34399	40.72818	-70.34704	47	10	WNW	<2	B3	>5	Cloudy	Severe	5.2	268	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:43	19:44	40.72818	-70.34704	40.72823	-70.34561	47	1	S	<2	B2	>5	Cloudy	Severe	4.3	80	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:44	20:00	40.72823	-70.34561	40.72800	-70.33809	46	1	S	<2	B2	>5	Cloudy	Severe	4.3	80	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:55	40.72800	-70.33809	40.72945	-70.23581	46	1	S	<2	B2	>5	Cloudy	Severe	4.3	80	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	20:55	22:00	40.72945	-70.23581	40.73043	-70.13212	45	2	S	<2	B2	2-5	Cloudy	Slight	4.2	94	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	40.73043	-70.13212	40.73132	-70.03697	42	3	E	<2	B2	0.5-1	Cloudy	None	4.4	98	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	23:08	40.73132	-70.03697	40.73150	-70.01855	35	2	NNE	<2	B2	0.5-1	Cloudy	None	4.6	90	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:08	23:09	40.73150	-70.01855	40.73147	-70.01686	35	2	NNE	<2	B2	0.5-1	Cloudy	None	4.6	90	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:09	23:23	40.73147	-70.01686	40.72642	-70.01103	35	2	NNE	<2	B2	0.5-1	Cloudy	None	4.6	90	Full Power	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:23	23:24	40.72642	-70.01103	40.72646	-70.01170	38	2	NNE	<2	B2	0.5-1	Cloudy	None	4.2	273	Silent	N/A
2023-01-02	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:24	00:00	40.72646	-70.01170	40.72592	-70.06410	38	7	NNE	<2	B2	0.5-1	Cloudy	None	4.5	264	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	00:58	40.72591	-70.06798	40.72501	-70.15769	41	6	W	<2	B1	0.5-1	Cloudy	None	4.3	265	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	00:58	02:00	40.72501	-70.15769	40.72404	-70.24448	42	14	WNW	<2	B3	0.5-1	Cloudy	None	4.3	267	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	02:59	40.72404	-70.24448	40.72305	-70.34107	45	14	WNW	<2	B3	0.5-1	Cloudy	None	4	267	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:59	03:00	40.72305	-70.34107	40.72303	-70.34272	48	10	NW	<2	B3	0.5-1	Cloudy	None	4.2	276	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:00	03:12	40.72303	-70.34272	40.72858	-70.34761	48	10	NW	<2	B3	0.5-1	Cloudy	None	4.2	276	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:12	03:13	40.72858	-70.34761	40.72853	-70.34557	48	10	NW	<2	B3	0.5-1	Cloudy	None	4.2	276	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	03:13	03:55	40.72853	-70.34557	40.72921	-70.27522	48	10	NW	<2	B3	0.5-1	Cloudy	None	4.4	100	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	03:55	05:00	40.72921	-70.27522	40.73029	-70.17191	47	3	E	<2	B2	0.5-1	Cloudy	None	4.4	86	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	05:00	06:06	40.73029	-70.17191	40.73132	-70.06995	43	7	E	<2	B2	0.5-1	Clear	None	4.4	88	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:06	06:42	40.73132	-70.06995	40.73173	-70.01848	40	6	E	<2	B2	0.5-1	Clear	None	4	88	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:42	06:44	40.73173	-70.01848	40.73163	-70.01561	35	8	ESE	<2	B2	0.5-1	Cloudy	None	4.2	90	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	06:44	07:00	40.73163	-70.01561	40.72668	-70.01223	35	8	ESE	<2	B2	0.5-1	Cloudy	None	4.2	90	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:00	07:01	40.72668	-70.01223	40.72669	-70.01419	38	3	E	<2	B1	0.5-1	Cloudy	None	5.2	266	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	07:01	07:59	40.72669	-70.01419	40.72566	-70.11791	38	3	E	<2	B1	0.5-1	Cloudy	None	5.2	266	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Minguer, Alejandra	RPS	07:59	09:00	40.72566	-70.11791	40.72469	-70.21166	41	2	S	<2	B1	0.5-1	Cloudy	None	4.7	264	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	09:00	09:56	40.72469	-70.21166	40.72376	-70.30215	45	7	SSW	<2	B1	0.5-1	Cloudy	None	4.3	266	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	09:56	10:23	40.72376	-70.30215	40.72330	-70.34117	47	8	SSW	<2	B3	0.5-1	Cloudy	None	3.7	266	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:23	10:24	40.72330	-70.34117	40.72326	-70.34256	48	10	S	<2	B3	0.5-1	Cloudy	None	3.9	279	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:24	10:36	40.72326	-70.34256	40.72862	-70.34481	48	10	S	<2	B3	0.5-1	Cloudy	None	3.9	279	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:36	10:37	40.72862	-70.34481	40.72869	-70.34313	48	15	SE	<2	B3	0.5-1	Cloudy	None	3.9	94	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	10:37	11:00	40.72869	-70.34313	40.72916	-70.30115	48	15	SE	<2	B3	0.5-1	Cloudy	None	3.9	94	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Minguer, Alejandra	RPS	11:00	11:35	40.72916	-70.30115	40.72983	-70.23630	47	15	SE	<2	B3	0.5-1	Cloudy	None	4.7	96	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	11:35	12:00	40.72983	-70.23630	40.73046	-70.18964	45	17	SE	<2	B3	2-5	Cloudy	None	5.2	93	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	12:00	12:56	40.73046	-70.18964	40.73147	-70.08368	43	18	SE	<2	B3	>5	Cloudy	None	5.2	80	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	12:56	13:30	40.73147	-70.08368	40.73213	-70.02012	40	21	SSE	<2	B4	>5	Cloudy	Slight	5	93	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:30	13:32	40.73213	-70.02012	40.73208	-70.01496	40	21	SSE	<2	B4	>5	Cloudy	Slight	5	93	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:32	13:47	40.73208	-70.01496	40.72693	-70.01405	40	21	SSE	<2	B4	>5	Cloudy	Slight	5	93	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:47	13:48	40.72693	-70.01405	40.72689	-70.01555	40	21	SSE	<2	B4	>5	Cloudy	Slight	5	267	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	13:48	14:00	40.72689	-70.01555	40.72675	-70.03325	40	21	SSE	<2	B4	>5	Cloudy	Slight	5	270	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	14:00	15:00	40.72675	-70.03325	40.72601	-70.12079	40	12	S	<2	B3	>5	Cloudy	Slight	4	270	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	15:00	15:56	40.72601	-70.12079	40.72502	-70.22004	41	14	S	<2	B3	>5	Cloudy	None	4	268	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	15:56	17:00	40.72502	-70.22004	40.72382	-70.32487	45	13	S	<2	B4	>5	Cloudy	None	4.6	270	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:00	17:07	40.72382	-70.32487	40.72363	-70.34070	50	17	S	<2	B4	>5	Cloudy	None	4.6	270	Full Power	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:07	17:30	40.72363	-70.34070	40.73835	-70.36018	50	17	S	<2	B4	>5	Cloudy	None	4.6	270	Silent	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:30	17:41	40.73835	-70.36018	40.74728	-70.36515	50	17	S	<2	B4	>5	Cloudy	None	4.6	270	Deploying/Retrieving	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	17:41	18:00	40.74728	-70.36515	40.76199	-70.37332	50	17	S	<2	B4	>5	Cloudy	None	4.6	270	Standby	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:00	18:32	40.76199	-70.37332	40.77873	-70.38357	50	16	S	<2	B4	2-5	Cloudy	None	1.8	346	Standby	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	18:32	19:00	40.77873	-70.38357	40.82662	-70.43871	50	10	SW	<2	B3	2-5	Precipitation	None	7.7	329	Transit	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Ortega, Jimena	RPS	19:00	20:00	40.82662	-70.43871	40.92043	-70.54767	52	8	SW	<2	B3	2-5	Precipitation	None	8.1	329	Transit	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar	RPS	20:00	20:57	40.92043	-70.54767	41.03311	-70.66660	50	11	SW	<2	B3	2-5	Precipitation	None	8.4	323	Transit	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Cabello, Diana	RPS	20:57	22:00	41.03311	-70.66660	41.14090	-70.77125	47	19	WSW	<2	B3	2-5	Precipitation	None	8	320	Transit	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Ortega, Jimena	RPS	22:00	23:00	41.14090	-70.77125	41.23741	-70.85094	36	20	W	<2	B4	0.5-1	Precipitation	None	7.6	319	Transit	N/A
2023-01-03	*GO Explorer*	HRG	Visual	Alvarado, Edgar; Klein, Michelle	RPS	23:00	00:00	41.23741	-70.85094	41.36408	-70.86604	19	13	W	<2	B4	0.5-1	Precipitation	None	8.5	336	Transit	N/A
2023-01-04	*GO Explorer*	HRG	Visual	Cabello, Diana; Klein, Michelle	RPS	00:00	01:00	41.37150	-70.86354	41.46596	-70.84392	26	1	W	<2	B2	0.5-1	Precipitation	None	7.6	9.7	Transit	N/A
2023-01-04	*GO Explorer*	HRG	Visual	Cabello, Diana; Ortega, Jimena	RPS	01:00	02:00	41.46596	-70.84392	41.56735	-70.86983	27	7	W	<2	B2	0.3-0.5	Fog	None	6.8	10	Transit	N/A
2023-01-04	*GO Explorer*	HRG	Visual	Klein, Michelle; Ortega, Jimena	RPS	02:00	03:00	41.56735	-70.86983	41.62277	-70.91419	11	10	W	<2	B2	0.3-0.5	Fog	None	6.5	330	Transit	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:48	01:00	41.62276	-70.91389	41.62603	-70.91439	8	14	SW	<2	B2	0.1-0.3	Cloudy	None	0.7	78	Transit	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.62603	-70.91439	41.56066	-70.86531	8	18	N	<2	B2	0.1-0.3	Cloudy	None	4.7	347	Transit	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.56066	-70.86531	41.47292	-70.84237	13	10	N	<2	B3	0.3-0.5	Cloudy	None	4.8	142	Transit	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	03:38	41.47292	-70.84237	41.43164	-70.81910	16	10	N	<2	B3	0.3-0.5	Cloudy	None	5.8	85	Transit	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:38	04:00	41.43164	-70.81910	41.43540	-70.79291	22	7	NW	<2	B3	0.3-0.5	Fog	None	4.4	85	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	41.43540	-70.79291	41.45488	-70.74159	28	13	W	<2	B3	0.1-0.3	Fog	None	2.9	50	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	41.45488	-70.74159	41.46949	-70.70872	31	13	N	<2	B2	0.1-0.3	Fog	None	2.3	50	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	41.46949	-70.70872	41.48785	-70.67569	22	17	W	<2	B2	0.1-0.3	Fog	None	1.1	47.5	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	41.48785	-70.67569	41.50151	-70.63039	22	12	WNW	<2	B2	0.1-0.3	Fog	None	2.2	61	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	41.50151	-70.63039	41.49473	-70.56995	22	13	N	<2	B2	0.1-0.3	Fog	None	2.2	104	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	41.49473	-70.56995	41.48184	-70.52317	26	12	NW	<2	B2	0.1-0.3	Fog	None	2.7	104	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	41.48184	-70.52317	41.49169	-70.55834	22	11	NNW	<2	B2	0.1-0.3	Fog	None	2.6	106	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:40	41.49169	-70.55834	41.50246	-70.59806	25	8	NE	<2	B2	0.1-0.3	Fog	None	2.4	294	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:40	12:00	41.50246	-70.59806	41.49968	-70.61663	21	4	SE	<2	B2	1-2	Fog	None	2.7	269	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	41.49968	-70.61663	41.49386	-70.66400	27	5	SE	<2	B2	2-5	Fog	None	2.4	255	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.49386	-70.66400	41.47745	-70.71500	26	5	SE	<2	B2	0.5-1	Fog	None	2.2	260	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.47745	-70.71500	41.45655	-70.75642	19	9	ESE	<2	B2	1-2	Fog	None	2.9	240	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.45655	-70.75642	41.42358	-70.80957	30	7	E	<2	B2	1-2	Fog	None	2.6	234	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	41.42358	-70.80957	41.40475	-70.83843	25	7	E	<2	B2	0.5-1	Fog	None	3.6	232	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.40475	-70.83843	41.42329	-70.80679	18	13	W	<2	B2	0.5-1	Fog	None	2.1	50	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	41.42329	-70.80679	41.44020	-70.76116	22	12	N	<2	B2	2-5	Fog	None	1.5	50	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	41.44020	-70.76116	41.45822	-70.72251	25	9	NNE	<2	B1	>5	Precipitation	None	2.6	59	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	41.45822	-70.72251	41.47965	-70.68814	20	6	NE	<2	B1	2-5	Precipitation	None	1.9	61	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	41.47965	-70.68814	41.44936	-70.73849	22	13	SW	<2	B1	1-2	Precipitation	None	2.1	43	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:00	23:00	41.44936	-70.73849	41.37545	-70.86459	23	10	E	<2	B1	0.5-1	Precipitation	None	3.7	231	Standby	N/A
2023-01-06	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	41.37545	-70.86459	41.25921	-70.85975	25	12	NW	<2	B3	0.5-1	Cloudy	None	7.4	250	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.25377	-70.85981	41.12740	-70.85541	27	12	N	<2	B3	0.5-1	Cloudy	None	7.5	172	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.12740	-70.85541	41.00624	-70.84622	32	12	N	<2	B3	0.5-1	Cloudy	None	8.2	250	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.00624	-70.84622	40.88609	-70.80890	50	12	N	<2	B3	0.5-1	Cloudy	None	3.2	250	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.88609	-70.80890	40.75938	-70.76390	53	7	N	<2	B3	0.5-1	Cloudy	None	7.9	168	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.75938	-70.76390	40.64019	-70.68837	61	6	NNE	<2	B3	0.5-1	Cloudy	None	7.9	159	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	05:29	40.64019	-70.68837	40.58177	-70.66260	63	8	NW	<2	B3	0.5-1	Cloudy	None	7.9	164	Transit	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:29	06:00	40.58177	-70.66260	40.56180	-70.66465	66	10	NNE	<2	B3	0.5-1	Cloudy	None	2.6	166	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.56180	-70.66465	40.57519	-70.65488	68	1.5	NW	<2	B3	0.5-1	Cloudy	None	2.3	145	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.57519	-70.65488	40.57638	-70.56794	67	1.5	NW	<2	B3	0.5-1	Cloudy	None	4.7	81	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.57638	-70.56794	40.58191	-70.51000	65	10	NW	<2	B3	0.5-1	Cloudy	None	4.6	87	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.58191	-70.51000	40.61460	-70.47113	64	11	N	<2	B3	0.5-1	Cloudy	None	4.2	75	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.61460	-70.47113	40.68284	-70.41755	61	13	W	<2	B3	0.5-1	Cloudy	None	4.2	35	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:34	40.68284	-70.41755	40.72540	-70.38624	53	13	W	<2	B3	0.5-1	Cloudy	None	4.9	31	Standby	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:34	12:00	40.72540	-70.38624	40.73966	-70.37310	50	10	W	<2	B3	1-2	Cloudy	None	6.1	31	Deploying/Retrieving	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	12:55	40.73966	-70.37310	40.76962	-70.34597	49	15	W	<2	B3	>5	Cloudy	None	2.5	31	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:55	13:00	40.76962	-70.34597	40.77236	-70.34362	49	9	NNW	<2	B3	>5	Cloudy	None	2.7	30	Soft Start	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	13:16	40.77236	-70.34362	40.76259	-70.33836	48	5	NNW	<2	B3	>5	Cloudy	None	3.7	68	Soft Start	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:16	14:02	40.76259	-70.33836	40.72894	-70.34808	49	5	NNW	<2	B3	>5	Cloudy	None	3.1	182	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:02	15:00	40.72894	-70.34808	40.73006	-70.24891	48	5	NNW	<2	B3	>5	Cloudy	None	5	88	Silent	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.73006	-70.24891	40.73132	-70.14290	45	5	NE	<2	B3	>5	Cloudy	None	5	88	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.73132	-70.14290	40.73211	-70.03789	43	5	NW	<2	B3	>5	Cloudy	None	4.5	86	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	17:11	40.73211	-70.03789	40.73229	-70.01922	37	5	NW	<2	B3	>5	Cloudy	None	4.2	79	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:11	17:13	40.73229	-70.01922	40.73234	-70.01607	34	7	NW	<2	B3	>5	Cloudy	None	4.3	79	Silent	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:13	17:27	40.73234	-70.01607	40.72695	-70.00935	34	7	NW	<2	B3	>5	Cloudy	None	4.3	79	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:27	17:29	40.72695	-70.00935	40.72702	-70.01259	38	7	NW	<2	B3	>5	Cloudy	None	5.3	280	Silent	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:29	18:00	40.72702	-70.01259	40.72683	-70.06110	38	7	NW	<2	B3	>5	Cloudy	None	5.3	280	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.72683	-70.06110	40.72614	-70.15896	40	18	NW	<2	B4	>5	Cloudy	None	4	281	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.72614	-70.15896	40.72545	-70.20701	40	19	NW	<2	B5	>5	Cloudy	Moderate	4	279	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:48	40.72545	-70.20701	40.72394	-70.33971	44	19	NW	<2	B5	>5	Cloudy	Severe	4.8	278	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:48	20:50	40.72394	-70.33971	40.72391	-70.34295	48	19	NW	<2	B5	>5	Cloudy	Severe	4.4	277	Silent	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:50	21:00	40.72391	-70.34295	40.72311	-70.35666	48	22	NW	<2	B5	>5	Cloudy	Severe	4.4	277	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	21:16	40.72311	-70.35666	40.72926	-70.34741	49	22	NW	<2	B5	>5	Cloudy	Severe	3.7	355	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:16	21:17	40.72926	-70.34741	40.72927	-70.34597	49	22	NW	<2	B5	>5	Cloudy	Severe	3.7	87	Silent	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:17	22:00	40.72927	-70.34597	40.72996	-70.28356	49	22	NW	<2	B5	>5	Cloudy	Severe	3.7	87	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:00	23:00	40.72996	-70.28356	40.73093	-70.19209	47	12	NW	<2	B4	>5	Cloudy	None	3.7	90	Full Power	N/A
2023-01-07	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	40.73093	-70.19209	40.73184	-70.10557	44	12	NW	<2	B4	>5	Cloudy	None	3.8	90	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	00:55	40.73184	-70.10271	40.73266	-70.01888	42	15	NW	<2	B3	0.5-1	Clear	None	4.3	96	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:55	00:56	40.73266	-70.01888	40.73265	-70.01734	42	15	NW	<2	B3	0.5-1	Clear	None	4.3	96	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:56	01:00	40.73265	-70.01734	40.73271	-70.01108	42	15	NW	<2	B3	0.5-1	Clear	None	4.3	96	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	01:12	40.73271	-70.01108	40.72747	-70.01094	42	17	NW	<2	B4	0.5-1	Clear	None	4.3	151	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:12	01:14	40.72747	-70.01094	40.72743	-70.01407	42	17	NW	<2	B4	0.5-1	Clear	None	4.3	200	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:14	02:00	40.72743	-70.01407	40.72680	-70.08060	42	17	NW	<2	B4	0.5-1	Clear	None	4.3	270	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	40.72680	-70.08060	40.72613	-70.15940	41	26	NW	<2	B5	0.5-1	Clear	None	4	269	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.72613	-70.15940	40.72530	-70.23789	43	23	W	<2	B5	0.5-1	Clear	None	5.2	270	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.72530	-70.23789	40.72441	-70.31080	45	23	NW	<2	B5	0.5-1	Clear	None	3	276	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	05:24	40.72441	-70.31080	40.72450	-70.32231	47	25	NW	<2	B6	0.5-1	Cloudy	None	3	276	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:24	05:26	40.72450	-70.32231	40.72450	-70.32231	47	25	NW	<2	B6	0.5-1	Cloudy	None	3	282	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:26	05:39	40.72450	-70.32231	40.72950	-70.34643	47	25	NW	<2	B6	0.5-1	Cloudy	None	3	273	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:39	05:40	40.72950	-70.34643	40.72957	-70.34451	47	25	NW	<2	B6	0.5-1	Cloudy	None	3	241	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:40	06:00	40.72957	-70.34451	40.72997	-70.31040	47	25	NW	<2	B6	0.5-1	Cloudy	None	3	85	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.72997	-70.31040	40.73108	-70.21196	48	16	WNW	<2	B5	0.5-1	Cloudy	None	4	85	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.73108	-70.21196	40.73203	-70.11842	44	19	NW	<2	B5	0.5-1	Cloudy	None	3.9	74	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.73203	-70.11842	40.73279	-70.03100	44	18	ENE	<2	B5	0.5-1	Cloudy	None	3.4	88	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	09:08	40.73279	-70.03100	40.73294	-70.01950	35	22	WNW	<2	B6	0.5-1	Cloudy	None	3.9	78	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:08	09:10	40.73294	-70.01950	40.73299	-70.01652	34	20	WNW	<2	B6	0.5-1	Cloudy	None	3.2	75	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:10	09:23	40.73299	-70.01652	40.72775	-70.01374	34	21	WNW	<2	B6	0.5-1	Cloudy	None	4.6	69	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:23	09:25	40.72775	-70.01374	40.72775	-70.01667	34	21	WNW	<2	B6	0.5-1	Cloudy	None	4.6	263	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:25	10:00	40.72775	-70.01667	40.72721	-70.06472	34	21	WNW	<2	B6	0.5-1	Cloudy	None	4.6	264	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.72721	-70.06472	40.72663	-70.13987	39	23	NW	<2	B6	0.5-1	Cloudy	None	5.1	273	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:42	40.72663	-70.13987	40.72641	-70.16338	42	16	NNW	<2	B6	0.5-1	Cloudy	None	3.8	267	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:42	12:00	40.72641	-70.16338	40.72561	-70.23261	44	16	NNW	<2	B6	1-2	Cloudy	None	3.4	277	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.72561	-70.23261	40.72475	-70.31629	45	17	NNW	<2	B6	>5	Cloudy	None	4.4	279	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.72475	-70.31629	40.74367	-70.30013	47	13	N	<2	B6	>5	Cloudy	None	3.8	270	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.74367	-70.30013	40.77128	-70.20201	48	14	NNE	<2	B5	>5	Cloudy	None	5	64	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	15:11	40.77128	-70.20201	40.76604	-70.20897	43	15	NNE	<2	B5	>5	Cloudy	Moderate	5	140	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:11	15:12	40.76604	-70.20897	40.76603	-70.21037	43	11	NNE	<2	B5	>5	Cloudy	Moderate	3.9	275	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:12	15:56	40.76603	-70.21037	40.76520	-70.27311	43	11	NNE	<2	B5	>5	Cloudy	Moderate	3.9	275	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	15:56	16:04	40.76520	-70.27311	40.76499	-70.28352	45	4	NNE	<2	B5	>5	Cloudy	Severe	4.5	275	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:04	16:06	40.76499	-70.28352	40.76499	-70.28661	45	4	NNE	<2	B5	>5	Cloudy	Severe	4.5	275	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:06	16:44	40.76499	-70.28661	40.76470	-70.23282	45	4	NNE	<2	B5	>5	Cloudy	Severe	4.5	275	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:44	16:44	40.76470	-70.23282	40.76470	-70.23282	43	8	NNE	<2	B5	>5	Cloudy	Severe	2.8	320	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:44	17:00	40.76470	-70.23282	40.77407	-70.23669	43	8	NNE	<2	B5	>5	Cloudy	Severe	2.8	320	Deploying/Retrieving	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.77407	-70.23669	40.75046	-70.21938	44	6	NNE	<2	B4	>5	Cloudy	Slight	2.3	330	Deploying/Retrieving	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	18:29	40.75046	-70.21938	40.75243	-70.23788	44	3	ENE	<2	B3	>5	Clear	Moderate	3.4	151	Deploying/Retrieving	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:29	18:42	40.75243	-70.23788	40.75475	-70.24760	44	3	ENE	<2	B3	>5	Clear	Moderate	3.4	305	Deploying/Retrieving	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:42	19:00	40.75475	-70.24760	40.75032	-70.26634	44	3	ENE	<2	B2	>5	Cloudy	Slight	3.4	257	Soft Start	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	19:03	40.75032	-70.26634	40.75523	-70.26737	44	3	ENE	<2	B2	>5	Cloudy	Slight	3.7	257	Soft Start	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:03	20:00	40.75523	-70.26737	40.75441	-70.27327	45	3	ENE	<2	B2	>5	Cloudy	Slight	4	59	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:19	40.75441	-70.27327	40.76215	-70.29259	46	5	SE	<2	B2	>5	Cloudy	Slight	4.4	280	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:19	20:21	40.76215	-70.29259	40.76270	-70.29034	46	6	SE	<2	B2	>5	Cloudy	Slight	4	280	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:21	21:00	40.76270	-70.29034	40.76324	-70.23798	46	6	SE	<2	B2	>5	Cloudy	Slight	3.9	280	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	21:29	40.76324	-70.23798	40.76369	-70.18981	43	7	E	<2	B2	>5	Cloudy	None	4.9	85	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:29	21:42	40.76369	-70.18981	40.75306	-70.18497	43	7	E	<2	B2	>5	Cloudy	None	4.9	85	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:42	21:43	40.75306	-70.18497	40.75297	-70.18686	43	7	W	<2	B2	2-5	Cloudy	None	4.6	260	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:43	21:57	40.75297	-70.18686	40.75263	-70.21354	44	6	W	<2	B2	1-2	Cloudy	None	4.6	273	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	21:57	22:45	40.75263	-70.21354	40.75171	-70.29622	43	8	SSW	<2	B2	0.5-1	Cloudy	None	5	270	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:45	22:47	40.75171	-70.29622	40.75168	-70.29959	43	14	SSW	<2	B3	0.5-1	Cloudy	None	5	263	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:47	23:00	40.75168	-70.29959	40.74159	-70.31679	43	14	SSW	<2	B3	0.5-1	Cloudy	None	5	263	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	23:19	40.74159	-70.31679	40.73801	-70.32877	48	14	SW	<2	B3	0.5-1	Cloudy	None	4.5	219	Full Power	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:19	23:20	40.73801	-70.32877	40.73822	-70.32740	48	14	SW	<2	B3	0.5-1	Cloudy	None	3.5	101	Silent	N/A
2023-01-08	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:20	00:00	40.73822	-70.32740	40.73895	-70.27067	48	14	SW	<2	B3	0.5-1	Cloudy	None	3.6	101	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	00:19	40.73906	-70.26495	40.73953	-70.23530	34	6	E	<2	B2	0.5-1	Cloudy	None	4.1	87	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:19	00:20	40.73953	-70.23530	40.73954	-70.23372	44	2	SW	<2	B2	0.5-1	Cloudy	None	4.4	101	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:20	00:36	40.73954	-70.23372	40.73813	-70.20914	44	2	SW	<2	B2	0.5-1	Cloudy	None	4.4	101	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:36	00:37	40.73813	-70.20914	40.73816	-70.20757	43	5	S	<2	B2	0.5-1	Cloudy	None	4.1	98	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:37	01:00	40.73816	-70.20757	40.73849	-70.17201	43	5	S	<2	B2	0.5-1	Cloudy	None	4.1	98	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.73849	-70.17201	40.73952	-70.07541	42	9	S	<2	B2	0.5-1	Cloudy	None	4	100	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	02:33	40.73952	-70.07541	40.74003	-70.01928	39	5	SSW	<2	B2	0.5-1	Cloudy	None	4.4	102	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:33	02:34	40.74003	-70.01928	40.74006	-70.01736	34	9	SW	<2	B2	0.5-1	Clear	None	5.9	73	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:34	03:00	40.74006	-70.01736	40.73762	-70.01864	34	9	SW	<2	B2	0.5-1	Clear	None	5.9	73	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.73762	-70.01864	40.73682	-70.11298	32	17	WSW	<2	B2	0.5-1	Clear	None	4.1	270	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	04:18	40.73682	-70.11298	40.73645	-70.14104	40	18	SE	<2	B2	0.5-1	Clear	None	4.2	260	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:18	04:42	40.73645	-70.14104	40.73312	-70.15290	40	18	SE	<2	B2	0.5-1	Clear	None	4.2	260	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:42	05:00	40.73312	-70.15290	40.73281	-70.18143	40	18	SE	<2	B2	0.5-1	Clear	None	4.2	260	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.73281	-70.18143	40.73188	-70.27547	40	15	SSW	<2	B2	0.5-1	Clear	None	4.2	264	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.73188	-70.27547	40.72888	-70.32623	47	12	WSW	<2	B2	0.5-1	Cloudy	None	4.2	266	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	07:41	40.72888	-70.32623	40.72794	-70.34524	48	15	WSW	<2	B2	0.5-1	Cloudy	None	4.8	269	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:41	07:42	40.72794	-70.34524	40.72798	-70.34350	48	5	SW	<2	B2	0.5-1	Cloudy	None	4.6	90	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:42	08:00	40.72798	-70.34350	40.72840	-70.31679	48	5	SW	<2	B2	0.5-1	Cloudy	None	4.6	90	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.72840	-70.31679	40.72953	-70.21636	48	3	S	<2	B2	0.5-1	Cloudy	None	4.2	88	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.72953	-70.21636	40.73040	-70.12412	44	3	S	<2	B2	0.5-1	Cloudy	None	4.7	85	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.73040	-70.12412	40.73127	-70.03215	41	5	E	<2	B2	0.5-1	Cloudy	None	4.2	87	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:09	40.73127	-70.03215	40.73144	-70.01804	37	5	NW	<2	B2	0.5-1	Precipitation	None	4.3	93	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:09	11:10	40.73144	-70.01804	40.73146	-70.01650	36	5	NW	<2	B2	0.5-1	Precipitation	None	4.5	93	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:10	11:37	40.73146	-70.01650	40.72517	-70.04362	36	5	NW	<2	B2	0.5-1	Precipitation	None	4.5	93	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:37	11:38	40.72517	-70.04362	40.72517	-70.04519	40	5	W	<2	B2	1-2	Precipitation	None	4.5	272	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:38	12:00	40.72517	-70.04519	40.72474	-70.08261	40	11	W	<2	B2	2-5	Precipitation	None	4.5	272	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.72474	-70.08261	40.72385	-70.18338	42	10	W	<2	B2	>5	Precipitation	None	4.7	268	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.72385	-70.18338	40.72286	-70.27814	44	5	W	<2	B2	>5	Cloudy	None	4.7	268	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	14:41	40.72286	-70.27814	40.72212	-70.34018	47	8	NNW	<2	B2	>5	Precipitation	None	4	266	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:41	14:43	40.72212	-70.34018	40.72211	-70.34324	48	5	NNW	<2	B2	>5	Precipitation	None	4.3	269	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:43	15:00	40.72211	-70.34324	40.72709	-70.35266	48	5	NNW	<2	B2	>5	Precipitation	None	4.3	269	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.72709	-70.35266	40.72831	-70.23234	48	5	NNW	<2	B2	>5	Cloudy	None	5.1	94	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.72831	-70.23234	40.72899	-70.13539	45	8	NW	<2	B2	>5	Cloudy	None	5.1	86	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	17:05	40.72899	-70.13539	40.72924	-70.12226	42	8	NW	<2	B2	>5	Cloudy	None	4.8	84	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:05	17:06	40.72924	-70.12226	40.72927	-70.12036	41	8	NW	<2	B2	>5	Cloudy	None	5.1	87	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:06	17:57	40.72927	-70.12036	40.73032	-70.02496	41	8	NW	<2	B2	>5	Cloudy	None	5.1	87	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	17:57	18:00	40.73032	-70.02496	40.73035	-70.02015	37	12	NNE	<2	B3	>5	Cloudy	None	4.9	79	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	18:02	40.73035	-70.02015	40.73037	-70.01653	37	12	NNE	<2	B3	>5	Cloudy	None	4.9	79	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:02	18:20	40.73037	-70.01653	40.72701	-70.01207	37	12	NNE	<2	B3	>5	Cloudy	None	4.9	100	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:20	18:21	40.72701	-70.01207	40.72721	-70.01357	37	12	NNE	<2	B3	>5	Cloudy	None	4.9	280	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:21	19:00	40.72721	-70.01357	40.72694	-70.07290	37	12	NNE	<2	B3	>5	Cloudy	None	4.9	280	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.72694	-70.07290	40.72597	-70.16687	40	17	N	<2	B4	>5	Cloudy	None	4.7	280	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:25	40.72597	-70.16687	40.72547	-70.21516	43	17	NNW	<2	B4	2-5	Fog	None	4.5	270	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:25	20:27	40.72547	-70.21516	40.72543	-70.21865	45	13	NNW	<2	B4	2-5	Fog	None	4.7	272	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:27	21:00	40.72543	-70.21865	40.73018	-70.17837	45	13	NNW	<2	B4	2-5	Fog	None	3.5	272	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.73018	-70.17837	40.72418	-70.26806	43	5	N	<2	B4	>5	Cloudy	None	3.7	94	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:13	40.72418	-70.26806	40.72386	-70.29388	47	19	NW	<2	B4	1-2	Cloudy	None	4.6	262	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:13	22:57	40.72386	-70.29388	40.72609	-70.34600	47	19	NW	<2	B4	0.5-1	Cloudy	None	4.6	262	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:57	23:41	40.72609	-70.34600	40.72645	-70.27983	48	17	NW	<2	B4	0.5-1	Cloudy	None	4.5	82	Full Power	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:41	23:42	40.72645	-70.27983	40.72650	-70.27830	47	14	NW	<2	B4	0.5-1	Cloudy	None	4.5	96	Silent	N/A
2023-01-09	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:42	00:00	40.72650	-70.27830	40.72675	-70.25453	47	15	NW	<2	B4	0.5-1	Cloudy	None	4.5	96	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.72681	-70.25076	40.72768	-70.15684	42	18	W	<2	B3	0.5-1	Cloudy	None	3.6	86	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.72768	-70.15684	40.72849	-70.05820	42	16	NNW	<2	B4	0.5-1	Cloudy	None	4.5	90	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	02:24	40.72849	-70.05820	40.72884	-70.01813	39	17	NW	<2	B4	0.5-1	Clear	None	4.7	93	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:24	02:25	40.72884	-70.01813	40.72891	-70.01654	39	22	NW	<2	B5	0.5-1	Clear	None	4.7	105	Silent	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:25	02:36	40.72891	-70.01654	40.72321	-70.01391	39	22	NW	<2	B5	0.5-1	Clear	None	4.7	105	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:36	02:37	40.72321	-70.01391	40.72316	-70.01513	39	22	NW	<2	B5	0.5-1	Clear	None	4.7	270	Silent	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:37	03:00	40.72316	-70.01513	40.72287	-70.04555	39	22	NW	<2	B5	0.5-1	Clear	None	4.7	270	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	03:14	40.72287	-70.04555	40.72271	-70.06347	39	26	NW	<2	B5	0.5-1	Clear	None	4.7	263	Full Power	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:14	04:00	40.72271	-70.06347	40.73716	-70.08357	39	26	NW	<2	B5	0.5-1	Clear	None	4.7	263	Deploying/Retrieving	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.73716	-70.08357	40.75307	-70.11257	38	26	NNW	<2	B5	0.5-1	Clear	None	2.8	300	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.75307	-70.11257	40.76439	-70.14730	39	28	NNW	2-4	B6	0.5-1	Clear	None	2.3	300	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.76439	-70.14730	40.78251	-70.19199	40	28	NW	2-4	B6	0.5-1	Clear	None	2.5	303	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.78251	-70.19199	40.79246	-70.24795	42	31	NW	2-4	B6	0.5-1	Clear	None	2.7	304	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.79246	-70.24795	40.74318	-70.18510	42	30	WNW	2-4	B6	0.5-1	Clear	None	3.4	272	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.74318	-70.18510	40.69286	-70.11795	42	23	NW	2-4	B5	0.5-1	Clear	None	5	133	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.69286	-70.11795	40.66246	-70.04735	45	21	NW	2-4	B5	0.5-1	Clear	None	4	133	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:38	40.66246	-70.04735	40.65615	-70.04223	47	20	NW	2-4	B5	0.5-1	Cloudy	None	4.4	111	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:38	11:45	40.65615	-70.04223	40.65834	-70.04915	43	18	NW	2-4	B5	1-2	Cloudy	None	2.3	283	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:00	40.65834	-70.04915	40.66319	-70.06425	47	18	NW	2-4	B5	2-5	Cloudy	None	2.2	291	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.66319	-70.06425	40.68588	-70.12092	46	21	NW	2-4	B5	>5	Cloudy	None	3.4	294	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.68588	-70.12092	40.70969	-70.17375	45	26	NW	2-4	B5	>5	Cloudy	None	4.1	303	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.70969	-70.17375	40.73286	-70.22424	44	23	NW	2-4	B5	>5	Cloudy	None	3.5	298	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.73286	-70.22424	40.75406	-70.27550	45	23	NW	2-4	B5	>5	Cloudy	None	2.5	317	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.75406	-70.27550	40.77066	-70.31309	46	23	NW	2-4	B5	>5	Cloudy	None	2.6	298	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.77066	-70.31309	40.72990	-70.22176	47	19	NW	2-4	B5	>5	Cloudy	None	4.3	131	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.72990	-70.22176	40.69392	-70.13961	47	14	NW	2-4	B5	>5	Cloudy	None	4.3	121	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.69392	-70.13961	40.70051	-70.17525	45	11	NW	2-4	B5	>5	Cloudy	None	4.2	120	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.70051	-70.17525	40.71708	-70.22796	45	18	NW	2-4	B5	>5	Cloudy	None	3.3	281	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.71708	-70.22796	40.73524	-70.24710	44	20	WNW	2-4	B5	>5	Cloudy	None	2.1	281	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:06	40.73524	-70.24710	40.73659	-70.24094	45	10	NW	2-4	B4	1-2	Cloudy	None	2.8	66	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:06	22:27	40.73659	-70.24094	40.73886	-70.21301	45	10	NW	<2	B3	0.5-1	Cloudy	None	2.9	67	Standby	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:27	22:56	40.73886	-70.21301	40.74283	-70.21760	44	12	NW	<2	B3	0.5-1	Cloudy	None	3.2	88	Deploying/Retrieving	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:56	23:17	40.74283	-70.21760	40.74616	-70.24182	44	18	NW	<2	B3	0.5-1	Cloudy	None	3.3	286	Deploying/Retrieving	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:17	23:38	40.74616	-70.24182	40.74620	-70.21511	44	14	NW	<2	B3	0.5-1	Cloudy	None	4	13	Soft Start	N/A
2023-01-10	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:38	00:00	40.74620	-70.21511	40.74286	-70.18913	44	8	NW	<2	B3	0.5-1	Cloudy	None	3.9	100	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.74234	-70.18416	monthly	-70.10036	44	7	ESE	<2	B3	0.5-1	Clear	None	3.8	100	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.73908	-70.10036	40.73957	-70.01552	40	7	N	<2	B3	0.5-1	Clear	None	3.8	96	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	02:11	40.73957	-70.01552	40.73300	-70.01501	33	2	NE	<2	B3	0.5-1	Clear	None	3.6	114	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:11	02:12	40.73300	-70.01501	40.73297	-70.01663	34	10	NW	<2	B3	0.5-1	Clear	None	4	170	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:12	03:00	40.73297	-70.01663	40.73199	-70.10054	34	10	NW	<2	B3	0.5-1	Clear	None	4	170	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.73199	-70.10054	40.73104	-70.20190	34	8	W	<2	B3	0.5-1	Cloudy	None	4.8	270	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.73104	-70.20190	40.73005	-70.29697	34	11	ENE	<2	B3	0.5-1	Cloudy	None	4.9	266	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.73005	-70.29697	40.72008	-70.32784	47	9	ENE	<2	B3	0.5-1	Cloudy	None	3.9	266	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.72008	-70.32784	40.72142	-70.22052	48	19	ENE	<2	B4	0.5-1	Cloudy	None	4.8	88	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.72142	-70.22052	40.71574	-70.17979	45	17	ENE	<2	B4	0.5-1	Cloudy	None	5	86	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.71574	-70.17979	40.72223	-70.11064	45	17	ENE	<2	B4	0.5-1	Cloudy	None	5	86	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.72223	-70.11064	40.72317	-70.01263	41	14	ENE	<2	B4	0.5-1	Cloudy	None	4.8	82	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	10:27	40.72317	-70.01263	40.72408	-70.01372	42	8	ENE	<2	B4	0.5-1	Cloudy	None	4.6	213	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	10:27	10:28	40.72408	-70.01372	40.72403	-70.01533	40	7	NE	<2	B3	0.5-1	Cloudy	None	5.5	272	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:28	11:00	40.72403	-70.01533	40.72366	-70.06236	40	7	NE	<2	B3	0.5-1	Cloudy	None	5.5	272	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:38	40.72366	-70.06236	40.72292	-70.13513	41	10	NE	<2	B3	0.5-1	Cloudy	None	4.5	279	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:38	11:45	40.72292	-70.13513	40.72282	-70.14701	42	10	NE	<2	B3	1-2	Cloudy	None	4.8	260	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:00	40.72282	-70.14701	40.72249	-70.17204	43	10	NE	<2	B3	2-5	Cloudy	None	4.5	267	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	12:43	40.72249	-70.17204	40.72172	-70.24472	43	10	NE	<2	B3	>5	Cloudy	None	4.5	273	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:43	12:44	40.72172	-70.24472	40.72166	-70.24641	43	10	NE	<2	B3	>5	Cloudy	None	4.7	268	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:44	13:00	40.72166	-70.24641	40.72139	-70.27264	46	7	NE	<2	B3	>5	Cloudy	None	4.7	260	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.72139	-70.27264	40.72515	-70.33983	47	8	NE	<2	B3	>5	Cloudy	None	4.3	271	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.72515	-70.33983	40.71750	-70.30530	48	17	ENE	<2	B3	>5	Cloudy	None	4.7	89	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	15:59	40.71750	-70.30530	40.73066	-70.21796	48	10	NE	<2	B3	>5	Cloudy	None	4.5	296	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:59	16:00	40.73066	-70.21796	40.73071	-70.21628	48	16	NE	<2	B3	>5	Cloudy	Moderate	4.5	296	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.73071	-70.21628	40.73159	-70.11422	48	14	E	<2	B3	>5	Cloudy	Moderate	4.5	83	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	17:54	40.73159	-70.11422	40.73248	-70.01975	40	15	ENE	<2	B3	>5	Cloudy	Moderate	4.9	86	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:54	17:56	40.73248	-70.01975	40.73252	-70.01627	34	20	NE	<2	B3	>5	Cloudy	Slight	4.9	80	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:56	18:00	40.73252	-70.01627	40.73149	-70.00988	34	20	NE	<2	B3	>5	Cloudy	Slight	4.9	80	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.73149	-70.00988	40.72666	-70.10062	35	13	NE	<2	B4	>5	Cloudy	Slight	4	143	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.72666	-70.10062	40.72421	-70.19217	41	6	ENE	<2	B4	>5	Cloudy	Slight	4.7	276	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:59	40.72421	-70.19217	40.72821	-70.18942	44	16	NE	<2	B4	>5	Cloudy	None	4.1	279	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:59	21:00	40.72821	-70.18942	40.72823	-70.18801	44	17	NE	<2	B4	>5	Cloudy	None	3.8	95	Silent	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.72823	-70.18801	40.72917	-70.10131	44	17	NE	<2	B4	>5	Cloudy	None	3.8	95	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:10	40.72917	-70.10131	40.72925	-70.09175	41	15	NE	<2	B4	2-5	Cloudy	None	4.2	84	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:10	23:00	40.72925	-70.09175	40.72988	-70.01978	41	15	NE	<2	B4	0.5-1	Cloudy	None	4.2	84	Full Power	N/A
2023-01-11	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	40.72988	-70.01978	40.72377	-70.08682	37	12	ENE	<2	B4	0.5-1	Cloudy	None	3.5	85	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.72378	-70.09013	40.72723	-70.04459	42	5	W	<2	B2	0.5-1	Cloudy	None	2.6	271	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	01:32	40.72723	-70.04459	40.72205	-70.01356	42	15	ENE	<2	B3	0.5-1	Clear	None	3.5	93	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:32	01:33	40.72205	-70.01356	40.72202	-70.01553	42	10	W	<2	B3	0.5-1	Clear	None	5.2	270	Silent	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:33	02:00	40.72202	-70.01553	40.72139	-70.06648	42	10	W	<2	B3	0.5-1	Clear	None	5.2	270	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	40.72139	-70.06648	40.72048	-70.15972	42	10	NE	<2	B3	0.5-1	Clear	None	5	262	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.72048	-70.15972	40.71937	-70.26449	42	7	ESE	<2	B2	0.5-1	Cloudy	None	4.7	271	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	04:48	40.71937	-70.26449	40.71854	-70.33971	47	6	ENE	<2	B2	0.5-1	Cloudy	None	4.7	263	Full Power	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:48	05:00	40.71854	-70.33971	40.71842	-70.35623	49	8	NE	<2	B2	0.5-1	Cloudy	None	3.7	261	Silent	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	05:08	40.71842	-70.35623	40.71857	-70.36441	49	8	NE	<2	B2	0.5-1	Cloudy	None	3.7	261	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:08	05:32	40.71857	-70.36441	40.71859	-70.38438	49	8	NE	<2	B2	0.5-1	Cloudy	None	3.7	261	Deploying/Retrieving	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:32	05:45	40.71859	-70.38438	40.71691	-70.39990	49	8	NE	<2	B2	0.5-1	Cloudy	None	3.7	261	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	05:45	06:00	40.71691	-70.39990	40.71372	-70.41930	52	11	E	<2	B2	0.5-1	Cloudy	None	4.7	198	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.71372	-70.41930	40.64124	-70.45337	52	11	E	<2	B2	0.5-1	Cloudy	None	4.7	198	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.64124	-70.45337	40.59656	-70.47911	58	5	ESE	<2	B2	0.5-1	Cloudy	None	4.1	205	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.59656	-70.47911	40.59459	-70.53592	62	13	E	<2	B2	0.5-1	Cloudy	None	4.1	38	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.59459	-70.53592	40.61842	-70.62021	64	3	E	<2	B2	0.5-1	Cloudy	None	4.8	322	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.61842	-70.62021	40.60338	-70.54337	62	14	E	<2	B2	0.5-1	Cloudy	None	2	98	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:35	40.60338	-70.54337	40.59488	-70.50268	63	16	E	<2	B3	0.5-1	Cloudy	None	3.3	98	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:35	11:40	40.59488	-70.50268	40.59407	-70.49840	63	14	E	<2	B3	1-2	Cloudy	None	2.3	117	Deploying/Retrieving	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:40	11:47	40.59407	-70.49840	40.59245	-70.49237	63	14	E	<2	B3	2-5	Cloudy	None	2.3	117	Deploying/Retrieving	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:47	12:00	40.59245	-70.49237	40.58721	-70.49745	63	14	E	<2	B3	>5	Cloudy	None	2.3	117	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.58721	-70.49745	40.58784	-70.59998	63	11	E	<2	B3	>5	Cloudy	None	4.3	280	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.58784	-70.59998	40.58890	-70.70309	65	7	E	<2	B3	>5	Cloudy	None	4.6	267	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.58890	-70.70309	40.59494	-70.79917	66	12	ESE	<2	B3	>5	Cloudy	None	4	273	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	15:08	40.59494	-70.79917	40.60080	-70.80296	67	12	ESE	<2	B4	>5	Cloudy	None	4.6	275	Standby	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:08	15:44	40.60080	-70.80296	40.60137	-70.77504	67	12	ESE	<2	B4	>5	Cloudy	None	4.6	275	Deploying/Retrieving	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:44	16:00	40.60137	-70.77504	40.63058	-70.75567	66	18	ESE	<2	B5	>5	Cloudy	None	7.6	42	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.63058	-70.75567	40.75675	-70.77809	64	25	ESE	<2	B5	>5	Cloudy	None	7.1	64	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.75675	-70.77809	40.90590	-70.81716	62	19	ESE	<2	B5	>5	Cloudy	None	9	356	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.90590	-70.81716	41.04696	-70.84341	54	23	SE	<2	B5	>5	Cloudy	None	8.4	353	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	41.04696	-70.84341	41.15803	-70.86079	34	19	ESE	<2	B5	>5	Cloudy	None	8.7	3	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	41.15803	-70.86079	41.28469	-70.86607	30	16	SE	<2	B5	>5	Cloudy	None	4	318	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	41.28469	-70.86607	41.41956	-70.83955	27	17	SSE	<2	B3	>5	Cloudy	None	8.9	355	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:10	41.41956	-70.83955	41.43979	-70.84402	17	8	SE	<2	B3	2-5	Cloudy	None	8	330	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:10	23:00	41.43979	-70.84402	41.57118	-70.87333	14	8	SE	<2	B3	0.5-1	Cloudy	None	8	331	Transit	N/A
2023-01-12	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	23:50	41.57118	-70.87333	41.62301	-70.91386	11	15	SE	<2	B3	0.5-1	Cloudy	None	9	332	Transit	N/A
2023-01-18	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:55	22:00	41.62294	-70.91401	41.62342	-70.91374	7	10	WNW	<2	B2	2-5	Clear	None	1.4	331	Transit	N/A
2023-01-18	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:10	41.62342	-70.91374	41.63060	-70.91477	7	12	WNW	<2	B2	1-2	Clear	None	1.9	350	Transit	N/A
2023-01-18	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:10	22:53	41.63060	-70.91477	41.56390	-70.86859	10	5	WNW	<2	B2	0.5-1	Clear	None	4.9	107	Transit	N/A
2023-01-18	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:53	23:59	41.56314	-70.86805	41.43776	-70.84313	8	9	W	<2	B3	0.5-1	Clear	None	4.9	143	Transit	N/A
2023-01-18	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:59	00:00	41.43776	-70.84313	41.43776	-70.84313	15	6	W	<2	B3	0.5-1	Clear	None	8.8	146	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.43165	-70.83470	41.45626	-70.73697	30	16	NW	<2	B3	0.5-1	Clear	None	4.8	98	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.45626	-70.73697	41.49127	-70.67026	19	12	NW	<2	B3	0.5-1	Clear	None	3.8	52	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.49127	-70.67026	41.46041	-70.73564	25	14	W	<2	B3	0.5-1	Clear	None	3.8	51	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	41.46041	-70.73564	41.41989	-70.80521	29	16	W	<2	B3	0.5-1	Clear	None	3.8	230	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	04:27	41.41989	-70.80521	41.40528	-70.83293	23	21	WNW	<2	B3	0.5-1	Clear	None	3.2	242	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:27	05:00	41.40528	-70.83293	41.36738	-70.86925	25	21	SE	<2	B4	0.5-1	Clear	None	6.7	248	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	41.36738	-70.86925	41.29395	-70.81271	26	10	NW	<2	B4	0.5-1	Clear	None	5.6	203	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	41.29395	-70.81271	41.23345	-70.71303	10	18	NW	<2	B4	0.5-1	Clear	None	6	130	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	41.23345	-70.71303	41.16407	-70.61235	28	13	NW	<2	B4	0.5-1	Clear	None	6.2	129	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	41.16407	-70.61235	41.07787	-70.48717	40	17	NNW	<2	B4	0.5-1	Clear	None	7	175	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	41.07787	-70.48717	40.97549	-70.39735	41	11	NW	<2	B4	0.5-1	Clear	None	7.7	135	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.97549	-70.39735	40.86180	-70.36250	42	13	NW	<2	B5	0.5-1	Clear	None	6	173	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:33	40.86180	-70.36250	40.78018	-70.32880	48	14	NW	<2	B5	0.5-1	Clear	None	7.6	162	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:33	11:43	40.78018	-70.32880	40.75924	-70.31467	47	14	NW	<2	B5	2-5	Clear	None	8.9	156	Transit	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:43	11:48	40.75924	-70.31467	40.75334	-70.30984	48	14	NW	<2	B4	>5	Clear	None	4.2	150	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:48	12:00	40.75334	-70.30984	40.74593	-70.29788	48	14	NW	<2	B4	>5	Clear	None	3.7	144	Deploying/Retrieving	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	12:24	40.74593	-70.29788	40.73532	-70.27616	48	14	NW	<2	B4	>5	Cloudy	Slight	1.2	135	Deploying/Retrieving	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:24	13:00	40.73532	-70.27616	40.72899	-70.22259	47	14	NW	<2	B4	>5	Cloudy	Moderate	3	122	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.72899	-70.22259	40.72295	-70.12268	44	14	NW	<2	B4	>5	Cloudy	Moderate	4.3	87	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.72295	-70.12268	40.72506	-70.02751	40	13	NW	<2	B4	>5	Cloudy	Moderate	4.3	76	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.72506	-70.02751	40.71951	-70.09034	40	12	NW	<2	B4	>5	Cloudy	Moderate	4.2	89	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.71951	-70.09034	40.71848	-70.19175	40	15	NW	<2	B4	>5	Cloudy	Moderate	4.4	271	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.71848	-70.19175	40.71791	-70.30555	40	11	NW	<2	B3	>5	Cloudy	None	4.2	268	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.71791	-70.30555	40.71541	-70.34298	48	8	W	<2	B2	>5	Cloudy	Slight	5.2	270	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.71541	-70.34298	40.70633	-70.33527	49	7	W	<2	B2	>5	Cloudy	None	2.9	91	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.70633	-70.33527	40.70266	-70.36582	49	8	S	<2	B3	2-5	Precipitation	None	4.3	11	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.70266	-70.36582	40.70233	-70.34471	50	11	ESE	<2	B3	1-2	Fog	None	3.8	90	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:05	40.70233	-70.34471	40.70282	-70.33627	50	16	ESE	<2	B3	1-2	Precipitation	None	4.4	85	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Klein, Michelle	RPS	22:05	23:00	40.70282	-70.33627	40.70604	-70.24257	49	15	ESE	<2	B3	0.5-1	Precipitation	None	5	90	Standby	N/A
2023-01-19	*GO Explorer*	HRG	Visual	Weller, Robert; Klein, Michelle	RPS	23:00	00:00	40.70604	-70.24257	40.69927	-70.23103	45	17	E	<2	B3	0.5-1	Precipitation	None	4.7	94	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.69930	-70.22374	40.70953	-70.15605	44	22	E	<2	B3	0.3-0.5	Precipitation	None	5.4	91	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.70953	-70.15605	40.71084	-70.25776	39	17	SSE	<2	B3	0.3-0.5	Precipitation	None	5.3	273	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	40.71084	-70.25776	40.71100	-70.16192	46	19	SE	<2	B4	0.3-0.5	Precipitation	None	5.4	272	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	03:15	40.71100	-70.16192	40.71512	-70.14443	47	24	SE	<2	B4	0.3-0.5	Precipitation	None	2.6	99	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:15	04:00	40.71512	-70.14443	40.78210	-70.23297	42	25	SE	<2	B4	0.3-0.5	Precipitation	None	7.5	29	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.78210	-70.23297	40.88062	-70.36726	43	15	ESE	<2	B4	0.3-0.5	Precipitation	None	8.5	315	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.88062	-70.36726	40.99773	-70.48355	47	13	SE	<2	B4	0.3-0.5	Precipitation	None	9.1	323	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.99773	-70.48355	41.11212	-70.60266	44	7	SE	<2	B4	0.3-0.5	Precipitation	None	9.2	322	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	41.11212	-70.60266	41.21197	-70.70846	43	26	WNW	<2	B4	0.3-0.5	Precipitation	None	8.9	322	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	41.21197	-70.70846	41.32500	-70.85376	27	29	S	<2	B5	0.3-0.5	Precipitation	None	8.4	322	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	41.32500	-70.85376	41.39918	-70.85051	23	35	N	<2	B5	0.3-0.5	Precipitation	None	8.8	321	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	41.39918	-70.85051	41.43265	-70.78344	27	18	NNE	<2	B3	0.5-1	Precipitation	None	4.5	52	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:40	41.43265	-70.78344	41.46100	-70.72810	22	18	NNW	<2	B3	0.5-1	Precipitation	None	4.1	59	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:40	12:00	41.46100	-70.72810	41.47507	-70.69819	22	16	NNW	<2	B3	2-5	Fog	None	4.8	55	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	41.47507	-70.69819	41.47580	-70.69365	22	21	NNW	<2	B3	2-5	Fog	None	4.9	62	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.47580	-70.69365	41.44846	-70.76070	22	5	NNW	<2	B3	2-5	Fog	None	2.6	244	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.44846	-70.76070	41.40828	-70.84445	28	11	NW	<2	B2	2-5	Fog	None	4.3	239	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.40828	-70.84445	41.42928	-70.79162	16	10	NNW	<2	B2	2-5	Fog	None	4.8	244	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	41.42928	-70.79162	41.44396	-70.75058	22	8	NW	<2	B2	2-5	Fog	None	2	63	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.44396	-70.75058	41.41866	-70.81930	23	12	WNW	<2	B2	1-2	Fog	None	3.7	252	Standby	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	41.41866	-70.81930	41.53218	-70.84586	25	14	N	<2	B2	2-5	Precipitation	None	4.6	64	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	41.53218	-70.84586	41.62677	-70.90706	15	22	N	<2	B2	2-5	Precipitation	None	6.8	345	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:15	41.62677	-70.90706	41.62301	-70.91394	10	17	NNW	<2	B2	2-5	Precipitation	None	4	338	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:15	20:45	41.62301	-70.91394	41.62300	-70.91408	3	17	NNW	<2	B2	2-5	Precipitation	None	0	298	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:45	21:00	41.62300	-70.91408	41.62957	-70.91471	3	11	NNW	<2	B2	2-5	Cloudy	None	1.9	298	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	41.62957	-70.91471	41.53189	-70.84539	4	7	NNW	<2	B2	2-5	Cloudy	None	4.3	62	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:15	41.53189	-70.84539	41.50149	-70.84241	14	10	NNW	<2	B2	2-5	Cloudy	None	7.5	150	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:15	22:40	41.50149	-70.84241	41.44886	-70.84769	17	11	NNW	<2	B2	0.5-1	Cloudy	None	8.1	176	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:40	23:00	41.44886	-70.84769	41.42950	-70.83270	16	6	NW	<2	B2	0.5-1	Cloudy	None	8.9	179	Transit	N/A
2023-01-20	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	41.42950	-70.83270	41.45269	-70.73485	15	12	NW	<2	B2	0.5-1	Precipitation	None	5.7	135	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.45708	-70.72698	41.49025	-70.66704	12	18	N	<2	B3	0.5-1	Cloudy	None	5.1	49	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.49025	-70.66704	41.47163	-70.71699	23	5	N	<2	B3	0.5-1	Precipitation	None	2.2	250	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.47163	-70.71699	41.45095	-70.75630	20	6	N	<2	B3	0.5-1	Precipitation	None	1.7	242	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	41.45095	-70.75630	41.41668	-70.80881	28	9	E	<2	B3	0.5-1	Precipitation	None	3	229	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	41.41668	-70.80881	41.43601	-70.77056	23	10	NNE	<2	B3	0.5-1	Precipitation	None	2.9	131	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	41.43601	-70.77056	41.44707	-70.74709	22	12	NNE	<2	B3	0.5-1	Cloudy	None	1.2	67	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	41.44707	-70.74709	41.46788	-70.71266	25	13	N	<2	B3	0.5-1	Cloudy	None	1.3	45	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	41.46788	-70.71266	41.47988	-70.68224	20	11	NNE	<2	B3	0.5-1	Cloudy	None	2.6	48	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	41.47988	-70.68224	41.49740	-70.62880	23	13	NNE	<2	B3	0.5-1	Cloudy	None	1.4	71	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	41.49740	-70.62880	41.48430	-70.54877	24	10	NE	<2	B3	0.5-1	Cloudy	None	3.3	100	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	41.48430	-70.54877	41.46329	-70.46794	24	11	NE	<2	B3	0.5-1	Cloudy	None	4	100	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:45	41.46329	-70.46794	41.45717	-70.43228	18	9	N	<2	B3	0.5-1	Cloudy	None	4.1	111	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:00	41.45717	-70.43228	41.45979	-70.44620	20	13	N	<2	B3	2-5	Cloudy	None	4	285	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	12:30	41.45979	-70.44620	41.45249	-70.41382	23	11	N	<2	B3	>5	Precipitation	None	3.2	294	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:30	13:00	41.45249	-70.41382	41.39766	-70.42680	12	9	N	<2	B3	>5	Precipitation	None	7	213	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.39766	-70.42680	41.27964	-70.42500	9	6	NNW	<2	B3	>5	Precipitation	None	7.5	177	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.27964	-70.42500	41.14972	-70.37745	11	6	NNW	<2	B3	>5	Cloudy	None	8.6	170	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.14972	-70.37745	40.99390	-70.31179	37	7	N	<2	B3	>5	Cloudy	Slight	8.4	163	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.99390	-70.31179	40.86603	-70.24738	43	12	N	<2	B3	>5	Cloudy	Moderate	9.2	163	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	17:34	40.86603	-70.24738	40.77718	-70.19386	42	13	N	<2	B4	>5	Cloudy	Severe	9.6	153	Transit	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:34	18:00	40.77718	-70.19386	40.74342	-70.19812	42	14	N	<2	B5	>5	Cloudy	Severe	5.8	160	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.74342	-70.19812	40.66752	-70.23212	43	10	N	<2	B5	>5	Cloudy	Severe	4	198	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.66752	-70.23212	40.67870	-70.23544	48	13	N	<2	B5	>5	Cloudy	Severe	4	200	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.67870	-70.23544	40.72089	-70.22041	47	21	N	<2	B5	>5	Cloudy	Slight	2.6	17	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.72089	-70.22041	40.74787	-70.21273	46	19	N	<2	B5	>5	Cloudy	Slight	3.9	16	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:13	40.74787	-70.21273	40.74734	-70.21221	43	12	N	<2	B5	2-5	Cloudy	None	3	228	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:13	22:30	40.74734	-70.21221	40.74077	-70.18866	43	14	N	<2	B4	0.5-1	Cloudy	None	4.7	83	Standby	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:30	23:00	40.74077	-70.18866	40.72731	-70.15407	43	8	N	<2	B3	0.5-1	Cloudy	None	6.1	122	Deploying/Retrieving	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	23:45	40.72731	-70.15407	40.75019	-70.11554	43	9	NW	<2	B3	0.5-1	Cloudy	None	1	90	Deploying/Retrieving	N/A
2023-01-21	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:45	00:00	40.75019	-70.11554	40.74483	-70.11208	39	10	NW	<2	B3	0.5-1	Cloudy	None	3.4	59	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.74152	-70.11417	40.72893	-70.06526	39	10	E	<2	B4	0.3-0.5	Cloudy	None	4.3	206	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.72893	-70.06526	40.71418	-70.01607	39	10	E	<2	B6	0.3-0.5	Cloudy	None	5.7	100	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	40.71418	-70.01607	40.70458	-70.08600	42	6	NE	<2	B6	0.3-0.5	Cloudy	None	5	142	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	03:48	40.70458	-70.08600	40.70390	-70.16110	42	18	ESE	<2	B6	0.3-0.5	Cloudy	None	4.5	270	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:48	04:00	40.70390	-70.16110	40.71359	-70.15534	45	17	NW	<2	B6	0.5-1	Cloudy	None	4.6	277	Soft Start	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	04:09	40.71359	-70.15534	40.71912	-70.14125	44	6	NNE	<2	B5	0.5-1	Cloudy	None	5.8	47	Soft Start	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:09	04:28	40.71912	-70.14125	40.71292	-70.13207	42	6	NNE	<2	B5	0.5-1	Cloudy	None	5	92	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:28	04:29	40.71292	-70.13207	40.71292	-70.13207	42	6	NNE	<2	B5	0.5-1	Cloudy	None	2	243	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:29	05:00	40.71292	-70.13207	40.71348	-70.19337	44	6	NNE	<2	B5	0.5-1	Cloudy	None	3.8	205	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.71348	-70.19337	40.71226	-70.29607	45	6	NNE	<2	B5	0.5-1	Cloudy	None	3.5	285	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	06:32	40.71226	-70.29607	40.71167	-70.35320	48	14	NW	<2	B5	0.5-1	Cloudy	None	4.4	275	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:32	06:34	40.71167	-70.35320	40.71162	-70.35683	48	14	NW	<2	B5	0.5-1	Cloudy	None	4.4	147	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:34	06:58	40.71162	-70.35683	40.70787	-70.35901	48	14	NW	<2	B5	0.5-1	Cloudy	None	4.4	147	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	06:58	07:01	40.70787	-70.35901	40.70796	-70.35442	49	3	NNW	<2	B4	0.5-1	Cloudy	None	5	88	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:01	08:00	40.70796	-70.35442	40.70900	-70.26549	49	3	NNW	<2	B4	0.5-1	Cloudy	None	5	88	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.70900	-70.26549	40.70996	-70.17362	49	2	N	<2	B4	0.5-1	Cloudy	None	4.1	92	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	09:02	40.70996	-70.17362	40.70991	-70.17065	44	6	NE	<2	B4	0.5-1	Cloudy	None	4.3	88	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:02	09:50	40.70991	-70.17065	40.70177	-70.20339	44	10	W	<2	B3	0.5-1	Cloudy	None	2	240	Deploying/Retrieving	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:50	10:00	40.70177	-70.20339	40.69855	-70.21527	45	5	NW	<2	B2	0.5-1	Cloudy	None	2.5	229	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.69855	-70.21527	40.67284	-70.39855	45	15	W	<2	B2	0.5-1	Cloudy	None	9.2	261	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:35	40.67284	-70.39855	40.65665	-70.51900	53	15	W	<2	B2	0.5-1	Cloudy	None	8.9	261	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:35	12:00	40.65665	-70.51900	40.64537	-70.60071	59	12	W	<2	B2	2-5	Cloudy	None	9.4	265	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.64537	-70.60071	40.62098	-70.79184	61	15	W	<2	B2	2-5	Cloudy	None	9	261	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	13:10	40.62098	-70.79184	40.61775	-70.82405	65	6	W	<2	B2	>5	Cloudy	None	8.9	261	Transit	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:10	14:01	40.61775	-70.82405	40.61326	-70.87032	66	3	W	<2	B2	>5	Cloudy	None	5	261	Deploying/Retrieving	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:01	14:22	40.61326	-70.87032	40.61143	-70.89027	68	0	ESE	<2	B2	>5	Cloudy	None	2.9	259	Soft Start	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:22	14:54	40.61143	-70.89027	40.61340	-70.93547	68	0	ESE	<2	B2	>5	Cloudy	None	2.9	259	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:54	14:55	40.61340	-70.93547	40.61465	-70.93467	69	3	ESE	<2	B2	>5	Cloudy	None	5.8	26	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:55	15:00	40.61465	-70.93467	40.62055	-70.93093	69	3	ESE	<2	B2	>5	Cloudy	None	5.8	26	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	15:10	40.62055	-70.93093	40.63102	-70.92419	70	7	S	<2	B2	>5	Cloudy	None	4.1	26	Full Power	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:10	15:13	40.63102	-70.92419	40.63406	-70.92223	65	7	S	<2	B2	>5	Cloudy	None	4.6	25	Silent	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:13	16:00	40.63406	-70.92223	40.66129	-70.90516	65	7	S	<2	B2	>5	Cloudy	None	4.6	25	Deploying/Retrieving	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.66129	-70.90516	40.60634	-70.89032	67	2	SE	<2	B2	>5	Cloudy	None	0.3	336	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.60634	-70.89032	40.63151	-70.98680	69	8	SSE	<2	B2	>5	Cloudy	None	4.5	290	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	40.63151	-70.98680	40.60452	-71.07419	68	10	SSE	<2	B4	>5	Cloudy	None	5	282	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.60452	-71.07419	40.59433	-71.11768	69	22	S	<2	B5	>5	Cloudy	None	6	220	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.59433	-71.11768	40.58767	-71.19203	68	20	SSE	<2	B5	>5	Cloudy	None	4.6	84	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.58767	-71.19203	40.58649	-71.29631	66	18	SE	<2	B4	>5	Cloudy	None	4.6	268	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:15	40.58649	-71.29631	40.58622	-71.32262	65	14	S	<2	B4	2-5	Cloudy	None	4.6	271	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:15	22:59	40.58622	-71.32262	40.58555	-71.40050	65	18	SSE	<2	B4	0.5-1	Cloudy	None	4.7	268	Standby	N/A
2023-01-22	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:59	00:00	40.58555	-71.40050	40.58512	-71.42492	65	20	S	<2	B4	0.5-1	Precipitation	None	4.9	255	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	40.58495	-71.43426	40.58309	-71.53508	67	14	ESE	<2	B5	0.5-1	Precipitation	None	4.3	268	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	40.58309	-71.53508	40.58444	-71.62781	70	12	SE	<2	B5	0.5-1	Precipitation	None	6.4	272	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	40.58444	-71.62781	40.58541	-71.70621	74	6	SE	<2	B5	0.5-1	Precipitation	None	5	302	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	40.58541	-71.70621	40.57960	-71.74256	68	17	E	<2	B5	0.5-1	Precipitation	None	4.6	92	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	40.57960	-71.74256	40.57802	-71.84115	66	7	SE	<2	B5	0.5-1	Precipitation	None	4	272	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.57802	-71.84115	40.57570	-71.93849	61	11	SE	<2	B5	0.5-1	Precipitation	None	3.8	272	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.57570	-71.93849	40.59384	-72.00789	57	8	S	<2	B5	0.5-1	Precipitation	None	4.4	263	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	07:20	40.59384	-72.00789	40.61136	-72.00233	55	13	ENE	<2	B5	0.5-1	Precipitation	None	1.1	359	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:20	08:00	40.61136	-72.00233	40.68984	-71.97183	55	17	ENE	<2	B5	0.5-1	Precipitation	None	7	24	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.68984	-71.97183	40.83956	-71.91813	55	19	ENE	<2	B5	0.5-1	Precipitation	None	8	16	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.83956	-71.91813	40.96021	-71.87602	41	33	NE	<2	B6	0.5-1	Precipitation	None	8.1	22	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.96021	-71.87602	41.07810	-71.82805	32	28	NE	<2	B6	0.5-1	Precipitation	None	7	9	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:45	41.07810	-71.82805	41.14383	-71.93295	15	33	NNE	<2	B6	0.5-1	Precipitation	None	9.3	19	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:00	41.14383	-71.93295	41.16231	-71.98139	27	23	NNE	<2	B5	2-5	Cloudy	None	9.4	292	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	12:45	41.16231	-71.98139	41.21978	-72.10994	25	23	NNE	<2	B4	2-5	Fog	None	9.3	298	Transit	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:45	13:00	41.21978	-72.10994	41.21393	-72.14686	53	13	N	<2	B3	2-5	Fog	None	6.9	259	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.21393	-72.14686	41.18983	-72.29483	46	7	NNE	<2	B3	2-5	Fog	None	5.9	255	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.18983	-72.29483	41.13464	-72.43691	43	9	NNE	<2	B3	2-5	Fog	None	7.7	250	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.13464	-72.43691	41.08065	-72.55210	33	6	N	<2	B2	2-5	Fog	None	6.8	250	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	41.08065	-72.55210	41.04706	-72.62111	23	15	NW	<2	B2	2-5	Precipitation	None	5.5	235	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.04706	-72.62111	41.03312	-72.68214	21	18	NW	<2	B2	2-5	Precipitation	None	3.5	245	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	41.03312	-72.68214	41.02630	-72.72933	27	19	NNW	<2	B4	2-5	Precipitation	None	3.1	254	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	41.02630	-72.72933	41.02644	-72.77041	34	21	NNW	<2	B4	2-5	Precipitation	None	3.1	272	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	41.02644	-72.77041	41.02606	-72.79716	35	25	NW	<2	B4	2-5	Precipitation	None	2.5	271	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	41.02606	-72.79716	41.02521	-72.69687	37	21	NNW	<2	B4	1-2	Precipitation	None	3.8	97	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:20	41.02521	-72.69687	41.04391	-72.68691	30	19	NW	<2	B5	2-5	Precipitation	None	4.8	80	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:20	22:58	41.04391	-72.68691	41.07902	-72.67573	26	24	NW	<2	B5	0.5-1	Precipitation	None	2.9	21	Standby	N/A
2023-01-23	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	22:58	00:00	41.07902	-72.67573	41.09021	-72.60236	26	27	NW	<2	B5	0.5-1	Precipitation	None	3.8	345	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.09105	-72.59318	41.10250	-72.64824	32	19	NNW	<2	B4	0.5-1	Precipitation	None	4	84	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.10250	-72.64824	41.11786	-72.71259	27	32	NNW	<2	B5	0.5-1	Precipitation	None	5.4	291	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.11786	-72.71259	41.14326	-72.74767	29	30	NW	<2	B5	0.5-1	Precipitation	None	2.5	306	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	41.14326	-72.74767	41.17281	-72.78047	30	30	NNW	<2	B5	0.5-1	Cloudy	None	2.7	327	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	41.17281	-72.78047	41.20524	-72.80685	21	25	NW	<2	B5	0.5-1	Cloudy	None	1.5	334	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	41.20524	-72.80685	41.21691	-72.85493	14	19	NNW	<2	B5	0.5-1	Cloudy	None	2.7	315	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	41.21691	-72.85493	41.20767	-72.90234	13	15	WNW	<2	B4	0.5-1	Cloudy	None	2.5	267	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	41.20767	-72.90234	41.19279	-72.93931	12	15	WNW	<2	B4	0.5-1	Cloudy	None	2.3	248	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	41.19279	-72.93931	41.17324	-72.98179	13	14	WNW	<2	B3	0.5-1	Cloudy	None	1.8	237	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	09:00	10:00	41.17324	-72.98179	41.15432	-73.01717	13	16	WNW	<2	B3	0.5-1	Cloudy	None	2	247	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	41.15432	-73.01717	41.14489	-73.01420	12	18	W	<2	B3	0.5-1	Cloudy	None	1.5	211	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:45	41.14489	-73.01420	41.15080	-72.98867	15	18	W	<2	B3	0.5-1	Cloudy	None	2.4	77	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:00	41.15080	-72.98867	41.15254	-72.98229	16	21	WNW	<2	B3	2-5	Cloudy	None	1.3	73	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	41.15254	-72.98229	41.15732	-72.96170	16	19	WNW	<2	B3	>5	Cloudy	None	1.7	61	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.15732	-72.96170	41.17892	-72.95529	16	14	WNW	<2	B3	>5	Cloudy	None	1.8	65	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.17892	-72.95529	41.17691	-72.99626	12	22	WNW	<2	B3	>5	Cloudy	Moderate	5	303	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.17691	-72.99626	41.17894	-72.98932	12	16	WNW	<2	B4	>5	Clear	Severe	1.1	135	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	41.17894	-72.98932	41.17661	-72.96714	12	19	WNW	<2	B4	>5	Clear	Severe	0.9	77	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.17661	-72.96714	41.16222	-72.85239	14	14	W	<2	B4	>5	Clear	Severe	4.7	101	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	19:00	41.16222	-72.85239	41.15479	-72.74527	20	15	W	<2	B4	>5	Clear	Severe	5.5	99	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	41.15479	-72.74527	41.15635	-72.62332	28	13	W	<2	B4	>5	Clear	Severe	5.8	91	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	41.15635	-72.62332	41.16805	-72.47588	28	18	W	<2	B4	>5	Cloudy	Severe	6.1	88	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	41.16805	-72.47588	41.18363	-72.33521	28	17	E	<2	B4	>5	Cloudy	Severe	6.8	83	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:25	41.18363	-72.33521	41.19096	-72.27098	36	17	NNW	<2	B4	>5	Clear	Slight	7.2	83	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:25	23:00	41.19096	-72.27098	41.20280	-72.19224	44	17	NW	<2	B4	0.5-1	Clear	None	6.5	81	Standby	N/A
2023-01-24	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	41.20280	-72.19224	41.20643	-72.07628	47	15	NW	<2	B4	0.5-1	Clear	None	6	71	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-25	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.20272	-72.06783	41.16043	-71.96060	23	12	ESE	<2	B4	0.5-1	Cloudy	None	5	121	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.16043	-71.96060	41.12300	-71.85037	23	17	W	<2	B4	0.5-1	Clear	None	7.9	111	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.12300	-71.85037	41.07859	-71.75305	14	15	W	<2	B4	0.5-1	Clear	None	4.8	116	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	41.07859	-71.75305	41.01172	-71.64189	36	13	SE	<2	B4	0.5-1	Clear	None	5.9	122	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	41.01172	-71.64189	40.95443	-71.51100	43	13	W	<2	B4	0.5-1	Clear	None	6.7	122	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	05:00	06:00	40.95443	-71.51100	40.90326	-71.38214	54	12	W	<2	B4	0.5-1	Clear	None	7.8	118	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	06:00	07:00	40.90326	-71.38214	40.84217	-71.26049	57	8	W	<2	B4	0.5-1	Clear	None	7.2	121	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	07:00	08:00	40.84217	-71.26049	40.77338	-71.16749	56	7	WNW	<2	B4	0.5-1	Clear	None	6.9	134	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	08:00	09:00	40.77338	-71.16749	40.74192	-71.06343	57	9	SE	<2	B4	0.5-1	Clear	None	5.6	134	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	09:00	10:00	40.74192	-71.06343	40.70860	-70.98867	60	14	NNW	<2	B4	0.5-1	Cloudy	None	4.5	107	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Weller, Robert	RPS	10:00	11:00	40.70860	-70.98867	40.70635	-70.98086	62	7	NW	<2	B4	0.5-1	Cloudy	None	3.3	222	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector; Klein, Michelle	RPS	11:00	11:45	40.70635	-70.98086	40.67593	-70.98856	62	9	NW	<2	B4	0.5-1	Cloudy	None	4	57	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	11:45	12:03	40.67593	-70.98856	40.64610	-70.99824	65	9	NW	<2	B3	2-5	Cloudy	None	5.2	212	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:03	12:28	40.64610	-70.99824	40.64355	-71.00885	65	6	NW	<2	B3	>5	Cloudy	None	4.6	212	Deploying/Retrieving	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:28	13:00	40.64355	-71.00885	40.64745	-71.00000	67	10	NW	<2	B3	>5	Cloudy	None	2.5	280	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.64745	-71.00000	40.63672	-70.99891	67	2	WNW	<2	B3	>5	Cloudy	None	3.9	180	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.63672	-70.99891	40.65760	-70.99750	67	4	NE	<2	B3	>5	Cloudy	Slight	3.2	177	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.65760	-70.99750	40.64024	-70.99775	67	4	NE	<2	B3	>5	Cloudy	None	4.2	195	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	16:00	17:00	40.64024	-70.99775	40.63591	-71.00058	67	9	SSE	<2	B3	>5	Cloudy	None	4	174	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.63591	-71.00058	40.64953	-71.00307	67	5	SSE	<2	B3	>5	Cloudy	None	4.6	304	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:00	18:07	40.64953	-71.00307	40.65762	-71.00334	67	5	E	<2	B2	>5	Cloudy	Slight	5.1	357	Standby	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:07	18:30	40.65762	-71.00334	40.67132	-71.00339	66	5	E	<2	B2	>5	Cloudy	Slight	3.7	355	Deploying/Retrieving	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	18:30	19:00	40.67132	-71.00339	40.69534	-70.98963	66	5	E	<2	B2	>5	Cloudy	Slight	3.7	355	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	19:00	20:00	40.69534	-70.98963	40.83136	-71.08951	60	8	E	<2	B2	>5	Cloudy	Slight	9.2	331	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.83136	-71.08951	40.97517	-71.16126	57	8	E	<2	B2	>5	Cloudy	None	9	331	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Olivares, Elsy	RPS	21:00	22:00	40.97517	-71.16126	41.12353	-71.22275	51	13	ESE	<2	B3	>5	Precipitation	None	9	343	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Minguer, Alejandra	RPS	22:00	22:20	41.12353	-71.22275	41.17165	-71.24448	34	13	ESE	<2	B4	>5	Precipitation	None	9	343	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle; Minguer, Alejandra	RPS	22:20	23:00	41.17165	-71.24448	41.27132	-71.29687	42	18	ESE	<2	B4	0.5-1	Precipitation	None	9.6	342	Transit	N/A
2023-01-25	*GO Explorer*	HRG	Visual	Klein, Michelle; Weller, Robert	RPS	23:00	00:00	41.27132	-71.29687	41.36379	-71.36068	34	21	ESE	<2	B4	0.5-1	Precipitation	None	9.1	334	Transit	N/A
2023-01-26	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	00:00	01:00	41.37226	-71.36287	41.47415	-71.35475	31	18	N	<2	B3	0.5-1	Cloudy	None	6.2	351	Transit	N/A
2023-01-26	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Olivares, Elsy	RPS	01:00	02:00	41.47415	-71.35475	41.55756	-71.32095	49	19	E	<2	B3	0.5-1	Cloudy	None	6.2	55	Transit	N/A
2023-01-26	*GO Explorer*	HRG	Visual	Minguer, Alejandra; Weller, Robert	RPS	02:00	03:00	41.55756	-71.32095	41.61563	-71.29030	32	19	ESE	<2	B3	0.5-1	Cloudy	None	3.5	30	Transit	N/A
2023-01-26	*GO Explorer*	HRG	Visual	Olivares, Elsy; Weller, Robert	RPS	03:00	04:00	41.61563	-71.29030	41.64064	-71.25752	19	26	ENE	<2	B2	0.5-1	Precipitation	None	3.5	36	Transit	N/A
2023-01-26	*GO Explorer*	HRG	Visual	Estrada, Hector; Olivares, Elsy	RPS	04:00	05:00	41.64064	-71.25752	41.69549	-71.18054	16	28	SSE	<2	B2	0.5-1	Precipitation	None	4.9	45	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:22	12:00	41.69579	-71.18040	41.65615	-71.23916	10	9	NW	<2	B1	2-5	Clear	None	3	299	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	41.65615	-71.23916	41.52598	-71.33457	14	12	WNW	<2	B2	>5	Clear	Slight	8.2	225	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	41.52598	-71.33457	41.39380	-71.39737	29	13	WSW	<2	B2	>5	Clear	Moderate	8.7	197	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	41.39380	-71.39737	41.25246	-71.43808	31	6	WSW	<2	B2	>5	Clear	Severe	9.2	189	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.25246	-71.43808	41.11122	-71.50239	36	12	WSW	<2	B3	>5	Clear	Severe	9.6	194	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.11122	-71.50239	40.98532	-71.57048	27	15	SW	<2	B3	>5	Clear	Severe	8.6	204	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	17:00	18:00	40.98532	-71.57048	40.85355	-71.57824	50	15	WSW	<2	B3	>5	Clear	Severe	6.8	180	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	18:00	19:00	40.85355	-71.57824	40.72384	-71.55659	61	12	SW	<2	B3	>5	Clear	Severe	9.4	177	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:00	20:00	40.72384	-71.55659	40.59020	-71.53926	64	11	SW	<2	B3	>5	Clear	Severe	8.1	175	Transit	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.59020	-71.53926	40.58462	-71.61111	69	12	W	<2	B3	>5	Clear	Severe	4.5	261	Standby	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:00	21:20	40.58462	-71.61111	40.58601	-71.54384	74	11	WSW	<2	B3	>5	Clear	Moderate	9.3	92	Standby	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:20	22:00	40.58601	-71.54384	40.57015	-71.54104	70	7	WSW	<2	B3	>5	Clear	Severe	4	64	Deploying/Retrieving	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:32	40.57015	-71.54104	40.58283	-71.55619	71	12	WSW	<2	B3	>5	Clear	None	3.8	200	Standby	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:32	23:00	40.58283	-71.55619	40.58211	-71.59387	73	15	W	<2	B3	0.5-1	Clear	None	3.6	271	Standby	N/A
2023-01-27	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	23:00	00:00	40.58211	-71.59387	40.58053	-71.67498	74	16	W	<2	B3	0.5-1	Clear	None	4.6	268	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	00:00	01:00	40.58043	-71.68104	40.57883	-71.78551	70	16	W	<2	B3	0.5-1	Clear	None	5	268	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	01:00	02:00	40.57883	-71.78551	40.57700	-71.89505	66	20	W	<2	B4	0.5-1	Cloudy	None	4.6	268	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	02:00	03:00	40.57700	-71.89505	40.57499	-71.99889	62	19	W	<2	B4	0.5-1	Cloudy	None	4.8	268	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:00	03:20	40.57499	-71.99889	40.57458	-72.03121	58	20	W	<2	B4	0.5-1	Cloudy	None	4.5	265	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:20	03:30	40.57458	-72.03121	40.57447	-72.04449	55	15	WNW	<2	B4	0.5-1	Cloudy	None	2.7	264	Deploying/Retrieving	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:30	04:00	40.57447	-72.04449	40.57385	-72.09150	54	24	W	<2	B4	0.5-1	Cloudy	None	4	269	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:00	04:30	40.57385	-72.09150	40.57317	-72.13852	54	19	W	<2	B4	0.5-1	Cloudy	None	4.2	266	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:30	04:50	40.57317	-72.13852	40.57274	-72.16490	55	22	W	<2	B4	0.5-1	Cloudy	None	4.4	265	Deploying/Retrieving	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:50	05:00	40.57274	-72.16490	40.57253	-72.17963	54	22	W	<2	B4	0.5-1	Cloudy	None	5	263	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	05:00	06:00	40.57253	-72.17963	40.57096	-72.27744	53	21	W	<2	B4	0.5-1	Cloudy	None	5.3	266	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	06:00	07:00	40.57096	-72.27744	40.57006	-72.31571	50	19	W	<2	B4	0.5-1	Cloudy	None	4.1	269	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	07:00	08:00	40.57006	-72.31571	40.56801	-72.41413	48	21	W	<2	B4	0.5-1	Clear	None	3.8	265	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	08:00	09:00	40.56801	-72.41413	40.56584	-72.51536	43	25	WSW	<2	B4	0.5-1	Clear	None	4.8	264	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	09:00	10:00	40.56584	-72.51536	40.57005	-72.56257	41	25	WSW	<2	B5	0.5-1	Clear	None	5	263	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	10:00	10:40	40.57005	-72.56257	40.56699	-72.60589	43	21	SW	<2	B5	0.5-1	Clear	None	5	95	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	10:40	11:00	40.56699	-72.60589	40.58185	-72.58945	41	18	WSW	<2	B5	0.5-1	Clear	None	3.9	40	Deploying/Retrieving	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:00	11:20	40.58185	-72.58945	40.59713	-72.57360	38	19	SW	<2	B5	0.5-1	Clear	None	3.3	40	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:20	12:00	40.59713	-72.57360	40.62499	-72.54185	40	18	SW	<2	B5	2-5	Clear	None	2.9	34	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.62499	-72.54185	40.61342	-72.55241	40	18	SW	<2	B5	>5	Clear	None	1.8	45	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.61342	-72.55241	40.59382	-72.57031	40	23	SW	2-4	B6	>5	Clear	Moderate	2.4	230	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.59382	-72.57031	40.57326	-72.58237	40	30	WSW	2-4	B6	>5	Clear	Severe	1.6	202	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.57326	-72.58237	40.54809	-72.59450	39	26	WSW	2-4	B6	>5	Clear	Severe	1.4	200	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.54809	-72.59450	40.52284	-72.61666	42	27	WSW	2-4	B6	>5	Clear	Severe	1.9	215	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	17:00	18:00	40.52284	-72.61666	40.49531	-72.64090	41	21	WSW	2-4	B6	>5	Clear	Severe	1.5	219	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	18:00	19:00	40.49531	-72.64090	40.52801	-72.58283	45	21	WSW	2-4	B5	>5	Clear	Severe	1.9	215	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:00	20:00	40.52801	-72.58283	40.57835	-72.52340	42	10	WSW	<2	B4	>5	Clear	Severe	4.3	51	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	21:00	40.57835	-72.52340	40.56801	-72.55613	40	10	WSW	<2	B4	>5	Cloudy	Slight	4.8	43	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.56801	-72.55613	40.54035	-72.60541	42	17	WSW	<2	B4	>5	Cloudy	Slight	2	231	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:32	40.54035	-72.60541	40.52525	-72.62747	42	16	WSW	<2	B4	>5	Cloudy	None	2.4	234	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:32	22:45	40.52525	-72.62747	40.53278	-72.61738	42	9	WSW	<2	B4	0.5-1	Clear	None	3	39	Standby	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:45	23:00	40.53278	-72.61738	40.53837	-72.60183	42	9	WSW	<2	B4	0.5-1	Clear	None	3.5	64	Deploying/Retrieving	N/A
2023-01-28	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	23:00	00:00	40.53837	-72.60183	40.56409	-72.58892	42	11	WSW	<2	B4	0.5-1	Clear	None	3.2	62	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	00:00	01:00	40.56392	-72.59430	40.56159	-72.69967	41	19	WSW	<2	B4	0.5-1	Cloudy	None	3.8	270	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	01:00	02:00	40.56159	-72.69967	40.56549	-72.80557	39	15	WSW	<2	B4	0.5-1	Cloudy	None	5.4	264	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	02:00	02:41	40.56549	-72.80557	40.57681	-72.87839	34	16	WSW	<2	B4	0.5-1	Clear	None	4.2	277	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	02:41	03:00	40.57681	-72.87839	40.57878	-72.85376	32	7	WSW	<2	B3	0.5-1	Clear	None	4.1	14	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:00	03:05	40.57878	-72.85376	40.57857	-72.84712	33	6	SW	<2	B3	0.5-1	Clear	None	4.4	97	Transit	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:05	03:09	40.57857	-72.84712	40.57837	-72.84183	34	3	SW	<2	B3	0.5-1	Clear	None	3.4	96	Deploying/Retrieving	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:09	04:00	40.57837	-72.84183	40.58069	-72.91627	34	8	SW	<2	B3	0.5-1	Clear	None	3.9	111	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:00	05:00	40.58069	-72.91627	40.58464	-73.01650	29	13	WSW	<2	B3	0.5-1	Clear	None	5.6	276	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	05:00	06:00	40.58464	-73.01650	40.57750	-73.12040	26	15	WSW	<2	B3	0.5-1	Clear	None	4.7	270	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	06:00	07:00	40.57750	-73.12040	40.57018	-73.17336	26	14	WSW	<2	B3	0.5-1	Clear	None	4.9	262	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	07:00	08:00	40.57018	-73.17336	40.55475	-73.27596	23	15	SW	<2	B3	0.5-1	Clear	None	5.2	257	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	08:00	09:00	40.55475	-73.27596	40.52544	-73.36714	21	13	SW	<2	B3	0.5-1	Clear	None	5.1	261	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	09:00	10:00	40.52544	-73.36714	40.50894	-73.42159	21	13	SSW	<2	B3	0.5-1	Clear	None	3.3	210	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	10:00	11:00	40.50894	-73.42159	40.49050	-73.50616	19	12	SW	<2	B3	0.5-1	Clear	None	4.2	255	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:00	11:34	40.49050	-73.50616	40.46521	-73.55176	22	14	SW	<2	B3	0.5-1	Clear	None	4.3	250	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:34	12:00	40.46521	-73.55176	40.44750	-73.58662	23	17	SW	<2	B3	2-5	Clear	None	4.5	237	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.44750	-73.58662	40.44002	-73.68570	22	18	SW	<2	B3	>5	Clear	Slight	4.9	248	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.44002	-73.68570	40.44362	-73.74198	24	14	SW	<2	B3	>5	Clear	Slight	4.2	273	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.44362	-73.74198	40.45039	-73.84727	28	15	SW	<2	B3	>5	Cloudy	Slight	4.9	276	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	15:53	40.45039	-73.84727	40.48458	-73.92538	27	16	SW	<2	B3	>5	Cloudy	Slight	4.9	274	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:53	16:00	40.48458	-73.92538	40.48298	-73.92125	17	12	S	<2	B3	>5	Cloudy	Slight	4.6	9	Deploying/Retrieving	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	16:00	16:31	40.48298	-73.92125	40.47000	-73.89550	16	12	S	<2	B3	>5	Cloudy	Slight	4.2	347	Deploying/Retrieving	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	16:31	17:00	40.47000	-73.89550	40.46914	-73.88404	15	18	S	<2	B3	>5	Cloudy	Slight	2.9	118	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	17:00	18:00	40.46914	-73.88404	40.48032	-73.76177	16	9	S	<2	B3	>5	Cloudy	None	0	82	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	18:00	18:45	40.48032	-73.76177	40.43617	-73.84492	26	11	SSW	<2	B3	>5	Cloudy	None	4.2	86	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	18:45	19:00	40.43617	-73.84492	40.44080	-73.84569	24	21	SSW	<2	B3	>5	Cloudy	None	0.2	252	Deploying/Retrieving	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:00	19:07	40.44080	-73.84569	40.44195	-73.84389	25	19	SSW	<2	B3	>5	Cloudy	None	0.6	2	Deploying/Retrieving	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:07	20:00	40.44195	-73.84389	40.46503	-73.89746	25	25	SSW	<2	B4	>5	Cloudy	None	0.6	2	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:25	40.46503	-73.89746	40.45630	-73.87295	17	17	SSW	<2	B4	>5	Cloudy	None	2.9	99	Standby	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:25	21:00	40.45630	-73.87295	40.45328	-73.81882	21	17	S	<2	B4	>5	Precipitation	None	2.2	37	Transit	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.45328	-73.81882	40.39694	-73.71038	29	23	S	<2	B4	>5	Cloudy	None	6.5	114	Transit	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:24	40.39694	-73.71038	40.37360	-73.66443	24	19	SSW	<2	B4	>5	Cloudy	None	7	133	Transit	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:24	23:00	40.37360	-73.66443	40.32626	-73.62666	25	21	S	<2	B4	0.5-1	Cloudy	None	6	131	Transit	N/A
2023-01-29	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	23:00	00:00	40.32626	-73.62666	40.35378	-73.45478	24	22	S	<2	B4	0.5-1	Cloudy	None	6.4	164	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	00:00	01:00	40.35590	-73.44342	40.39072	-73.25220	30	10	SW	<2	B3	0.5-1	Cloudy	None	9.2	78	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	01:00	02:00	40.39072	-73.25220	40.42931	-73.06623	31	8	SW	<2	B3	0.5-1	Cloudy	None	9	78	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	02:00	03:00	40.42931	-73.06623	40.46718	-72.88039	36	12	SW	<2	B3	0.5-1	Cloudy	None	9	77	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:00	04:00	40.46718	-72.88039	40.50392	-72.69190	42	10	WSW	<2	B3	0.5-1	Cloudy	None	9	77	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:00	05:00	40.50392	-72.69190	40.53950	-72.50192	40	7	WSW	<2	B3	0.5-1	Cloudy	None	9	77	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	05:00	05:47	40.53950	-72.50192	40.56621	-72.35185	43	9	WSW	<2	B3	0.5-1	Cloudy	None	9.6	77	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	05:47	06:00	40.56621	-72.35185	40.56617	-72.33592	46	11	W	<2	B3	0.5-1	Cloudy	None	7.6	76	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	06:00	07:00	40.56617	-72.33592	40.57087	-72.28875	47	16	W	<2	B3	0.5-1	Cloudy	None	4.2	73	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	07:00	08:00	40.57087	-72.28875	40.56877	-72.31503	49	13	W	<2	B4	0.5-1	Cloudy	None	4.3	81	Standby	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	08:00	09:00	40.56877	-72.31503	40.58552	-72.12578	48	13	WNW	<2	B4	0.5-1	Cloudy	None	5.5	18	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	09:00	10:00	40.58552	-72.12578	40.60813	-71.93767	53	6	WNW	<2	B4	0.5-1	Clear	None	9.2	79	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	10:00	11:00	40.60813	-71.93767	40.63522	-71.74675	55	7	WNW	<2	B4	0.5-1	Clear	None	9	77	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:00	11:30	40.63522	-71.74675	40.64762	-71.65258	63	1	NW	<2	B3	0.5-1	Cloudy	None	9.3	80	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:30	12:00	40.64762	-71.65258	40.65954	-71.55967	72	1	NW	<2	B2	2-5	Cloudy	None	9	79	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	12:00	13:00	40.65954	-71.55967	40.68335	-71.37667	70	3	NW	<2	B2	>5	Cloudy	None	8.4	78	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	13:00	14:00	40.68335	-71.37667	40.68935	-71.19377	59	3	ENE	<2	B2	>5	Cloudy	None	7.8	83	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	14:00	15:00	40.68935	-71.19377	40.69081	-71.02242	58	3	ENE	<2	B2	>5	Cloudy	None	8.5	95	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.69081	-71.02242	40.69218	-70.83252	63	3	ENE	<2	B2	>5	Cloudy	None	8.3	90	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.69218	-70.83252	40.69179	-70.64924	66	1	ESE	<2	B2	>5	Cloudy	None	8	97	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	17:00	18:00	40.69179	-70.64924	40.69277	-70.46784	61	5	ENE	<2	B2	>5	Cloudy	None	8.8	94	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	18:00	19:00	40.69277	-70.46784	40.69607	-70.28694	55	4	E	<2	B2	>5	Cloudy	None	8.5	93	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:00	19:23	40.69607	-70.28694	40.69746	-70.22456	48	4	NE	<2	B2	>5	Cloudy	None	8	91	Transit	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	19:23	20:00	40.69746	-70.22456	40.70004	-70.22214	45	4	NE	<2	B2	>5	Cloudy	None	6.4	94	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:00	20:55	40.70004	-70.22214	40.70246	-70.22043	45	3	NW	<2	B2	>5	Clear	Moderate	1.3	18	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	20:55	21:00	40.70246	-70.22043	40.70345	-70.21991	45	3	WNW	<2	B2	>5	Clear	Moderate	1.7	359	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:00	21:37	40.70345	-70.21991	40.70177	-70.20386	45	1	NW	<2	B2	>5	Clear	Moderate	0.4	31	Deploying/Retrieving	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	21:37	22:00	40.70177	-70.20386	40.69496	-70.22224	45	7	S	<2	B2	>5	Clear	Moderate	2.8	132	Standby	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:00	22:33	40.69496	-70.22224	40.70309	-70.22252	45	0	S	<2	B2	>5	Clear	None	3.9	349	Standby	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	22:33	23:00	40.70309	-70.22252	40.68900	-70.22657	45	10	SW	<2	B2	1-2	Clear	None	3.8	182	Standby	N/A
2023-01-30	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	23:00	00:00	40.68900	-70.22657	40.68993	-70.22436	45	6	SW	<2	B2	0.5-1	Clear	None	5.2	64	Standby	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	00:00	00:35	40.69570	-70.22222	40.69944	-70.23558	45	2	SSE	<2	B2	0.5-1	Clear	None	3.6	31	Standby	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Klein, Michelle	RPS	00:35	01:00	40.69944	-70.23558	40.70065	-70.24675	45	5	SW	<2	B2	0.5-1	Clear	None	3.6	270	Deploying/Retrieving	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	01:00	02:00	40.70065	-70.24675	40.78092	-70.37242	45	4	SW	<2	B2	0.5-1	Clear	None	0.5	127	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	02:00	03:00	40.78092	-70.37242	40.87122	-70.53365	50	9	WNW	<2	B2	0.5-1	Clear	None	9.1	309	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	03:00	04:00	40.87122	-70.53365	40.95491	-70.70345	54	10	W	<2	B2	0.5-1	Clear	None	9.9	307	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	04:00	05:00	40.95491	-70.70345	41.03383	-70.87967	50	11	W	<2	B2	0.5-1	Clear	None	9.4	302	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	05:00	06:00	41.03383	-70.87967	41.11450	-71.05369	45	15	W	<2	B2	0.5-1	Clear	None	9.1	300	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	06:00	07:00	41.11450	-71.05369	41.21472	-71.20789	36	18	W	<2	B2	0.5-1	Clear	None	9.2	303	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	07:00	08:00	41.21472	-71.20789	41.32797	-71.34217	46	17	WNW	<2	B2	0.5-1	Cloudy	None	8.8	315	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	08:00	09:00	41.32797	-71.34217	41.47067	-71.35876	28	18	NW	<2	B2	0.5-1	Cloudy	None	9.2	319	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	09:00	10:00	41.47067	-71.35876	41.58008	-71.30810	46	11	NE	<2	B2	0.5-1	Cloudy	None	9	41	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Estrada, Hector	RPS	10:00	11:00	41.58008	-71.30810	41.69626	-71.18369	21	22	NE	<2	B2	0.5-1	Cloudy	None	8.2	36	Transit	N/A
2023-01-31	*GO Explorer*	HRG	Visual	Weller, Robert	RPS	11:00	11:20	41.69626	-71.18369	41.69548	-71.18058	9	7	NE	<2	B2	0.5-1	Cloudy	None	3.7	67	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:00	00:40	41.46927	-70.45650	41.47092	-70.43604	14.9	11.2	SW	<2	B3	2-5	Cloudy	None	1.6	84	Standby	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:40	00:58	41.47092	-70.43604	41.47439	-70.42783	11.0	11.6	SW	<2	B3	1-2	Cloudy	None	2.8	55	Standby	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:58	01:58	41.47439	-70.42783	41.47791	-70.42986	10.3	13.0	SW	<2	B3	1-2	Cloudy	None	0.7	50	Standby	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	01:58	02:40	41.47791	-70.42986	41.47298	-70.44026	11.8	11.0	WSW	<2	B3	0.5-1	Cloudy	None	0.8	80	Standby	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	02:40	02:55	41.47298	-70.44026	41.46770	-70.46613	10.7	13.7	WNW	<2	B3	0.5-1	Clear	None	4.5	253	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	02:55	03:59	41.46770	-70.46613	41.48449	-70.64784	14.3	11.9	WNW	<2	B3	0.5-1	Clear	None	7.0	263	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Twohy, Chelsea	RPS	03:59	05:00	41.48449	-70.64784	41.41425	-70.82361	18.5	9.0	SW	<2	B3	0.5-1	Clear	None	8.9	258	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	05:00	06:00	41.41425	-70.82361	41.31478	-70.84735	21.7	7.1	WSW	<2	B3	0.5-1	Clear	None	9.5	233	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	06:00	06:59	41.31478	-70.84735	41.21942	-70.74815	22.0	7.1	W	<2	B4	0.5-1	Clear	None	7.7	119	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fuhr Ely, Gabi	RPS	06:59	07:58	41.21942	-70.74815	41.10972	-70.66667	27.4	7.7	W	<2	B4	0.5-1	Clear	None	7.7	126	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	07:58	08:59	41.10972	-70.66667	40.99868	-70.58581	41.1	6.6	NNW	<2	B4	0.5-1	Clear	None	7.6	143	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	08:59	09:57	40.99868	-70.58581	40.89883	-70.50072	52.0	6.0	W	<2	B4	1-2	Clear	None	7.0	149	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	09:57	11:00	40.89883	-70.50072	40.82876	-70.35598	49.0	6.0	W	<2	B4	2-5	Clear	Slight	7.0	143	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Fisher, John; Methany, Nicholas	RPS	11:00	11:56	40.82876	-70.35598	40.77597	-70.21636	46.0	7.0	SW	<2	B4	>5	Clear	Severe	7.9	110	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Fisher, John	RPS	11:56	12:54	40.77597	-70.21636	40.70273	-70.10129	46.0	7.0	SW	<2	B4	>5	Clear	Severe	7.9	110	Transit	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:54	14:00	40.70273	-70.10129	40.71887	-70.07510	47.0	6.0	SW	<2	B3	>5	Clear	Severe	1.4	35	Standby	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	14:00	14:57	40.71887	-70.07510	40.68251	-70.08416	42.6	6.0	NW	<2	B2	>5	Clear	Severe	1.1	100	Deploying/Retrieving	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	14:57	15:14	40.68251	-70.08416	40.66727	-70.08784	47.1	4.6	SW	<2	B2	>5	Clear	Severe	2.7	178	Deploying/Retrieving	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	15:14	15:34	40.66727	-70.08784	40.68131	-70.11284	47.1	4.6	SW	<2	B2	>5	Clear	Severe	2.7	178	Soft Start	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	15:34	15:55	40.68131	-70.11284	40.70331	-70.13044	45.2	4.7	WSW	<2	B2	>5	Clear	Slight	4.6	325	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	15:55	16:20	40.70331	-70.13044	40.70401	-70.13972	45.2	4.7	WSW	<2	B2	>5	Clear	Slight	4.6	325	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:20	16:27	40.70401	-70.13972	40.70392	-70.15135	47.0	4.7	WSW	<2	B2	>5	Clear	Severe	4.6	241	Silent	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Harris, Matthew	RPS	16:27	16:59	40.70392	-70.15135	40.70340	-70.19912	47.0	4.7	WSW	<2	B2	>5	Clear	Severe	4.6	241	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Harris, Matthew	RPS	16:59	17:26	40.70340	-70.19912	40.70303	-70.24288	45.2	4.7	WSW	<2	B3	>5	Clear	Severe	4.4	262	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	17:26	17:57	40.70303	-70.24288	40.70239	-70.29381	45.2	4.7	WSW	<2	B3	>5	Clear	Severe	4.4	262	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ashcraft, Caylin	RPS	17:57	18:43	40.70239	-70.29381	40.70156	-70.36930	47.3	6.3	WNW	<2	B3	>5	Clear	Slight	4.9	264	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ashcraft, Caylin	RPS	18:43	18:44	40.70156	-70.36930	40.70154	-70.37034	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:44	18:47	40.70154	-70.37034	40.70133	-70.37542	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Silent	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:47	19:00	40.70133	-70.37542	40.71275	-70.37072	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	19:00	19:06	40.71275	-70.37072	40.71309	-70.36079	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	19:06	19:10	40.71309	-70.36079	40.71323	-70.35448	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Silent	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	19:10	19:32	40.71323	-70.35448	40.71370	-70.31654	50.2	6.8	WSW	<2	B3	>5	Clear	Slight	4.5	260	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	19:32	19:56	40.71370	-70.31654	40.71418	-70.27714	50.2	6.8	WSW	<2	B3	>5	Clear	Moderate	4.5	260	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	19:56	20:55	40.71418	-70.27714	40.71522	-70.17736	46.2	8.0	W	<2	B3	>5	Clear	Severe	4.3	90	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	20:55	21:02	40.71522	-70.17736	40.71528	-70.16858	44.2	5.5	WSW	<2	B3	>5	Clear	Severe	4.5	78	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:02	21:28	40.71528	-70.16858	40.71561	-70.12904	44.2	5.5	WSW	<2	B3	>5	Clear	Severe	4.5	78	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	21:28	21:46	40.71561	-70.12904	40.71596	-70.10047	43.3	6.3	SW	<2	B3	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:46	21:54	40.71596	-70.10047	40.71603	-70.08853	43.3	6.3	SW	<2	B3	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Fuhr Ely, Gabi	RPS	21:54	22:40	40.71603	-70.08853	40.71687	-70.01946	43.3	6.3	SW	<2	B3	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Fuhr Ely, Gabi	RPS	22:40	22:42	40.71687	-70.01946	40.71674	-70.01641	43.3	6.3	SW	<2	B3	>5	Clear	Severe	4.5	90	Silent	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Harris, Matthew; Fuhr Ely, Gabi	RPS	22:42	22:53	40.71674	-70.01641	40.71683	-69.99726	43.3	6.3	SW	<2	B3	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-07-27	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	22:53	00:00	40.71683	-69.99726	40.71937	-69.88495	44.0	5.0	SW	<2	B3	>5	Cloudy	None	4.7	76	Full Power	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:00	00:14	40.71860	-69.88003	40.71978	-69.85651	46.1	6.0	SW	<2	B1	2-5	Cloudy	None	4.5	96	Silent	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:14	00:26	40.71978	-69.85651	40.72040	-69.83466	46.1	6.0	SW	<2	B1	2-5	Cloudy	None	4.5	96	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:26	00:59	40.72040	-69.83466	40.72076	-69.78237	46.1	6.0	SW	<2	B1	2-5	Cloudy	None	4.5	96	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:59	01:59	40.72076	-69.78237	40.72569	-69.81991	47.2	5.3	SW	<2	B1	1-2	Cloudy	None	2.7	69	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	01:59	02:55	40.72569	-69.81991	40.72926	-69.84870	46.0	7.0	S	<2	B1	0.5-1	Cloudy	None	2.5	254	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fisher, John	RPS	02:55	03:15	40.72926	-69.84870	40.73232	-69.84632	43.5	6.6	SE	<2	B2	0.5-1	Cloudy	None	0.5	319	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	03:15	04:00	40.73232	-69.84632	40.74437	-69.95946	43.5	7.7	SSE	<2	B2	0.5-1	Cloudy	None	4.7	304	Deploying/Retrieving	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fuhr Ely, Gabi	RPS	04:00	05:00	40.74437	-69.95946	40.76334	-70.13422	33.5	8.0	S	<2	B2	0.5-1	Cloudy	None	7.7	270	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	05:00	05:58	40.76334	-70.13422	40.83256	-70.28578	37.1	8.6	S	<2	B2	0.5-1	Cloudy	None	8.3	279	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	05:58	07:00	40.83256	-70.28578	40.91828	-70.42820	52.7	6.0	SSW	<2	B3	0.5-1	Cloudy	None	8.1	303	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fuhr Ely, Gabi	RPS	07:00	07:58	40.91828	-70.42820	41.01869	-70.54834	44.5	9.0	SW	<2	B3	0.5-1	Clear	None	8.2	304	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Fisher, John; Methany, Nicholas	RPS	07:58	09:02	41.01869	-70.54834	41.13413	-70.67768	42.6	7.2	SSW	<2	B3	0.5-1	Clear	None	8.2	319	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Fisher, John; Methany, Nicholas	RPS	09:02	09:56	41.13413	-70.67768	41.24121	-70.76477	37.1	7.1	SSW	<2	B2	1-2	Clear	None	8.6	319	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	09:56	10:58	41.24121	-70.76477	41.36453	-70.88044	35.0	6.0	SSW	<2	B2	>5	Clear	Moderate	8.0	335	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	10:58	11:57	41.36453	-70.88044	41.47494	-70.84905	31.0	5.0	SSW	<2	B2	>5	Clear	Severe	8.0	320	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	11:57	13:04	41.47494	-70.84905	41.61260	-70.89821	31.0	4.0	SSW	<2	B2	>5	Clear	Moderate	8.0	358	Transit	N/A
2022-07-28	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Fisher, John	RPS	13:04	13:37	41.61260	-70.89821	41.62149	-70.91354	7.6	11.0	SSW	<2	B2	>5	Cloudy	Moderate	3.9	340	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	17:32	17:56	41.62147	-70.91356	41.61356	-70.89892	4.0	17.0	SSW	<2	B2	>5	Cloudy	None	0.0	173	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	17:56	18:00	41.61356	-70.89892	41.60723	-70.89460	7.0	16.0	SW	<2	B2	>5	Cloudy	None	7.7	152	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:00	18:58	41.60723	-70.89460	41.49645	-70.84617	14.0	16.0	SW	<2	B2	>5	Cloudy	None	7.7	152	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	18:58	19:56	41.49645	-70.84617	41.39696	-70.85912	14.0	19.0	SW	<2	B2	>5	Cloudy	None	4.1	183	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Harris, Matthew	RPS	19:56	20:28	41.39696	-70.85912	41.33328	-70.87765	24.9	19.9	SW	<2	B4	>5	Cloudy	None	7.8	224	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:28	20:57	41.33328	-70.87765	41.28553	-70.80708	26.3	20.0	SW	<2	B5	>5	Cloudy	None	8.4	165	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	20:57	21:56	41.28553	-70.80708	41.18981	-70.69009	6.5	15.0	SW	<2	B5	>5	Cloudy	None	8.4	134	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Fuhr Ely, Gabi	RPS	21:56	22:56	41.18981	-70.69009	41.09776	-70.57193	28.3	13.0	SW	<2	B5	>5	Cloudy	None	8.0	98	Transit	N/A
2022-07-29	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	22:56	00:00	41.09776	-70.57193	41.00694	-70.43542	39.3	17.0	SW	<2	B5	>5	Cloudy	None	8.0	128	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:00	00:30	40.98750	-70.40533	40.96076	-70.36728	39.0	17.0	SW	<2	B5	>5	Cloudy	Slight	8.6	132	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	00:30	00:58	40.96076	-70.36728	40.91597	-70.31106	39.9	16.1	SW	<2	B5	1-2	Cloudy	None	7.5	123	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:58	01:58	40.91597	-70.31106	40.82665	-70.19973	39.6	15.0	SW	<2	B5	0.5-1	Cloudy	None	7.5	129	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fisher, John; Ashcraft, Caylin	RPS	01:58	03:01	40.82665	-70.19973	40.73268	-70.07818	43.0	13.0	SSW	<2	B4	0.5-1	Cloudy	None	7.2	122	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fisher, John	RPS	03:01	03:15	40.73268	-70.07818	40.72605	-70.06690	37.7	11.0	SSW	<2	B3	0.5-1	Cloudy	None	7.5	131	Transit	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	03:15	04:01	40.72605	-70.06690	40.72466	-70.06118	39.0	10.0	SSW	<2	B3	0.5-1	Cloudy	None	1.7	58	Deploying/Retrieving	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Fuhr Ely, Gabi	RPS	04:01	04:57	40.72466	-70.06118	40.71311	-70.01358	39.0	9.2	SW	<2	B3	0.5-1	Cloudy	None	3.6	174	Deploying/Retrieving	N/A
2022-07-30	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Ashcraft, Caylin	RPS	04:57	05:40	40.71311	-70.01358	40.71765	-69.97080	39.9	14.4	SW	<2	B3	0.5-1	Cloudy	None	4.1	97	Standby	N/A
2022-07-30	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	05:40	06:00	40.71765	-69.97080	40.71162	-69.97578	42.0	6.0	S	<2	B3	0.5-1	Cloudy	None	4.7	95	Soft Start	N/A
2022-07-30	*GO Discovery*	HRG	Both	Twohy, Chelsea; Ramsarran, Celine; Fisher, John	RPS	06:00	06:23	40.71162	-69.97578	40.71133	-70.01409	43.3	3.7	SW	<2	B3	0.5-1	Precipitation	None	5.5	244	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Both	Ramsarran, Celine; Fisher, John; Twohy, Chelsea	RPS	06:23	06:26	40.71133	-70.01409	40.71130	-70.01904	41.3	7.0	SW	<2	B3	0.5-1	Precipitation	None	4.7	265	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Both	Twohy, Chelsea; Ramsarran, Celine; Fisher, John	RPS	06:26	06:52	40.71130	-70.01904	40.71098	-70.06271	42.2	5.5	SW	<2	B3	0.5-1	Precipitation	None	4.1	277	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	06:52	06:56	40.71098	-70.06271	40.71091	-70.06994	42.2	7.0	E	<2	B3	0.5-1	Precipitation	None	4.1	277	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Both	Ramsarran, Celine; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	06:56	07:53	40.71091	-70.06994	40.70989	-70.16877	42.0	5.0	E	<2	B3	0.5-1	Precipitation	None	5.1	275	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Both	Twohy, Chelsea; Ramsarran, Celine; Fuhr Ely, Gabi	RPS	07:53	08:00	40.70989	-70.16877	40.70977	-70.18062	44.0	18.0	NNW	<2	B3	0.05-0.1	Precipitation	None	4.5	264	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Both	Methany, Nicholas; Fuhr Ely, Gabi; Fisher, John	RPS	08:00	08:53	40.70977	-70.18062	40.71532	-70.19613	44.0	18.0	NNW	<2	B3	0.05-0.1	Precipitation	None	4.5	264	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Fisher, John; Methany, Nicholas	RPS	08:53	09:29	40.71532	-70.19613	40.71648	-70.15457	44.7	18.0	NE	<2	B4	0.5-1	Precipitation	None	3.4	102	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Both	Fisher, John; Methany, Nicholas; Fuhr Ely, Gabi	RPS	09:29	09:49	40.71648	-70.15457	40.71082	-70.13997	44.7	9.0	NE	<2	B3	1-2	Precipitation	None	3.4	102	Soft Start	N/A
2022-07-30	*GO Discovery*	HRG	Both	Fisher, John; Fuhr Ely, Gabi; Methany, Nicholas	RPS	09:49	09:51	40.71082	-70.13997	40.71009	-70.14455	42.0	7.0	SSW	<2	B3	1-2	Precipitation	None	5.8	274	Soft Start	N/A
2022-07-30	*GO Discovery*	HRG	Both	Methany, Nicholas; Fuhr Ely, Gabi; Fisher, John	RPS	09:51	09:56	40.71009	-70.14455	40.71001	-70.15443	42.0	7.0	SSW	<2	B3	1-2	Precipitation	None	5.8	274	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Both	Methany, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:56	09:57	40.71001	-70.15443	40.71000	-70.15556	42.0	7.0	SSW	<2	B3	1-2	Precipitation	None	5.8	274	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	09:57	10:13	40.71000	-70.15556	40.70973	-70.18075	42.0	7.0	SSW	<2	B3	2-5	Precipitation	None	4.2	270	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	10:13	11:59	40.70973	-70.18075	40.70780	-70.35058	42.0	7.0	SSW	<2	B3	2-5	Precipitation	None	4.2	270	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	11:59	12:02	40.70780	-70.35058	40.70776	-70.35568	42.0	7.0	SSW	<2	B3	>5	Cloudy	None	4.2	270	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Fisher, John	RPS	12:02	12:06	40.70776	-70.35568	40.70830	-70.36205	42.0	7.0	SSW	<2	B3	>5	Cloudy	None	4.2	270	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Fisher, John	RPS	12:06	12:16	40.70830	-70.36205	40.71359	-70.35976	49.8	5.9	ESE	<2	B2	>5	Cloudy	Moderate	4.7	290	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:16	12:20	40.71359	-70.35976	40.71352	-70.35389	43.0	5.9	ESE	<2	B2	>5	Cloudy	Moderate	4.7	290	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Fisher, John	RPS	12:20	13:02	40.71352	-70.35389	40.71429	-70.28759	48.0	5.9	ESE	<2	B2	>5	Cloudy	Moderate	4.7	290	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:02	13:59	40.71429	-70.28759	40.71520	-70.19835	49.8	6.0	S	<2	B2	>5	Cloudy	Moderate	4.5	97	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	13:59	14:41	40.71520	-70.19835	40.71591	-70.13269	44.6	6.4	WSW	<2	B2	>5	Cloudy	Moderate	4.3	90	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Harris, Matthew	RPS	14:41	15:00	40.71591	-70.13269	40.71620	-70.10185	44.6	6.4	WSW	<2	B2	>5	Cloudy	Moderate	4.3	90	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	15:00	15:13	40.71620	-70.10185	40.71644	-70.07864	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.7	111	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	15:13	15:48	40.71644	-70.07864	40.71694	-70.01831	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.7	111	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	15:48	15:51	40.71694	-70.01831	40.71698	-70.01267	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.7	111	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	15:51	16:00	40.71698	-70.01267	40.71268	-70.01115	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.7	111	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:00	16:02	40.71268	-70.01115	40.71173	-70.01580	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.7	111	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Harris, Matthew	RPS	16:02	16:05	40.71173	-70.01580	40.71159	-70.01894	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.6	270	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Harris, Matthew	RPS	16:05	16:58	40.71159	-70.01894	40.71089	-70.08847	42.0	7.4	WSW	<2	B3	>5	Clear	Moderate	4.6	270	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Harris, Matthew	RPS	16:58	17:22	40.71089	-70.08847	40.71054	-70.12364	42.0	11.2	WNW	<2	B3	>5	Clear	Moderate	4.7	260	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	17:22	17:45	40.71054	-70.12364	40.71023	-70.15599	42.0	11.2	WNW	<2	B3	>5	Clear	Moderate	4.7	260	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	17:45	17:46	40.71023	-70.15599	40.71022	-70.15815	42.0	11.2	WNW	<2	B3	>5	Clear	Moderate	4.7	260	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Harris, Matthew	RPS	17:46	17:59	40.71022	-70.15815	40.70998	-70.17622	42.0	11.2	WNW	<2	B3	>5	Clear	Moderate	4.7	260	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ashcraft, Caylin	RPS	17:59	18:59	40.70998	-70.17622	40.70907	-70.26712	44.8	11.6	WNW	<2	B3	>5	Clear	Slight	4.6	248	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	18:59	19:56	40.70907	-70.26712	40.70823	-70.34360	45.0	13.6	WNW	<2	B4	>5	Clear	Slight	4.1	250	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	19:56	20:06	40.70823	-70.34360	40.70804	-70.35666	49.5	17.7	W	<2	B4	>5	Clear	Moderate	4.2	238	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Harris, Matthew	RPS	20:06	20:07	40.70804	-70.35666	40.70803	-70.35799	49.5	17.7	W	2-4	B4	>5	Clear	Moderate	4.2	238	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:07	20:20	40.70803	-70.35799	40.71359	-70.35863	49.5	17.7	W	2-4	B4	>5	Clear	Moderate	4.2	238	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Harris, Matthew	RPS	20:20	20:23	40.71359	-70.35863	40.71376	-70.35531	49.5	17.7	W	2-4	B4	>5	Clear	Moderate	4.2	238	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:23	20:54	40.71376	-70.35531	40.71443	-70.30236	47.7	17.9	W	2-4	B4	>5	Clear	Moderate	4.5	57	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	20:54	21:56	40.71443	-70.30236	40.71549	-70.20113	47.2	19.0	W	<2	B4	>5	Clear	Severe	4.5	105	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Harris, Matthew	RPS	21:56	22:54	40.71549	-70.20113	40.71648	-70.10387	47.2	14.0	W	<2	B4	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	22:54	23:45	40.71648	-70.10387	40.71732	-70.01838	42.7	14.8	W	<2	B4	>5	Clear	Severe	5.0	85	Full Power	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	23:45	23:46	40.71732	-70.01838	40.71730	-70.01560	42.7	14.8	W	<2	B4	>5	Clear	Severe	5.0	85	Silent	N/A
2022-07-30	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	23:46	00:00	40.71730	-70.01560	40.71748	-70.00292	42.7	14.8	W	<2	B4	>5	Clear	Severe	5.0	85	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:00	00:30	40.71747	-69.99840	40.71197	-70.00551	43.2	13.2	W	<2	B3	>5	Clear	None	3.3	93	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Twohy, Chelsea; Fuhr Ely, Gabi	RPS	00:30	00:36	40.71197	-70.00551	40.71188	-70.01483	43.2	15.2	WSW	<2	B3	2-5	Clear	None	4.8	286	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Twohy, Chelsea; Fuhr Ely, Gabi; Ashcraft, Caylin	RPS	00:36	00:39	40.71188	-70.01483	40.71185	-70.01882	43.2	15.2	WSW	<2	B3	2-5	Clear	None	4.8	286	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Twohy, Chelsea; Fuhr Ely, Gabi	RPS	00:39	00:56	40.71185	-70.01882	40.71159	-70.04758	43.2	15.2	WSW	<2	B3	2-5	Clear	None	4.8	286	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Harris, Matthew; Twohy, Chelsea	RPS	00:56	02:00	40.71159	-70.04758	40.71061	-70.14971	43.0	12.7	WSW	<2	B3	1-2	Clear	None	4.8	277	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Fuhr Ely, Gabi	RPS	02:00	02:55	40.71061	-70.14971	40.70982	-70.23041	42.0	13.5	W	<2	B3	0.5-1	Clear	None	4.5	276	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fisher, John; Twohy, Chelsea; Fuhr Ely, Gabi	RPS	02:55	04:03	40.70982	-70.23041	40.70864	-70.33239	45.7	13.3	NNW	<2	B3	0.5-1	Clear	None	4.8	254	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Twohy, Chelsea; Ramsarran, Celine	RPS	04:03	04:20	40.70864	-70.33239	40.70832	-70.35566	45.7	12.9	W	<2	B3	0.5-1	Clear	None	4.2	268	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Twohy, Chelsea; Ramsarran, Celine	RPS	04:20	04:22	40.70832	-70.35566	40.70837	-70.35973	49.7	12.7	NW	<2	B3	0.5-1	Clear	None	3.9	254	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ramsarran, Celine; Twohy, Chelsea; Fuhr Ely, Gabi	RPS	04:22	04:38	40.70837	-70.35973	40.71389	-70.36023	50.0	12.9	NW	<2	B3	0.5-1	Clear	None	4.0	263	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Twohy, Chelsea; Fuhr Ely, Gabi; Ramsarran, Celine	RPS	04:38	04:41	40.71389	-70.36023	40.71407	-70.35324	49.8	13.0	W	<2	B3	0.5-1	Clear	None	4.9	94	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Twohy, Chelsea; Fuhr Ely, Gabi; Ramsarran, Celine	RPS	04:41	04:47	40.71407	-70.35324	40.71420	-70.34458	50.0	13.0	W	<2	B3	0.5-1	Clear	None	5.3	76	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Twohy, Chelsea; Fuhr Ely, Gabi; Ramsarran, Celine	RPS	04:47	04:51	40.71420	-70.34458	40.71465	-70.33801	50.0	13.0	W	<2	B3	0.5-1	Clear	None	4.8	70	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ramsarran, Celine; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	04:51	04:57	40.71465	-70.33801	40.71435	-70.32792	48.5	12.0	W	<2	B3	0.5-1	Clear	None	4.7	102	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Ashcraft, Caylin	RPS	04:57	05:12	40.71435	-70.32792	40.70729	-70.33424	48.5	12.0	W	<2	B3	0.5-1	Clear	None	4.7	102	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fisher, John; Ashcraft, Caylin; Ramsarran, Celine	RPS	05:12	05:54	40.70729	-70.33424	40.71261	-70.38723	50.0	13.0	NW	<2	B3	0.5-1	Clear	None	4.3	300	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	05:54	06:00	40.71261	-70.38723	40.71478	-70.39462	50.6	11.0	NW	<2	B3	0.5-1	Clear	None	3.7	286	Soft Start	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ramsarran, Celine; Twohy, Chelsea; Fisher, John	RPS	06:00	06:14	40.71478	-70.39462	40.72141	-70.40559	50.6	10.2	NW	<2	B3	0.5-1	Clear	None	2.9	287	Soft Start	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	06:14	06:46	40.72141	-70.40559	40.71398	-70.36064	51.2	9.0	NW	<2	B3	0.5-1	Clear	None	3.9	65	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ramsarran, Celine; Fisher, John; Twohy, Chelsea	RPS	06:46	06:50	40.71398	-70.36064	40.71408	-70.35304	49.1	9.0	NW	<2	B3	0.5-1	Clear	None	4.2	83	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Both	Twohy, Chelsea; Fisher, John; Ramsarran, Celine	RPS	06:50	06:59	40.71408	-70.35304	40.71424	-70.34127	49.1	9.0	NW	<2	B3	0.5-1	Clear	None	4.2	83	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Ramsarran, Celine; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	06:59	07:58	40.71424	-70.34127	40.71527	-70.25064	48.0	7.7	NW	<2	B3	0.5-1	Clear	None	3.5	74	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Methany, Nicholas	RPS	07:58	09:00	40.71527	-70.25064	40.71623	-70.16013	45.7	6.5	N	<2	B3	0.5-1	Clear	None	4.3	86	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	09:00	10:00	40.71623	-70.16013	40.71702	-70.07896	47.8	4.0	NNE	<2	B2	2-5	Clear	None	4.0	83	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	10:00	10:45	40.71702	-70.07896	40.71752	-70.02027	48.0	4.0	NNE	<2	B2	>5	Clear	None	3.7	98	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	10:45	10:47	40.71752	-70.02027	40.71754	-70.01763	48.0	4.0	NNE	<2	B2	>5	Clear	None	3.5	88	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	10:47	10:48	40.71754	-70.01763	40.71754	-70.01635	48.0	4.0	NNE	<2	B2	>5	Clear	None	3.5	88	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ramsarran, Celine	RPS	10:48	10:58	40.71754	-70.01635	40.71223	-70.01286	48.0	4.0	NNE	<2	B2	>5	Clear	None	3.5	88	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	10:58	11:02	40.71223	-70.01286	40.71219	-70.02022	49.0	4.0	NNE	<2	B2	>5	Clear	None	4.4	271	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Fisher, John	RPS	11:02	11:58	40.71219	-70.02022	40.71110	-70.11905	49.0	4.0	NNE	<2	B2	>5	Clear	None	4.4	271	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	11:58	12:58	40.71110	-70.11905	40.71017	-70.21511	49.0	4.0	NNE	<2	B2	>5	Clear	None	4.4	271	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	12:58	14:00	40.71017	-70.21511	40.70902	-70.31473	48.0	4.0	NNE	<2	B2	>5	Clear	None	4.4	275	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	14:00	14:23	40.70902	-70.31473	40.70859	-70.35617	48.0	3.0	SE	<2	B2	>5	Clear	None	4.6	255	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	14:23	14:24	40.70859	-70.35617	40.70858	-70.35813	48.0	3.0	SE	<2	B2	>5	Clear	None	4.6	91	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Harris, Matthew; Methany, Nicholas	RPS	14:24	15:30	40.70858	-70.35813	40.71520	-70.27483	48.0	3.0	SE	<2	B2	>5	Clear	None	4.6	91	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Methany, Nicholas	RPS	15:30	16:00	40.71520	-70.27483	40.71572	-70.22852	49.0	4.6	SE	<2	B2	>5	Clear	None	4.3	91	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ramsarran, Celine; Harris, Matthew	RPS	16:00	16:58	40.71572	-70.22852	40.71673	-70.12940	49.0	4.6	SE	<2	B2	>5	Clear	None	4.3	91	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Harris, Matthew	RPS	16:58	17:54	40.71673	-70.12940	40.71762	-70.03467	42.7	3.6	SE	<2	B2	>5	Clear	None	4.4	90	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	17:54	18:05	40.71762	-70.03467	40.71778	-70.01622	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:05	18:05	40.71778	-70.01622	40.71781	-70.01528	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:05	18:20	40.71781	-70.01528	40.71251	-70.01483	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Methany, Nicholas	RPS	18:20	18:23	40.71251	-70.01483	40.71236	-70.01877	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ashcraft, Caylin	RPS	18:23	18:47	40.71236	-70.01877	40.71202	-70.05509	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Methany, Nicholas; Ashcraft, Caylin	RPS	18:47	18:56	40.71202	-70.05509	40.71187	-70.06913	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Harris, Matthew; Ashcraft, Caylin	RPS	18:56	19:56	40.71187	-70.06913	40.71098	-70.16742	42.5	4.2	SE	<2	B2	>5	Cloudy	None	4.6	92	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Harris, Matthew	RPS	19:56	20:53	40.71098	-70.16742	40.70992	-70.26639	44.0	7.7	S	<2	B2	>5	Cloudy	Moderate	4.7	264	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	20:53	21:48	40.70992	-70.26639	40.70871	-70.35877	46.3	6.5	SSW	<2	B2	>5	Cloudy	Severe	4.9	261	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:48	21:49	40.70871	-70.35877	40.70857	-70.36039	46.3	8.5	S	<2	B2	>5	Cloudy	Severe	4.9	274	Silent	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Twohy, Chelsea; Ashcraft, Caylin	RPS	21:49	22:02	40.70857	-70.36039	40.71070	-70.37965	46.3	8.5	S	<2	B2	>5	Cloudy	Severe	4.9	274	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Harris, Matthew	RPS	22:02	22:52	40.71070	-70.37965	40.70958	-70.31597	46.3	8.5	S	<2	B2	>5	Cloudy	Severe	4.9	274	Full Power	N/A
2022-07-31	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	22:52	00:00	40.70958	-70.31597	40.69879	-70.35987	49.7	8.3	SSW	<2	B2	>5	Cloudy	Severe	5.3	262	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:00	00:32	40.69130	-70.35980	40.68015	-70.40390	50	7.7	SW	<2	B2	2-5	Cloudy	None	4.6	177	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:32	00:42	40.68015	-70.40390	40.68553	-70.39901	53.2	8.6	SW	<2	B2	2-5	Cloudy	None	5.3	270	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:42	00:44	40.68553	-70.39901	40.68559	-70.39516	53.2	7	SW	<2	B2	0.5-1	Cloudy	None	5.9	89	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:44	00:58	40.68559	-70.39516	40.68592	-70.37264	52.3	6	SW	<2	B2	0.5-1	Cloudy	None	4.7	85	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Harris, Matthew; Twohy, Chelsea	RPS	00:58	01:59	40.68592	-70.37264	40.68709	-70.27110	52.3	5.9	SSW	<2	B2	0.5-1	Cloudy	None	4.6	81	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Fuhr Ely, Gabi	RPS	01:59	02:57	40.68709	-70.27110	40.68806	-70.17833	46.7	8.7	S	<2	B2	0.5-1	Cloudy	None	4.6	93	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Fuhr Ely, Gabi	RPS	02:57	03:39	40.68806	-70.17833	40.68875	-70.10745	45.1	9.1	SSW	<2	B3	0.5-1	Cloudy	None	4.4	76	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	03:39	04:33	40.68875	-70.10745	40.68963	-70.01623	45.6	10	SW	<2	B3	0.5-1	Cloudy	None	4.6	95	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:33	04:34	40.68963	-70.01623	40.68964	-70.01527	45.6	8.2	SSW	<2	B3	0.5-1	Cloudy	None	4.5	89	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-01	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:34	04:53	40.68964	-70.01527	40.68220	-70.01155	45.6	7.9	S	<2	B3	0.5-1	Cloudy	None	4.4	86	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:53	04:58	40.68220	-70.01155	40.68193	-70.01890	45.6	7.9	S	<2	B3	0.5-1	Cloudy	None	4.2	268	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	04:58	05:57	40.68193	-70.01890	40.68106	-70.11776	47	7	S	<2	B3	0.5-1	Cloudy	None	4.6	271	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	05:57	06:58	40.68106	-70.11776	40.68005	-70.21925	45.1	9	S	<2	B3	0.5-1	Cloudy	None	4.4	256	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	06:58	07:59	40.68005	-70.21925	40.67904	-70.32109	45.1	8	S	<2	B3	0.5-1	Cloudy	None	4.5	274	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	07:59	08:45	40.67904	-70.32109	40.67830	-70.39614	46.2	10	SSW	<2	B3	0.5-1	Cloudy	None	4.7	274	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	08:45	08:47	40.67830	-70.39614	40.67821	-70.40042	46.2	10	SSW	<2	B3	0.5-1	Cloudy	None	4.7	274	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	08:47	09:18	40.67821	-70.40042	40.67984	-70.40185	46.2	10	SSW	<2	B3	0.5-1	Cloudy	None	4.7	274	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:18	09:24	40.67984	-70.40185	40.67994	-70.39170	45.5	8	SSW	<2	B3	1-2	Cloudy	None	4.7	85	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:24	10:00	40.67994	-70.39170	40.68071	-70.33109	43.8	8	SSW	<2	B3	2-5	Cloudy	None	4.7	92	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	10:00	11:00	40.68071	-70.33109	40.68165	-70.23405	43.8	8	SSW	<2	B3	2-5	Cloudy	None	4.7	89	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Fisher, John	RPS	11:00	12:00	40.68165	-70.23405	40.68257	-70.13613	44.7	8	SSW	<2	B3	2-5	Cloudy	None	4.4	84	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:00	12:58	40.68257	-70.13613	40.68972	-70.04220	44.7	8	SSW	<2	B3	>5	Cloudy	None	4.4	84	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:58	13:28	40.68972	-70.04220	40.68461	-70.01168	45	10	S	<2	B3	>5	Cloudy	None	4.6	89	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:28	13:32	40.68461	-70.01168	40.68403	-70.01867	42	12	S	<2	B3	>5	Cloudy	None	4.6	270	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:32	13:58	40.68403	-70.01867	40.68343	-70.06394	42	12	S	<2	B3	>5	Cloudy	None	4.6	270	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	13:58	15:18	40.68343	-70.06394	40.68219	-70.19640	42	9	SSW	<2	B3	>5	Precipitation	None	4.7	269	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	15:18	16:01	40.68219	-70.19640	40.68144	-70.26811	45	9	SSE	<2	B3	>5	Precipitation	None	4.7	270	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:01	16:58	40.68144	-70.26811	40.68030	-70.36763	45	9	SSE	<2	B3	>5	Precipitation	None	4.7	270	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	16:58	17:16	40.68030	-70.36763	40.67990	-70.39634	52.2	14.3	SE	<2	B4	>5	Precipitation	None	5	268	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	17:16	17:18	40.67990	-70.39634	40.67989	-70.39969	52.2	14.3	SE	<2	B4	>5	Precipitation	None	5	268	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	17:18	17:40	40.67989	-70.39969	40.69491	-70.38307	52.2	14.3	SE	<2	B4	>5	Precipitation	None	5	268	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	17:40	17:55	40.69491	-70.38307	40.69550	-70.35800	52.2	20	SE	<2	B4	>5	Precipitation	None	4.3	93	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	17:55	18:06	40.69550	-70.35800	40.68986	-70.36115	50.2	16.4	SE	<2	B4	>5	Cloudy	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:06	18:10	40.68986	-70.36115	40.68953	-70.36798	50.2	16.4	SE	<2	B4	>5	Cloudy	None	4.3	91	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:10	18:21	40.68953	-70.36798	40.68921	-70.38495	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:21	18:37	40.68921	-70.38495	40.69318	-70.38901	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:37	18:41	40.69318	-70.38901	40.69335	-70.38137	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:41	18:51	40.69335	-70.38137	40.69351	-70.36591	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:51	18:51	40.69351	-70.36591	40.69353	-70.36531	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:51	19:03	40.69353	-70.36531	40.69944	-70.34921	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	19:03	19:37	40.69944	-70.34921	40.69836	-70.31268	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	19:37	19:39	40.69836	-70.31268	40.69824	-70.31651	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Silent	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	19:39	20:00	40.69824	-70.31651	40.69777	-70.35232	50.2	16.4	SE	<2	B4	>5	Precipitation	None	4.3	91	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	20:00	21:00	40.69777	-70.35232	40.69772	-70.35913	46.2	17	SE	<2	B4	>5	Precipitation	None	4.7	265	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:00	22:00	40.69772	-70.35913	40.69772	-70.35913	46.2	17	SE	<2	B4	>5	Precipitation	None	4.7	265	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Harris, Matthew	RPS	22:00	22:54	40.69772	-70.35913	40.69772	-70.35913	46.2	17	SE	<2	B4	>5	Precipitation	None	4.7	265	Full Power	N/A
2022-08-01	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	22:54	00:00	40.69772	-70.35913	40.69772	-70.35913	45.2	12.4	SW	2-4	B4	>5	Cloudy	None	5	5.9	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:00	00:40	40.68861	-70.21870	40.71497	-70.21884	43	14	SW	<2	B4	>5	Cloudy	None	5	276	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:40	01:00	40.71497	-70.21884	40.69559	-70.22188	43	12.1	WSW	<2	B4	2-5	Cloudy	None	3.1	199	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Harris, Matthew; Twohy, Chelsea	RPS	01:00	02:00	40.69559	-70.22188	40.70451	-70.14606	45.3	10.4	WSW	<2	B3	1-2	Cloudy	None	3.9	188	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Fuhr Ely, Gabi	RPS	02:00	02:57	40.70451	-70.14606	40.70530	-70.05256	45.8	10	WNW	<2	B3	0.5-1	Cloudy	None	4.3	88	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fisher, John; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	02:57	04:00	40.70530	-70.05256	40.70176	-70.13394	43.2	11.9	NW	<2	B4	0.5-1	Cloudy	None	4.5	84	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:00	04:23	40.70176	-70.13394	40.70779	-70.15826	45.1	11	W	<2	B4	0.5-1	Cloudy	None	4.9	272	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:23	04:24	40.70779	-70.15826	40.70786	-70.15757	44.1	11.3	W	<2	B4	0.5-1	Cloudy	None	4.3	66	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:24	04:54	40.70786	-70.15757	40.70850	-70.10697	44.5	11.5	W	<2	B4	0.5-1	Cloudy	None	4.4	78	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	04:54	05:48	40.70850	-70.10697	40.70929	-70.01727	42.7	14.5	NW	<2	B4	0.5-1	Cloudy	None	4.5	85	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	05:48	05:50	40.70929	-70.01727	40.70930	-70.01469	42.7	14.5	NW	<2	B4	0.5-1	Cloudy	None	4.5	85	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	05:50	05:57	40.70930	-70.01469	40.70783	-70.00261	42.7	14.5	NW	<2	B4	0.5-1	Cloudy	None	4.5	85	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	05:57	06:10	40.70783	-70.00261	40.70059	-70.01337	43.3	11.6	NW	<2	B4	0.5-1	Cloudy	None	3.5	160	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	06:10	06:14	40.70059	-70.01337	40.70046	-70.01937	43.3	12.9	NW	<2	B4	0.5-1	Cloudy	None	4.6	273	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	06:14	06:55	40.70046	-70.01937	40.69996	-70.08174	42.3	13.3	NW	<2	B4	0.5-1	Cloudy	None	4.2	289	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	06:55	07:58	40.69996	-70.08174	40.69923	-70.17843	44.2	14	NW	<2	B4	0.5-1	Cloudy	None	4.5	259	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	07:58	08:59	40.69923	-70.17843	40.69967	-70.27860	45.2	15	WNW	<2	B4	0.5-1	Cloudy	None	4.7	268	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	08:59	09:17	40.69967	-70.27860	40.69794	-70.30953	46.2	13	WNW	<2	B4	1-2	Cloudy	None	4.7	286	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:17	09:53	40.69794	-70.30953	40.69729	-70.36813	46.2	13	WNW	<2	B4	1-2	Cloudy	None	4.7	286	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:53	09:55	40.69729	-70.36813	40.69723	-70.37153	44.8	16	W	<2	B4	>5	Cloudy	None	4.9	274	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Both	Metheny, Nicholas; Fisher, John; Fuhr Ely, Gabi	RPS	09:55	10:00	40.69723	-70.37153	40.69697	-70.38146	44.8	16	W	<2	B4	>5	Cloudy	None	4.9	274	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	10:00	10:22	40.69697	-70.38146	40.70743	-70.36960	45	16	W	<2	B4	>5	Cloudy	None	4.5	269	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	10:22	10:24	40.70743	-70.36960	40.70757	-70.36674	45	16	W	<2	B4	>5	Cloudy	None	4.4	85	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	10:24	11:01	40.70757	-70.36674	40.70817	-70.31060	45	16	W	<2	B4	>5	Cloudy	None	4.4	85	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Fisher, John	RPS	11:01	12:00	40.70817	-70.31060	40.70912	-70.22465	44	10	W	<2	B4	>5	Cloudy	Severe	4.5	87	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:00	12:58	40.70912	-70.22465	40.70998	-70.14093	44	10	W	<2	B4	>5	Clear	Severe	4.5	87	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:58	13:58	40.70998	-70.14093	40.71069	-70.05331	43	9	SW	<2	B3	>5	Cloudy	Severe	4.4	95.4	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	13:58	14:07	40.71069	-70.05331	40.71082	-70.04148	42.3	6	SW	<2	B2	>5	Clear	Severe	4	88	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	14:07	14:09	40.71082	-70.04148	40.71085	-70.03855	42.3	6	SW	<2	B2	>5	Clear	Severe	4	88	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	14:09	14:46	40.71085	-70.03855	40.71163	-70.02416	42.3	6	SW	<2	B2	>5	Clear	Severe	4	88	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	14:46	14:49	40.71163	-70.02416	40.71144	-70.02922	42.3	6	SW	<2	B2	>5	Clear	Severe	4	88	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	14:49	14:59	40.71144	-70.02922	40.71109	-70.04598	42.3	10	SW	<2	B3	>5	Clear	Moderate	4.7	267	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	14:59	15:01	40.71109	-70.04598	40.71099	-70.04915	42.3	10	SW	<2	B3	>5	Clear	Moderate	4.7	267	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	15:01	16:00	40.71099	-70.04915	40.71099	-70.03456	42.3	10	SW	<2	B3	>5	Clear	Moderate	4.7	267	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:00	16:59	40.71099	-70.03456	40.71735	-70.12005	42.3	10	SW	<2	B3	>5	Clear	Moderate	4.7	267	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	16:59	17:01	40.71735	-70.12005	40.71911	-70.11941	42.3	11	SSW	<2	B3	>5	Clear	Moderate	3.6	15	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Harris, Matthew	RPS	17:01	17:58	40.71911	-70.11941	40.76354	-70.09810	42.3	11	SSW	<2	B3	>5	Clear	Moderate	3.6	15	Deploying/Retrieving	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	17:58	18:02	40.76354	-70.09810	40.76786	-70.09570	39.2	10.9	SSW	<2	B3	>5	Clear	Slight	4.4	29	Standby	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	18:02	18:57	40.76786	-70.09570	40.77231	-70.07838	39.2	10.9	SSW	<2	B3	>5	Clear	Slight	4.4	29	Deploying/Retrieving	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	18:57	19:57	40.77231	-70.07838	40.71511	-70.09003	39.2	10.9	SSW	<2	B3	>5	Clear	Slight	4.4	29	Deploying/Retrieving	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	19:57	20:09	40.71511	-70.09003	40.71127	-70.10918	42.6	15.5	SSW	<2	B3	>5	Clear	Slight	4.5	236	Deploying/Retrieving	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:09	20:31	40.71127	-70.10918	40.71098	-70.14488	42.8	13.9	SSW	<2	B3	>5	Clear	Slight	4.6	255	Soft Start	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:31	20:48	40.71098	-70.14488	40.71076	-70.17259	42.8	13.9	SSW	<2	B3	>5	Clear	Slight	4.6	255	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	20:48	21:21	40.71076	-70.17259	40.71012	-70.22350	44.7	14.3	SSW	<2	B3	>5	Cloudy	Severe	3.6	274	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:21	21:44	40.71012	-70.22350	40.70977	-70.25838	44.7	14.3	SSW	<2	B3	>5	Cloudy	Severe	3.6	274	Soft Start	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	21:44	21:59	40.70977	-70.25838	40.70960	-70.28232	44.7	14.3	SSW	<2	B3	>5	Cloudy	Severe	3.2	274	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Harris, Matthew	RPS	21:59	22:58	40.70960	-70.28232	40.70853	-70.37562	44.7	14.3	SSW	<2	B3	>5	Cloudy	Severe	3.2	274	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	22:58	23:36	40.70853	-70.37562	40.71397	-70.36275	44.7	12.9	SW	<2	B3	>5	Cloudy	Severe	4.5	293	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	23:36	23:41	40.71397	-70.36275	40.71407	-70.35430	44.7	12.9	SW	<2	B3	>5	Cloudy	Severe	4.5	293	Silent	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	23:41	23:44	40.71407	-70.35430	40.71413	-70.34784	44.7	12.9	SW	<2	B3	>5	Cloudy	Severe	4.5	83	Full Power	N/A
2022-08-02	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	23:44	00:00	40.71413	-70.34784	40.70891	-70.35427	44.7	12.9	SW	<2	B3	>5	Cloudy	Severe	4.5	83	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:00	00:15	40.70867	-70.35990	40.71395	-70.36145	49.3	11.7	NE	<2	B3	>5	Fog	None	4.1	278	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:15	00:21	40.71395	-70.36145	40.71408	-70.35249	49.3	11.1	SW	<2	B3	>5	Fog	None	4.3	89	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:21	00:40	40.71408	-70.35249	40.71456	-70.32502	49.3	11.1	SW	<2	B3	2-5	Fog	None	4.3	89	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:40	00:46	40.71456	-70.32502	40.71470	-70.31519	49.3	11.1	SW	<2	B3	1-2	Fog	None	4.3	89	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:46	00:48	40.71470	-70.31519	40.71471	-70.31260	49.3	11.1	SW	<2	B3	1-2	Fog	None	4.3	89	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	00:48	00:59	40.71471	-70.31260	40.70901	-70.32168	49.3	11.1	SW	<2	B3	0.5-1	Fog	None	4.3	89	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Harris, Matthew; Twohy, Chelsea	RPS	00:59	02:00	40.70901	-70.32168	40.71463	-70.31861	48.2	13.7	SW	<2	B3	0.5-1	Fog	None	4.3	270	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fuhr Ely, Gabi; Fisher, John	RPS	02:00	02:55	40.71463	-70.31861	40.71563	-70.22542	49	12	SW	<2	B3	0.5-1	Fog	None	4.9	93	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fisher, John; Fuhr Ely, Gabi; Twohy, Chelsea	RPS	02:55	04:00	40.71563	-70.22542	40.71677	-70.11542	45.3	11	SW	<2	B3	0.5-1	Fog	None	5	106	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	04:00	05:00	40.71677	-70.11542	40.71665	-70.05291	44.8	10	SW	<2	B3	0.5-1	Fog	None	4.8	79	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Ashcraft, Caylin; Fisher, John; Ramsarran, Celine	RPS	05:00	06:00	40.71665	-70.05291	40.71576	-70.14910	42.5	12	SW	<2	B3	0.5-1	Fog	None	4.2	280	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fisher, John; Ramsarran, Celine; Twohy, Chelsea	RPS	06:00	07:00	40.71576	-70.14910	40.71477	-70.24890	43.5	15	SW	<2	B3	0.5-1	Fog	None	4.4	265	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fuhr Ely, Gabi; Ramsarran, Celine; Twohy, Chelsea	RPS	07:00	07:58	40.71477	-70.24890	40.70239	-70.34558	44.1	12	SW	<2	B3	0.5-1	Fog	None	4.7	257	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fisher, John; Fuhr Ely, Gabi; Metheny, Nicholas	RPS	07:58	09:02	40.70239	-70.34558	40.70859	-70.28895	50	9	SW	<2	B3	0.5-1	Fog	None	4.9	265	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Both	Fisher, John; Fuhr Ely, Gabi; Metheny, Nicholas	RPS	09:02	10:00	40.70859	-70.28895	40.68440	-70.31025	46	7	SW	<2	B3	1-2	Clear	None	4.7	88	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	10:00	11:00	40.68440	-70.31025	40.68160	-70.38994	49	6	WSW	<2	B2	>5	Fog	None	5	273	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	11:00	11:17	40.68160	-70.38994	40.68340	-70.40409	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	11:17	11:21	40.68340	-70.40409	40.68336	-70.39812	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	11:21	11:45	40.68336	-70.39812	40.68374	-70.36182	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	11:45	11:47	40.68374	-70.36182	40.68376	-70.35912	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	11:47	12:00	40.68376	-70.35912	40.68451	-70.33899	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	12:00	13:03	40.68451	-70.33899	40.68887	-70.23065	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:03	13:39	40.68887	-70.23065	40.68088	-70.17876	47	10	NNW	<2	B2	>5	Fog	None	5.4	261	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:39	13:41	40.68088	-70.17876	40.68090	-70.18236	45	4	NNE	<2	B2	>5	Fog	None	5.2	274	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:41	13:52	40.68090	-70.18236	40.68052	-70.20150	45	4	NNE	<2	B2	>5	Clear	None	5.2	274	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:52	13:54	40.68052	-70.20150	40.68202	-70.20553	45	4	NNE	<2	B2	>5	Clear	None	5.1	280	Silent	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Fisher, John; Ramsarran, Celine	RPS	13:54	13:58	40.68202	-70.20553	40.68721	-70.20799	45	4	NNE	<2	B2	>5	Clear	None	5.1	300	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	13:58	15:43	40.68721	-70.20799	40.69565	-70.04662	45	6	NE	<2	B2	>5	Clear	Moderate	4.6	14	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Ramsarran, Celine	RPS	15:43	16:00	40.69565	-70.04662	40.69602	-70.02128	45	6	NE	<2	B2	>5	Clear	Moderate	4.6	14	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:00	16:14	40.69602	-70.02128	40.69004	-70.01470	45	6	NE	<2	B2	>5	Clear	Moderate	4.6	14	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:14	16:15	40.69004	-70.01470	40.68983	-70.01678	45	6	NE	<2	B2	>5	Clear	Moderate	4.6	14	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Ramsarran, Celine	RPS	16:15	16:58	40.68983	-70.01678	40.68892	-70.08830	45	1	S	<2	B2	>5	Clear	Moderate	4.4	268	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Metheny, Nicholas	RPS	16:58	17:50	40.68892	-70.08830	40.68817	-70.17445	45	2.7	WNW	<2	B2	>5	Clear	Slight	4.5	265	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	17:50	18:59	40.68817	-70.17445	40.68696	-70.28441	45	2.8	WNW	<2	B2	>5	Clear	Slight	4.7	269	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	18:59	19:53	40.68696	-70.28441	40.68604	-70.36597	45	2.7	NW	<2	B1	>5	Clear	Slight	3.9	260	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Harris, Matthew	RPS	19:53	20:56	40.68604	-70.36597	40.68601	-70.37047	45	2.7	NW	<2	B1	>5	Clear	Slight	3.9	260	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	20:56	21:58	40.68601	-70.37047	40.68598	-70.37458	51.1	1.1	W	<2	B1	>5	Clear	Moderate	4.6	287	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	21:58	22:59	40.68598	-70.37458	40.68595	-70.37594	51.1	1.1	W	<2	B1	>5	Clear	Moderate	4.6	287	Full Power	N/A
2022-08-03	*GO Discovery*	HRG	Visual	Harris, Matthew; Twohy, Chelsea	RPS	22:59	00:00	40.68595	-70.37594	40.68593	-70.37792	51.1	1.1	W	<2	B1	>5	Clear	Moderate	4.6	287	Full Power	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:00	00:47	40.94606	-70.63828	41.00868	-70.70580	49.3	6.2	S	<2	B1	>5	Clear	None	6.7	320	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:47	00:57	41.00868	-70.70580	41.02373	-70.72181	49.3	6.2	S	<2	B1	>5	Clear	None	6.7	320	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Twohy, Chelsea	RPS	00:57	02:00	41.02373	-70.72181	41.10857	-70.81857	45.7	6.8	SSW	<2	B1	1-2	Clear	None	6.9	323	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	02:00	02:56	41.10857	-70.81857	41.19206	-70.86807	35.9	8.2	SSW	<2	B2	0.5-1	Clear	None	6.1	315	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	02:56	03:58	41.19206	-70.86807	41.23610	-70.96391	18.8	8.3	NE	<2	B2	0.5-1	Clear	None	6.6	307	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Ramsarran, Celine	RPS	03:58	04:58	41.23610	-70.96391	41.29203	-71.04753	34.7	8	SW	<2	B2	0.5-1	Clear	None	4.8	271	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Fisher, John	RPS	04:58	05:55	41.29203	-71.04753	41.35922	-71.08319	37.7	7.2	SW	<2	B2	0.5-1	Clear	None	5	313	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Twohy, Chelsea	RPS	05:55	07:02	41.35922	-71.08319	41.44778	-71.00400	23.2	5.5	SSW	<2	B2	0.5-1	Clear	None	4.8	22	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabi; Twohy, Chelsea	RPS	07:02	07:58	41.44778	-71.00400	41.49857	-70.86992	13.9	6.4	S	<2	B2	0.5-1	Clear	None	7.3	44	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	07:58	08:21	41.49857	-70.86992	41.53523	-70.85312	16	7	S	<2	B2	0.05-0.1	Fog	None	7.2	64	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	08:21	08:32	41.53523	-70.85312	41.55669	-70.86181	16	7	S	<2	B2	0.1-0.3	Fog	None	7.2	64	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	08:32	08:43	41.55669	-70.86181	41.57834	-70.87816	16	7	S	<2	B2	0.3-0.5	Fog	None	7.2	64	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	08:43	09:32	41.57834	-70.87816	41.62228	-70.91343	7.6	7	S	<2	B2	1-2	Clear	None	7.6	340	Transit	N/A
2022-08-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:32	09:50	41.62228	-70.91343	41.62149	-70.91353	3.9	5	SW	<2	B1	1-2	Cloudy	None	0.5	205	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Garcia, Marah	RPS	04:24	06:00	41.62140	-70.91355	41.60446	-70.89282	6	4	W	<2	B1	0.3-0.5	Clear	None	0.2	354	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Abeytia, Flavio	RPS	06:00	06:30	41.60446	-70.89282	41.54110	-70.85257	10	8	SW	<2	B1	0.3-0.5	Clear	None	8.3	153	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Abeytia, Flavio	RPS	06:30	06:55	41.54110	-70.85257	41.48310	-70.84130	14	7	SSW	<2	B1	0.3-0.5	Clear	None	8.4	149	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Toxtle, Miguel	RPS	06:55	07:27	41.48310	-70.84130	41.41756	-70.84148	17	13	SW	<2	B2	0.3-0.5	Clear	None	8.6	184	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Bonfil, Neftali	RPS	07:27	07:59	41.41756	-70.84148	41.34988	-70.86838	13	14	WSW	2-4	B2	0.3-0.5	Clear	None	9	192	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	07:59	08:27	41.34988	-70.86838	41.30125	-70.82244	28	4	SW	2-4	B2	0.3-0.5	Clear	None	7.2	157	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	08:27	09:00	41.30125	-70.82244	41.25816	-70.76647	18	0	W	2-4	B3	0.3-0.5	Clear	None	7	131	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	09:00	09:12	41.25816	-70.76647	41.23592	-70.74967	25	5	WSW	2-4	B3	0.5-1	Clear	None	6.6	151	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Bonfil, Neftali	RPS	09:12	09:28	41.23592	-70.74967	41.20319	-70.73547	29	5	WSW	2-4	B3	>5	Clear	None	7.4	136	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	09:28	09:56	41.20319	-70.73547	41.15117	-70.70429	31	6	SW	2-4	B3	>5	Clear	None	7.8	152	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	09:56	10:30	41.15117	-70.70429	41.09143	-70.66573	39	6	W	2-4	B4	>5	Clear	None	7.2	159	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:30	10:56	41.09143	-70.66573	41.04411	-70.63307	45	4	W	2-4	B4	>5	Clear	Severe	7.6	147	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:56	11:30	41.04411	-70.63307	40.99979	-70.56779	46	2	WSW	2-4	B4	>5	Clear	Severe	8.2	146	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	11:30	11:56	40.99979	-70.56779	40.96494	-70.50826	48	3	E	2-4	B3	>5	Clear	Severe	7.2	126	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	11:56	12:29	40.96494	-70.50826	40.91950	-70.43904	48	3	SE	2-4	B4	>5	Clear	Severe	7.5	136	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	12:56	40.91950	-70.43904	40.88189	-70.38105	48	2	SSE	2-4	B4	>5	Clear	Severe	7.6	131	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:56	13:28	40.88189	-70.38105	40.83717	-70.31396	48	1	S	2-4	B4	>5	Clear	Severe	7.9	134	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:28	14:01	40.83717	-70.31396	40.78997	-70.24289	48	1	S	2-4	B4	>5	Clear	Severe	7.7	135	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:01	14:30	40.78997	-70.24289	40.74940	-70.17939	44	4	SSE	2-4	B3	>5	Clear	Severe	7.7	135	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	14:30	14:57	40.74940	-70.17939	40.70988	-70.12241	44	4	SSE	2-4	B3	>5	Clear	Slight	7.7	135	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	14:57	15:30	40.70988	-70.12241	40.67020	-70.04546	45	7	S	2-4	B4	>5	Clear	Severe	8.2	141	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:58	40.67020	-70.04546	40.64521	-70.01955	49	5	S	2-4	B3	>5	Clear	Severe	4.2	123	Transit	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	15:58	16:30	40.64521	-70.01955	40.63430	-70.01044	53	5	WSW	2-4	B3	>5	Clear	Severe	1.4	140	Deploying/Retrieving	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	16:30	17:00	40.63430	-70.01044	40.61133	-70.00062	55	6	SW	2-4	B3	>5	Clear	Severe	2.7	169	Deploying/Retrieving	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.61133	-70.00062	40.63846	-70.02069	56	6	SW	2-4	B3	>5	Clear	Severe	3.4	161	Deploying/Retrieving	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.63846	-70.02069	40.62845	-70.02216	52	8	WNW	2-4	B3	>5	Clear	Severe	4.6	354	Silent	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	18:00	18:30	40.62845	-70.02216	40.63762	-70.00524	52	1	WNW	2-4	B3	>5	Clear	Severe	4.9	87	Silent	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	18:55	40.63762	-70.00524	40.63930	-70.03747	52	1	WNW	2-4	B3	>5	Clear	Severe	4.9	87	Silent	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	18:55	19:28	40.63930	-70.03747	40.63765	-70.02205	52	1	W	<2	B2	>5	Cloudy	Moderate	4.9	87	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:28	19:30	40.63765	-70.02205	40.63766	-70.02387	53	11	W	<2	B2	>5	Cloudy	Moderate	5	279	Soft Start	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	19:48	40.63766	-70.02387	40.63607	-70.01958	53	11	W	<2	B2	>5	Cloudy	Moderate	5	279	Soft Start	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:48	20:00	40.63607	-70.01958	40.62388	-70.01680	53	6	WSW	<2	B2	>5	Cloudy	Moderate	4.6	182	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:30	40.62388	-70.01680	40.63979	-70.01149	53	6	WSW	<2	B2	>5	Cloudy	Moderate	4.6	182	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	20:30	20:34	40.63979	-70.01149	40.63939	-70.01810	53	6	WSW	<2	B2	>5	Cloudy	Moderate	4.6	182	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	20:34	21:00	40.63939	-70.01810	40.63914	-70.05882	53	6	WSW	<2	B2	>5	Cloudy	Severe	4.6	182	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:32	40.63914	-70.05882	40.63857	-70.11593	52	6	WSW	<2	B2	>5	Cloudy	Severe	4.8	287	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:32	21:57	40.63857	-70.11593	40.63812	-70.15756	54	10	WSW	<2	B2	>5	Cloudy	Severe	4.4	269	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	21:57	22:30	40.63812	-70.15756	40.63752	-70.21133	50	8	WSW	<2	B2	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:30	23:01	40.63752	-70.21133	40.63695	-70.26134	52	13	WSW	<2	B2	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:01	23:28	40.63695	-70.26134	40.63652	-70.30584	54	14	W	<2	B2	>5	Cloudy	Moderate	4.7	281	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	23:28	23:58	40.63652	-70.30584	40.63608	-70.34548	55	15	W	<2	B2	>5	Cloudy	Moderate	4.6	263	Full Power	N/A
2022-07-27	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	23:58	00:00	40.63608	-70.34548	40.63593	-70.35643	55	15	W	<2	B2	>5	Cloudy	Slight	4.3	265	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	00:00	00:10	40.63592	-70.35880	40.63574	-70.37367	58	15	W	<2	B3	>5	Cloudy	None	4.7	264	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	00:10	00:30	40.63574	-70.37367	40.63534	-70.40502	58	15	W	<2	B3	2-5	Cloudy	None	4.7	264	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	00:30	00:39	40.63534	-70.40502	40.63516	-70.42109	59	14	W	<2	B3	1-2	Cloudy	None	4.6	270	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:39	01:00	40.63516	-70.42109	40.63473	-70.45378	59	14	W	<2	B3	0.3-0.5*	Cloudy	None	4.5	266	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Garcia, Marah	RPS	01:00	01:02	40.63473	-70.45378	40.63469	-70.45801	59	14	W	<2	B3	0.3-0.5*	Cloudy	None	4.5	267	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	01:02	01:11	40.63469	-70.45801	40.64117	-70.45601	61	14	W	<2	B3	0.3-0.5*	Cloudy	None	4.5	267	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Garcia, Marah; Bonfil, Neftali	RPS	01:11	01:14	40.64117	-70.45601	40.64138	-70.45232	59	18	WSW	<2	B3	0.3-0.5*	Cloudy	None	4.8	76	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Garcia, Marah; Alaman, Ricardo; Toxtle, Miguel	RPS	01:14	01:30	40.64138	-70.45232	40.64177	-70.42523	59	4	W	<2	B3	0.3-0.5*	Cloudy	None	4.5	79	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:53	40.64177	-70.42523	40.64222	-70.38517	59	4	SW	<2	B3	0.3-0.5*	Cloudy	None	4.7	83	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Bonfil, Neftali	RPS	01:53	02:31	40.64222	-70.38517	40.64298	-70.32043	76	3	SW	<2	B3	0.3-0.5*	Cloudy	None	4.8	81	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Garcia, Marah; Abeytia, Flavio; Bonfil, Neftali	RPS	02:31	03:00	40.64298	-70.32043	40.64352	-70.27162	54	3	S	<2	B3	0.3-0.5*	Cloudy	None	4.9	85	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Abeytia, Flavio	RPS	03:00	03:29	40.64352	-70.27162	40.64408	-70.22241	52	4	S	<2	B3	0.3-0.5*	Cloudy	None	4.4	83	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Abeytia, Flavio	RPS	03:29	04:00	40.64408	-70.22241	40.64464	-70.16966	50	4	S	<2	B3	0.3-0.5*	Cloudy	None	4.9	85	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Garcia, Marah	RPS	04:00	04:30	40.64464	-70.16966	40.64515	-70.12003	50	7	S	<2	B3	0.3-0.5*	Cloudy	None	4.6	80	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Garcia, Marah; Bonfil, Neftali	RPS	04:30	04:57	40.64515	-70.12003	40.64555	-70.07689	50	4	S	<2	B3	0.3-0.5*	Cloudy	None	4.3	79	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Danos, Laura; Garcia, Marah; Abeytia, Flavio	RPS	04:57	05:26	40.64555	-70.07689	40.64594	-70.03130	51	10	SSE	<2	B3	0.3-0.5*	Cloudy	None	4.1	90	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:26	05:35	40.64594	-70.03130	40.64611	-70.01650	52	13	SSE	<2	B3	0.3-0.5*	Clear	None	4.7	92	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Danos, Laura	RPS	05:35	05:37	40.64611	-70.01650	40.64610	-70.01224	54	14	SSW	<2	B3	0.3-0.5*	Clear	None	4.6	233	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Garcia, Marah; Danos, Laura; Abeytia, Flavio	RPS	05:37	05:54	40.64610	-70.01224	40.63965	-70.02233	54	14	SSW	<2	B3	0.3-0.5*	Clear	None	4.7	233	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:54	06:00	40.63965	-70.02233	40.63963	-70.03300	53	11	SW	<2	B3	0.3-0.5*	Clear	None	4.4	277	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Garcia, Marah; Danos, Laura; Abeytia, Flavio	RPS	06:00	06:30	40.63963	-70.03300	40.63915	-70.08329	51	12	SW	<2	B3	0.3-0.5*	Clear	None	4.5	260	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Abeytia, Flavio; Danos, Laura	RPS	06:30	06:57	40.63915	-70.08329	40.63866	-70.13083	52	12	SW	2-4	B4	0.3-0.5*	Clear	None	4.8	263	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Danos, Laura; Toxtle, Miguel; Bonfil, Neftali	RPS	06:57	07:26	40.63866	-70.13083	40.63820	-70.18072	49	14	SW	2-4	B4	0.3-0.5*	Clear	None	4.9	263	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Danos, Laura; Bonfil, Neftali	RPS	07:26	07:58	40.63820	-70.18072	40.63765	-70.23510	52	12	SW	2-4	B4	0.3-0.5*	Clear	None	5	269	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Bonfil, Neftali	RPS	07:58	08:29	40.63765	-70.23510	40.63710	-70.28692	52	12	WSW	2-4	B4	0.3-0.5*	Clear	None	5.2	264	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Danos, Laura	RPS	08:29	09:00	40.63710	-70.28692	40.63648	-70.33832	56	12	WSW	2-4	B4	0.3-0.5*	Clear	None	4.6	273	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Santiago, Sancy; Abeytia, Flavio	RPS	09:00	09:30	40.63648	-70.33832	40.63587	-70.38787	56	10	N	2-4	B4	1-2	Clear	None	4.7	262	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	09:30	10:00	40.63587	-70.38787	40.63529	-70.43756	58	11	NNE	2-4	B4	2-5	Clear	None	4.7	256	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:00	10:10	40.63529	-70.43756	40.63503	-70.45344	59	13	SW	2-4	B4	>5	Clear	Moderate	4.5	260	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:10	10:25	40.63503	-70.45344	40.64170	-70.45209	59	13	SW	2-4	B4	>5	Clear	Moderate	4.5	260	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:25	10:30	40.64170	-70.45209	40.64171	-70.44260	59	6	S	<2	B3	>5	Clear	Severe	4.5	88	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:30	10:59	40.64171	-70.44260	40.64235	-70.39314	59	7	S	<2	B3	>5	Clear	Severe	4.5	88	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	10:59	11:30	40.64235	-70.39314	40.64292	-70.34124	59	7	SSE	<2	B3	>5	Clear	Severe	4.9	89	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:30	11:58	40.64292	-70.34124	40.64346	-70.29260	54	8	S	<2	B3	>5	Cloudy	Severe	4.9	90	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:58	12:29	40.64346	-70.29260	40.64408	-70.23996	54	9	SSE	<2	B3	>5	Clear	Severe	4.7	91	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	12:59	40.64408	-70.23996	40.64458	-70.19132	53	10	SE	<2	B2	>5	Clear	Severe	4.4	92	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:59	13:27	40.64458	-70.19132	40.64500	-70.14567	51	11	SE	<2	B2	>5	Clear	Severe	4.2	90	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	13:27	14:00	40.64500	-70.14567	40.64555	-70.09146	51	12	SSE	<2	B2	>5	Cloudy	Moderate	4.5	88	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.64555	-70.09146	40.64600	-70.03994	49	10	SSE	<2	B3	>5	Cloudy	Slight	4.7	92	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	14:30	14:44	40.64600	-70.03994	40.64630	-70.01561	49	10	SSE	<2	B3	>5	Cloudy	Slight	4.7	92	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:44	14:56	40.64630	-70.01561	40.64020	-70.00986	49	10	SSE	<2	B3	>5	Cloudy	Slight	4.7	92	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	14:56	15:02	40.64020	-70.00986	40.63996	-70.01901	54	11	SSW	<2	B3	>5	Clear	Severe	4.7	273	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	15:02	15:30	40.63996	-70.01901	40.63948	-70.06637	54	11	SSW	<2	B3	>5	Clear	Severe	4.7	273	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:59	40.63948	-70.06637	40.63903	-70.11742	50	12	SSW	<2	B3	>5	Clear	Severe	4.7	258	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	15:59	16:28	40.63903	-70.11742	40.63851	-70.16713	50	14	SSW	<2	B3	>5	Cloudy	Severe	4.7	258	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	16:28	16:58	40.63851	-70.16713	40.63804	-70.21610	52	12	SSW	<2	B3	>5	Cloudy	Slight	4.5	277	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	16:58	17:19	40.63804	-70.21610	40.63766	-70.25081	52	11	SSW	<2	B3	>5	Cloudy	Severe	4.4	271	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:19	17:30	40.63766	-70.25081	40.63747	-70.26982	52	11	SSW	<2	B3	>5	Cloudy	Severe	4.4	271	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	17:30	18:00	40.63747	-70.26982	40.63685	-70.32115	53	13	SW	<2	B3	>5	Cloudy	Severe	4.7	271	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.63685	-70.32115	40.63628	-70.36983	55	15	SSW	<2	B3	>5	Cloudy	Severe	4.5	272	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	19:00	40.63628	-70.36983	40.63571	-70.42092	58	12	SSW	<2	B3	>5	Cloudy	Severe	4.8	272	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:00	19:20	40.63571	-70.42092	40.63529	-70.45312	58	17	SSW	<2	B4	>5	Cloudy	Severe	4.8	272	Full Power	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:20	19:30	40.63529	-70.45312	40.63923	-70.46459	59	17	SSW	<2	B4	>5	Cloudy	Severe	4.8	272	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	19:56	40.63923	-70.46459	40.63956	-70.42139	75	14	SSE	<2	B4	>5	Cloudy	Severe	4.8	87	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	19:56	20:30	40.63956	-70.42139	40.64020	-70.36503	59	14	SSE	<2	B4	>5	Cloudy	Severe	4.8	86	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	20:30	21:00	40.64020	-70.36503	40.64072	-70.31801	56	14	S	<2	B4	>5	Cloudy	Severe	4.4	85	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:36	40.64072	-70.31801	40.64144	-70.25436	58	17	S	<2	B4	>5	Cloudy	Moderate	4.5	90	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:36	21:59	40.64144	-70.25436	40.64182	-70.21483	53	14	S	<2	B4	>5	Cloudy	Moderate	5.2	90	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	21:59	22:30	40.64182	-70.21483	40.64237	-70.16005	50	14	SSE	<2	B4	>5	Cloudy	Severe	5.2	89	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	22:30	22:59	40.64237	-70.16005	40.64275	-70.11148	49	13	SSE	<2	B4	>5	Cloudy	Severe	5.2	89	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	22:59	23:30	40.64275	-70.11148	40.64316	-70.06194	49	14	SSE	<2	B4	>5	Cloudy	Moderate	4.7	95	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	23:30	23:35	40.64316	-70.06194	40.64325	-70.04978	52	14	SSE	<2	B4	>5	Cloudy	Moderate	4.7	92	Silent	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:35	23:55	40.64325	-70.04978	40.64352	-70.01560	50	14	SSE	<2	B4	>5	Cloudy	Moderate	4.7	92	Soft Start	N/A
2022-07-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	23:55	00:00	40.64352	-70.01560	40.64393	-70.00829	50	14	SSE	<2	B4	>5	Cloudy	Moderate	4.7	92	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	00:00	00:05	40.64411	-70.00505	40.64154	-70.00235	52	18	S	<2	B4	2-5	Cloudy	None	3.8	134	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:05	00:30	40.64154	-70.00235	40.64522	-69.98867	52	18	S	<2	B4	1-2	Cloudy	None	3.8	134	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	00:30	01:01	40.64522	-69.98867	40.64044	-70.00340	53	22	S	<2	B4	0.3-0.5*	Cloudy	None	4	193	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Garcia, Marah; Alaman, Ricardo; Toxtle, Miguel	RPS	01:01	01:05	40.64044	-70.00340	40.64024	-70.01099	52	16	SSE	2-4	B4	0.3-0.5*	Cloudy	None	4.8	244	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Alaman, Ricardo	RPS	01:05	01:10	40.64024	-70.01099	40.64015	-70.01993	51	15	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.9	254	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Alaman, Ricardo; Garcia, Marah	RPS	01:10	01:30	40.64015	-70.01993	40.63982	-70.05356	51	16	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.9	258	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:56	40.63982	-70.05356	40.63946	-70.09810	52	18	SSW	2-4	B4	0.3-0.5*	Cloudy	None	5	260	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Abeytia, Flavio	RPS	01:56	02:30	40.63946	-70.09810	40.63896	-70.15191	50	19	SSW	2-4	B4	0.3-0.5*	Cloudy	None	4.8	260	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Bonfil, Neftali	RPS	02:30	02:59	40.63896	-70.15191	40.63852	-70.19635	52	15	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.3	284	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Abeytia, Flavio	RPS	02:59	03:30	40.63852	-70.19635	40.63800	-70.24287	60	17	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.3	259	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Bonfil, Neftali	RPS	03:30	04:00	40.63800	-70.24287	40.63746	-70.29304	52	16	SW	2-4	B4	0.3-0.5*	Cloudy	None	4	263	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:30	40.63746	-70.29304	40.63694	-70.34327	53	16	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.7	266	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	04:30	04:55	40.63694	-70.34327	40.63644	-70.38660	55	18	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.6	267	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Danos, Laura; Garcia, Marah; Abeytia, Flavio	RPS	04:55	05:28	40.63644	-70.38660	40.63577	-70.44120	59	17	SW	2-4	B4	0.3-0.5*	Clear	None	4.5	259	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Garcia, Marah; Abeytia, Flavio; Danos, Laura	RPS	05:28	05:36	40.63577	-70.44120	40.63560	-70.45407	62	19	SW	2-4	B4	0.3-0.5*	Clear	None	4.2	271	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Danos, Laura; Garcia, Marah; Abeytia, Flavio	RPS	05:36	05:58	40.63560	-70.45407	40.62907	-70.43751	62	19	SW	2-4	B4	0.3-0.5*	Clear	None	4.2	271	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Danos, Laura; Garcia, Marah; Abeytia, Flavio	RPS	05:58	06:24	40.62907	-70.43751	40.62991	-70.39068	61	14	SSW	2-4	B4	0.3-0.5*	Clear	None	4.8	76	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:24	06:56	40.62991	-70.39068	40.63052	-70.33932	60	12	SSW	2-4	B4	0.3-0.5*	Clear	None	4.7	83	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:56	07:29	40.63052	-70.33932	40.63112	-70.28691	57	9	SSW	2-4	B4	0.3-0.5*	Clear	None	4.4	74	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Danos, Laura	RPS	07:29	08:00	40.63112	-70.28691	40.63154	-70.23819	56	9	SSW	2-4	B4	0.3-0.5*	Clear	None	4.4	75	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	08:00	08:28	40.63154	-70.23819	40.63204	-70.19658	53	8	S	2-4	B4	0.3-0.5*	Clear	None	4.3	76	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	08:28	08:48	40.63204	-70.19658	40.63235	-70.16676	53	10	SSW	2-4	B4	0.3-0.5*	Clear	None	4.4	83	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Bonfil, Neftali	RPS	08:48	08:50	40.63235	-70.16676	40.63241	-70.16427	51	7	S	2-4	B4	0.3-0.5*	Clear	None	3.7	78	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Danos, Laura	RPS	08:50	09:00	40.63241	-70.16427	40.63310	-70.14983	51	7	S	2-4	B4	0.3-0.5*	Clear	None	3.7	78	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Santiago, Sancy; Bonfil, Neftali	RPS	09:00	09:16	40.63310	-70.14983	40.63299	-70.12551	50	10	S	2-4	B4	0.3-0.5*	Fog	None	4.3	79	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:16	09:30	40.63299	-70.12551	40.63301	-70.10373	50	10	S	2-4	B4	0.3-0.5*	Fog	None	4.3	79	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	09:30	09:45	40.63301	-70.10373	40.63355	-70.07965	51	8	S	2-4	B4	0.3-0.5*	Fog	None	4.2	87	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	09:45	10:00	40.63355	-70.07965	40.63371	-70.05840	52	9	S	<2	B3	2-5	Fog	None	4.2	87	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.63371	-70.05840	40.63395	-70.01613	52	10	S	<2	B3	2-5	Fog	Severe	3.8	93	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:30	10:56	40.63395	-70.01613	40.64066	-70.01219	54	10	S	<2	B3	2-5	Fog	Severe	4.1	89	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:56	11:00	40.64066	-70.01219	40.64039	-70.01829	51	17	WSW	<2	B3	2-5	Fog	Severe	5.2	263	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:00	11:30	40.64039	-70.01829	40.63996	-70.06912	51	16	WSW	<2	B3	2-5	Fog	Severe	4.9	257	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:30	12:00	40.63996	-70.06912	40.63948	-70.11889	50	16	WSW	<2	B3	2-5	Fog	Severe	4.8	252	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:00	12:30	40.63948	-70.11889	40.63902	-70.16790	51	14	W	<2	B3	2-5	Fog	Severe	4.3	251	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:30	13:00	40.63902	-70.16790	40.63846	-70.21837	52	14	WNW	<2	B3	2-5	Cloudy	Severe	4.3	257	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:00	13:30	40.63846	-70.21837	40.63795	-70.26787	52	10	WNW	<2	B3	2-5	Fog	Severe	4	259	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:30	14:00	40.63795	-70.26787	40.63741	-70.31798	54	14	NW	<2	B3	2-5	Fog	Severe	4.9	261	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.63741	-70.31798	40.63683	-70.36877	55	12	WNW	<2	B3	>5	Fog	Severe	3.9	259	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:57	40.63683	-70.36877	40.63628	-70.41521	58	11	SW	<2	B3	>5	Clear	Severe	4.8	261	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	14:57	15:21	40.63628	-70.41521	40.63578	-70.45419	58	13	WNW	<2	B3	>5	Clear	Severe	4.7	265	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:21	15:30	40.63578	-70.45419	40.63666	-70.46934	59	10	W	<2	B3	>5	Clear	Severe	4.3	262	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:56	40.63666	-70.46934	40.63083	-70.44092	59	10	W	<2	B3	>5	Clear	Severe	4.3	262	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	15:56	16:30	40.63083	-70.44092	40.63155	-70.38369	59	4	WSW	<2	B3	>5	Cloudy	Slight	4.3	87	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Danos, Laura; Alaman, Ricardo	RPS	16:30	16:59	40.63155	-70.38369	40.63212	-70.33470	58	4	WSW	<2	B3	>5	Cloudy	Slight	4.3	84	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	16:59	17:30	40.63212	-70.33470	40.63270	-70.28132	55	7	SSW	<2	B3	>5	Cloudy	Moderate	4.7	86	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	17:30	18:00	40.63270	-70.28132	40.63328	-70.23085	55	10	SSW	<2	B3	>5	Cloudy	Moderate	4.5	93	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	18:00	18:30	40.63328	-70.23085	40.63381	-70.18076	52	8	SSW	<2	B3	>5	Cloudy	Slight	4.5	86	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	18:30	19:00	40.63381	-70.18076	40.63441	-70.13034	50	8	SSW	<2	B3	>5	Cloudy	Slight	4.6	86	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:30	40.63441	-70.13034	40.63422	-70.07565	50	8	SW	<2	B3	>5	Cloudy	None	4.6	88	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:30	19:42	40.63422	-70.07565	40.63437	-70.05438	52	8	SW	<2	B3	>5	Cloudy	None	4.8	89	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:42	20:00	40.63437	-70.05438	40.63460	-70.02254	52	8	SW	<2	B3	>5	Cloudy	None	4.8	89	Soft Start	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:03	40.63460	-70.02254	40.63472	-70.01771	53	8	SW	<2	B3	>5	Cloudy	None	5	84	Soft Start	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	20:03	20:17	40.63472	-70.01771	40.64076	-70.01871	53	8	SW	<2	B3	>5	Cloudy	None	5	84	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:17	20:29	40.64076	-70.01871	40.64057	-70.03980	53	8	SW	<2	B3	>5	Cloudy	None	4.5	266	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:29	20:58	40.64057	-70.03980	40.64020	-70.08863	52	9	SW	<2	B3	>5	Cloudy	None	4.5	266	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	20:58	21:14	40.64020	-70.08863	40.63986	-70.11513	52	9	SSW	<2	B3	>5	Cloudy	None	4.2	260	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:14	21:36	40.63986	-70.11513	40.63956	-70.15178	49	16	SSW	<2	B3	>5	Cloudy	None	4.7	262	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:36	22:00	40.63956	-70.15178	40.63927	-70.18228	50	16	SSW	<2	B3	>5	Cloudy	None	4.7	254	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:08	40.63927	-70.18228	40.63900	-70.20414	50	18	SSW	<2	B4	>5	Cloudy	None	4.7	256	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:08	22:30	40.63900	-70.20414	40.63855	-70.24092	50	18	SSW	<2	B4	>5	Cloudy	Severe	4.7	260	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	22:30	22:39	40.63855	-70.24092	40.63840	-70.25561	51	18	SSW	<2	B4	>5	Cloudy	Severe	4.7	260	Silent	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	22:39	22:59	40.63840	-70.25561	40.63808	-70.28752	52	18	SW	<2	B4	>5	Cloudy	Severe	4.6	261	Soft Start	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:59	23:00	40.63808	-70.28752	40.63805	-70.28844	54	18	SW	<2	B4	>5	Cloudy	Slight	4.6	261	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	23:00	23:07	40.63805	-70.28844	40.63797	-70.30019	54	18	SW	<2	B4	>5	Cloudy	Slight	4.6	261	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:07	23:30	40.63797	-70.30019	40.63754	-70.33890	54	18	SW	<2	B4	>5	Cloudy	Slight	4.6	261	Full Power	N/A
2022-07-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	23:30	00:00	40.63754	-70.33890	40.63700	-70.38595	55	18	SW	<2	B4	>5	Cloudy	Slight	4.9	259	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Toxtle, Miguel	RPS	00:00	00:30	40.63692	-70.38754	40.63638	-70.43292	58	18	SW	2-4	B3	2-5	Cloudy	None	4.5	282	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Toxtle, Miguel	RPS	00:30	00:30	40.63638	-70.43292	40.63638	-70.43292	57	17	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	262	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	00:43	40.63638	-70.43292	40.63609	-70.45322	57	17	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	262	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Bonfil, Neftali	RPS	00:43	00:45	40.63609	-70.45322	40.63604	-70.45633	58	17	SW	2-4	B3	0.3-0.5*	Cloudy	None	4	263	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	00:45	01:00	40.63604	-70.45633	40.63658	-70.47962	58	17	SW	2-4	B3	0.3-0.5*	Cloudy	None	4	263	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Garcia, Marah; Alaman, Ricardo	RPS	01:00	01:16	40.63658	-70.47962	40.63839	-70.45611	75	11	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.4	98	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Alaman, Ricardo	RPS	01:16	01:19	40.63839	-70.45611	40.63846	-70.45201	58	7	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	88	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Alaman, Ricardo	RPS	01:19	01:30	40.63846	-70.45201	40.63876	-70.43252	58	7	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	84	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Alaman, Ricardo; Garcia, Marah	RPS	01:30	01:56	40.63876	-70.43252	40.63928	-70.38868	59	7	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	84	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:56	02:23	40.63928	-70.38868	40.63981	-70.34273	57	6	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	82	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:23	02:24	40.63981	-70.34273	40.63978	-70.34061	56	9	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	83	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Abeytia, Flavio; Bonfil, Neftali	RPS	02:24	02:29	40.63978	-70.34061	40.64221	-70.33509	56	9	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	83	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Bonfil, Neftali	RPS	02:29	02:47	40.64221	-70.33509	40.64066	-70.34114	54	8	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4.1	354	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Abeytia, Flavio	RPS	02:47	02:49	40.64066	-70.34114	40.64103	-70.33824	74	9	SSW	2-4	B3	0.3-0.5*	Cloudy	None	4	80	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Garcia, Marah	RPS	02:49	03:00	40.64103	-70.33824	40.64586	-70.34684	74	9	SSW	2-4	B3	0.3-0.5*	Cloudy	None	5.5	62	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Bonfil, Neftali	RPS	03:00	03:08	40.64586	-70.34684	40.64087	-70.34685	74	14	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.9	255	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Toxtle, Miguel	RPS	03:08	03:11	40.64087	-70.34685	40.64088	-70.34049	55	8	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.9	81	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Abeytia, Flavio	RPS	03:11	03:29	40.64088	-70.34049	40.64581	-70.34941	55	8	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.9	81	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Toxtle, Miguel	RPS	03:29	03:42	40.64581	-70.34941	40.64058	-70.34659	56	14	W	2-4	B3	0.3-0.5*	Cloudy	None	4.4	259	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:42	03:47	40.64058	-70.34659	40.64085	-70.33768	56	8	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.7	76	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:47	04:00	40.64085	-70.33768	40.64110	-70.31556	56	8	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.7	76	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	04:00	04:30	40.64110	-70.31556	40.64169	-70.26778	53	8	S	2-4	B3	0.3-0.5*	Cloudy	None	4.7	87	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Toxtle, Miguel	RPS	04:30	04:45	40.64169	-70.26778	40.64192	-70.24352	53	17	S	2-4	B4	0.3-0.5*	Cloudy	None	4.6	79	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	04:45	04:47	40.64192	-70.24352	40.64192	-70.24039	51	17	S	2-4	B4	0.3-0.5*	Cloudy	None	4.1	81	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Garcia, Marah	RPS	04:47	04:50	40.64192	-70.24039	40.64119	-70.23604	51	17	S	2-4	B4	0.3-0.5*	Cloudy	None	4.1	81	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Garcia, Marah	RPS	04:50	04:55	40.64119	-70.23604	40.63629	-70.23521	51	17	S	2-4	B4	0.3-0.5	Cloudy	None	4.4	135	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	04:55	05:29	40.63629	-70.23521	40.63639	-70.29053	53	19	S	2-4	B4	0.3-0.5	Cloudy	None	3.7	250	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Danos, Laura	RPS	05:29	05:50	40.63639	-70.29053	40.63618	-70.32665	55	8	SW	2-4	B4	0.3-0.5	Cloudy	None	4.7	291	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Danos, Laura	RPS	05:50	05:58	40.63618	-70.32665	40.64250	-70.32851	55	8	SW	2-4	B4	0.1-0.3	Precipitation	None	4.7	291	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:58	06:28	40.64250	-70.32851	40.63307	-70.34818	55	8	S	2-4	B5	0.05-0.1	Precipitation	None	4.9	87	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Danos, Laura	RPS	06:28	06:55	40.63307	-70.34818	40.63471	-70.39481	57	1	WSW	2-4	B4	0.1-0.3	Precipitation	None	4.7	275	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Danos, Laura	RPS	06:55	07:10	40.63471	-70.39481	40.63441	-70.41919	57	3	WNW	2-4	B4	0.1-0.3	Precipitation	None	5	270	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Danos, Laura	RPS	07:10	07:29	40.63441	-70.41919	40.63391	-70.45215	57	3	WNW	<2	B4	0.05-0.1	Precipitation	None	5	270	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Danos, Laura; Bonfil, Neftali	RPS	07:29	07:59	40.63391	-70.45215	40.63888	-70.42752	59	14	WNW	<2	B4	0.05-0.1	Precipitation	None	4.3	241	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	07:59	08:30	40.63888	-70.42752	40.64102	-70.41781	59	18	WNW	2-4	B4	0.05-0.1	Precipitation	None	4.4	73	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Danos, Laura; Bonfil, Neftali; Abeytia, Flavio	RPS	08:30	08:58	40.64102	-70.41781	40.64268	-70.37370	58	18	NE	2-4	B4	0.05-0.1	Precipitation	None	4.7	78	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Santiago, Sancy; Bonfil, Neftali; Abeytia, Flavio	RPS	08:58	09:24	40.64268	-70.37370	40.64312	-70.33371	56	11	NE	2-4	B4	0.05-0.1	Precipitation	None	4.7	77	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Santiago, Sancy	RPS	09:24	09:30	40.64312	-70.33371	40.64322	-70.32427	54	10	E	2-4	B4	0.5-1	Precipitation	None	4.3	82	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Santiago, Sancy; Abeytia, Flavio	RPS	09:30	09:48	40.64322	-70.32427	40.64357	-70.29522	55	14	E	2-4	B4	1-2	Precipitation	None	4.4	83	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Santiago, Sancy; Abeytia, Flavio; Bonfil, Neftali	RPS	09:48	09:55	40.64357	-70.29522	40.64368	-70.28606	55	11	E	2-4	B4	0.5-1	Precipitation	None	4.4	84	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Santiago, Sancy; Bonfil, Neftal	RPS	09:55	10:00	40.64368	-70.28606	40.64374	-70.27880	55	13	E	<2	B4	0.5-1	Precipitation	None	4.4	84	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:00	10:30	40.64374	-70.27880	40.64406	-70.23158	53	13	ENE	<2	B4	0.5-1	Precipitation	None	4.3	87	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:30	10:35	40.64406	-70.23158	40.64415	-70.22345	53	15	E	<2	B4	2-5	Precipitation	None	4.4	89	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:35	11:00	40.64415	-70.22345	40.64452	-70.18321	53	15	E	<2	B4	>5	Cloudy	None	4.4	89	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:00	11:28	40.64452	-70.18321	40.64493	-70.13726	51	16	E	<2	B3	>5	Cloudy	None	4.6	91	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:28	12:00	40.64493	-70.13726	40.64535	-70.08806	49	12	E	<2	B3	>5	Cloudy	None	4.3	90	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:00	12:26	40.64535	-70.08806	40.64570	-70.04794	51	9	N	<2	B3	>5	Cloudy	Moderate	4.1	86	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:26	12:30	40.64570	-70.04794	40.64573	-70.04175	53	9	E	<2	B3	>5	Cloudy	Moderate	4.3	86	Soft Start	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:30	12:46	40.64573	-70.04175	40.64587	-70.01726	54	10	E	<2	B3	>5	Cloudy	Moderate	4.4	85	Soft Start	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:46	13:00	40.64587	-70.01726	40.63771	-70.01483	53	8	S	<2	B3	>5	Cloudy	Moderate	4.4	86	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	13:00	13:29	40.63771	-70.01483	40.63453	-70.03372	54	6	SSW	<2	B3	>5	Cloudy	Moderate	4.4	241	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	13:29	13:51	40.63453	-70.03372	40.63906	-70.01746	54	5	E	<2	B2	>5	Cloudy	Moderate	4.6	98	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	13:51	14:00	40.63906	-70.01746	40.63876	-70.03215	52	7	WSW	<2	B2	>5	Cloudy	Moderate	4.9	254	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	14:00	14:30	40.63876	-70.03215	40.63837	-70.08272	52	7	WSW	<2	B2	>5	Cloudy	Slight	4.9	254	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	14:30	15:00	40.63837	-70.08272	40.63785	-70.13314	50	12	WSW	<2	B2	>5	Cloudy	Slight	4.9	251	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	15:00	15:00	40.63785	-70.13314	40.63785	-70.13343	50	12	WSW	<2	B2	>5	Cloudy	Slight	4.9	251	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:00	15:28	40.63785	-70.13343	40.63745	-70.18013	55	15	S	<2	B2	>5	Cloudy	Severe	4.9	268	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	15:28	16:00	40.63745	-70.18013	40.63691	-70.23326	53	18	W	<2	B2	>5	Cloudy	Severe	5.1	271	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:00	16:28	40.63691	-70.23326	40.63644	-70.27940	53	16	W	<2	B2	>5	Clear	Severe	4.8	271	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:28	17:00	40.63644	-70.27940	40.63585	-70.33256	56	15	WNW	<2	B2	>5	Clear	Severe	4.5	256	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.63585	-70.33256	40.63534	-70.38226	55	14	W	<2	B2	>5	Clear	Severe	4.7	259	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	17:39	40.63534	-70.38226	40.63520	-70.39717	52	15	WNW	<2	B4	>5	Clear	Moderate	4.3	280	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:39	17:41	40.63520	-70.39717	40.63425	-70.40098	52	15	WNW	<2	B4	>5	Clear	Moderate	4.3	280	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:41	18:00	40.63425	-70.40098	40.63017	-70.37722	52	15	WNW	<2	B4	>5	Clear	Moderate	4.3	280	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:19	40.63017	-70.37722	40.63477	-70.35602	57	6	WNW	<2	B4	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:19	18:22	40.63477	-70.35602	40.63474	-70.36164	57	18	WNW	<2	B4	>5	Clear	Severe	4.1	257	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	18:22	18:30	40.63474	-70.36164	40.63461	-70.37443	57	18	WNW	<2	B4	>5	Clear	Severe	4.1	257	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	18:30	19:00	40.63461	-70.37443	40.63407	-70.42575	57	19	WNW	<2	B4	>5	Clear	Severe	4.6	269	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:16	40.63407	-70.42575	40.63377	-70.45233	59	20	W	<2	B5	>5	Clear	Severe	4.6	272	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:16	19:30	40.63377	-70.45233	40.64041	-70.45941	59	20	W	<2	B5	>5	Clear	Severe	4.6	272	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	20:00	40.64041	-70.45941	40.63954	-70.40897	58	10	SW	<2	B5	>5	Clear	Severe	4.9	78	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Alaman, Ricardo	RPS	20:00	20:30	40.63954	-70.40897	40.63810	-70.38001	57	12	W	<2	B4	>5	Clear	Severe	4.6	73	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	20:45	40.63810	-70.38001	40.63484	-70.38196	74	13	WNW	<2	B5	>5	Clear	Severe	4.4	4	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:45	21:00	40.63484	-70.38196	40.63466	-70.40201	57	22	WNW	<2	B5	>5	Clear	Severe	4.4	280	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:00	21:27	40.63466	-70.40201	40.63400	-70.45376	58	21	WNW	<2	B5	>5	Clear	Severe	4.8	278	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:27	21:29	40.63400	-70.45376	40.63403	-70.45817	74	20	W	2-4	B5	>5	Clear	Severe	4	273	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:29	21:39	40.63403	-70.45817	40.64006	-70.45538	74	20	W	2-4	B5	>5	Clear	Severe	4	273	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	21:39	22:00	40.64006	-70.45538	40.64118	-70.42010	73	13	W	<2	B5	>5	Clear	Severe	4.1	76	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:30	40.64118	-70.42010	40.63485	-70.39589	57	11	W	<2	B5	>5	Clear	Severe	4.1	72	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:30	22:39	40.63485	-70.39589	40.63497	-70.41147	57	23	W	<2	B5	>5	Clear	Severe	4.3	279	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:39	22:44	40.63497	-70.41147	40.63485	-70.41985	58	21	W	2-4	B5	>5	Clear	Severe	4.8	274	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	22:44	22:59	40.63485	-70.41985	40.64038	-70.41070	58	14	WSW	2-4	B5	>5	Clear	Severe	4.8	274	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	22:59	23:28	40.64038	-70.41070	40.63902	-70.36367	58	14	WSW	2-4	B5	>5	Clear	Severe	4.6	78	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:28	23:34	40.63902	-70.36367	40.63916	-70.35252	56	13	WSW	2-4	B5	>5	Clear	Severe	4.5	80	Silent	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:34	23:55	40.63916	-70.35252	40.64212	-70.31790	56	13	WSW	2-4	B5	>5	Clear	Severe	4.5	80	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:55	23:57	40.64212	-70.31790	40.64215	-70.31607	56	13	WSW	2-4	B5	>5	Clear	Severe	4.5	80	Full Power	N/A
2022-07-30	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Alaman, Ricardo; Toxtle, Miguel	RPS	23:57	00:00	40.64215	-70.31607	40.64216	-70.31093	56	13	WSW	2-4	B5	>5	Clear	Severe	4.5	80	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:15	40.64226	-70.30143	40.64241	-70.28479	52	17	SW	<2	B4	2-5	Clear	None	4.6	86	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Garcia, Marah; Bonfil, Neftali; Toxtle, Miguel	RPS	00:15	00:30	40.64241	-70.28479	40.64267	-70.25840	52	17	SW	<2	B4	2-5	Clear	None	4.6	86	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Toxtle, Miguel; Garcia, Marah	RPS	00:30	01:00	40.64267	-70.25840	40.64327	-70.20722	52	11	W	<2	B4	0.3-0.5	Clear	None	5.1	80	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Alaman, Ricardo	RPS	01:00	01:30	40.64327	-70.20722	40.64374	-70.15497	50	11	WSW	<2	B4	0.3-0.5	Clear	None	4.8	81	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Alaman, Ricardo	RPS	01:30	01:56	40.64374	-70.15497	40.64420	-70.10744	48	11	W	<2	B4	0.3-0.5	Clear	None	4.9	84	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Garcia, Marah; Toxtle, Miguel; Abeytia, Flavio	RPS	01:56	02:30	40.64420	-70.10744	40.64470	-70.04927	50	9	SW	<2	B3	0.3-0.5	Clear	None	4.7	84	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Toxtle, Miguel	RPS	02:30	03:00	40.64470	-70.04927	40.63979	-70.00329	50	8	SW	<2	B3	0.3-0.5	Clear	None	4.7	84	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Abeytia, Flavio; Bonfil, Neftali	RPS	03:00	03:29	40.63979	-70.00329	40.63636	-70.05093	68	14	W	<2	B4	0.3-0.5*	Clear	None	3.3	199	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:29	03:45	40.63636	-70.05093	40.63613	-70.07542	52	17	W	<2	B4	0.3-0.5*	Clear	None	4.7	270	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Toxtle, Miguel	RPS	03:45	04:00	40.63613	-70.07542	40.63596	-70.09907	50	18	SW	<2	B4	0.3-0.5*	Clear	None	4.3	265	Soft Start	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Bonfil, Neftali	RPS	04:00	04:05	40.63596	-70.09907	40.64140	-70.10254	50	18	SW	<2	B4	0.3-0.5*	Clear	None	4.3	265	Soft Start	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Abeytia, Flavio; Bonfil, Neftali	RPS	04:05	04:17	40.64140	-70.10254	40.64240	-70.08326	48	9	WNW	<2	B4	0.3-0.5*	Clear	None	5.2	13	Soft Start	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	04:17	04:22	40.64240	-70.08326	40.64199	-70.07671	48	9	WNW	<2	B4	0.3-0.5*	Clear	None	4.6	99	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Toxtle, Miguel; Bonfil, Neftali	RPS	04:22	04:57	40.64199	-70.07671	40.64254	-70.01613	50	1	SW	<2	B4	0.3-0.5*	Clear	None	5.2	79	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	04:57	04:59	40.64254	-70.01613	40.64257	-70.01282	52	10	NW	<2	B3	0.3-0.5*	Clear	None	4.2	87	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Danos, Laura; Abeytia, Flavio; Garcia, Marah	RPS	04:59	05:27	40.64257	-70.01282	40.63983	-70.02095	52	10	NW	<2	B3	0.3-0.5*	Clear	None	4.2	87	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Garcia, Marah; Danos, Laura; Abeytia, Flavio	RPS	05:27	05:57	40.63983	-70.02095	40.64207	-70.06711	53	18	WNW	<2	B3	0.3-0.5*	Clear	None	4.5	273	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Danos, Laura; Toxtle, Miguel; Abeytia, Flavio	RPS	05:57	06:29	40.64207	-70.06711	40.64554	-70.01642	52	15	NNW	2-4	B4	0.3-0.5*	Clear	None	4.4	47	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Danos, Laura; Abeytia, Flavio	RPS	06:29	06:31	40.64554	-70.01642	40.64554	-70.01320	52	11	N	2-4	B4	0.3-0.5*	Clear	None	4.5	80	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:31	06:57	40.64554	-70.01320	40.63559	-70.03225	52	11	N	2-4	B4	0.3-0.5*	Clear	None	4.5	80	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:57	07:29	40.63559	-70.03225	40.64066	-70.05573	52	12	SW	2-4	B4	0.3-0.5*	Clear	None	5	274	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Toxtle, Miguel; Bonfil, Neftali; Danos, Laura	RPS	07:29	07:36	40.64066	-70.05573	40.63819	-70.06570	52	5	NW	<2	B3	0.3-0.5*	Clear	None	5.1	223	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:36	08:00	40.63819	-70.06570	40.63784	-70.10646	50	9	NW	<2	B3	0.3-0.5*	Clear	None	4.8	268	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Danos, Laura; Bonfil, Neftali; Abeytia, Flavio	RPS	08:00	08:28	40.63784	-70.10646	40.63737	-70.15536	50	7	NNW	<2	B3	0.3-0.5*	Clear	None	4.5	270	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:28	08:39	40.63737	-70.15536	40.63719	-70.17330	52	11	NW	2-4	B4	0.3-0.5*	Clear	None	4.4	267	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Bonfil, Neftali	RPS	08:39	08:41	40.63719	-70.17330	40.63714	-70.17670	51	11	NNW	2-4	B4	0.3-0.5*	Clear	None	4.5	312	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Danos, Laura	RPS	08:41	09:00	40.63714	-70.17670	40.63568	-70.17735	51	11	NNW	2-4	B4	0.3-0.5*	Clear	None	4.5	312	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Abeytia, Flavio; Santiago, Sancy	RPS	09:00	09:07	40.63568	-70.17735	40.63434	-70.18877	50	3	NW	2-4	B4	0.3-0.5*	Clear	None	4.7	215	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Santiago, Sancy; Abeytia, Flavio; Bonfil, Neftali	RPS	09:07	09:18	40.63434	-70.18877	40.63408	-70.20741	51	4	NW	2-4	B4	2-5	Clear	None	4.6	262	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:18	09:20	40.63408	-70.20741	40.63405	-70.21077	51	6	NW	2-4	B4	2-5	Clear	None	4.6	262	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:20	09:30	40.63405	-70.21077	40.64074	-70.21299	52	7	N	2-4	B4	2-5	Clear	None	4.6	312	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Both	Santiago, Sancy; Bonfil, Neftali; Abeytia, Flavio	RPS	09:30	09:37	40.64074	-70.21299	40.64216	-70.20251	51	8	NNE	<2	B4	2-5	Clear	None	4.5	73	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	09:37	09:55	40.64216	-70.20251	40.63568	-70.19913	66	8	NNE	<2	B4	>5	Clear	Slight	3.8	81	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	09:55	10:00	40.63568	-70.19913	40.63556	-70.20822	51	4	NW	<2	B3	>5	Clear	Severe	5.1	262	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.63556	-70.20822	40.63500	-70.25931	50	4	NW	<2	B3	>5	Clear	Severe	4.7	262	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:30	10:59	40.63500	-70.25931	40.63442	-70.30914	53	2	NNW	<2	B3	>5	Clear	Severe	4.7	260	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:59	11:00	40.63442	-70.30914	40.63438	-70.31087	54	2	WSW	<2	B3	>5	Clear	Severe	5.1	252	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:00	11:30	40.63438	-70.31087	40.64301	-70.29073	54	2	WSW	<2	B3	>5	Clear	Severe	5.1	252	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:30	11:37	40.64301	-70.29073	40.64311	-70.28112	53	9	NE	<2	B3	>5	Clear	Severe	4.4	92	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	11:37	12:00	40.64311	-70.28112	40.64350	-70.24374	53	9	NE	<2	B3	>5	Clear	Severe	4.4	92	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:00	12:29	40.64350	-70.24374	40.64397	-70.19771	52	11	ENE	<2	B3	>5	Clear	Severe	4.7	96	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	12:58	40.64397	-70.19771	40.64444	-70.15051	52	9	E	<2	B3	>5	Clear	Severe	4.5	87	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:58	13:30	40.64444	-70.15051	40.64487	-70.10054	51	9	E	<2	B3	>5	Clear	Severe	3.7	93	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:30	14:00	40.64487	-70.10054	40.64535	-70.05363	50	5	E	<2	B3	>5	Clear	Severe	4.4	99	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:22	40.64535	-70.05363	40.64570	-70.01383	50	9	E	<2	B3	>5	Clear	Severe	4.4	99	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:22	14:30	40.64570	-70.01383	40.64121	-70.00714	51	9	E	<2	B3	>5	Clear	Severe	4.9	99	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:38	40.64121	-70.00714	40.63641	-70.01767	51	2	W	<2	B3	>5	Clear	Severe	4.9	237	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	14:38	14:58	40.63641	-70.01767	40.63595	-70.05127	52	2	W	<2	B3	>5	Clear	Severe	4.7	250	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	14:58	15:30	40.63595	-70.05127	40.63543	-70.10381	52	0	NW	<2	B3	>5	Clear	Severe	4.3	248	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	15:30	16:00	40.63543	-70.10381	40.63499	-70.15222	50	0	WSW	<2	B3	>5	Clear	Severe	4.7	247	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:00	16:26	40.63499	-70.15222	40.63452	-70.19710	50	0	SW	<2	B2	>5	Clear	Severe	4.7	251	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:26	16:59	40.63452	-70.19710	40.63403	-70.25024	53	5	W	<2	B1	>5	Clear	Severe	4.7	256	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Garcia, Marah	RPS	16:59	17:30	40.63403	-70.25024	40.63343	-70.30567	53	5	SSW	<2	B1	>5	Clear	Severe	4.7	217	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.63343	-70.30567	40.63287	-70.35615	54	5	SSW	<2	B1	>5	Clear	Severe	4.8	259	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:33	40.63287	-70.35615	40.63221	-70.41244	55	4	SSW	<2	B2	>5	Cloudy	Severe	4.6	259	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:33	18:58	40.63221	-70.41244	40.63176	-70.45400	53	10	SW	<2	B2	>5	Cloudy	Severe	4.7	268	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:58	19:00	40.63176	-70.45400	40.63171	-70.45732	60	11	SW	<2	B2	>5	Cloudy	Severe	4.7	265	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:00	19:00	40.63171	-70.45732	40.63166	-70.45862	60	5	SW	<2	B2	>5	Cloudy	Severe	4.7	18	Deploying/Retrieving	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Alaman, Ricardo	RPS	19:00	20:00	40.63166	-70.45862	40.62686	-70.47694	60	11	SW	<2	B2	>5	Cloudy	Severe	4.7	265	Deploying/Retrieving	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:30	40.62686	-70.47694	40.63602	-70.42989	64	9	S	<2	B2	>5	Cloudy	Severe	2.2	92	Deploying/Retrieving	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	20:30	20:31	40.63602	-70.42989	40.63604	-70.42779	55	7	SSE	<2	B3	>5	Cloudy	Severe	4.7	82	Soft Start	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:31	20:59	40.63604	-70.42779	40.63662	-70.38488	56	8	S	<2	B3	>5	Cloudy	Severe	2.2	80	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	20:59	21:50	40.63662	-70.38488	40.63762	-70.29422	57	1	SE	<2	B3	>5	Cloudy	Severe	4.7	90	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:50	21:56	40.63762	-70.29422	40.63779	-70.28302	53	8	SSE	<2	B3	>5	Cloudy	Severe	4.7	84	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	21:56	22:12	40.63779	-70.28302	40.64243	-70.25832	53	8	S	<2	B3	>5	Clear	Severe	4.6	84	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Alaman, Ricardo	RPS	22:12	22:16	40.64243	-70.25832	40.64267	-70.25168	52	4	S	<2	B3	>5	Clear	Severe	4.6	79	Silent	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:16	22:30	40.64267	-70.25168	40.64292	-70.22811	51	4	S	<2	B3	>5	Clear	Severe	4.5	83	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:30	23:00	40.64292	-70.22811	40.64341	-70.18250	51	3	S	<2	B3	>5	Clear	Severe	4.6	85	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:00	23:59	40.64341	-70.18250	40.64434	-70.08135	49	1	S	<2	B3	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-07-31	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Garcia, Marah	RPS	23:59	00:00	40.64434	-70.08135	40.64445	-70.07588	50	8	SE	<2	B3	>5	Clear	Severe	4.7	86	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.64445	-70.07588	40.64486	-70.02779	50	8	SE	<2	B2	2-5	Clear	None	4.5	96	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	00:38	40.64486	-70.02779	40.64496	-70.01465	51	8	S	<2	B2	0.3-0.5*	Clear	None	4.3	84	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:38	00:39	40.64496	-70.01465	40.64496	-70.01379	51	8	S	<2	B2	0.3-0.5*	Clear	None	4.4	85	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:39	01:00	40.64496	-70.01379	40.63853	-70.02767	51	8	S	<2	B2	0.3-0.5*	Clear	None	4.4	85	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:30	40.63853	-70.02767	40.64598	-70.02469	61	10	SW	<2	B2	0.3-0.5*	Clear	None	4.5	264	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:55	40.64598	-70.02469	40.63705	-70.02073	52	10	SSE	<2	B2	0.3-0.5*	Clear	None	4.4	76	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:55	02:28	40.63705	-70.02073	40.63478	-70.00916	52	11	S	<2	B2	0.3-0.5*	Clear	None	4.6	261	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:28	02:31	40.63478	-70.00916	40.63601	-70.01346	52	8	SW	<2	B2	0.3-0.5*	Clear	None	4.1	310	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:31	02:34	40.63601	-70.01346	40.63585	-70.01754	53	11	SW	<2	B2	0.3-0.5*	Clear	None	4.4	245	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:34	02:59	40.63585	-70.01754	40.63555	-70.05930	52	11	SW	<2	B2	0.3-0.5*	Clear	None	4.9	263	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:59	03:00	40.63555	-70.05930	40.63550	-70.06195	51	11	SSW	<2	B2	0.3-0.5*	Clear	None	4.6	258	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:02	40.63550	-70.06195	40.63557	-70.06413	51	11	SSW	<2	B2	0.3-0.5*	Clear	None	4.6	258	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:02	03:30	40.63557	-70.06413	40.63950	-70.11017	51	11	SSW	<2	B2	0.3-0.5*	Clear	None	4.6	258	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:30	03:52	40.63950	-70.11017	40.63483	-70.14407	48	12	SSW	<2	B2	0.3-0.5*	Clear	None	4.7	260	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:52	04:00	40.63483	-70.14407	40.63426	-70.15726	50	13	SSW	<2	B2	0.3-0.5*	Clear	None	4.3	250	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	04:00	04:30	40.63426	-70.15726	40.63376	-70.20694	50	13	SSW	<2	B2	0.3-0.5*	Clear	None	4.3	260	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:30	05:00	40.63376	-70.20694	40.63324	-70.25483	51	11	SW	<2	B2	0.3-0.5*	Clear	None	4.7	251	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:00	05:30	40.63324	-70.25483	40.63268	-70.30254	55	16	SSW	<2	B2	0.3-0.5*	Cloudy	None	4.5	268	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:30	06:00	40.63268	-70.30254	40.63212	-70.35145	57	12	SW	<2	B2	0.3-0.5*	Cloudy	None	4.4	262	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:30	40.63212	-70.35145	40.63151	-70.40262	56	12	SSW	<2	B2	0.3-0.5*	Cloudy	None	4.5	269	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:30	06:54	40.63151	-70.40262	40.63102	-70.44469	59	15	SSW	2-4	B4	0.3-0.5*	Cloudy	None	4.7	264	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:54	07:01	40.63102	-70.44469	40.63086	-70.45590	59	13	SSW	2-4	B4	0.3-0.5*	Cloudy	None	4.7	267	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:01	07:03	40.63086	-70.45590	40.63077	-70.46020	60	12	SSW	2-4	B4	0.3-0.5*	Cloudy	None	4.8	264	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:03	07:29	40.63077	-70.46020	40.62598	-70.43018	60	12	SSW	2-4	B4	0.3-0.5*	Cloudy	None	4.8	264	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:29	07:58	40.62598	-70.43018	40.63441	-70.39309	62	7	S	2-4	B4	0.3-0.5*	Cloudy	None	4.6	85	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:58	08:00	40.63441	-70.39309	40.63467	-70.39603	58	13	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.6	274	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:00	08:03	40.63467	-70.39603	40.63453	-70.40084	58	13	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	266	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:03	08:08	40.63453	-70.40084	40.63448	-70.40907	58	13	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.4	265	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:08	08:10	40.63448	-70.40907	40.63442	-70.41237	58	13	SW	2-4	B4	0.3-0.5*	Cloudy	None	4.4	265	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:10	08:30	40.63442	-70.41237	40.63960	-70.39655	59	7	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.4	330	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:30	08:50	40.63960	-70.39655	40.63695	-70.36234	59	8	S	<2	B3	0.3-0.5*	Cloudy	None	4.7	99	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	08:50	09:00	40.63695	-70.36234	40.63567	-70.34560	59	8	S	<2	B3	0.3-0.5	Cloudy	None	4.7	99	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:20	40.63567	-70.34560	40.63547	-70.31252	59	8	S	<2	B3	0.3-0.5	Cloudy	None	4.7	99	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:20	09:30	40.63547	-70.31252	40.63504	-70.29596	54	8	S	<2	B3	1-2	Cloudy	None	4.7	86	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:50	40.63504	-70.29596	40.63432	-70.26296	54	8	S	<2	B3	>5	Cloudy	None	4.7	86	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:50	09:54	40.63432	-70.26296	40.63398	-70.25582	53	6	S	<2	B3	>5	Cloudy	None	4.9	85	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:54	10:00	40.63398	-70.25582	40.63399	-70.24497	53	6	S	<2	B3	>5	Cloudy	None	4.9	85	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.63399	-70.24497	40.63356	-70.19121	53	6	S	<2	B3	>5	Cloudy	None	4.9	85	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:30	10:35	40.63356	-70.19121	40.63388	-70.18236	52	4	SSE	<2	B3	>5	Cloudy	None	4.9	82	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:35	10:50	40.63388	-70.18236	40.64066	-70.17434	52	4	SSE	<2	B3	>5	Cloudy	None	4.9	82	Soft Start	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:50	10:55	40.64066	-70.17434	40.63974	-70.18295	52	4	SSE	<2	B3	>5	Precipitation	None	4.9	82	Soft Start	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:55	11:00	40.63974	-70.18295	40.63916	-70.18985	51	9	SW	<2	B3	>5	Precipitation	None	4.8	258	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:00	11:04	40.63916	-70.18985	40.63898	-70.19839	51	9	SW	<2	B3	>5	Precipitation	None	4.8	258	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:04	11:31	40.63898	-70.19839	40.63845	-70.24514	51	10	SW	<2	B3	>5	Precipitation	None	4.7	264	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:31	11:55	40.63845	-70.24514	40.63806	-70.28765	51	17	SSW	<2	B3	>5	Cloudy	None	4.9	261	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:55	11:57	40.63806	-70.28765	40.63805	-70.29122	52	6	SSW	<2	B3	>5	Cloudy	None	4.9	263	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	11:57	12:00	40.63805	-70.29122	40.63854	-70.29634	52	2	E	<2	B3	>5	Cloudy	None	4.7	330	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:00	12:29	40.63854	-70.29634	40.64341	-70.25106	52	2	E	<2	B3	>5	Cloudy	None	4.7	330	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	13:01	40.64341	-70.25106	40.64212	-70.19893	52	9	SE	<2	B3	>5	Precipitation	None	5	92	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:01	13:12	40.64212	-70.19893	40.64210	-70.18140	52	8	S	<2	B3	>5	Precipitation	None	4.7	93	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:12	13:29	40.64210	-70.18140	40.64234	-70.15057	52	8	S	<2	B3	>5	Precipitation	None	4.8	93	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:29	13:50	40.64234	-70.15057	40.64264	-70.11430	52	9	SSE	<2	B3	>5	Precipitation	None	4.8	91	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:50	14:00	40.64264	-70.11430	40.64453	-70.10060	52	9	SSE	<2	B3	>5	Precipitation	None	4.8	91	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.64453	-70.10060	40.64517	-70.04721	49	8	SSE	<2	B3	>5	Precipitation	None	4.8	84	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:48	40.64517	-70.04721	40.64559	-70.01600	50	7	SSE	<2	B3	>5	Cloudy	None	4.7	79	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:48	14:50	40.64559	-70.01600	40.64563	-70.01258	52	8	SSE	<2	B3	>5	Cloudy	None	4.7	92	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:50	14:52	40.64563	-70.01258	40.64573	-70.00911	52	8	SSE	<2	B3	>5	Cloudy	None	4.7	92	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:52	15:00	40.64573	-70.00911	40.64102	-70.00201	52	8	SSE	<2	B3	>5	Cloudy	None	4.7	92	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:00	15:30	40.64102	-70.00201	40.64063	-70.02699	53	14	S	<2	B3	>5	Precipitation	None	4.7	180	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	15:30	16:30	40.64063	-70.02699	40.63641	-70.07496	51	5	SSE	<2	B3	>5	Precipitation	None	4.6	255	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:30	17:00	40.63641	-70.07496	40.64189	-70.09074	50	5	SSE	<2	B3	>5	Precipitation	None	4.6	260	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.64189	-70.09074	40.63920	-70.13947	49	14	SE	<2	B3	2-5	Precipitation	None	4.8	259	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.63920	-70.13947	40.63866	-70.18728	50	9	ESE	<2	B3	>5	Precipitation	None	4.2	289	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.63866	-70.18728	40.63816	-70.23517	52	8	ESE	<2	B3	>5	Precipitation	Slight	4.3	282	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	19:00	40.63816	-70.23517	40.63184	-70.27623	52	10	ESE	<2	B3	>5	Cloudy	Slight	4.7	264	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:30	40.63184	-70.27623	40.64094	-70.27810	54	22	SE	<2	B4	>5	Cloudy	None	4.7	92	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	20:00	40.64094	-70.27810	40.64363	-70.22855	53	19	ESE	<2	B4	>5	Cloudy	None	4.5	90	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:29	40.64363	-70.22855	40.64239	-70.17698	51	21	ESE	<2	B4	>5	Precipitation	None	4.7	88	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:29	20:49	40.64239	-70.17698	40.64276	-70.14335	50	18	ESE	2-4	B4	>5	Precipitation	Severe	4.7	91	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:49	20:58	40.64276	-70.14335	40.63713	-70.14528	49	16	NE	2-4	B4	>5	Precipitation	Severe	4.7	85	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	20:58	21:30	40.63713	-70.14528	40.63734	-70.19809	53	12	NE	2-4	B4	>5	Cloudy	Severe	5	263	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	21:57	40.63734	-70.19809	40.63680	-70.24377	65	16	SW	2-4	B4	>5	Cloudy	Severe	4.8	262	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	21:57	22:15	40.63680	-70.24377	40.63647	-70.27469	52	14	SSW	2-4	B4	>5	Cloudy	Severe	4.4	259	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:15	22:35	40.63647	-70.27469	40.63411	-70.30834	52	17	SSW	2-4	B4	>5	Clear	Severe	4.4	257	Soft Start	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:35	22:38	40.63411	-70.30834	40.63370	-70.31332	55	15	SSW	2-4	B4	>5	Clear	Severe	4.4	251	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:38	22:42	40.63370	-70.31332	40.63346	-70.32079	56	16	SSW	2-4	B4	>5	Clear	Severe	4.2	242	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:42	22:59	40.63346	-70.32079	40.63314	-70.34852	55	17	SSW	2-4	B4	>5	Clear	Severe	4.7	249	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:59	23:01	40.63314	-70.34852	40.63314	-70.35194	56	17	SW	2-4	B4	>5	Clear	Severe	4.8	254	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:01	23:01	40.63314	-70.35194	40.63311	-70.35269	56	17	SW	2-4	B4	>5	Clear	Severe	4.8	254	Silent	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:01	23:18	40.63311	-70.35269	40.62795	-70.33876	56	17	SW	2-4	B4	>5	Clear	Severe	4.8	254	Full Power	N/A
2022-08-01	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:18	00:00	40.62795	-70.33876	40.63082	-70.26988	77	10	SW	2-4	B4	>5	Clear	Severe	4.8	89	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.63093	-70.26122	40.63426	-70.21787	52	1	SW	2-4	B3	2-5	Cloudy	None	4.7	64	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	01:00	40.63426	-70.21787	40.62930	-70.18892	61	2	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.1	92	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:07	40.62930	-70.18892	40.63490	-70.19878	62	16	W	2-4	B3	0.3-0.5*	Cloudy	None	5.1	304	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:07	01:10	40.63490	-70.19878	40.63470	-70.20492	61	16	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	254	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:10	01:37	40.63470	-70.20492	40.63416	-70.25043	61	16	SW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	254	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:37	01:39	40.63416	-70.25043	40.63408	-70.25298	62	16	WNW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	254	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:39	01:58	40.63408	-70.25298	40.63343	-70.23352	62	16	WNW	2-4	B3	0.3-0.5*	Cloudy	None	4.5	254	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:58	02:30	40.63343	-70.23352	40.63710	-70.17937	52	10	NNW	2-4	B3	0.3-0.5*	Cloudy	None	4.6	78	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:30	03:00	40.63710	-70.17937	40.63928	-70.12823	52	6	NNW	2-4	B3	0.3-0.5*	Clear	None	4	97	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:30	40.63928	-70.12823	40.64099	-70.07380	52	7	NNW	2-4	B3	0.3-0.5*	Clear	None	4.8	99	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:30	04:00	40.64099	-70.07380	40.64287	-70.02011	65	9	NW	2-4	B3	0.3-0.5*	Clear	None	5	87	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:12	40.64287	-70.02011	40.63669	-70.01591	51	9	NW	2-4	B3	0.3-0.5*	Clear	None	5.2	85	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:12	04:16	40.63669	-70.01591	40.63653	-70.02295	68	16	WNW	2-4	B4	0.3-0.5*	Cloudy	None	5.2	265	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:16	04:26	40.63653	-70.02295	40.63645	-70.03803	68	11	WNW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	254	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:26	04:27	40.63645	-70.03803	40.63646	-70.03952	68	11	WNW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	261	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:27	04:28	40.63646	-70.03952	40.63637	-70.04250	68	11	WNW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	261	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:28	04:57	40.63637	-70.04250	40.63806	-70.08603	68	11	WNW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	279	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	04:57	05:31	40.63806	-70.08603	40.63667	-70.13883	68	19	W	2-4	B4	0.3-0.5*	Cloudy	None	4.1	257	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:31	06:00	40.63667	-70.13883	40.63617	-70.18193	52	20	W	2-4	B4	0.3-0.5*	Cloudy	None	4.1	263	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:30	40.63617	-70.18193	40.63569	-70.22850	53	18	W	2-4	B4	0.3-0.5*	Cloudy	None	4.2	273	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:30	06:55	40.63569	-70.22850	40.63534	-70.26772	52	23	W	2-4	B4	0.3-0.5*	Cloudy	None	4.5	270	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:55	07:32	40.63534	-70.26772	40.63465	-70.32823	53	20	WNW	2-4	B4	0.3-0.5*	Cloudy	None	4.5	277	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:32	08:00	40.63465	-70.32823	40.63413	-70.37509	56	21	W	2-4	B4	0.3-0.5*	Cloudy	None	4.6	270	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:00	08:30	40.63413	-70.37509	40.63348	-70.42658	58	20	W	2-4	B4	0.3-0.5*	Cloudy	None	4.9	216	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:30	08:46	40.63348	-70.42658	40.63316	-70.45436	59	21	W	2-4	B4	0.3-0.5*	Clear	None	4.4	274	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:46	08:47	40.63316	-70.45436	40.63314	-70.45601	59	21	W	2-4	B4	0.3-0.5*	Clear	None	4.4	274	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:47	09:00	40.63314	-70.45601	40.64435	-70.45563	57	20	W	2-4	B4	0.3-0.5*	Clear	None	4.5	270	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:14	40.64435	-70.45563	40.65273	-70.43721	58	10	NW	2-4	B3	0.3-0.5*	Clear	None	4.6	30	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:14	09:30	40.65273	-70.43721	40.65309	-70.40958	57	9	W	2-4	B3	1-2	Clear	None	4.5	74	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:45	40.65309	-70.40958	40.65336	-70.38589	57	8	WNW	2-4	B3	2-5	Cloudy	None	4.3	76	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:45	10:00	40.65336	-70.38589	40.65365	-70.36307	57	8	WNW	2-4	B3	>5	Cloudy	None	4.5	74	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.65365	-70.36307	40.65420	-70.31674	53	6	W	2-4	B4	>5	Cloudy	None	4.3	76	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:30	10:58	40.65420	-70.31674	40.65466	-70.27054	53	9	W	2-4	B4	>5	Cloudy	None	4.3	79	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:58	11:30	40.65466	-70.27054	40.65520	-70.21893	52	5	W	2-4	B4	>5	Cloudy	Severe	4.6	80	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:30	12:00	40.65520	-70.21893	40.65577	-70.16836	49	4	W	2-4	B4	>5	Clear	Severe	4.6	84	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:00	12:30	40.65577	-70.16836	40.65615	-70.11969	48	5	WSW	2-4	B4	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:30	12:59	40.65615	-70.11969	40.65649	-70.07318	48	3	SSW	2-4	B3	>5	Clear	Severe	4.7	89	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:59	13:31	40.65649	-70.07318	40.65699	-70.02405	50	3	SSW	2-4	B3	>5	Clear	Severe	4.8	90	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:31	13:39	40.65699	-70.02405	40.65691	-70.01139	50	4	SSW	2-4	B3	>5	Clear	Severe	4	96	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:39	14:00	40.65691	-70.01139	40.65156	-70.02342	50	4	SSW	2-4	B3	>5	Clear	Severe	4	96	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.65156	-70.02342	40.65108	-70.07494	50	12	WSW	2-4	B3	>5	Clear	Severe	4.7	256	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:57	40.65108	-70.07494	40.65069	-70.11925	50	14	SW	2-4	B3	>5	Clear	Severe	4.7	250	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	14:57	15:30	40.65069	-70.11925	40.65014	-70.17255	51	14	SW	2-4	B3	>5	Clear	Severe	4.9	253	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:57	40.65014	-70.17255	40.64964	-70.21718	49	14	SW	2-4	B4	>5	Clear	Moderate	4.6	253	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	15:57	16:30	40.64964	-70.21718	40.64908	-70.27254	50	13	SW	2-4	B4	>5	Clear	Slight	4.6	257	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:30	17:00	40.64908	-70.27254	40.64854	-70.32006	53	17	SW	2-4	B4	>5	Clear	Slight	4.4	251	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.64854	-70.32006	40.64789	-70.37254	55	8	SW	2-4	B4	>5	Clear	Severe	4.1	282	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.64789	-70.37254	40.64734	-70.41955	56	16	SW	2-4	B4	>5	Clear	Severe	4.6	266	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:12	40.64734	-70.41955	40.64709	-70.43941	57	16	SW	2-4	B4	>5	Clear	Severe	4.6	255	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:12	18:30	40.64709	-70.43941	40.64388	-70.46192	52	18	SW	2-4	B4	>5	Clear	Severe	4.7	254	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	18:58	40.64388	-70.46192	40.64847	-70.47363	59	18	SW	2-4	B4	>5	Clear	Severe	2.9	230	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	18:58	19:05	40.64847	-70.47363	40.65475	-70.47129	59	10	SSW	2-4	B4	>5	Clear	Severe	2.9	0	Silent	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:05	19:25	40.65475	-70.47129	40.65248	-70.44610	59	10	SSW	2-4	B4	>5	Clear	Severe	4.1	74	Soft Start	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:25	19:31	40.65248	-70.44610	40.65234	-70.43698	59	10	SSW	2-4	B4	>5	Clear	Severe	4.3	102	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:31	20:00	40.65234	-70.43698	40.65295	-70.38766	59	10	SSW	2-4	B4	>5	Clear	Severe	4.3	89	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:30	40.65295	-70.38766	40.65353	-70.33683	65	12	S	<2	B4	>5	Clear	Severe	4.9	93	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	21:00	40.65353	-70.33683	40.65413	-70.28965	53	12	S	<2	B3	>5	Clear	Severe	4.9	98	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:30	40.65413	-70.28965	40.65472	-70.23268	52	12	S	<2	B3	>5	Cloudy	Moderate	4.9	95	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	21:58	40.65472	-70.23268	40.65525	-70.18294	49	3	S	<2	B3	>5	Cloudy	Moderate	4.9	98	Full Power	N/A
2022-08-02	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	21:58	00:00	40.65525	-70.18294	40.65547	-70.16654	49	13	S	<2	B3	>5	Cloudy	Severe	4.9	92	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.65110	-70.05182	40.65077	-70.08572	50	16	SW	<2	B3	2-5	Fog	None	4.7	263	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	01:00	40.65077	-70.08572	40.65026	-70.13557	48	16	SW	<2	B3	0.3-0.5*	Fog	None	4.7	265	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:30	40.65026	-70.13557	40.64978	-70.18776	48	14	W	<2	B3	0.3-0.5*	Fog	None	4.6	266	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:54	40.64978	-70.18776	40.64934	-70.22903	49	17	WSW	<2	B3	0.3-0.5*	Fog	None	4.8	265	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	01:54	02:31	40.64934	-70.22903	40.64866	-70.29203	50	17	WSW	<2	B3	0.3-0.5*	Fog	None	4.4	267	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	02:31	03:00	40.64866	-70.29203	40.64807	-70.34095	54	15	WSW	<2	B3	0.3-0.5*	Fog	None	5	274	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:28	40.64807	-70.34095	40.64748	-70.38834	54	15	SW	<2	B3	0.3-0.5*	Fog	None	5	268	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:28	03:58	40.64748	-70.38834	40.64689	-70.43926	56	15	SW	<2	B3	0.3-0.5*	Fog	None	4.8	267	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:58	03:59	40.64689	-70.43926	40.64684	-70.44253	67	15	SW	<2	B3	0.3-0.5*	Fog	None	4.6	268	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:59	04:00	40.64684	-70.44253	40.64681	-70.44380	67	15	SW	<2	B3	0.3-0.5*	Fog	None	4.8	267	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:16	40.64681	-70.44380	40.65211	-70.43858	67	17	SW	<2	B3	0.3-0.5*	Fog	None	4.6	267	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:16	04:30	40.65211	-70.43858	40.65239	-70.41562	59	7	SW	<2	B3	0.3-0.5*	Fog	None	4.9	83	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:30	04:56	40.65239	-70.41562	40.65290	-70.37260	58	8	SSW	<2	B3	0.3-0.5*	Fog	None	4.4	80	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	04:56	05:30	40.65290	-70.37260	40.65354	-70.31669	57	10	SSW	<2	B3	0.3-0.5*	Clear	None	4.6	78	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:30	06:00	40.65354	-70.31669	40.65415	-70.26419	54	9	SSW	<2	B3	0.3-0.5*	Clear	None	4.5	85	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:32	40.65415	-70.26419	40.65474	-70.21233	52	7.8	SSW	<2	B3	0.3-0.5*	Clear	None	4.7	82	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:32	06:56	40.65474	-70.21233	40.65516	-70.17118	52	10	SSW	<2	B3	0.3-0.5*	Clear	None	4.6	95	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:56	07:28	40.65516	-70.17118	40.65569	-70.11831	48	9	SW	<2	B3	0.3-0.5*	Clear	None	4.4	81	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:28	08:00	40.65569	-70.11831	40.65618	-70.06569	52	12	SSW	<2	B3	0.3-0.5*	Clear	None	4.8	81	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:00	08:30	40.65618	-70.06569	40.65664	-70.01673	48	9	SSW	<2	B3	0.3-0.5*	Clear	None	4.5	81	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:30	09:00	40.65664	-70.01673	40.65091	-70.00876	50	6	SW	<2	B3	0.3-0.5*	Clear	None	4.4	81	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:05	40.65091	-70.00876	40.65117	-70.01723	65	16	WSW	<2	B3	0.3-0.5*	Clear	None	4.9	269	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:05	09:13	40.65117	-70.01723	40.65104	-70.03050	49	14	WSW	<2	B3	0.3-0.5*	Clear	None	4.5	266	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:13	09:30	40.65104	-70.03050	40.65082	-70.05839	49	14	WSW	<2	B3	1-2	Clear	None	4.5	266	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:43	40.65082	-70.05839	40.65058	-70.07948	49	16	W	<2	B3	2-5	Clear	None	4.5	268	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:43	10:00	40.65058	-70.07948	40.65032	-70.10845	49	13	W	<2	B3	>5	Clear	None	4.5	269	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.65032	-70.10845	40.64975	-70.16252	49	12	W	<2	B3	>5	Clear	Severe	4.7	268	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:30	10:56	40.64975	-70.16252	40.64925	-70.21011	49	10	W	<2	B3	>5	Fog	Severe	4.7	267	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:56	11:30	40.64925	-70.21011	40.64869	-70.26979	49	8	W	<2	B3	>5	Fog	Severe	4.4	263	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:30	11:56	40.64869	-70.26979	40.64813	-70.31594	51	11	NW	2-4	B4	>5	Fog	Severe	5.3	264	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	11:56	12:29	40.64813	-70.31594	40.64743	-70.37616	54	11	NW	2-4	B4	>5	Clear	Severe	4.9	263	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	13:00	40.64743	-70.37616	40.64675	-70.42934	58	9	W	2-4	B4	>5	Clear	Severe	5.1	262	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:00	13:06	40.64675	-70.42934	40.64664	-70.43980	58	5	N	2-4	B4	>5	Clear	Severe	4.9	262	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:06	13:08	40.64664	-70.43980	40.64655	-70.44328	58	5	N	2-4	B4	>5	Clear	Severe	4.9	262	Silent	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:08	13:20	40.64655	-70.44328	40.65173	-70.44613	58	6	N	2-4	B4	>5	Clear	Severe	4.7	262	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:20	13:26	40.65173	-70.44613	40.65185	-70.43569	58	10	ENE	2-4	B4	>5	Clear	Severe	4.9	88	Silent	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:26	13:30	40.65185	-70.43569	40.65192	-70.42898	59	12	ENE	2-4	B4	>5	Clear	Severe	4.5	89	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:30	14:00	40.65192	-70.42898	40.65247	-70.37914	57	13	ENE	2-4	B4	>5	Clear	Severe	4.5	90	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.65247	-70.37914	40.65311	-70.33003	55	10	S	2-4	B3	>5	Clear	Severe	4.6	93	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:55	40.65311	-70.33003	40.65360	-70.28678	53	11	S	2-4	B3	>5	Clear	Moderate	4.4	93	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	14:55	15:31	40.65360	-70.28678	40.65424	-70.22509	53	11	ENE	2-4	B3	>5	Clear	Moderate	4.6	97	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:31	15:59	40.65424	-70.22509	40.65476	-70.17625	54	10	E	2-4	B3	>5	Clear	Moderate	4.8	93	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	15:59	16:31	40.65476	-70.17625	40.65527	-70.12129	47	10	ESE	<2	B3	>5	Clear	Moderate	4.8	93	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:31	16:59	40.65527	-70.12129	40.65568	-70.07604	49	12	SE	<2	B3	>5	Clear	Moderate	4.9	94	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	16:59	17:31	40.65568	-70.07604	40.65624	-70.01588	48	9	ESE	<2	B3	>5	Clear	Moderate	4.8	95	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:31	17:45	40.65624	-70.01588	40.65081	-70.01764	49	5	ESE	<2	B3	>5	Clear	Moderate	5	93	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:45	18:01	40.65081	-70.01764	40.65052	-70.04364	50	8	ESE	<2	B3	>5	Clear	Moderate	4.5	257	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:01	18:30	40.65052	-70.04364	40.65013	-70.09166	50	6	WNW	<2	B2	>5	Clear	Moderate	4.5	255	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	18:57	40.65013	-70.09166	40.64974	-70.13637	49	8	WNW	<2	B2	>5	Clear	Severe	4.8	261	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	18:57	19:33	40.64974	-70.13637	40.64921	-70.19316	49	8	WNW	<2	B2	>5	Clear	Severe	4.8	263	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:33	20:00	40.64921	-70.19316	40.64877	-70.23568	49	6	W	<2	B1	>5	Clear	Severe	4.6	273	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:07	40.64877	-70.23568	40.64862	-70.24722	50	4	WNW	<2	B1	>5	Clear	Severe	4.1	261	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:07	20:30	40.64862	-70.24722	40.64824	-70.28375	51	4	WNW	<2	B1	>5	Clear	Severe	4.2	262	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	20:59	40.64824	-70.28375	40.64763	-70.33322	53	4	WNW	<2	B1	>5	Clear	Severe	4.4	263	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	20:59	21:31	40.64763	-70.33322	40.64700	-70.38855	52	3	WNW	<2	B1	>5	Clear	Severe	5	273	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:31	21:53	40.64700	-70.38855	40.64655	-70.42733	57	5	WNW	<2	B1	>5	Clear	Severe	4.7	265	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:53	21:57	40.64655	-70.42733	40.64649	-70.43287	57	6	WNW	<2	B1	>5	Clear	Severe	4.5	271	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:57	22:00	40.64649	-70.43287	40.64643	-70.43817	57	10	WSW	<2	B1	>5	Clear	Severe	5.3	267	Silent	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:01	40.64643	-70.43817	40.64642	-70.43996	57	10	WSW	<2	B1	>5	Clear	Severe	5.2	267	Silent	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:01	22:29	40.64642	-70.43996	40.65187	-70.42039	57	9	WSW	<2	B1	>5	Clear	Severe	5.3	267	Silent	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:29	22:49	40.65187	-70.42039	40.65227	-70.38535	57	4	SE	<2	B2	>5	Clear	Severe	4.9	78	Soft Start	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:49	23:00	40.65227	-70.38535	40.65249	-70.36472	56	4	SE	<2	B2	>5	Clear	Severe	4.8	81	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:00	23:34	40.65249	-70.36472	40.65319	-70.30595	55	5	SE	<2	B2	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-08-03	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:34	00:00	40.65319	-70.30595	40.65371	-70.26105	55	5	SE	<2	B2	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.65374	-70.25858	40.65425	-70.20961	53	4	ESE	<2	B1	2-5	Clear	Slight	4.7	87	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	01:00	40.65425	-70.20961	40.65478	-70.15801	48	5	ESE	<2	B1	0.3-0.5*	Clear	None	4.8	82	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:30	40.65478	-70.15801	40.65525	-70.10746	47	5	ESE	<2	B1	0.3-0.5*	Clear	None	4.9	83	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:56	40.65525	-70.10746	40.65566	-70.06405	47	7	SE	<2	B1	0.3-0.5*	Clear	None	4.5	89	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:56	02:25	40.65566	-70.06405	40.65607	-70.01711	48	8	SE	<2	B2	0.3-0.5*	Clear	None	4.5	87	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:25	02:27	40.65607	-70.01711	40.65609	-70.01408	49	8	SE	<2	B2	0.3-0.5*	Clear	None	4.1	86	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:27	02:30	40.65609	-70.01408	40.65567	-70.00881	50	8	SE	<2	B2	0.3-0.5*	Clear	None	4.2	85	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:30	02:38	40.65567	-70.00881	40.65071	-70.01272	50	8	SE	<2	B2	0.3-0.5*	Clear	None	4.5	106	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:38	02:41	40.65071	-70.01272	40.65053	-70.01870	51	9	SE	<2	B2	0.3-0.5*	Clear	None	5.2	260	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:41	03:00	40.65053	-70.01870	40.65023	-70.05103	51	8	SE	<2	B2	0.3-0.5*	Clear	None	4.9	261	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:30	40.65023	-70.05103	40.64973	-70.10402	51	1	SW	<2	B2	0.3-0.5*	Clear	None	4.9	263	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:30	04:00	40.64973	-70.10402	40.64924	-70.15446	46	1	SW	<2	B2	0.3-0.5*	Clear	None	4.7	263	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:30	40.64924	-70.15446	40.64873	-70.20548	49	10	SW	<2	B2	0.3-0.5*	Clear	None	4.8	262	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:30	05:00	40.64873	-70.20548	40.64814	-70.25889	49	13	SW	<2	B2	0.3-0.5*	Clear	None	4.8	259	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:00	05:28	40.64814	-70.25889	40.64759	-70.30918	50	15	SW	<2	B2	0.3-0.5*	Clear	None	5.2	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:28	06:00	40.64759	-70.30918	40.64691	-70.36418	56	13	WSW	<2	B2	0.3-0.5*	Clear	None	4.7	267	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:30	40.64691	-70.36418	40.64627	-70.41634	58	14	SW	<2	B2	0.3-0.5*	Clear	None	5	275	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:30	06:44	40.64627	-70.41634	40.64603	-70.44032	60	13	SW	<2	B2	0.3-0.5*	Clear	None	4.4	267	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:44	06:45	40.64603	-70.44032	40.64602	-70.44207	59	9	SW	<2	B2	0.3-0.5*	Clear	None	4.4	267	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:45	06:56	40.64602	-70.44207	40.64639	-70.45893	59	10	SW	<2	B2	0.3-0.5*	Clear	None	4.4	267	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:56	07:29	40.64639	-70.45893	40.65124	-70.44556	58	10	SW	<2	B2	0.3-0.5*	Clear	None	4	263	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:29	07:34	40.65124	-70.44556	40.65126	-70.43716	57	10	SW	<2	B2	0.3-0.5*	Clear	None	4.6	92	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:34	08:00	40.65126	-70.43716	40.65184	-70.39129	57	10	N	<2	B2	0.3-0.5*	Clear	None	4.8	92	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:00	08:14	40.65184	-70.39129	40.65212	-70.36886	56	6	SSE	<2	B2	0.3-0.5*	Clear	None	4.6	94	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:14	08:31	40.65212	-70.36886	40.65244	-70.33835	56	6	SSE	<2	B2	0.3-0.5	Fog	None	4.6	94	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:31	08:56	40.65244	-70.33835	40.65293	-70.29650	56	9	S	<2	B2	0.3-0.5	Fog	None	4.7	88	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:56	09:00	40.65293	-70.29650	40.65303	-70.28945	51	7	SSE	<2	B2	0.3-0.5	Fog	None	4.8	94	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:04	40.65303	-70.28945	40.65314	-70.28210	51	7	SSE	<2	B2	0.3-0.5	Fog	None	4.8	94	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	09:04	09:10	40.65314	-70.28210	40.65325	-70.27196	56	9	S	<2	B2	0.3-0.5	Fog	None	4.7	88	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:10	09:15	40.65325	-70.27196	40.65332	-70.26332	51	7	SSE	<2	B2	0.3-0.5	Fog	None	4.6	94	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:15	09:30	40.65332	-70.26332	40.65365	-70.23774	51	7	SSE	<2	B2	0.05-0.1	Fog	None	4.6	94	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:45	40.65365	-70.23774	40.65394	-70.21148	50	6	S	<2	B2	<0.05	Fog	None	4.8	89	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:45	10:00	40.65394	-70.21148	40.65424	-70.18522	50	6	S	<2	B2	0.5-1	Fog	None	4.8	89	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Santiago, Sancy; Toxtle, Miguel	RPS	10:00	10:14	40.65424	-70.18522	40.65449	-70.16122	48	6	SSE	<2	B2	0.5-1	Fog	None	4.8	85	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Santiago, Sancy; Toxtle, Miguel	RPS	10:14	10:30	40.65449	-70.16122	40.65477	-70.13325	48	7	SSE	<2	B2	0.1-0.3	Fog	None	4.8	85	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Santiago, Sancy; Toxtle, Miguel	RPS	10:30	11:00	40.65477	-70.13325	40.65519	-70.08306	48	6	SE	<2	B1	<0.05	Fog	None	4.4	87	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Santiago, Sancy	RPS	11:00	11:30	40.65519	-70.08306	40.65568	-70.03217	49	7	SE	<2	B1	<0.05	Fog	None	4.7	84	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Santiago, Sancy	RPS	11:30	12:00	40.65568	-70.03217	40.65027	-70.02472	48	8	SE	<2	B1	<0.05	Fog	None	4.6	87	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Alaman, Ricardo; Danos, Laura	RPS	12:00	12:15	40.65027	-70.02472	40.65000	-70.05183	47	7	SSW	<2	B1	0.05-0.1	Fog	None	5.1	260	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Alaman, Ricardo; Danos, Laura	RPS	12:15	12:30	40.65000	-70.05183	40.64977	-70.07911	47	7	SSW	<2	B1	0.5-1	Fog	None	5.1	260	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Alaman, Ricardo; Danos, Laura	RPS	12:30	12:45	40.64977	-70.07911	40.64946	-70.10591	50	5	SSW	<2	B1	0.5-1	Fog	None	4.8	260	Silent	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:45	13:00	40.64946	-70.10591	40.64922	-70.13261	50	3	SSW	<2	B1	2-5	Fog	None	4.8	260	Soft Start	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:00	13:05	40.64922	-70.13261	40.64914	-70.14147	47	11	SSW	<2	B1	2-5	Fog	None	5.2	258	Soft Start	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:05	13:30	40.64914	-70.14147	40.64867	-70.18632	47	11	SSW	<2	B1	2-5	Fog	None	5.2	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:30	13:56	40.64867	-70.18632	40.64821	-70.23386	50	13	SSW	<2	B1	2-5	Fog	None	4.8	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	13:56	14:30	40.64821	-70.23386	40.64752	-70.29473	50	14	SSW	<2	B2	2-5	Fog	Moderate	4.8	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	15:00	40.64752	-70.29473	40.64671	-70.34987	53	13	SSW	<2	B2	2-5	Fog	Moderate	4.8	260	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:00	15:31	40.64671	-70.34987	40.64621	-70.40603	54	13	SW	<2	B2	2-5	Fog	Severe	5	263	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:31	15:50	40.64621	-70.40603	40.64575	-70.44110	55	13	SW	<2	B2	2-5	Fog	Severe	5.2	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:50	16:05	40.64575	-70.44110	40.65102	-70.43802	55	13	SW	<2	B2	2-5	Fog	Severe	5.2	258	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:05	16:30	40.65102	-70.43802	40.65153	-70.39326	57	9	SW	<2	B2	2-5	Fog	Slight	5.2	94	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:30	16:59	40.65153	-70.39326	40.65209	-70.34563	56	9	SW	<2	B2	2-5	Fog	Slight	5.2	88	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	16:59	17:30	40.65209	-70.34563	40.65278	-70.28554	55	9	SW	<2	B2	2-5	Fog	Moderate	4.8	84	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.65278	-70.28554	40.65338	-70.23174	52	10	SSE	<2	B3	>5	Fog	Moderate	5	84	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.65338	-70.23174	40.65393	-70.17501	50	10	SSE	<2	B3	>5	Fog	Moderate	4.8	81	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	18:59	40.65393	-70.17501	40.65448	-70.12219	48	8	S	<2	B3	>5	Fog	Moderate	5.1	85	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	18:59	19:31	40.65448	-70.12219	40.65499	-70.06420	48	4	SSE	<2	B3	>5	Fog	Moderate	5.1	88	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:31	19:59	40.65499	-70.06420	40.65545	-70.01553	49	12	SSE	<2	B3	>5	Fog	Moderate	5.2	90	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:59	20:00	40.65545	-70.01553	40.65550	-70.01374	49	12	SSE	<2	B3	>5	Fog	Moderate	5.2	90	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:15	40.65550	-70.01374	40.65004	-70.01926	49	12	SE	<2	B3	>5	Fog	Severe	4.6	94	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:15	20:30	40.65004	-70.01926	40.64978	-70.04348	49	12	SSW	<2	B3	>5	Fog	Severe	5	256	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	20:51	40.64978	-70.04348	40.64944	-70.08126	49	12	SSW	<2	B3	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:51	20:59	40.64944	-70.08126	40.64932	-70.09400	48	12	SSW	<2	B3	>5	Clear	Severe	4.7	263	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	20:59	21:30	40.64932	-70.09400	40.64882	-70.14886	49	12	SSW	<2	B3	>5	Clear	Severe	4.8	267	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	22:00	40.64882	-70.14886	40.64826	-70.20355	48	10	SW	<2	B3	>5	Clear	Severe	5	269	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:30	40.64826	-70.20355	40.64768	-70.25787	49	11	SSW	<2	B3	>5	Clear	Severe	5	269	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:30	23:00	40.64768	-70.25787	40.64712	-70.31296	51	12	SSW	<2	B3	>5	Clear	Severe	5.1	269	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:00	23:30	40.64712	-70.31296	40.64656	-70.36477	53	15	SW	<2	B3	>5	Clear	Severe	5	262	Full Power	N/A
2022-08-04	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:30	00:00	40.64656	-70.36477	40.64582	-70.41711	56	11	SW	<2	B3	>5	Clear	Slight	4.9	259	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:12	40.65170	-70.35781	40.65170	-70.35781	54	12	ESE	<2	B3	>5	Fog	Slight	4.3	264	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:12	00:13	40.65170	-70.35781	40.65170	-70.35781	54	12	ESE	<2	B3	>5	Fog	Slight	4.3	320	Silent	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:13	00:23	40.65170	-70.35781	40.65170	-70.35781	52	10	ESE	<2	B3	2-5	Fog	Slight	4.6	342	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:23	00:29	40.65170	-70.35781	40.65170	-70.35781	52	10	ESE	<2	B3	2-5	Clear	None	4.5	40	Silent	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:29	00:30	40.65170	-70.35781	40.65170	-70.35781	53	10	SE	<2	B3	1-2	Clear	None	4.6	81	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	01:00	40.65170	-70.35781	40.65170	-70.35781	53	10	SE	<2	B3	0.3-0.5*	Clear	None	4.6	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:30	40.65170	-70.35781	40.65194	-70.33748	53	11	SE	<2	B3	0.3-0.5*	Clear	None	4.6	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:57	40.65194	-70.33748	40.65245	-70.29349	53	11	SE	<2	B3	0.3-0.5*	Clear	None	4.6	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:57	02:29	40.65245	-70.29349	40.65303	-70.24485	52	10	S	<2	B3	0.3-0.5*	Clear	None	4.3	97	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:29	03:00	40.65303	-70.24485	40.65348	-70.19656	50	9	S	<2	B3	0.3-0.5*	Clear	None	4.4	95	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Toxtle, Miguel	RPS	03:00	03:30	40.65348	-70.19656	40.65394	-70.14879	48	9	SSW	<2	B3	0.3-0.5*	Clear	None	4.3	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Garcia, Marah; Toxtle, Miguel	RPS	03:30	04:00	40.65394	-70.14879	40.65441	-70.09972	47	12	SW	<2	B3	0.3-0.5*	Clear	None	4.7	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:49	40.65441	-70.09972	40.65518	-70.01628	47	9	SSW	<2	B3	0.3-0.5*	Clear	None	4.6	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:49	04:51	40.65518	-70.01628	40.65525	-70.01269	49	10	SW	<2	B3	0.3-0.5*	Clear	None	4.8	86	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:51	05:00	40.65525	-70.01269	40.64993	-70.00706	49	10	SW	<2	B3	0.3-0.5*	Clear	None	4.8	86	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:00	05:01	40.64993	-70.00706	40.64994	-70.00883	51	13	SW	<2	B3	0.3-0.5*	Clear	None	4.7	155	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Garcia, Marah	RPS	05:01	05:06	40.64994	-70.00883	40.64973	-70.01764	51	13	SW	<2	B3	0.3-0.5*	Clear	None	4.7	258	Silent	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Garcia, Marah	RPS	05:06	05:30	40.64973	-70.01764	40.65510	-70.02490	51	13	SW	<2	B3	0.3-0.5*	Clear	None	4.8	259	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	05:30	05:31	40.65510	-70.02490	40.64932	-70.06277	48	10	SW	<2	B3	0.3-0.5*	Clear	None	4.9	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:31	05:58	40.64932	-70.06277	40.64886	-70.11311	51	15	SSW	<2	B3	0.3-0.5*	Clear	None	5	275	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	05:58	06:31	40.64886	-70.11311	40.64824	-70.17004	53	14	SW	<2	B3	0.3-0.5*	Clear	None	5.1	267	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:31	06:55	40.64824	-70.17004	40.64784	-70.21166	56	13	SW	<2	B3	0.3-0.5*	Clear	None	4.9	269	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:55	07:30	40.64784	-70.21166	40.64725	-70.27086	49	12	SW	<2	B3	0.3-0.5*	Clear	None	5	260	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:30	07:57	40.64725	-70.27086	40.64672	-70.31824	51	15	SSW	<2	B3	0.3-0.5*	Clear	None	4.8	260	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	07:57	08:33	40.64672	-70.31824	40.64603	-70.37920	57	16	SSW	<2	B3	0.3-0.5*	Clear	None	4.8	257	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:33	09:00	40.64603	-70.37920	40.64542	-70.42479	56	17	SSW	<2	B3	0.3-0.5*	Clear	None	4.7	268	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:09	40.64542	-70.42479	40.64521	-70.44021	58	17	SSW	<2	B3	0.3-0.5*	Clear	None	4.6	258	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:09	09:15	40.64521	-70.44021	40.64520	-70.44981	58	17	SW	<2	B3	0.3-0.5*	Clear	None	4.6	258	Silent	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:15	09:30	40.64520	-70.44981	40.64520	-70.46912	59	17	SW	<2	B3	0.5-1	Fog	None	3.3	261	Deploying/Retrieving	N/A
2022-08-05	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:45	40.64520	-70.46912	40.65124	-70.46020	58	12	S	<2	B3	2-5	Fog	None	3	92	Deploying/Retrieving	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:45	10:00	40.65124	-70.46020	40.65045	-70.44540	58	12	S	<2	B3	2-5	Fog	None	3	92	Deploying/Retrieving	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.65045	-70.44540	40.65052	-70.41289	58	12	S	<2	B3	2-5	Fog	None	3	88	Deploying/Retrieving	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:30	10:46	40.65052	-70.41289	40.64422	-70.40954	58	11	SSW	<2	B3	2-5	Fog	Severe	3	88	Deploying/Retrieving	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:46	11:00	40.64422	-70.40954	40.64404	-70.42852	57	15	SW	<2	B3	2-5	Fog	Severe	4.1	262	Soft Start	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:00	11:08	40.64404	-70.42852	40.64401	-70.44257	57	15	SW	<2	B3	2-5	Fog	Severe	4.1	271	Soft Start	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:08	11:19	40.64401	-70.44257	40.65050	-70.43759	57	15	SW	<2	B3	2-5	Fog	Severe	4.1	271	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:19	11:28	40.65050	-70.43759	40.65072	-70.42110	57	8	SSW	<2	B3	2-5	Fog	Severe	4.5	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:28	12:00	40.65072	-70.42110	40.65144	-70.36514	58	10	SSW	<2	B3	2-5	Fog	Severe	4.8	84	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:00	12:30	40.65144	-70.36514	40.65205	-70.31170	55	12	S	2-4	B4	2-5	Fog	Severe	4.7	84	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:30	13:00	40.65205	-70.31170	40.65260	-70.25989	53	11	S	2-4	B4	>5	Cloudy	Severe	4.8	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:00	13:32	40.65260	-70.25989	40.65316	-70.20921	56	11	S	2-4	B4	>5	Fog	Severe	4.5	79	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:32	14:00	40.65316	-70.20921	40.65359	-70.16552	55	11	S	2-4	B4	>5	Fog	Severe	4.5	83	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.65359	-70.16552	40.65408	-70.11873	47	10	SSW	2-4	B4	>5	Fog	Severe	4.4	84	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	15:00	40.65408	-70.11873	40.65445	-70.07124	47	12	SSW	2-4	B4	>5	Fog	Severe	4	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:00	15:30	40.65445	-70.07124	40.65482	-70.02435	50	16	SW	2-4	B4	>5	Fog	Severe	4.7	91	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:35	40.65482	-70.02435	40.65490	-70.01648	48	11	SW	2-4	B4	>5	Fog	Severe	4.4	91	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:35	15:54	40.65490	-70.01648	40.64949	-70.01831	50	11	SW	2-4	B4	>5	Fog	Moderate	4.8	86	Silent	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:54	16:00	40.64949	-70.01831	40.64933	-70.02992	50	26	SW	2-4	B4	>5	Fog	Slight	4.9	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:00	16:32	40.64933	-70.02992	40.64894	-70.07920	49	26	SW	2-4	B5	>5	Fog	Slight	4.8	259	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:32	16:56	40.64894	-70.07920	40.64855	-70.11685	49	24	SW	2-4	B5	>5	Cloudy	Slight	4.8	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	16:56	17:30	40.64855	-70.11685	40.64800	-70.16832	49	21	WSW	2-4	B5	>5	Cloudy	Slight	4.2	257	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.64800	-70.16832	40.64752	-70.21335	49	20	WSW	2-4	B5	>5	Cloudy	Slight	4.4	253	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.64752	-70.21335	40.64710	-70.25822	51	21	WSW	2-4	B5	>5	Cloudy	Slight	3.8	254	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	19:00	40.64710	-70.25822	40.64659	-70.30350	51	23	WSW	2-4	B5	>5	Cloudy	Moderate	4.5	258	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:30	40.64659	-70.30350	40.64601	-70.34974	52	21	WSW	2-4	B5	>5	Cloudy	Moderate	4.5	259	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	19:58	40.64601	-70.34974	40.64550	-70.39235	56	15	WSW	2-4	B5	>5	Cloudy	Moderate	4.5	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	19:58	20:30	40.64550	-70.39235	40.64483	-70.44140	56	17	WSW	2-4	B4	>5	Cloudy	Severe	4.5	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	20:32	40.64483	-70.44140	40.64468	-70.44449	56	18	WSW	2-4	B4	>5	Cloudy	Severe	4.6	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:32	20:45	40.64468	-70.44449	40.65022	-70.43789	56	18	WSW	2-4	B4	>5	Cloudy	Severe	4.6	255	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:45	21:00	40.65022	-70.43789	40.65049	-70.41463	57	11	SW	2-4	B4	>5	Cloudy	Severe	4.6	86	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:30	40.65049	-70.41463	40.65116	-70.36187	58	15	SW	2-4	B4	>5	Cloudy	Severe	4.5	85	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	21:41	40.65116	-70.36187	40.65015	-70.44189	54	15	SW	2-4	B4	>5	Cloudy	Severe	4.7	88	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	21:41	21:56	40.65015	-70.44189	40.65164	-70.31765	56	11	SW	2-4	B4	>5	Cloudy	Severe	4.7	85	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	21:56	22:32	40.65164	-70.31765	40.65238	-70.25625	53	6	SSW	2-4	B3	>5	Clear	Severe	4.9	89	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:32	23:00	40.65238	-70.25625	40.65290	-70.20979	51	6	SSW	2-4	B3	>5	Clear	Severe	4.9	76	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:00	23:30	40.65290	-70.20979	40.65339	-70.16223	49	6	SSW	2-4	B3	>5	Clear	Severe	4.5	74	Full Power	N/A
2022-08-05	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:30	00:00	40.65339	-70.16223	40.65385	-70.11493	47	6	SSW	2-4	B3	>5	Clear	Severe	4.4	75	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.65388	-70.11274	40.65432	-70.06549	46	12	SW	<2	B3	2-5	Clear	None	4.5	82	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	01:00	40.65432	-70.06549	40.65475	-70.01567	48	7	SW	<2	B3	0.3-0.5*	Clear	None	4.5	74	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:01	40.65475	-70.01567	40.65481	-70.01430	48	7	SW	<2	B3	0.3-0.5*	Clear	None	4.5	74	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:01	01:10	40.65481	-70.01430	40.64952	-70.01171	50	11	SSW	<2	B3	0.3-0.5*	Clear	None	5.3	162	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:10	01:15	40.64952	-70.01171	40.64927	-70.02146	50	13	SW	<2	B3	0.3-0.5*	Clear	None	4	271	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:15	01:30	40.64927	-70.02146	40.64905	-70.04535	49	12	SW	<2	B3	0.3-0.5*	Clear	None	5.1	270	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	01:58	40.64905	-70.04535	40.64859	-70.09407	49	11	SW	<2	B3	0.3-0.5*	Clear	None	4.8	266	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	01:58	02:27	40.64859	-70.09407	40.64810	-70.14422	49	15	SW	<2	B3	0.3-0.5*	Clear	None	4.5	278	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:27	03:00	40.64810	-70.14422	40.64751	-70.19965	48	16	SW	<2	B3	0.3-0.5*	Clear	None	4.8	270	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:29	40.64751	-70.19965	40.64703	-70.25045	48	16	SW	<2	B3	0.3-0.5*	Clear	None	4.6	264	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:29	04:00	40.64703	-70.25045	40.64645	-70.30123	51	16	SW	<2	B3	0.3-0.5*	Clear	None	4.4	270	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:30	40.64645	-70.30123	40.64585	-70.35215	63	15	SSW	<2	B3	0.3-0.5*	Cloudy	None	4.4	262	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:30	04:55	40.64585	-70.35215	40.64532	-70.39770	55	17	SW	<2	B3	0.3-0.5*	Cloudy	None	5.5	261	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	04:55	05:20	40.64532	-70.39770	40.64471	-70.43994	52	16	SW	<2	B3	0.3-0.5*	Cloudy	None	5	270	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:20	05:21	40.64471	-70.43994	40.64468	-70.44166	52	16	SW	<2	B3	0.3-0.5*	Cloudy	None	5	270	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:21	05:30	40.64468	-70.44166	40.64936	-70.45152	52	15	SW	<2	B3	0.3-0.5*	Cloudy	None	4.9	276	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:30	05:34	40.64936	-70.45152	40.64988	-70.44507	53	15	SW	<2	B3	0.3-0.5*	Cloudy	None	4.3	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:34	05:39	40.64988	-70.44507	40.64992	-70.43708	53	15	SW	<2	B3	0.3-0.5*	Cloudy	None	4.3	87	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:39	06:00	40.64992	-70.43708	40.65035	-70.40242	53	15	SW	<2	B3	0.3-0.5*	Cloudy	None	4.3	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:30	40.65035	-70.40242	40.65098	-70.35083	57	11	SSW	<2	B3	0.3-0.5*	Cloudy	None	4.6	90	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:30	06:57	40.65098	-70.35083	40.65151	-70.30260	55	7	SSW	<2	B3	0.3-0.5*	Cloudy	None	4.7	90	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:57	07:27	40.65151	-70.30260	40.65208	-70.24800	52	5	S	<2	B3	0.3-0.5*	Cloudy	None	4.9	94	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:27	07:56	40.65208	-70.24800	40.65265	-70.19629	51	8	SSW	<2	B3	0.3-0.5*	Clear	None	5.1	94	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	07:56	08:29	40.65265	-70.19629	40.65322	-70.13854	49	6	SSW	<2	B3	0.3-0.5*	Clear	None	5.7	90	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:29	09:00	40.65322	-70.13854	40.65375	-70.08574	52	6	SSW	<2	B3	0.3-0.5*	Clear	None	4.7	92	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:00	09:15	40.65375	-70.08574	40.65396	-70.05916	48	6	SSW	<2	B3	0.3-0.5*	Cloudy	None	4.7	92	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:15	09:30	40.65396	-70.05916	40.65422	-70.03258	49	1	SSW	<2	B3	0.5-1	Cloudy	None	4.7	92	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:30	09:39	40.65422	-70.03258	40.65441	-70.01542	49	1	S	<2	B3	1-2	Fog	None	4.9	90	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:39	09:45	40.65441	-70.01542	40.65381	-70.00472	49	1	S	<2	B3	1-2	Fog	None	4.9	90	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:45	09:59	40.65381	-70.00472	40.64890	-70.01818	50	14	SW	<2	B3	2-5	Fog	None	4.1	174	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:59	10:00	40.64890	-70.01818	40.64891	-70.01968	51	12	SW	<2	B3	2-5	Fog	None	4.4	259	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:00	10:30	40.64891	-70.01968	40.64839	-70.07055	51	12	SW	<2	B3	2-5	Fog	None	4.4	259	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	10:30	11:00	40.64839	-70.07055	40.64790	-70.12388	49	10	N	<2	B3	2-5	Fog	None	4.8	263	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:00	11:30	40.64790	-70.12388	40.64752	-70.17638	52	11	W	<2	B3	2-5	Fog	Severe	4.8	262	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	11:30	11:58	40.64752	-70.17638	40.64700	-70.22574	56	10	W	<2	B3	2-5	Fog	Moderate	4.7	268	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	11:58	12:29	40.64700	-70.22574	40.64635	-70.28174	56	14	SW	<2	B3	2-5	Fog	Slight	4.7	268	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:29	13:00	40.64635	-70.28174	40.64578	-70.33516	54	12	SW	<2	B3	2-5	Fog	Severe	4.9	265	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:00	13:29	40.64578	-70.33516	40.64516	-70.38870	54	13	SW	<2	B3	2-5	Fog	Severe	4.8	265	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:29	13:57	40.64516	-70.38870	40.64453	-70.43872	50	14	SW	<2	B3	2-5	Fog	Severe	5.1	264	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:57	14:00	40.64453	-70.43872	40.64455	-70.44394	58	15	SW	<2	B3	2-5	Fog	Severe	5.1	264	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:15	40.64455	-70.44394	40.64967	-70.43752	58	15	SW	<2	B3	2-5	Fog	Severe	5.1	256	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:15	14:30	40.64967	-70.43752	40.64998	-70.41279	58	10	SW	<2	B3	2-5	Fog	Severe	5.1	88	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:56	40.64998	-70.41279	40.65052	-70.36859	56	9	SW	<2	B3	2-5	Fog	Severe	5.1	84	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	14:56	15:30	40.65052	-70.36859	40.65120	-70.31203	56	10	S	<2	B3	2-5	Fog	Severe	4.9	83	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	16:00	40.65120	-70.31203	40.65170	-70.26782	53	10	S	<2	B3	2-5	Fog	Severe	4.1	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:00	16:31	40.65170	-70.26782	40.65225	-70.21631	51	9	S	<2	B3	2-5	Fog	Severe	4.1	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:31	17:00	40.65225	-70.21631	40.65259	-70.17695	51	11	S	<2	B3	2-5	Clear	Severe	4.2	91	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.65259	-70.17695	40.65308	-70.12228	49	12	S	<2	B3	>5	Clear	Severe	4.3	90	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.65308	-70.12228	40.65359	-70.07232	49	13	S	<2	B4	>5	Clear	Severe	4.4	85	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.65359	-70.07232	40.65401	-70.02162	49	13	S	<2	B4	>5	Clear	Severe	5	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	18:33	40.65401	-70.02162	40.65403	-70.01657	49	13	S	<2	B4	>5	Clear	Severe	5	87	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:33	18:49	40.65403	-70.01657	40.64868	-70.01714	50	13	S	<2	B4	>5	Clear	Severe	4.7	89	Silent	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:49	19:00	40.64868	-70.01714	40.64853	-70.03418	50	16	SW	<2	B4	>5	Clear	Severe	5	256	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:30	40.64853	-70.03418	40.64801	-70.08606	50	17	SW	<2	B4	>5	Clear	Severe	5	259	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:30	20:00	40.64801	-70.08606	40.64754	-70.13471	49	13	SW	<2	B4	>5	Clear	Severe	4.8	262	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:30	40.64754	-70.13471	40.64707	-70.18315	49	15	WSW	<2	B4	>5	Clear	Severe	4.4	262	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	21:00	40.64707	-70.18315	40.64659	-70.23001	49	13	WSW	<2	B4	>5	Clear	Moderate	4.4	262	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:30	40.64659	-70.23001	40.64608	-70.27704	50	12	WSW	<2	B4	>5	Clear	Severe	4	264	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	22:00	40.64608	-70.27704	40.64562	-70.31998	52	13	WSW	<2	B4	>5	Clear	Severe	4.3	266	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:32	40.64562	-70.31998	40.64502	-70.37170	54	11	WSW	<2	B4	>5	Clear	Severe	4.3	269	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:32	23:00	40.64502	-70.37170	40.64457	-70.41581	56	14	WSW	<2	B4	>5	Clear	Severe	4	270	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:00	23:15	40.64457	-70.41581	40.64430	-70.44024	58	16	SW	<2	B4	>5	Clear	Severe	4.7	266	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:15	23:16	40.64430	-70.44024	40.64426	-70.44197	58	14	SW	<2	B4	>5	Clear	Severe	4.6	274	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:16	23:29	40.64426	-70.44197	40.65591	-70.45084	58	14	SW	<2	B4	>5	Clear	Severe	4.5	274	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:29	23:53	40.65591	-70.45084	40.64937	-70.44386	58	14	SW	<2	B4	>5	Clear	Severe	4.5	329	Full Power	N/A
2022-08-06	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	23:53	00:00	40.64937	-70.44386	40.64948	-70.43312	58	14	SW	<2	B4	>5	Clear	Severe	4.5	329	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:00	00:30	40.64955	-70.42948	40.65015	-70.38129	59	8	S	2-4	B4	2-5	Clear	Slight	4.8	81	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:30	00:50	40.65015	-70.38129	40.65056	-70.34656	55	11	S	2-4	B4	0.3-0.5*	Clear	None	4.9	83	Soft Start	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	00:50	01:00	40.65056	-70.34656	40.65079	-70.32998	55	10	S	2-4	B4	0.3-0.5*	Clear	None	4.6	83	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:00	01:30	40.65079	-70.32998	40.65131	-70.28152	63	9	SSW	2-4	B4	0.3-0.5*	Clear	None	4.2	79	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Alaman, Ricardo; Garcia, Marah; Toxtle, Miguel	RPS	01:30	02:00	40.65131	-70.28152	40.65185	-70.23400	61	11	S	2-4	B4	0.3-0.5*	Clear	None	4.5	86	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:00	02:35	40.65185	-70.23400	40.65233	-70.18166	50	12	S	2-4	B4	0.3-0.5*	Clear	None	4.3	87	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:35	02:59	40.65233	-70.18166	40.65270	-70.14341	49	13	S	2-4	B4	0.3-0.5*	Clear	None	4.2	87	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Garcia, Marah	RPS	02:59	03:00	40.65270	-70.14341	40.65272	-70.14239	49	13	S	2-4	B4	0.3-0.5*	Clear	None	4.2	87	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:00	03:30	40.65272	-70.14239	40.65317	-70.09481	48	11	E	2-4	B4	0.3-0.5*	Clear	None	4.4	85	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Toxtle, Miguel	RPS	03:30	04:00	40.65317	-70.09481	40.65365	-70.04740	48	10	S	2-4	B4	0.3-0.5*	Clear	None	4.3	93	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:00	04:21	40.65365	-70.04740	40.65386	-70.01584	49	12	S	2-4	B4	0.3-0.5*	Clear	None	4.5	91	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:21	04:23	40.65386	-70.01584	40.65388	-70.01290	48	12	S	2-4	B4	0.3-0.5*	Clear	None	4.1	91	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:23	04:35	40.65388	-70.01290	40.64850	-70.01038	48	12	S	2-4	B4	0.3-0.5*	Clear	None	4.1	91	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:35	04:39	40.64850	-70.01038	40.64844	-70.01717	60	17	SW	2-4	B4	0.3-0.5*	Clear	None	4.2	257	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Garcia, Marah; Toxtle, Miguel	RPS	04:39	05:00	40.64844	-70.01717	40.64803	-70.05502	60	18	SW	2-4	B4	0.3-0.5*	Clear	None	5.4	260	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:00	05:30	40.64803	-70.05502	40.64752	-70.10770	51	18	SW	2-4	B4	0.3-0.5*	Clear	None	5	260	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Garcia, Marah	RPS	05:30	06:00	40.64752	-70.10770	40.64704	-70.15879	52	20	SW	2-4	B4	0.3-0.5*	Clear	None	5	270	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:00	06:28	40.64704	-70.15879	40.64651	-70.20575	54	19	SW	2-4	B4	0.3-0.5*	Clear	None	4.8	271	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Danos, Laura; Toxtle, Miguel	RPS	06:28	06:56	40.64651	-70.20575	40.64606	-70.25134	51	20	SW	2-4	B5	0.3-0.5*	Clear	None	4.2	255	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	06:56	07:23	40.64606	-70.25134	40.64566	-70.29076	51	23	SW	2-4	B5	0.3-0.5*	Clear	None	4	276	Full Power	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:23	07:30	40.64566	-70.29076	40.64556	-70.30047	51	23	SW	2-4	B5	0.3-0.5	Clear	None	3.7	265	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Bonfil, Neftali; Danos, Laura; Toxtle, Miguel	RPS	07:30	08:00	40.64556	-70.30047	40.64686	-70.32676	51	22	SW	2-4	B5	0.3-0.5	Clear	None	3.7	265	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:00	08:30	40.64686	-70.32676	40.64918	-70.36004	55	18	SW	2-4	B5	0.3-0.5	Clear	None	2.4	252	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Danos, Laura	RPS	08:30	08:57	40.64918	-70.36004	40.65220	-70.40345	54	22	SW	2-4	B5	0.3-0.5	Clear	None	4.4	276	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	08:57	09:10	40.65220	-70.40345	40.65192	-70.42195	56	21	SSW	2-4	B5	0.3-0.5	Clear	None	4	254	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Both	Abeytia, Flavio; Bonfil, Neftali; Santiago, Sancy	RPS	09:10	09:30	40.65192	-70.42195	40.64918	-70.45086	57	21	SW	2-4	B5	0.5-1	Clear	None	4.6	256	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	09:30	10:00	40.64918	-70.45086	40.64615	-70.40564	59	14	SW	2-4	B5	0.5-1	Clear	None	4.7	98	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:00	10:30	40.64615	-70.40564	40.64677	-70.35592	59	13	SW	2-4	B4	2-5	Clear	None	4.7	92	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:30	11:00	40.64677	-70.35592	40.64796	-70.30620	58	18	SSW	2-4	B4	2-5	Clear	Severe	4.5	98	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	11:00	11:30	40.64796	-70.30620	40.65337	-70.31140	54	10	SSW	2-4	B4	>5	Clear	Severe	4.5	86	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Santiago, Sancy	RPS	11:30	11:58	40.65337	-70.31140	40.65132	-70.35657	52	19	SW	2-4	B5	>5	Clear	Severe	3.8	267	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	11:58	12:31	40.65132	-70.35657	40.64739	-70.30618	55	22	SW	2-4	B5	>5	Clear	Severe	4.8	199	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:31	12:58	40.64739	-70.30618	40.65481	-70.26522	57	15	SSW	2-4	B5	>5	Clear	Severe	4.6	83	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	12:58	13:28	40.65481	-70.26522	40.64903	-70.21577	58	15	SSW	2-4	B4	>5	Clear	Severe	4.7	96	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:28	14:00	40.64903	-70.21577	40.65556	-70.17728	59	13	SSW	2-4	B4	>5	Clear	Severe	4.4	77	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	40.65556	-70.17728	40.65609	-70.12260	48	12	SSW	2-4	B4	>5	Cloudy	Moderate	4.4	79	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:57	40.65609	-70.12260	40.65655	-70.07758	48	12	SSW	2-4	B4	>5	Cloudy	Slight	4.4	80	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	14:57	15:30	40.65655	-70.07758	40.65713	-70.02330	52	14	SSW	2-4	B4	>5	Cloudy	Slight	4.5	79	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	15:30	15:57	40.65713	-70.02330	40.65161	-70.03005	49	11	SW	2-4	B4	>5	Cloudy	Moderate	4.5	78	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	15:57	16:26	40.65161	-70.03005	40.65115	-70.07904	49	19	SW	2-4	B4	>5	Cloudy	Slight	4.5	270	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:26	17:00	40.65115	-70.07904	40.65053	-70.13168	53	28	WSW	2-4	B5	>5	Cloudy	Slight	5.2	267	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:00	17:30	40.65053	-70.13168	40.65478	-70.17722	53	22	SW	2-4	B5	>5	Cloudy	Slight	4.9	260	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	18:00	40.65478	-70.17722	40.65020	-70.15902	49	22	SW	2-4	B5	>5	Cloudy	Slight	5.1	85	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:00	18:30	40.65020	-70.15902	40.69765	-70.19947	48	18	SW	2-4	B5	>5	Cloudy	Severe	5	280	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	18:30	19:00	40.69765	-70.19947	40.75297	-70.24987	48	24	WSW	2-4	B6	>5	Clear	Severe	7.9	312	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:00	19:29	40.75297	-70.24987	40.78347	-70.31011	45	22	WSW	2-4	B6	>5	Clear	Severe	7.9	292	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	19:29	20:00	40.78347	-70.31011	40.82225	-70.37464	45	23	WSW	2-4	B6	>5	Clear	Severe	7.9	296	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:00	20:30	40.82225	-70.37464	40.84635	-70.44115	49	24	WSW	2-4	B6	>5	Clear	Severe	7.9	296	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	20:30	21:00	40.84635	-70.44115	40.87150	-70.51968	49	24	WSW	2-4	B6	>5	Clear	Severe	7.9	278	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:00	21:30	40.87150	-70.51968	40.89503	-70.59594	48	23	WSW	2-4	B6	>5	Clear	Severe	7.2	280	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	21:30	22:00	40.89503	-70.59594	40.93358	-70.65023	48	23	WSW	2-4	B6	>5	Clear	Severe	8.6	342	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:00	22:30	40.93358	-70.65023	41.00608	-70.66468	52	20	WSW	2-4	B6	>5	Clear	Severe	8.6	342	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:30	22:58	41.00608	-70.66468	41.07103	-70.68171	47	20	WSW	2-4	B6	>5	Clear	Severe	8.6	342	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	22:58	23:30	41.07103	-70.68171	41.14197	-70.71137	48	18	WSW	2-4	B6	>5	Clear	Severe	8.8	338	Silent	N/A
2022-08-07	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Bonfil, Neftali	RPS	23:30	00:00	41.14197	-70.71137	41.20997	-70.73994	48	19	WSW	2-4	B5	>5	Clear	Severe	8.2	337	Silent	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Toxtle, Miguel	RPS	00:00	00:30	41.21397	-70.74179	41.27029	-70.77888	30	16	WSW	2-4	B6	>5	Cloudy	None	8.6	329	Transit	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Toxtle, Miguel	RPS	00:30	01:00	41.27029	-70.77888	41.30961	-70.83648	13	24	WSW	2-4	B6	0.3-0.5	Cloudy	None	7	306	Transit	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Garcia, Marah	RPS	01:00	01:25	41.30961	-70.83648	41.35819	-70.87260	22	19	SW	2-4	B6	0.3-0.5	Cloudy	None	7	312	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	01:25	01:30	41.35819	-70.87260	41.36612	-70.86943	22	18	SW	2-4	B4	0.3-0.5	Cloudy	None	7	312	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Toxtle, Miguel	RPS	01:30	02:00	41.36612	-70.86943	41.38925	-70.83532	28	15	SW	2-4	B4	0.3-0.5	Cloudy	None	4	46	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Garcia, Marah	RPS	02:00	02:29	41.38925	-70.83532	41.40889	-70.80339	26	15	SSW	<2	B4	0.3-0.5	Cloudy	None	4.2	50	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Garcia, Marah	RPS	02:29	02:58	41.40889	-70.80339	41.42429	-70.77595	18	11	SSW	<2	B4	0.3-0.5	Cloudy	None	3.5	48	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Toxtle, Miguel	RPS	02:58	03:30	41.42429	-70.77595	41.43635	-70.75346	18	11	SSW	<2	B4	0.3-0.5	Cloudy	None	3.5	48	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Toxtle, Miguel	RPS	03:30	03:57	41.43635	-70.75346	41.44471	-70.73861	20	9	SW	<2	B3	0.3-0.5	Cloudy	None	2.1	46	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	03:57	04:30	41.44471	-70.73861	41.45523	-70.72556	20	10	SW	<2	B3	0.3-0.5	Cloudy	None	1.7	28	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Garcia, Marah; Toxtle, Miguel	RPS	04:30	04:58	41.45523	-70.72556	41.46794	-70.70818	20	10	SW	<2	B3	0.3-0.5	Cloudy	None	1.7	28	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Garcia, Marah	RPS	04:58	05:30	41.46794	-70.70818	41.48206	-70.68061	19	10	SSW	<2	B3	0.3-0.5	Cloudy	None	2.8	55	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Garcia, Marah	RPS	05:30	06:00	41.48206	-70.68061	41.49503	-70.64669	18	12	SW	<2	B3	0.3-0.5	Cloudy	None	3	52	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.49503	-70.64669	41.49725	-70.60043	26	10	SW	<2	B3	0.3-0.5	Cloudy	None	3.8	71	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	06:54	41.49725	-70.60043	41.48663	-70.55916	28	12	SW	<2	B3	0.3-0.5	Cloudy	None	4.6	101	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Bonfil, Neftali	RPS	06:54	07:30	41.48663	-70.55916	41.49085	-70.58104	23	14	SW	<2	B3	0.3-0.5	Cloudy	None	5.2	107	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Bonfil, Neftali	RPS	07:30	08:00	41.49085	-70.58104	41.49713	-70.60773	23	22	SW	<2	B3	0.3-0.5	Cloudy	None	3.2	277	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	41.49713	-70.60773	41.49719	-70.62828	23	22	SW	<2	B3	0.3-0.5	Cloudy	None	2.3	261	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	08:55	41.49719	-70.62828	41.49656	-70.64321	26	21	SW	<2	B3	0.3-0.5	Cloudy	None	1.5	254	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	08:55	09:15	41.49656	-70.64321	41.49314	-70.65516	27	23	SW	<2	B3	0.3-0.5	Cloudy	None	1.7	243	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	09:15	09:22	41.49314	-70.65516	41.49148	-70.65912	25	21	SW	<2	B3	2-5	Clear	Slight	2.1	238	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	09:22	09:30	41.49148	-70.65912	41.48944	-70.66462	25	22	WSW	<2	B3	>5	Clear	Slight	2.1	238	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Abeytia, Flavio	RPS	09:30	09:56	41.48944	-70.66462	41.48244	-70.68422	25	20	WSW	<2	B3	>5	Clear	Slight	2.2	236	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	09:56	10:30	41.48244	-70.68422	41.46959	-70.70860	24	24	WSW	<2	B3	>5	Clear	Slight	2.4	247	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Santiago, Sancy	RPS	10:30	10:57	41.46959	-70.70860	41.45780	-70.73182	25	26	W	<2	B3	>5	Clear	Slight	2.7	229	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	10:57	11:30	41.45780	-70.73182	41.44218	-70.76114	23	21	WSW	<2	B4	>5	Clear	Severe	2.6	230	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Abeytia, Flavio	RPS	11:30	12:00	41.44218	-70.76114	41.42764	-70.78943	23	22	SW	2-4	B4	>5	Clear	Severe	3.4	229	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:00	12:30	41.42764	-70.78943	41.41048	-70.81511	23	24	SW	2-4	B5	>5	Clear	Severe	3.2	234	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	12:30	12:59	41.41048	-70.81511	41.43245	-70.77905	18	24	WSW	2-4	B5	>5	Clear	Severe	3.3	226	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danso, Laura	RPS	12:59	13:30	41.43245	-70.77905	41.45595	-70.73150	22	22	SW	2-4	B5	>5	Clear	Severe	5.1	60	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	13:30	14:00	41.45595	-70.73150	41.47767	-70.69178	22	15	SW	2-4	B4	>5	Clear	Severe	4.8	51	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:00	14:30	41.47767	-70.69178	41.48534	-70.68250	23	11	SW	2-4	B4	>5	Fog	Severe	4.1	53	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Santiago, Sancy	RPS	14:30	14:57	41.48534	-70.68250	41.47071	-70.71700	22	22	SW	2-4	B4	>5	Fog	Severe	3.6	233	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	14:57	15:29	41.47071	-70.71700	41.44307	-70.76215	20	23	SW	2-4	B4	>5	Fog	Severe	4.1	231	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Santiago, Sancy; Danos, Laura	RPS	15:29	15:59	41.44307	-70.76215	41.44296	-70.84599	22	23	SW	2-4	B4	>5	Fog	Severe	8.1	227	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	15:59	16:30	41.44296	-70.84599	41.45054	-70.84766	14	22	SW	2-4	B4	>5	Fog	Severe	8.1	341	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	16:30	17:00	41.45054	-70.84766	41.45054	-70.84766	14	22	SW	2-4	B4	>5	Fog	Severe	8.1	341	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Alaman, Ricardo; Danos, Laura	RPS	17:00	17:30	41.45054	-70.84766	41.45054	-70.84766	14	22	SW	2-4	B4	>5	Fog	Severe	8.1	341	Standby	N/A
2022-08-08	*GO Pursuit*	HRG	Visual	Garcia, Marah; Santiago, Sancy	RPS	17:30	17:58	41.45054	-70.84766	41.45054	-70.84766	14	22	SW	2-4	B4	>5	Fog	Severe	8.1	341	Standby	N/A
2022-08-09	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:26	00:00	41.62136	-70.91349	41.60341	-70.89221	11	3	E	<2	B3	2-5	Precipitation	Slight	2.4	6	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:30	41.59882	-70.88941	41.56177	-70.86653	11	20	S	<2	B3	2-5	Precipitation	None	5.2	145	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	00:58	41.56177	-70.86653	41.52254	-70.83909	12	12	S	<2	B3	0.3-0.5	Precipitation	None	5.5	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	00:58	01:32	41.52254	-70.83909	41.46648	-70.84399	17	18	S	<2	B3	0.3-0.5	Precipitation	None	5.6	150	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:32	01:58	41.46648	-70.84399	41.43006	-70.82994	18	17	S	<2	B3	0.3-0.5	Precipitation	None	6	189	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:58	02:29	41.43006	-70.82994	41.43627	-70.76738	18	7	S	<2	B3	0.3-0.5	Precipitation	None	4.7	99	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:29	03:00	41.43627	-70.76738	41.45110	-70.73017	25	2	WSW	<2	B3	0.3-0.5	Precipitation	None	3.5	72	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.45110	-70.73017	41.46285	-70.70951	17	6	S	<2	B3	0.3-0.5	Cloudy	None	2.8	50	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.46285	-70.70951	41.47357	-70.69681	21	3	SW	<2	B3	0.3-0.5	Cloudy	None	2	42	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.47357	-70.69681	41.47951	-70.68829	24	4	WNW	<2	B3	0.3-0.5	Fog	None	1.3	49	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.47951	-70.68829	41.48210	-70.68264	23	0	NE	<2	B3	0.3-0.5	Fog	None	0.7	53	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.48210	-70.68264	41.48510	-70.67650	24	20	NE	<2	B3	0.3-0.5	Fog	None	0.6	53	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.48510	-70.67650	41.48919	-70.66391	24	14	N	<2	B3	0.3-0.5	Fog	None	1	55	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.48919	-70.66391	41.46545	-70.72094	25	8	N	<2	B3	0.3-0.5	Fog	None	6.9	250	Standby	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.46545	-70.72094	41.44074	-70.76688	22	7	N	2-4	B3	0.3-0.5	Fog	None	5.6	234	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.44074	-70.76688	41.42061	-70.81034	25	13	N	2-4	B3	0.3-0.5	Fog	None	5	236	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	41.42061	-70.81034	41.38696	-70.84639	25	10	NNE	2-4	B3	0.3-0.5	Fog	None	4.7	223	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:28	41.38696	-70.84639	41.35461	-70.87063	27	9	NNE	2-4	B3	0.3-0.5	Fog	None	5.4	216	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:28	09:00	41.35461	-70.87063	41.31506	-70.83982	28	11	NE	2-4	B3	0.3-0.5	Fog	None	4.9	155	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	41.31506	-70.83982	41.28258	-70.80316	23	9	NE	2-4	B3	0.3-0.5	Fog	None	5.4	140	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:30	10:00	41.28258	-70.80316	41.24223	-70.76348	12	6	NE	2-4	B3	2-5	Fog	None	4	131	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	41.24223	-70.76348	41.19733	-70.71782	30	9	NNE	2-4	B4	2-5	Fog	None	6.5	135	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.19733	-70.71782	41.15328	-70.67663	31	9	N	2-4	B4	>5	Fog	None	6.7	135	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	41.15328	-70.67663	41.10411	-70.64087	37	5	NE	2-4	B4	>5	Fog	None	7	143	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	11:51	41.10411	-70.64087	41.06774	-70.61502	45	10	NE	2-4	B4	>5	Fog	None	6.6	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:51	12:00	41.06774	-70.61502	41.05411	-70.60531	45	10	NE	2-4	B4	>5	Fog	None	6.6	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	41.05411	-70.60531	41.00424	-70.56916	44	10	NNE	2-4	B4	>5	Fog	None	6.9	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	41.00424	-70.56916	40.95593	-70.53244	46	11	NE	2-4	B4	>5	Cloudy	None	6.8	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.95593	-70.53244	40.90717	-70.49351	50	10	ENE	2-4	B4	>5	Cloudy	None	6.8	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.90717	-70.49351	40.85773	-70.45365	50	11	ENE	2-4	B4	>5	Cloudy	None	7	146	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.85773	-70.45365	40.81215	-70.40475	52	13	E	2-4	B4	>5	Cloudy	None	6.9	144	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.81215	-70.40475	40.76934	-70.34567	50	14	E	2-4	B4	>5	Cloudy	None	7.3	130	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.76934	-70.34567	40.72563	-70.28208	49	11	E	<2	B4	>5	Cloudy	Slight	7.9	128	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.72563	-70.28208	40.68599	-70.22829	47	13	E	<2	B3	>5	Cloudy	Slight	7.8	130	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.68599	-70.22829	40.66203	-70.23936	46	6	E	<2	B3	>5	Cloudy	Slight	4.7	158	Transit	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.66203	-70.23936	40.66798	-70.23668	48	9	NNE	<2	B3	>5	Cloudy	Slight	0.3	354	Deploying/Retrieving	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:23	40.66798	-70.23668	40.67976	-70.22932	48	14	NNE	<2	B3	>5	Cloudy	Slight	2.3	20	Deploying/Retrieving	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:23	17:30	40.67976	-70.22932	40.68433	-70.22661	46	13	NNE	<2	B3	>5	Cloudy	Slight	1.9	20	Soft Start	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.68433	-70.22661	40.65611	-70.21821	46	15	NNE	<2	B3	>5	Cloudy	Slight	3.9	20	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:13	40.65611	-70.21821	40.63828	-70.21814	49	8	NNE	<2	B3	>5	Cloudy	Moderate	4.8	170	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:13	18:19	40.63828	-70.21814	40.63600	-70.22763	51	8	NNE	<2	B3	>5	Cloudy	Severe	4.2	245	Silent	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:19	18:30	40.63600	-70.22763	40.63578	-70.24685	52	10	N	<2	B3	>5	Cloudy	Severe	5	270	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.63578	-70.24685	40.63512	-70.29926	52	10	N	<2	B3	>5	Cloudy	Severe	4.4	269	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.63512	-70.29926	40.63452	-70.35134	54	10	N	<2	B3	>5	Cloudy	Severe	4.7	268	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.63452	-70.35134	40.63389	-70.40506	59	9	N	<2	B3	>5	Cloudy	Severe	5.2	265	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:28	40.63389	-70.40506	40.63322	-70.45445	58	8	N	<2	B3	>5	Cloudy	Severe	4.7	264	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:28	20:30	40.63322	-70.45445	40.63318	-70.45808	60	8	N	<2	B3	>5	Cloudy	Severe	4.7	264	Silent	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	20:32	40.63318	-70.45808	40.63316	-70.46166	60	6	N	<2	B3	>5	Cloudy	Severe	4.7	264	Silent	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:32	20:53	40.63316	-70.46166	40.64824	-70.44681	59	8	N	<2	B3	>5	Cloudy	Severe	4.9	271	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:53	20:58	40.64824	-70.44681	40.64925	-70.43853	58	15	N	<2	B3	>5	Cloudy	Severe	4.7	73	Silent	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:58	21:00	40.64925	-70.43853	40.64919	-70.43511	57	15	N	<2	B3	>5	Cloudy	Severe	4.7	87	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	40.64919	-70.43511	40.64978	-70.38371	57	15	N	<2	B3	>5	Cloudy	Slight	4.7	87	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.64978	-70.38371	40.65038	-70.33155	57	14	N	<2	B3	>5	Cloudy	Slight	4.7	82	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:28	40.65038	-70.33155	40.65097	-70.28112	55	15	ENE	<2	B3	>5	Cloudy	None	4.9	87	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:28	22:32	40.65097	-70.28112	40.65107	-70.27392	53	15	ENE	<2	B3	>5	Cloudy	None	5	84	Silent	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:32	23:00	40.65107	-70.27392	40.65165	-70.22296	52	14	ENE	<2	B3	>5	Cloudy	None	5	87	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.65165	-70.22296	40.65218	-70.16646	51	14	NE	<2	B3	>5	Cloudy	None	4.7	87	Full Power	N/A
2022-08-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	40.65218	-70.16646	40.65270	-70.11190	50	16	ENE	<2	B3	>5	Cloudy	None	5	86	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:00	40.65270	-70.11190	40.65270	-70.11190	49	15	ENE	<2	B3	>5	Cloudy	None	5.1	87	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:20	40.65286	-70.09869	40.65308	-70.07591	49	16	ENE	<2	B3	>5	Cloudy	None	5.3	90	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:20	00:30	40.65308	-70.07591	40.65323	-70.05812	49	15	ENE	<2	B3	1-2	Cloudy	None	4.9	89	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	00:55	40.65323	-70.05812	40.65362	-70.01325	49	15	ENE	<2	B3	0.5-1	Cloudy	None	5	87	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:55	01:00	40.65362	-70.01325	40.65286	-70.00464	48	15	ENE	<2	B3	0.3-0.5*	Cloudy	None	4.9	94	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:00	40.65286	-70.00464	40.65251	-70.00430	49	15	ENE	<2	B3	0.3-0.5*	Cloudy	None	4.9	94	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	01:00	01:07	40.65251	-70.00430	40.64820	-70.01037	49	15	ENE	<2	B3	0.3-0.5*	Cloudy	None	4.9	94	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:07	01:11	40.64820	-70.01037	40.64816	-70.01722	51	3	NNE	<2	B3	0.3-0.5*	Cloudy	None	4.8	265	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:11	01:30	40.64816	-70.01722	40.64789	-70.04847	53	3	NNE	<2	B3	0.3-0.5*	Cloudy	None	4.6	285	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.64789	-70.04847	40.64748	-70.09717	52	1	N	<2	B3	0.3-0.5*	Cloudy	None	4.3	263	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.64748	-70.09717	40.64702	-70.14508	49	8	NNW	<2	B3	0.3-0.5*	Cloudy	None	4.2	266	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.64702	-70.14508	40.64656	-70.19134	50	9	NW	<2	B3	0.3-0.5*	Cloudy	None	4.3	266	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.64656	-70.19134	40.64612	-70.23888	49	6	N	<2	B3	0.3-0.5*	Cloudy	None	4.2	274	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.64612	-70.23888	40.64560	-70.28814	53	4	N	<2	B3	0.3-0.5*	Cloudy	None	4.3	288	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.64560	-70.28814	40.64497	-70.33926	55	5	NNW	<2	B3	0.3-0.5*	Cloudy	None	4.5	272	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.64497	-70.33926	40.64434	-70.39131	55	5	NW	<2	B3	0.3-0.5*	Cloudy	None	4.7	279	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:28	40.64434	-70.39131	40.64375	-70.43973	57	4	NW	<2	B3	0.3-0.5*	Cloudy	None	4.5	273	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:28	05:29	40.64375	-70.43973	40.64373	-70.44153	57	3	NW	<2	B3	0.3-0.5*	Cloudy	None	4.5	273	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:29	05:30	40.64373	-70.44153	40.64371	-70.44323	57	3	NW	<2	B3	0.3-0.5*	Cloudy	None	4.5	273	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	05:41	40.64371	-70.44323	40.64868	-70.44613	57	3	NW	<2	B3	0.3-0.5*	Cloudy	None	4.5	273	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:41	05:47	40.64868	-70.44613	40.64891	-70.43687	57	3	NW	<2	B3	0.3-0.5*	Cloudy	None	4.5	77	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:47	06:00	40.64891	-70.43687	40.64932	-70.41634	57	8	NE	<2	B3	0.3-0.5*	Cloudy	None	4.5	77	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.64932	-70.41634	40.64976	-70.36702	57	10	NE	<2	B3	0.3-0.5*	Cloudy	None	4.3	75	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.64976	-70.36702	40.65039	-70.31850	55	12	NE	<2	B3	0.3-0.5*	Cloudy	None	4.8	80	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.65039	-70.31850	40.65080	-70.27139	54	10	NE	<2	B3	0.3-0.5*	Cloudy	None	4.5	96	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.65080	-70.27139	40.65124	-70.22618	56	11	NE	<2	B3	0.3-0.5*	Cloudy	None	4.4	86	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.65124	-70.22618	40.65167	-70.18398	51	10	E	<2	B3	0.3-0.5*	Fog	None	4.2	86	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.65167	-70.18398	40.65216	-70.14143	51	9	ENE	<2	B3	0.3-0.5*	Fog	None	4	89	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.65216	-70.14143	40.65248	-70.09928	51	9	ENE	<2	B3	0.3-0.5*	Fog	None	3.9	89	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.65248	-70.09928	40.65289	-70.05637	48	9	E	<2	B3	1-2	Fog	None	3.8	93	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:28	40.65289	-70.05637	40.65331	-70.01563	49	12	E	<2	B3	>5	Fog	None	4	96	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:28	10:29	40.65331	-70.01563	40.65333	-70.01413	50	12	E	<2	B3	>5	Cloudy	None	4.2	96	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:29	10:30	40.65333	-70.01413	40.65336	-70.01265	50	12	E	<2	B3	>5	Cloudy	None	4.2	96	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	10:41	40.65336	-70.01265	40.64803	-70.00888	50	12	E	<2	B3	>5	Cloudy	None	4	94	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:41	10:46	40.64803	-70.00888	40.64788	-70.01765	50	3	S	<2	B3	>5	Cloudy	None	4.4	239	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:46	11:00	40.64788	-70.01765	40.64764	-70.04201	50	2	SSE	<2	B3	>5	Cloudy	None	5	252	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	12:00	40.64764	-70.04201	40.64655	-70.14540	48	2	S	<2	B3	>5	Cloudy	None	5	249	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.64655	-70.14540	40.64609	-70.19821	48	3	S	<2	B3	>5	Cloudy	None	4.7	254	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.64609	-70.19821	40.64554	-70.25138	51	5	SE	<2	B3	>5	Cloudy	None	4.8	258	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.64554	-70.25138	40.64502	-70.30311	52	7	SSE	<2	B3	>5	Cloudy	None	4.9	258	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.64502	-70.30311	40.64437	-70.35376	54	7	SSE	<2	B3	>5	Cloudy	None	4.5	262	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.64437	-70.35376	40.64380	-70.40421	55	9	SE	<2	B3	>5	Cloudy	None	4.7	262	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:52	40.64380	-70.40421	40.64335	-70.44030	58	7	ESE	<2	B3	>5	Cloudy	None	4.3	260	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:52	14:53	40.64335	-70.44030	40.64337	-70.44194	59	7	SE	<2	B3	>5	Cloudy	None	4.3	260	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:53	15:00	40.64337	-70.44194	40.64596	-70.45095	59	7	SE	<2	B3	>5	Cloudy	None	4.3	252	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:04	40.64596	-70.45095	40.64835	-70.44585	59	13	SE	<2	B3	>5	Cloudy	None	4.5	60	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:04	15:08	40.64835	-70.44585	40.64861	-70.43845	59	13	SE	<2	B3	>5	Cloudy	None	4.5	60	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:08	15:30	40.64861	-70.43845	40.64903	-70.39873	58	14	ENE	<2	B3	>5	Cloudy	None	4.8	60	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.64903	-70.39873	40.64974	-70.34507	56	15	E	<2	B3	>5	Cloudy	None	5.1	85	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.64974	-70.34507	40.65039	-70.29270	55	13	E	<2	B3	2-5	Precipitation	None	4.9	81	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.65039	-70.29270	40.65092	-70.24029	52	12	NE	<2	B3	2-5	Precipitation	None	4.8	80	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.65092	-70.24029	40.65150	-70.18765	50	16	NE	<2	B3	2-5	Precipitation	None	5	78	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.65150	-70.18765	40.65202	-70.13667	49	18	NE	<2	B3	2-5	Precipitation	None	4.7	74	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:06	40.65202	-70.13667	40.65213	-70.12622	49	25	NE	<2	B3	1-2	Precipitation	None	4.6	77	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:06	18:30	40.65213	-70.12622	40.65252	-70.08509	48	23	NE	<2	B3	2-5	Precipitation	None	4.7	74	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.65252	-70.08509	40.65298	-70.03677	48	23	NE	<2	B3	2-5	Precipitation	None	4.6	78	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:13	40.65298	-70.03677	40.65314	-70.01602	48	23	NE	<2	B3	2-5	Precipitation	None	4.4	78	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:13	19:15	40.65314	-70.01602	40.65319	-70.01279	50	23	NE	<2	B3	2-5	Precipitation	None	4.4	78	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:15	19:23	40.65319	-70.01279	40.64770	-70.00644	50	22	NE	<2	B3	2-5	Precipitation	None	4.4	78	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:23	19:29	40.64770	-70.00644	40.64767	-70.01721	51	21	NNE	<2	B3	>5	Cloudy	Severe	4.8	279	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:29	20:00	40.64767	-70.01721	40.64713	-70.07412	51	14	NNE	<2	B3	>5	Cloudy	Severe	5.1	269	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.64713	-70.07412	40.64665	-70.12960	49	10	NE	<2	B3	>5	Cloudy	Severe	5.2	267	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.64665	-70.12960	40.64605	-70.18470	53	8	ENE	<2	B3	>5	Cloudy	Moderate	5.1	272	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	40.64605	-70.18470	40.64541	-70.23955	52	8	NNE	<2	B3	>5	Cloudy	Moderate	4.9	269	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.64541	-70.23955	40.64474	-70.29230	55	6	NNE	<2	B3	>5	Cloudy	Slight	4.7	266	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.64474	-70.29230	40.64427	-70.34305	53	8	NNE	<2	B3	>5	Cloudy	Slight	4.8	272	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.64427	-70.34305	40.64365	-70.39259	59	4	NNE	<2	B3	>5	Cloudy	Slight	4.6	263	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.64365	-70.39259	40.64299	-70.44017	58	3	NNE	<2	B3	>5	Cloudy	Slight	4.5	263	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	23:32	40.64299	-70.44017	40.64287	-70.44335	58	4	NNE	<2	B3	>5	Cloudy	Moderate	4.2	263	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:32	23:41	40.64287	-70.44335	40.64824	-70.44893	60	5	NNE	<2	B3	>5	Cloudy	Moderate	4.6	280	Full Power	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:41	23:47	40.64824	-70.44893	40.64830	-70.43847	59	12	ENE	<2	B3	>5	Cloudy	Slight	4.9	88	Silent	N/A
2022-08-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:47	00:00	40.64830	-70.43847	40.64856	-70.41467	59	12	ENE	<2	B3	>5	Cloudy	Slight	5	88	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:30	40.64895	-70.38326	40.64922	-70.35847	57	11	ENE	<2	B3	>5	Cloudy	None	5.1	91	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	01:00	40.64922	-70.35847	40.64987	-70.30205	56	11	ENE	<2	B3	0.3-0.5*	Cloudy	None	5.4	89	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.64987	-70.30205	40.65056	-70.24546	54	13	ENE	<2	B3	0.3-0.5*	Cloudy	None	5.2	93	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.65056	-70.24546	40.65110	-70.18756	52	13	ENE	<2	B3	0.3-0.5*	Cloudy	None	5.5	90	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.65110	-70.18756	40.65152	-70.13404	53	10	E	<2	B3	0.3-0.5*	Cloudy	None	4.8	88	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.65152	-70.13404	40.65219	-70.08039	48	8	E	<2	B3	0.3-0.5*	Cloudy	None	4.8	89	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.65219	-70.08039	40.65280	-70.02608	48	8	E	<2	B3	0.3-0.5*	Cloudy	None	5	84	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	03:35	40.65280	-70.02608	40.65282	-70.01698	51	9	ENE	<2	B3	0.3-0.5*	Cloudy	None	5	92	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:35	03:36	40.65282	-70.01698	40.65286	-70.01516	49	9	ENE	<2	B3	0.3-0.5*	Cloudy	None	5	81	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:36	03:38	40.65286	-70.01516	40.65296	-70.01157	49	9	E	<2	B3	0.3-0.5*	Cloudy	None	4.9	81	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:38	03:48	40.65296	-70.01157	40.64741	-70.00976	49	9	E	<2	B3	0.3-0.5*	Cloudy	None	4.9	81	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:48	03:53	40.64741	-70.00976	40.64736	-70.01833	51	4	W	<2	B3	0.3-0.5*	Cloudy	None	4.8	263	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:53	04:00	40.64736	-70.01833	40.64726	-70.03004	51	4	W	<2	B3	0.3-0.5*	Cloudy	None	4.8	263	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.64726	-70.03004	40.64685	-70.08245	53	10	W	<2	B3	0.3-0.5*	Cloudy	None	4.7	276	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.64685	-70.08245	40.64630	-70.13726	49	5	NW	<2	B3	0.3-0.5*	Cloudy	None	5	268	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	05:00	05:30	40.64630	-70.13726	40.64573	-70.19105	49	7	WNW	<2	B3	0.3-0.5*	Clear	None	5.1	268	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	05:30	06:00	40.64573	-70.19105	40.64519	-70.24344	50	5	WNW	<2	B3	0.3-0.5*	Clear	None	4.8	277	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	06:00	06:30	40.64519	-70.24344	40.64457	-70.29757	52	4	WNW	<2	B3	0.3-0.5*	Clear	None	4.9	274	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	06:30	07:00	40.64457	-70.29757	40.64397	-70.35104	52	5	W	<2	B3	0.3-0.5*	Clear	None	5.1	278	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:10	40.64397	-70.35104	40.64379	-70.36930	55	6	W	<2	B3	0.3-0.5*	Fog	None	4.5	277	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:10	07:34	40.64379	-70.36930	40.64328	-70.41316	55	6	W	<2	B3	0.3-0.5*	Fog	None	5.1	275	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:34	07:48	40.64328	-70.41316	40.64298	-70.43900	56	10	W	<2	B3	0.3-0.5*	Clear	None	5.1	277	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:48	07:50	40.64298	-70.43900	40.64255	-70.44265	56	10	W	<2	B3	0.3-0.5*	Clear	None	5.1	277	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:50	08:00	40.64255	-70.44265	40.64783	-70.44739	54	2	NE	<2	B3	0.3-0.5*	Clear	None	4.1	72	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:15	40.64783	-70.44739	40.64788	-70.44671	54	3	NE	<2	B3	0.3-0.5*	Clear	None	4.1	72	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:15	08:21	40.64788	-70.44671	40.64809	-70.43741	55	3	NE	<2	B3	0.3-0.5*	Clear	None	4.3	76	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:21	08:30	40.64809	-70.43741	40.64827	-70.42347	54	2	NE	<2	B3	0.3-0.5*	Clear	None	4.1	82	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.64827	-70.42347	40.64879	-70.37824	54	7	E	<2	B3	0.3-0.5*	Clear	None	4.2	82	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.64879	-70.37824	40.64927	-70.33207	55	7	ESE	<2	B3	0.3-0.5*	Clear	None	4.1	82	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.64927	-70.33207	40.64988	-70.28518	54	8	E	<2	B3	2-5	Clear	None	4.3	83	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	40.64988	-70.28518	40.65030	-70.24011	53	8	E	<2	B3	>5	Clear	Severe	4.1	87	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.65030	-70.24011	40.65080	-70.19682	49	8	E	<2	B3	>5	Clear	Severe	3.6	93	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.65080	-70.19682	40.65125	-70.15422	49	14	E	<2	B4	>5	Clear	Severe	4	96	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.65125	-70.15422	40.65162	-70.10960	48	15	E	<2	B4	>5	Clear	Severe	4	96	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.65162	-70.10960	40.65212	-70.06274	47	15	E	<2	B4	>5	Cloudy	None	3.9	98	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	12:58	40.65212	-70.06274	40.65251	-70.01686	50	16	E	<2	B4	>5	Cloudy	None	4.1	98	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:58	13:00	40.65251	-70.01686	40.65253	-70.01351	51	15	E	<2	B4	>5	Cloudy	None	4.7	96	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:12	40.65253	-70.01351	40.64708	-70.01013	51	15	E	<2	B4	>5	Cloudy	None	4.7	96	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:12	13:16	40.64708	-70.01013	40.64692	-70.01714	52	6	E	<2	B3	>5	Cloudy	None	4.8	254	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:16	13:30	40.64692	-70.01714	40.64677	-70.04167	52	6	E	<2	B3	>5	Cloudy	None	4.8	254	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.64677	-70.04167	40.64630	-70.09261	52	3	E	<2	B3	>5	Cloudy	None	4.9	255	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.64630	-70.09261	40.64585	-70.14272	50	4	E	<2	B3	>5	Cloudy	None	4.7	256	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.64585	-70.14272	40.64536	-70.19267	50	2	SE	<2	B2	>5	Cloudy	None	4.5	255	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.64536	-70.19267	40.64479	-70.24324	51	2	SE	<2	B2	>5	Cloudy	Slight	4.6	257	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.64479	-70.24324	40.64428	-70.29373	52	3	S	<2	B2	>5	Cloudy	Slight	4.5	257	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.64428	-70.29373	40.64368	-70.34674	54	4	S	<2	B2	>5	Cloudy	Slight	4.8	265	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.64368	-70.34674	40.64310	-70.39909	56	6	WSW	<2	B2	>5	Cloudy	Slight	5.3	263	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:23	40.64310	-70.39909	40.64264	-70.43913	57	7	SSW	<2	B2	>5	Precipitation	Slight	4.7	269	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:23	17:25	40.64264	-70.43913	40.64254	-70.44271	58	4	SSW	<2	B2	>5	Precipitation	Slight	5.1	264	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:25	17:35	40.64254	-70.44271	40.64756	-70.44804	58	6	SSW	<2	B2	>5	Precipitation	Slight	5.1	266	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:35	17:41	40.64756	-70.44804	40.64785	-70.43763	58	6	SSW	<2	B2	>5	Precipitation	Slight	4.8	79	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:41	18:00	40.64785	-70.43763	40.64821	-70.40471	57	6	SSW	<2	B2	>5	Precipitation	Slight	4.5	80	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.64821	-70.40471	40.64882	-70.35421	56	9	E	<2	B2	>5	Precipitation	Slight	4.6	82	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.64882	-70.35421	40.64940	-70.30314	53	10	E	<2	B2	>5	Precipitation	Slight	4.7	78	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.64940	-70.30314	40.64996	-70.25437	52	12	NE	<2	B2	>5	Precipitation	Slight	4.8	83	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.64996	-70.25437	40.64535	-70.24672	88	8	NE	<2	B2	>5	Precipitation	Slight	4.8	85	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.64535	-70.24672	40.64416	-70.29835	52	8	NNW	<2	B2	>5	Cloudy	Slight	4.5	270	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	20:43	40.64416	-70.29835	40.64912	-70.31021	53	5	NNW	<2	B2	>5	Cloudy	Slight	5	266	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:43	20:48	40.64912	-70.31021	40.64944	-70.30220	53	9	NNW	<2	B2	>5	Cloudy	Slight	4.3	84	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:48	21:00	40.64944	-70.30220	40.64963	-70.28276	53	8	NNW	<2	B2	>5	Cloudy	Slight	4.4	81	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	40.64963	-70.28276	40.65025	-70.23551	52	7	ENE	<2	B2	>5	Cloudy	Slight	4.2	87	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.65025	-70.23551	40.65062	-70.18876	51	8	NE	<2	B2	>5	Cloudy	Slight	4.4	85	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.65062	-70.18876	40.65103	-70.14192	50	8	ENE	<2	B2	>5	Cloudy	Slight	4.3	91	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.65103	-70.14192	40.65148	-70.09400	48	10	NE	<2	B2	>5	Cloudy	Slight	4.2	89	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.65148	-70.09400	40.65196	-70.04239	49	10	ENE	<2	B2	>5	Precipitation	Slight	4.5	94	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	23:45	40.65196	-70.04239	40.65218	-70.01610	51	10	NE	<2	B2	>5	Cloudy	Slight	4.9	91	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:45	23:47	40.65218	-70.01610	40.65215	-70.01262	52	10	NE	<2	B2	>5	Cloudy	Slight	4.6	93	Silent	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:47	23:57	40.65215	-70.01262	40.64680	-70.00702	52	10	NE	<2	B2	>5	Cloudy	Slight	4.6	93	Full Power	N/A
2022-08-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:57	00:00	40.64680	-70.00702	40.64676	-70.01227	52	2	WNW	<2	B2	2-5	Cloudy	None	4.7	255	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:03	40.64667	-70.01841	40.64667	-70.01841	52	3	WNW	<2	B2	2-5	Cloudy	None	4.9	257	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:03	00:15	40.64667	-70.01841	40.64652	-70.03801	52	3	WNW	<2	B2	2-5	Cloudy	None	4.7	259	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:15	00:30	40.64652	-70.03801	40.64634	-70.06297	50	3	WNW	<2	B2	0.5-1	Cloudy	None	4.6	259	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:30	01:00	40.64634	-70.06297	40.64592	-70.11215	49	1	NNW	<2	B2	0.5-1	Cloudy	None	4.6	257	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.64592	-70.11215	40.64542	-70.15913	50	4	NW	<2	B2	0.5-1	Cloudy	None	4.3	267	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.64542	-70.15913	40.64496	-70.20731	51	4	SW	<2	B2	0.5-1	Cloudy	None	4.4	269	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:20	40.64496	-70.20731	40.64457	-70.23965	50	8	NW	<2	B2	0.5-1	Cloudy	None	4.5	263	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:20	02:30	40.64457	-70.23965	40.64445	-70.25634	52	6	N	<2	B2	0.5-1	Precipitation	None	4.5	261	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.64445	-70.25634	40.64389	-70.30735	52	6	N	<2	B2	0.5-1	Precipitation	None	4.6	263	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.64389	-70.30735	40.64334	-70.36005	53	6	N	<2	B2	0.5-1	Cloudy	None	5	264	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	03:50	40.64334	-70.36005	40.64398	-70.29482	57	8	NNW	<2	B2	0.5-1	Fog	None	4.7	272	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	03:50	04:00	40.64398	-70.29482	40.64265	-70.41159	53	6	NW	<2	B2	0.5-1	Cloudy	None	4.7	264	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:17	40.64265	-70.41159	40.64240	-70.44031	57	8	NE	<2	B2	0.3-0.5*	Fog	None	4.9	266	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:17	04:19	40.64240	-70.44031	40.64240	-70.44370	50	6	N	<2	B3	0.3-0.5*	Fog	None	5	275	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:19	04:30	40.64240	-70.44370	40.64735	-70.44744	50	7	N	<2	B3	0.3-0.5*	Fog	None	4.7	275	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	04:32	40.64735	-70.44744	40.64730	-70.44410	50	15	NE	<2	B3	0.3-0.5*	Fog	None	4.2	88	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:32	04:36	40.64730	-70.44410	40.64763	-70.43733	50	15	NE	<2	B3	0.3-0.5*	Fog	None	4.2	88	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:36	05:00	40.64763	-70.43733	40.64815	-70.39537	50	15	NE	<2	B3	0.3-0.5*	Fog	None	4.2	88	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.64815	-70.39537	40.64872	-70.34370	57	13	NE	<2	B4	0.3-0.5*	Cloudy	None	4.8	76	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.64872	-70.34370	40.64927	-70.29285	54	10	NE	<2	B4	0.3-0.5*	Cloudy	None	4.6	72	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.64927	-70.29285	40.64986	-70.24434	52	14	NE	<2	B4	0.3-0.5*	Cloudy	None	4.7	74	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.64986	-70.24434	40.65034	-70.19594	50	16	NE	<2	B4	0.3-0.5*	Cloudy	None	4.5	73	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.65034	-70.19594	40.65083	-70.14954	49	17	NE	<2	B4	0.3-0.5*	Cloudy	None	4.3	86	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.65083	-70.14954	40.65122	-70.10491	48	17	NE	<2	B4	0.3-0.5*	Cloudy	None	4.1	76	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.65122	-70.10491	40.65166	-70.06364	48	17	NE	<2	B4	0.3-0.5*	Cloudy	None	4	84	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.65166	-70.06364	40.65199	-70.02487	49	10	NNE	<2	B4	0.3-0.5*	Cloudy	None	3.5	79	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:07	40.65199	-70.02487	40.65208	-70.01593	49	14	NE	<2	B4	0.3-0.5*	Cloudy	None	3.3	79	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:07	09:30	40.65208	-70.01593	40.65213	-70.00067	49	17	NE	<2	B4	1-2	Cloudy	None	3.5	78	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.65213	-70.00067	40.65170	-69.99593	49	17	NE	<2	B4	2-5	Cloudy	None	0.6	140	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	40.65170	-69.99593	40.65138	-69.98048	51	15	NE	<2	B4	2-5	Cloudy	None	0.8	75	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	10:50	40.65138	-69.98048	40.64653	-70.00883	63	15	NE	<2	B4	2-5	Cloudy	None	4.2	172	Soft Start	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:50	10:51	40.64653	-70.00883	40.64656	-70.01040	51	15	NE	<2	B4	2-5	Cloudy	None	4.6	264	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:51	10:55	40.64656	-70.01040	40.64647	-70.01781	51	15	NE	<2	B3	2-5	Cloudy	Slight	4.6	264	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:55	11:00	40.64647	-70.01781	40.64640	-70.02722	59	10	NNW	<2	B3	2-5	Cloudy	Slight	5.3	257	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.64640	-70.02722	40.64589	-70.07995	49	8	NNW	<2	B3	2-5	Cloudy	Slight	4.9	263	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.64589	-70.07995	40.64537	-70.13218	49	10	N	<2	B3	>5	Precipitation	Slight	4.9	256	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.64537	-70.13218	40.64486	-70.18434	51	13	NNE	<2	B4	>5	Cloudy	Slight	4.8	249	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.64486	-70.18434	40.64433	-70.23748	51	13	NE	<2	B4	>5	Cloudy	Slight	4.9	251	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.64433	-70.23748	40.64374	-70.29078	52	14	N	<2	B4	>5	Cloudy	Slight	4.9	255	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.64374	-70.29078	40.64320	-70.34320	54	15	N	<2	B4	>5	Cloudy	Slight	4.7	258	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.64320	-70.34320	40.64257	-70.39454	56	19	N	<2	B5	>5	Cloudy	Slight	5	258	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:57	40.64257	-70.39454	40.64204	-70.43985	58	18	N	<2	B5	>5	Cloudy	Severe	4.7	264	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:57	15:00	40.64204	-70.43985	40.64182	-70.44524	60	20	N	<2	B5	>5	Cloudy	Severe	4.9	260	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.64182	-70.44524	40.65133	-70.41075	60	24	N	<2	B5	>5	Cloudy	Severe	4.4	354	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.65133	-70.41075	40.65204	-70.35847	57	23	NNE	<2	B5	>5	Cloudy	Severe	4.9	83	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.65204	-70.35847	40.65260	-70.30540	55	24	NNE	<2	B5	>5	Cloudy	Moderate	5.1	81	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.65260	-70.30540	40.65239	-70.25395	52	24	NNE	<2	B5	>5	Clear	Moderate	4.7	81	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.65239	-70.25395	40.65317	-70.20407	50	24	NNE	<2	B5	>5	Clear	Moderate	4.8	65	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.65317	-70.20407	40.65365	-70.15509	49	22	NNE	<2	B5	>5	Clear	Moderate	4.5	72	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.65365	-70.15509	40.65419	-70.10559	47	20	NNE	<2	B5	>5	Clear	Moderate	4.6	72	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.65419	-70.10559	40.65472	-70.05675	49	19	NNE	<2	B5	>5	Clear	Moderate	4.2	72	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.65472	-70.05675	40.65500	-70.01035	48	18	NNE	<2	B4	>5	Clear	Moderate	4.6	71	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.65500	-70.01035	40.64938	-70.05427	51	12	N	<2	B4	>5	Clear	Moderate	5.2	215	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.64938	-70.05427	40.64881	-70.10817	49	15	N	<2	B4	>5	Clear	Moderate	4.9	275	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.64881	-70.10817	40.64823	-70.16305	48	13	NNW	<2	B4	>5	Clear	Moderate	4.7	279	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:13	40.64823	-70.16305	40.64794	-70.18724	49	13	NNW	<2	B4	>5	Clear	Severe	5.3	276	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:13	21:39	40.64794	-70.18724	40.64967	-70.23059	49	13	NNW	<2	B4	>5	Clear	Severe	5.3	276	Soft Start	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:39	21:43	40.64967	-70.23059	40.64937	-70.23787	49	13	NNW	<2	B4	>5	Clear	Severe	5.2	268	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:43	22:00	40.64937	-70.23787	40.64905	-70.26894	52	13	NNW	<2	B4	>5	Clear	Severe	5.3	266	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.64905	-70.26894	40.64849	-70.32452	52	13	NNW	<2	B4	>5	Clear	Severe	5.2	268	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.64849	-70.32452	40.64785	-70.38083	55	8	NNW	<2	B4	>5	Clear	Severe	5	261	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.64785	-70.38083	40.64703	-70.43617	59	11	NNW	<2	B4	>5	Clear	Severe	5.3	265	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	23:32	40.64703	-70.43617	40.64701	-70.43987	59	10	NNW	<2	B4	>5	Clear	Moderate	5.2	261	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:32	23:34	40.64701	-70.43987	40.64707	-70.44359	59	10	NNW	<2	B4	>5	Clear	Moderate	5.2	261	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:34	23:44	40.64707	-70.44359	40.65161	-70.44648	59	10	NNW	<2	B4	>5	Clear	Slight	5.2	93	Full Power	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:44	23:50	40.65161	-70.44648	40.65149	-70.43767	59	10	NNW	<2	B4	2-5	Clear	Slight	5.2	93	Silent	N/A
2022-08-13	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:50	00:00	40.65149	-70.43767	40.65172	-70.42228	59	8	NNW	<2	B4	2-5	Clear	Slight	4.3	94	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:25	40.65191	-70.40364	40.65219	-70.38206	57	8	NE	<2	B3	2-5	Clear	None	4.2	95	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:25	00:26	40.65219	-70.38206	40.65216	-70.38044	57	8	NE	<2	B3	2-5	Clear	None	4.2	100	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:26	01:00	40.65216	-70.38044	40.65070	-70.32223	56	4	NNE	<2	B3	0.5-1	Clear	None	4.6	99	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.65070	-70.32223	40.65138	-70.26927	58	9	NNE	<2	B3	0.5-1	Clear	None	5	87	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.65138	-70.26927	40.65205	-70.21685	52	6	N	<2	B3	0.5-1	Clear	None	4.7	93	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.65205	-70.21685	40.65243	-70.16490	49	4	E	<2	B3	0.5-1	Clear	None	4.6	92	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.65243	-70.16490	40.64723	-70.17114	49	9	ENE	<2	B3	0.5-1	Clear	None	4.7	93	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.64723	-70.17114	40.64033	-70.18698	48	7	NW	<2	B3	0.5-1	Clear	None	4.8	262	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.64033	-70.18698	40.64017	-70.13221	50	7	N	<2	B3	0.5-1	Clear	None	5.2	90	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.64017	-70.13221	40.64670	-70.16256	50	8	N	<2	B3	0.5-1	Clear	None	5	86	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.64670	-70.16256	40.64623	-70.21100	49	12	NW	<2	B3	0.5-1	Clear	None	4.7	267	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.64623	-70.21100	40.65376	-70.18136	60	12	WNW	<2	B3	0.3-0.5*	Clear	None	4.5	271	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.65376	-70.18136	40.65447	-70.12608	49	5	NNW	<2	B3	0.3-0.5*	Clear	None	4.9	80	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.65447	-70.12608	40.65492	-70.07627	51	6	WNW	<2	B3	0.3-0.5*	Clear	None	5	78	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.65492	-70.07627	40.65515	-70.02842	48	12	ENE	<2	B3	0.3-0.5*	Clear	None	4.1	74	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.65515	-70.02842	40.64895	-69.98729	49	8	NE	<2	B3	0.3-0.5*	Clear	None	4.3	83	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	07:43	40.64895	-69.98729	40.65049	-70.00945	52	8	NW	<2	B3	0.3-0.5*	Clear	None	4.8	268	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:43	07:48	40.65049	-70.00945	40.65045	-70.01870	52	8	NW	<2	B3	0.3-0.5*	Clear	None	4.8	268	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:48	08:00	40.65045	-70.01870	40.65025	-70.03919	52	8	NW	<2	B3	0.3-0.5*	Clear	None	4.8	268	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.65025	-70.03919	40.64981	-70.09107	49	7	NNW	<2	B3	0.3-0.5*	Clear	None	4.7	265	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.64981	-70.09107	40.64926	-70.14275	49	6	NW	<2	B3	0.3-0.5*	Clear	None	4.9	275	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:02	40.64926	-70.14275	40.64926	-70.14624	49	6	NNW	<2	B3	0.3-0.5*	Clear	None	4.5	275	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:02	09:04	40.64926	-70.14624	40.64920	-70.14964	49	6	NNW	<2	B3	0.3-0.5*	Clear	None	4.5	275	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:04	09:12	40.64920	-70.14964	40.64990	-70.16316	49	6	NNW	<2	B3	0.3-0.5*	Clear	None	4.6	277	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:12	09:16	40.64990	-70.16316	40.64968	-70.17000	48	4	NW	<2	B3	0.3-0.5*	Clear	None	4.4	266	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:16	09:23	40.64968	-70.17000	40.64966	-70.18216	49	3	WNW	<2	B3	0.3-0.5*	Clear	None	4.8	262	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:23	09:25	40.64966	-70.18216	40.64959	-70.18570	49	3	NW	<2	B3	0.3-0.5*	Clear	None	4.9	265	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:25	09:28	40.64959	-70.18570	40.65068	-70.19012	48	7	NNW	<2	B3	0.3-0.5*	Clear	None	4.7	276	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:28	09:44	40.65068	-70.19012	40.64653	-70.18460	49	9	N	<2	B3	1-2	Clear	None	4.2	358	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:44	09:48	40.64653	-70.18460	40.64614	-70.19134	48	6	NW	<2	B3	1-2	Clear	None	4.9	259	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:48	09:58	40.64614	-70.19134	40.64585	-70.20991	48	9	NW	<2	B3	2-5	Clear	Moderate	4.9	269	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:58	10:00	40.64585	-70.20991	40.64580	-70.21361	49	6	NW	<2	B3	>5	Clear	Severe	5.1	265	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	40.64580	-70.21361	40.64494	-70.26996	50	6	NNW	<2	B3	>5	Clear	Severe	5.2	265	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	10:58	40.64494	-70.26996	40.65071	-70.30881	53	7	NW	<2	B3	>5	Clear	Severe	5.1	259	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:58	11:02	40.65071	-70.30881	40.65077	-70.30277	52	6	NE	<2	B3	>5	Clear	Severe	3.6	82	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:02	11:30	40.65077	-70.30277	40.65125	-70.26180	52	6	NE	<2	B3	>5	Clear	Severe	4	92	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	11:34	40.65125	-70.26180	40.65128	-70.25585	50	4	NE	<2	B2	>5	Clear	Severe	3.9	91	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:34	12:00	40.65128	-70.25585	40.65079	-70.26846	50	4	NE	<2	B2	>5	Clear	Severe	3.9	91	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.65079	-70.26846	40.65091	-70.22275	52	6	ENE	<2	B2	>5	Clear	Severe	4.5	91	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.65091	-70.22275	40.65140	-70.18004	51	7	E	<2	B2	>5	Clear	Severe	4	93	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.65140	-70.18004	40.65187	-70.13704	50	7	E	<2	B2	>5	Clear	Severe	3.9	90	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.65187	-70.13704	40.65231	-70.09208	49	7	E	<2	B2	>5	Clear	Severe	4.2	90	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	15:00	40.65231	-70.09208	40.64778	-70.01017	49	7	ENE	<2	B2	>5	Clear	Severe	4.5	90	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.64778	-70.01017	40.65281	-70.03705	52	6	ENE	<2	B1	>5	Clear	Moderate	4.5	252	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.65281	-70.03705	40.64753	-70.02669	50	4	E	<2	B1	>5	Clear	Moderate	4.8	90	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.64753	-70.02669	40.64720	-70.07397	50	4	E	<2	B1	>5	Cloudy	Moderate	4.8	256	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.64720	-70.07397	40.64685	-70.12193	53	3	E	<2	B1	>5	Cloudy	Moderate	4.2	262	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.64685	-70.12193	40.64596	-70.17203	49	3	WSW	<2	B2	>5	Clear	Moderate	4.7	264	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.64596	-70.17203	40.64549	-70.22392	49	4	WSW	<2	B2	>5	Clear	Moderate	4.4	268	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.64549	-70.22392	40.64502	-70.27602	51	11	SW	<2	B3	>5	Cloudy	Moderate	4.9	266	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.64502	-70.27602	40.64453	-70.32679	53	12	W	<2	B3	>5	Cloudy	Slight	4.5	266	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.64453	-70.32679	40.64386	-70.38122	54	10	W	<2	B3	>5	Cloudy	Moderate	4.6	273	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	19:32	40.64386	-70.38122	40.64379	-70.38490	56	12	W	<2	B3	>5	Cloudy	Moderate	5.2	267	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:32	19:52	40.64379	-70.38490	40.64344	-70.42150	56	12	W	<2	B3	>5	Cloudy	Moderate	5.1	268	Soft Start	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:52	20:00	40.64344	-70.42150	40.64324	-70.43625	57	12	W	<2	B3	>5	Cloudy	Moderate	5.1	269	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:14	40.64324	-70.43625	40.64908	-70.44450	58	12	W	<2	B3	>5	Cloudy	Moderate	5	266	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:14	20:18	40.64908	-70.44450	40.64937	-70.43751	57	3	S	<2	B3	>5	Cloudy	Moderate	4.7	76	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:18	20:30	40.64937	-70.43751	40.64964	-70.41701	57	3	S	<2	B3	>5	Cloudy	Moderate	4.6	83	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.64964	-70.41701	40.65022	-70.36870	57	3	S	<2	B3	>5	Cloudy	Moderate	4.6	80	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:16	40.65022	-70.36870	40.65053	-70.34314	55	1	S	<2	B3	>5	Cloudy	Severe	4.2	82	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:16	21:30	40.65053	-70.34314	40.65074	-70.32115	55	1	S	<2	B3	>5	Cloudy	Severe	4.2	83	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:22	40.65074	-70.32115	40.65301	-70.26922	55	1	S	<2	B3	>5	Cloudy	Severe	4.2	83	Silent	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:22	22:42	40.65301	-70.26922	40.65248	-70.24659	52	4	ESE	<2	B2	>5	Cloudy	Severe	2.9	85	Soft Start	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:42	23:00	40.65248	-70.24659	40.64841	-70.27052	51	3	ESE	<2	B2	>5	Cloudy	Severe	4.8	156	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.64841	-70.27052	40.65078	-70.24934	52	5	SE	<2	B1	>5	Cloudy	Moderate	3.9	43	Full Power	N/A
2022-08-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	40.65078	-70.24934	40.64578	-70.27384	54	7	SE	<2	B1	>5	Cloudy	Slight	3.9	80	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:01	40.64566	-70.28469	40.64566	-70.28469	54	6	ESE	<2	B1	2-5	Cloudy	Slight	4.8	260	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:01	00:06	40.64566	-70.28469	40.64579	-70.28176	54	6	ESE	<2	B1	2-5	Cloudy	Slight	4.8	260	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:06	00:20	40.64579	-70.28176	40.64541	-70.30807	54	5	ESE	<2	B1	2-5	Cloudy	Slight	4.7	260	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:20	00:30	40.64541	-70.30807	40.64525	-70.32512	54	6	WSW	<2	B1	0.5-1	Cloudy	None	4.8	258	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	01:00	40.64525	-70.32512	40.64466	-70.37519	54	8	WSW	<2	B1	0.5-1	Cloudy	None	4.8	257	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.64466	-70.37519	40.64400	-70.42866	58	6	WSW	<2	B1	0.5-1	Cloudy	None	4.7	271	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	01:37	40.64400	-70.42866	40.64388	-70.44040	59	4	SW	<2	B1	0.5-1	Cloudy	None	4.6	267	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:37	02:00	40.64388	-70.44040	40.64813	-70.42776	58	4	SW	<2	B1	0.5-1	Cloudy	None	4.8	263	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	03:00	40.64813	-70.42776	40.64583	-70.31503	58	7	SE	<2	B1	0.5-1	Cloudy	None	4.9	95	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.64583	-70.31503	40.64591	-70.25740	58	6	SSE	<2	B1	0.5-1	Cloudy	None	4.7	94	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.64591	-70.25740	40.64655	-70.19851	50	7	SE	<2	B1	0.5-1	Cloudy	None	5.3	93	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.64655	-70.19851	40.64714	-70.14084	51	3	SSE	<2	B1	0.5-1	Cloudy	None	5.3	85	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.64714	-70.14084	40.64611	-70.08470	53	5	SSE	<2	B1	0.5-1	Cloudy	None	5.2	87	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.64611	-70.08470	40.64567	-70.02743	50	3	SSE	<2	B2	0.5-1	Clear	None	5.1	87	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.64567	-70.02743	40.65183	-70.03502	52	5	NE	<2	B2	0.5-1	Clear	None	5.1	91	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.65183	-70.03502	40.65138	-70.08537	48	6	NW	<2	B2	0.3-0.5	Clear	None	4.7	267	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.65138	-70.08537	40.65092	-70.13523	48	7	WNW	<2	B2	0.3-0.5	Clear	None	4.6	272	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.65092	-70.13523	40.65045	-70.19024	49	5	NNW	<2	B2	0.3-0.5	Clear	None	4.7	271	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.65045	-70.19024	40.64981	-70.24807	49	6	NNW	<2	B2	0.3-0.5	Cloudy	None	5.1	276	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.64981	-70.24807	40.64915	-70.30591	51	3	NNW	<2	B1	0.3-0.5*	Cloudy	None	5.3	276	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	08:43	40.64915	-70.30591	40.64890	-70.33109	51	3	NNW	<2	B1	0.3-0.5*	Cloudy	None	5.4	270	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:43	09:00	40.64890	-70.33109	40.64844	-70.36455	51	3	NNW	<2	B1	0.3-0.5*	Cloudy	None	5.4	270	Soft Start	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:03	40.64844	-70.36455	40.64841	-70.37043	56	4	NNW	<2	B1	0.3-0.5*	Cloudy	None	5.5	270	Soft Start	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:03	09:30	40.64841	-70.37043	40.64773	-70.42302	56	4	NNW	<2	B1	0.3-0.5*	Cloudy	None	5.3	273	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.64773	-70.42302	40.65336	-70.42721	57	3	NW	<2	B1	1-2	Cloudy	None	5.3	269	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:09	40.65336	-70.42721	40.64666	-70.42126	97	10	ENE	<2	B1	>5	Cloudy	Severe	4.2	87	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:09	10:13	40.64666	-70.42126	40.64657	-70.42854	57	3	NNE	<2	B1	>5	Cloudy	Severe	5.2	280	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:13	10:19	40.64657	-70.42854	40.64642	-70.43895	57	2	NE	<2	B1	>5	Cloudy	Severe	4.9	273	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:19	10:21	40.64642	-70.43895	40.64634	-70.44244	58	2	NE	<2	B1	>5	Cloudy	Severe	4.8	268	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:21	10:30	40.64634	-70.44244	40.65210	-70.44512	58	2	NE	<2	B1	>5	Cloudy	Severe	4.8	268	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.65210	-70.44512	40.65182	-70.39918	53	12	ENE	<2	B1	>5	Cloudy	Slight	4.2	82	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:11	40.65182	-70.39918	40.65194	-70.38274	56	13	E	<2	B1	>5	Cloudy	Slight	4.1	84	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:11	11:16	40.65194	-70.38274	40.65206	-70.37539	56	13	E	<2	B1	>5	Cloudy	Moderate	4	82	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:16	11:30	40.65206	-70.37539	40.65230	-70.35482	55	12	ENE	<2	B1	>5	Cloudy	Moderate	4	87	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.65230	-70.35482	40.65270	-70.31205	54	12	ENE	<2	B1	>5	Cloudy	None	3.9	89	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.65270	-70.31205	40.65321	-70.26849	54	12	E	<2	B1	>5	Cloudy	Slight	3.4	92	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.65321	-70.26849	40.65369	-70.22378	52	13	E	<2	B3	>5	Cloudy	Slight	4.2	91	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.65369	-70.22378	40.65418	-70.17908	50	15	E	<2	B3	>5	Cloudy	Moderate	4	92	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.65418	-70.17908	40.65459	-70.13298	47	16	E	<2	B3	>5	Clear	Severe	4.3	97	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.65459	-70.13298	40.65500	-70.08580	49	17	E	<2	B4	>5	Clear	Severe	4.1	94	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.65500	-70.08580	40.65547	-70.03543	49	18	E	<2	B4	>5	Clear	Severe	4.6	95	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:10	40.65547	-70.03543	40.65563	-70.01834	49	17	E	<2	B4	>5	Cloudy	Moderate	4.7	94	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:10	15:12	40.65563	-70.01834	40.65568	-70.01485	50	17	E	<2	B4	>5	Cloudy	Moderate	4.7	94	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:12	15:27	40.65568	-70.01485	40.64672	-70.01076	50	17	E	<2	B4	>5	Cloudy	Moderate	4.7	94	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:27	15:32	40.64672	-70.01076	40.64629	-70.01849	52	9	E	<2	B4	>5	Cloudy	Moderate	4.3	255	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:32	16:00	40.64629	-70.01849	40.64578	-70.06570	52	9	E	<2	B4	>5	Cloudy	Moderate	4.3	255	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.64578	-70.06570	40.64528	-70.11455	54	7	ENE	<2	B4	>5	Cloudy	Moderate	4.4	259	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.64528	-70.11455	40.64481	-70.16144	53	10	ENE	<2	B4	>5	Cloudy	Moderate	4.3	252	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.64481	-70.16144	40.64431	-70.20968	50	4	ENE	<2	B3	>5	Cloudy	Moderate	4.1	252	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.64431	-70.20968	40.64394	-70.25825	51	6	ENE	<2	B3	>5	Cloudy	Moderate	4.5	266	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.64394	-70.25825	40.64340	-70.30751	51	10	ENE	<2	B3	>5	Cloudy	Moderate	4.5	264	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.64340	-70.30751	40.64278	-70.35716	55	8	ENE	<2	B3	>5	Cloudy	Moderate	4.4	268	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.64278	-70.35716	40.64228	-70.40793	56	10	NE	<2	B3	>5	Cloudy	Moderate	4.5	266	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	19:48	40.64228	-70.40793	40.64189	-70.43898	58	9	ENE	<2	B3	>5	Cloudy	Moderate	4.8	268	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:48	19:51	40.64189	-70.43898	40.64190	-70.44414	58	8	ENE	<2	B3	>5	Cloudy	Moderate	4.7	267	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:51	20:00	40.64190	-70.44414	40.64637	-70.44132	58	7	ENE	<2	B3	>5	Cloudy	Moderate	4.8	267	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:16	40.64637	-70.44132	40.64641	-70.41760	58	14	E	<2	B3	>5	Cloudy	Moderate	3.6	85	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:16	20:30	40.64641	-70.41760	40.64673	-70.39492	57	16	E	<2	B3	>5	Cloudy	Moderate	3.9	81	Soft Start	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	20:36	40.64673	-70.39492	40.64685	-70.38445	56	16	E	<2	B3	>5	Cloudy	Moderate	4.9	82	Soft Start	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:36	20:49	40.64685	-70.38445	40.64714	-70.36176	56	16	E	<2	B3	>5	Precipitation	Moderate	4.8	83	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:49	20:53	40.64714	-70.36176	40.64726	-70.35486	55	18	E	<2	B3	>5	Precipitation	Moderate	4.6	77	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:53	20:59	40.64726	-70.35486	40.64747	-70.34464	55	20	E	<2	B3	>5	Precipitation	Moderate	4.7	88	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:59	21:01	40.64747	-70.34464	40.64736	-70.34118	55	20	E	<2	B3	>5	Precipitation	Moderate	4.6	85	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:01	21:17	40.64736	-70.34118	40.64683	-70.33816	55	20	E	<2	B4	>5	Precipitation	Moderate	4.7	30	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:17	21:21	40.64683	-70.33816	40.64690	-70.34556	55	20	E	<2	B4	>5	Precipitation	Moderate	4.7	30	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:21	21:28	40.64690	-70.34556	40.64683	-70.35739	55	20	E	<2	B4	>5	Precipitation	Moderate	4.7	273	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:28	21:30	40.64683	-70.35739	40.64671	-70.36080	56	12	E	<2	B4	>5	Precipitation	Moderate	4.8	267	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	21:43	40.64671	-70.36080	40.65318	-70.36748	56	12	E	<2	B4	>5	Precipitation	Moderate	4.8	267	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:43	21:47	40.65318	-70.36748	40.65317	-70.36133	55	23	ENE	<2	B4	>5	Precipitation	Slight	4.4	86	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:47	22:00	40.65317	-70.36133	40.65353	-70.33917	55	23	ENE	<2	B4	>5	Precipitation	Slight	4.6	88	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.65353	-70.33917	40.65413	-70.28820	54	21	E	<2	B4	>5	Precipitation	Moderate	4.6	83	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.65413	-70.28820	40.65466	-70.23657	51	23	ENE	<2	B4	>5	Cloudy	Slight	4.6	82	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:11	40.65466	-70.23657	40.65486	-70.21801	51	23	ENE	<2	B4	>5	Cloudy	Severe	4.4	85	Full Power	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:11	23:22	40.65486	-70.21801	40.65566	-70.20021	47	25	ENE	<2	B5	>5	Cloudy	Moderate	4.5	86	Silent	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:22	23:40	40.65566	-70.20021	40.65807	-70.17948	49	24	ENE	<2	B5	>5	Precipitation	Moderate	3.7	77	Deploying/Retrieving	N/A
2022-08-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:40	00:00	40.65807	-70.17948	40.66037	-70.17094	48	19	E	<2	B5	2-5	Cloudy	None	1	78	Deploying/Retrieving	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:30	40.66109	-70.17039	40.69225	-70.19623	48	18	ENE	<2	B5	1-2	Cloudy	None	2.3	41	Deploying/Retrieving	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:30	01:00	40.69225	-70.19623	40.74188	-70.24991	46	18	NNE	<2	B5	0.5-1	Cloudy	None	8.7	323	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.74188	-70.24991	40.80377	-70.31504	43	17	NE	<2	B5	0.5-1	Cloudy	None	8.6	319	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.80377	-70.31504	40.86301	-70.37049	43	20	NNE	<2	B5	0.5-1	Cloudy	None	8.6	322	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.86301	-70.37049	40.92380	-70.42545	48	17	NNE	<2	B5	0.5-1	Cloudy	None	9.2	322	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.92380	-70.42545	40.98443	-70.48087	47	15	NNE	<2	B5	0.5-1	Cloudy	None	9	322	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.98443	-70.48087	41.04102	-70.53946	47	20	NE	<2	B5	0.5-1	Cloudy	None	8.6	320	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.04102	-70.53946	41.09069	-70.60173	47	12	NNE	<2	B5	0.5-1	Cloudy	None	8.3	313	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.09069	-70.60173	41.14084	-70.66558	43	16	NNE	<2	B5	0.5-1	Cloudy	None	8.3	317	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.14084	-70.66558	41.19614	-70.72340	40	13	NNE	<2	B5	0.5-1	Cloudy	None	8.3	317	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.19614	-70.72340	41.25379	-70.76218	31	15	NNE	<2	B5	0.5-1	Cloudy	None	8.3	326	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.25379	-70.76218	41.28805	-70.80416	26	16	NNE	<2	B5	0.5-1	Cloudy	None	6.4	326	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.28805	-70.80416	41.32345	-70.84935	11	14	N	<2	B3	0.5-1	Cloudy	None	5.1	307	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.32345	-70.84935	41.37447	-70.88118	14	14	NNE	<2	B3	0.5-1	Clear	None	6.3	61.48	Transit	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.37447	-70.88118	41.41137	-70.82577	20	14	NNE	<2	B3	0.5-1	Clear	None	8.1	11	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	41.41137	-70.82577	41.42106	-70.79010	24	13	NE	<2	B3	0.5-1	Clear	None	4.1	78	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	08:00	08:30	41.42106	-70.79010	41.43091	-70.77498	15	14	NE	<2	B3	0.5-1	Clear	None	2	42	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Abeytia, Flavio	RPS	08:30	09:00	41.43091	-70.77498	41.43688	-70.76351	19	16	NNE	<2	B3	0.5-1	Clear	None	1.4	58	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	41.43688	-70.76351	41.44221	-70.75407	25	17	NE	<2	B3	0.5-1	Clear	None	1.2	48	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	09:30	10:00	41.44221	-70.75407	41.44687	-70.74417	24	14	NE	<2	B2	0.5-1	Clear	Moderate	1.1	55	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	41.44687	-70.74417	41.44991	-70.73619	24	15	NE	<2	B2	0.5-1	Clear	Severe	1	44	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.44991	-70.73619	41.45120	-70.72600	21	18	NNE	<2	B2	0.5-1	Clear	Severe	0.6	44	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	41.45120	-70.72600	41.45549	-70.71958	23	20	NE	<2	B2	0.5-1	Clear	Slight	0.8	44	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	41.45549	-70.71958	41.46102	-70.71155	20	20	NE	<2	B4	0.5-1	Clear	Slight	0.8	42	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	41.46102	-70.71155	41.46771	-70.70026	19	19	NE	<2	B4	0.5-1	Cloudy	Slight	1.4	42	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	41.46771	-70.70026	41.47798	-70.68564	23	20	NE	<2	B4	0.5-1	Cloudy	Slight	1.6	46	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	41.47798	-70.68564	41.48632	-70.68443	26	19	NE	<2	B4	0.5-1	Cloudy	Severe	1.9	46	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	41.48632	-70.68443	41.46674	-70.71644	23	10	NE	<2	B3	0.5-1	Cloudy	Severe	4	234	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	41.46674	-70.71644	41.44870	-70.74365	22	9	ENE	<2	B3	0.5-1	Cloudy	Severe	3.6	227	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	41.44870	-70.74365	41.43530	-70.76647	26	14	ENE	<2	B3	0.5-1	Cloudy	Severe	2.8	227	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	41.43530	-70.76647	41.42258	-70.78391	25	13	ENE	<2	B3	>5	Cloudy	Severe	2.6	227	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	41.42258	-70.78391	41.44068	-70.75499	23	20	ENE	<2	B3	>5	Cloudy	Severe	4.5	50	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	41.44068	-70.75499	41.46248	-70.71520	24	20	ENE	<2	B3	>5	Cloudy	Moderate	4.2	52	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	41.46248	-70.71520	41.48415	-70.66989	21	18	ENE	<2	B3	>5	Cloudy	Moderate	4.7	52	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	41.48415	-70.66989	41.50099	-70.61291	26	25	NE	<2	B3	>5	Cloudy	Moderate	6.2	58	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	41.50099	-70.61291	41.49864	-70.63067	23	21	NNE	<2	B3	>5	Cloudy	Moderate	1.9	250	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	41.49864	-70.63067	41.49125	-70.65694	27	15	NNE	<2	B3	>5	Cloudy	Moderate	2.4	250	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	41.49125	-70.65694	41.47921	-70.69007	26	12	NNE	<2	B3	>5	Cloudy	Moderate	3	241	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	41.47921	-70.69007	41.46126	-70.72664	23	15	NNE	<2	B3	>5	Cloudy	Moderate	3.8	235	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	41.46126	-70.72664	41.45825	-70.72678	27	15	NNE	<2	B3	>5	Cloudy	Moderate	4.3	324	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	41.45825	-70.72678	41.47527	-70.69589	21	18	NNE	<2	B3	>5	Cloudy	Moderate	3.7	45	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	41.47527	-70.69589	41.48546	-70.67064	23	20	NNE	<2	B3	>5	Cloudy	Moderate	3.1	57	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	41.48546	-70.67064	41.47134	-70.71197	23	26	NE	<2	B3	>5	Precipitation	Moderate	2.3	48	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	41.47134	-70.71197	41.44309	-70.76145	23	11	NE	<2	B3	>5	Cloudy	Slight	5.5	230	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	41.44309	-70.76145	41.41949	-70.80994	23	10	NE	<2	B3	>5	Cloudy	None	5.5	234	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	41.41949	-70.80994	41.39743	-70.85638	23	10	NE	<2	B3	>5	Cloudy	None	5	237	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	41.39743	-70.85638	41.39760	-70.86467	27	11	NNE	<2	B3	>5	Cloudy	None	4.6	237	Standby	N/A
2022-08-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	41.39760	-70.86467	41.40979	-70.83757	27	20	NNE	<2	B3	>5	Precipitation	None	2.9	55	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:20	41.41097	-70.83442	41.41750	-70.81813	22	17	NNE	<2	B3	2-5	Precipitation	None	2.9	53	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:20	00:30	41.41750	-70.81813	41.42161	-70.80830	24	18	NNE	<2	B3	0.5-1	Precipitation	None	3	53	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	01:00	41.42161	-70.80830	41.43379	-70.77989	23	16	NE	<2	B3	0.5-1	Precipitation	None	3	53	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	41.43379	-70.77989	41.44597	-70.75031	22	16	NE	<2	B3	0.5-1	Precipitation	None	3	56	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	41.44597	-70.75031	41.46005	-70.71933	26	19	NE	<2	B3	0.5-1	Precipitation	None	3	50	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	41.46005	-70.71933	41.47715	-70.68548	19	18	NNE	<2	B3	0.5-1	Precipitation	None	3.4	54	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	41.47715	-70.68548	41.49372	-70.64128	24	18	NE	<2	B3	0.5-1	Precipitation	None	4.5	60	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.49372	-70.64128	41.49465	-70.60206	24	16	NE	<2	B3	0.5-1	Precipitation	None	4.9	78	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.49465	-70.60206	41.49612	-70.62713	23	13	N	<2	B3	0.5-1	Fog	None	2.7	280	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.49612	-70.62713	41.49415	-70.64791	24	10	N	<2	B3	0.5-1	Fog	None	2.1	260	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.49415	-70.64791	41.48788	-70.66641	26	9	N	<2	B3	0.5-1	Fog	None	1.8	261	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.48788	-70.66641	41.48041	-70.68827	26	12	N	<2	B3	0.5-1	Fog	None	1.9	261	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.48041	-70.68827	41.46871	-70.71358	23	14	N	<2	B3	0.5-1	Precipitation	None	2.4	240	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.46871	-70.71358	41.45408	-70.74234	21	15	N	<2	B3	0.5-1	Precipitation	None	3	232	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.45408	-70.74234	41.43566	-70.77267	33	13	N	<2	B3	0.5-1	Precipitation	None	3.3	232	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.43566	-70.77267	41.41438	-70.80394	23	11	N	<2	B3	0.5-1	Precipitation	None	3.7	224	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	41.41438	-70.80394	41.40843	-70.82426	20	14	N	<2	B3	0.5-1	Precipitation	None	3.9	240	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	41.40843	-70.82426	41.41492	-70.79820	24	22	N	<2	B3	0.5-1	Precipitation	None	2.6	68	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	41.41492	-70.79820	41.42557	-70.78040	16	20	N	<2	B3	0.5-1	Precipitation	None	2.2	55	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	41.42557	-70.78040	41.43381	-70.76708	21	25	N	<2	B3	0.5-1	Precipitation	None	1.7	47	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	09:59	41.43381	-70.76708	41.43912	-70.75645	24	18	N	<2	B3	0.5-1	Precipitation	None	1.7	56	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:59	10:30	41.43912	-70.75645	41.44409	-70.74771	24	18	N	<2	B3	2-5	Precipitation	None	1	36	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.44409	-70.74771	41.43025	-70.77163	25	17	N	<2	B3	2-5	Precipitation	None	1.3	36	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	41.43025	-70.77163	41.42233	-70.82507	22	13	NNW	<2	B3	2-5	Precipitation	None	4	243	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	41.42233	-70.82507	41.48411	-70.84146	15	22	N	<2	B4	2-5	Precipitation	None	8.5	318	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:30	41.48411	-70.84146	41.54410	-70.85300	16	23	N	<2	B4	>5	Cloudy	None	7.5	2	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	41.54410	-70.85300	41.60037	-70.89042	29	19	N	<2	B4	>5	Cloudy	None	7.1	329	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:50	41.60037	-70.89042	41.62138	-70.91347	11	21	NNW	<2	B4	>5	Cloudy	None	7	331	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:50	14:37	41.62138	-70.91347	41.62137	-70.91349	6	12	N	<2	B2	>5	Cloudy	None	0	163	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:37	15:00	41.62137	-70.91349	41.62747	-70.91486	6	13	N	<2	B2	>5	Cloudy	None	0	163	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	41.62747	-70.91486	41.60786	-70.89521	7	15	NNE	<2	B2	>5	Cloudy	Slight	3.4	24	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	41.60786	-70.89521	41.55749	-70.86278	7	13	ENE	<2	B3	>5	Cloudy	Slight	6.6	151	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	41.55749	-70.86278	41.50482	-70.83692	15	14	NE	<2	B3	>5	Cloudy	Slight	7	148	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	41.50482	-70.83692	41.44549	-70.84602	18	9	NE	<2	B3	>5	Cloudy	Slight	6.8	179	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:20	41.44549	-70.84602	41.42156	-70.81205	15	10	NE	<2	B3	>5	Cloudy	Slight	9	145	Transit	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:20	17:30	41.42156	-70.81205	41.42740	-70.79272	22	18	NE	<2	B3	>5	Cloudy	Slight	5.6	59	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	41.42740	-70.79272	41.44651	-70.74759	23	20	NE	<2	B3	>5	Cloudy	Slight	5.3	53	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	19:00	41.44651	-70.74759	41.48511	-70.66671	26	17	NE	<2	B3	>5	Cloudy	Slight	4.2	46	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:00	41.48511	-70.66671	41.48528	-70.66656	26	25	N	<2	B3	>5	Cloudy	Severe	1.8	284	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	41.48528	-70.66656	41.48190	-70.69139	26	17	NE	<2	B3	>5	Cloudy	Slight	4.2	46	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	41.48190	-70.69139	41.46867	-70.72099	21	13	N	<2	B3	>5	Cloudy	Moderate	3.1	239	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	41.46867	-70.72099	41.44970	-70.75494	21	11	NNW	<2	B3	>5	Cloudy	Severe	3.3	235	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	41.44970	-70.75494	41.42739	-70.79352	23	10	NNW	<2	B3	>5	Cloudy	Severe	4.2	233	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:29	41.42739	-70.79352	41.42792	-70.78431	23	13	NNW	<2	B3	>5	Cloudy	Severe	4.4	234	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:29	22:00	41.42792	-70.78431	41.44228	-70.75629	22	16	N	<2	B3	>5	Cloudy	Moderate	3.4	44	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	41.44228	-70.75629	41.45487	-70.73253	22	23	N	<2	B4	>5	Cloudy	Slight	2.7	41	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	41.45487	-70.73253	41.46644	-70.71261	21	16	N	<2	B4	>5	Cloudy	Slight	2.5	39	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	41.46644	-70.71261	41.47250	-70.69726	22	15	N	<2	B4	>5	Cloudy	Severe	1.9	45	Standby	N/A
2022-08-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	41.47250	-70.69726	41.48050	-70.68179	22	16	N	<2	B4	>5	Cloudy	None	1.6	48	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:20	41.48192	-70.67930	41.48088	-70.69364	25	12	N	<2	B3	2-5	Cloudy	None	2	52	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:20	00:30	41.48088	-70.69364	41.47513	-70.71019	21	15	NW	<2	B3	0.5-1	Cloudy	None	5	263	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:30	01:00	41.47513	-70.71019	41.45105	-70.75166	21	8	NW	<2	B3	0.5-1	Cloudy	None	4.8	231	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Bonfil, Neftali	RPS	01:00	01:30	41.45105	-70.75166	41.43006	-70.79063	23	7	SW	<2	B3	0.5-1	Cloudy	None	4.4	231	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Bonfil, Neftali	RPS	01:30	02:00	41.43006	-70.79063	41.41263	-70.82580	24	4	NW	<2	B2	0.5-1	Cloudy	None	4.4	231	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Bonfil, Neftali	RPS	02:00	02:30	41.41263	-70.82580	41.39721	-70.85751	21	3	W	<2	B2	0.5-1	Cloudy	None	3.4	237	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Bonfil, Neftali	RPS	02:30	03:00	41.39721	-70.85751	41.39011	-70.85274	29	9	SW	<2	B2	0.5-1	Cloudy	None	3.6	241	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.39011	-70.85274	41.40576	-70.81586	29	6	SSW	<2	B2	0.5-1	Cloudy	None	3.4	59	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.40576	-70.81586	41.42906	-70.77740	20	8	SSW	<2	B2	0.5-1	Cloudy	None	4.2	45	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.42906	-70.77740	41.45488	-70.73558	20	10	SW	<2	B2	0.5-1	Cloudy	None	4.7	49	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.45488	-70.73558	41.48129	-70.68767	76	13	W	<2	B2	0.5-1	Cloudy	None	5.1	52	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	05:00	05:30	41.48129	-70.68767	41.49875	-70.62637	23	11	W	<2	B2	0.5-1	Cloudy	None	5.9	50	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.49875	-70.62637	41.49895	-70.63161	27	14	W	<2	B2	0.5-1	Cloudy	None	6.5	85	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.49895	-70.63161	41.48973	-70.66037	24	26	WSW	2-4	B4	0.5-1	Clear	None	2.3	254	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.48973	-70.66037	41.47716	-70.69111	25	23	W	2-4	B4	0.5-1	Clear	None	3.4	241	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	07:00	07:30	41.47716	-70.69111	41.46825	-70.71404	25	20	W	2-4	B4	0.5-1	Clear	None	1.8	237	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	41.46825	-70.71404	41.44874	-70.74514	20	18	W	2-4	B4	0.5-1	Clear	None	3.4	228	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	41.44874	-70.74514	41.41996	-70.79080	27	19	W	2-4	B4	0.5-1	Clear	None	5.3	228	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	41.41996	-70.79080	41.38999	-70.83497	19	24	WSW	2-4	B4	0.5-1	Clear	None	5.5	231	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	09:00	09:30	41.38999	-70.83497	41.35625	-70.87249	26	28	W	2-4	B4	0.5-1	Clear	None	5.4	229	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	09:30	10:00	41.35625	-70.87249	41.37163	-70.86045	28	33	SSW	2-4	B5	2-5	Clear	Moderate	5.4	156	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	41.37163	-70.86045	41.39123	-70.83564	31	17	W	2-4	B4	>5	Clear	Severe	3.3	39	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.39123	-70.83564	41.40690	-70.80807	25	20	W	2-4	B4	>5	Clear	Severe	3.2	43	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	41.40690	-70.80807	41.42164	-70.78597	19	17	W	2-4	B4	>5	Clear	Severe	2.9	42	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	41.42164	-70.78597	41.43324	-70.76893	20	14	WSW	2-4	B4	>5	Clear	Severe	2.1	40	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:30	41.43324	-70.76893	41.44213	-70.75253	22	16	W	2-4	B4	>5	Clear	Severe	1.9	43	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	41.44213	-70.75253	41.45116	-70.73605	24	18	W	2-4	B4	>5	Clear	Severe	1.9	42	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	41.45116	-70.73605	41.46038	-70.72153	21	17	W	2-4	B4	>5	Clear	Severe	1.8	41	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	41.46038	-70.72153	41.46994	-70.70694	21	18	W	2-4	B4	>5	Clear	Severe	1.9	41	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	41.46994	-70.70694	41.48161	-70.68762	23	14	W	2-4	B4	>5	Clear	Severe	2.1	46	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	41.48161	-70.68762	41.48709	-70.68079	23	10	W	<2	B3	>5	Clear	Severe	2.4	46	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	41.48709	-70.68079	41.47562	-70.69897	22	18	W	<2	B4	>5	Clear	Severe	2.7	225	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	15:42	41.47562	-70.69897	41.47222	-70.70681	21	20	W	<2	B4	>5	Clear	Severe	1.9	228	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:42	16:00	41.47222	-70.70681	41.46794	-70.71538	22	18	W	<2	B3	>5	Clear	Severe	2.7	228	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	41.46794	-70.71538	41.46331	-70.72914	21	23	SW	<2	B4	>5	Clear	Severe	1.8	229	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	41.46331	-70.72914	41.46030	-70.73804	23	22	SW	<2	B4	>5	Clear	Severe	1.1	232	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	41.46030	-70.73804	41.45810	-70.74358	24	23	SW	<2	B4	>5	Clear	Severe	0.6	224	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	41.45810	-70.74358	41.45417	-70.74876	27	24	SW	<2	B4	>5	Clear	Severe	0.4	221	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	41.45417	-70.74876	41.44539	-70.76391	31	25	SW	<2	B4	>5	Clear	Severe	1.4	223	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	18:59	41.44539	-70.76391	41.43395	-70.77879	25	24	SW	<2	B4	>5	Clear	Severe	1.8	224	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:59	19:30	41.43395	-70.77879	41.42424	-70.79757	23	23	SW	<2	B4	>5	Cloudy	Severe	2.1	227	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	41.42424	-70.79757	41.43318	-70.77918	23	23	SW	<2	B4	>5	Cloudy	Severe	2.4	232	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	41.43318	-70.77918	41.45584	-70.73486	22	22	SW	<2	B4	>5	Clear	Severe	4.8	54	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	41.45584	-70.73486	41.47885	-70.69260	21	19	SW	<2	B4	>5	Clear	Severe	4.8	52	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	41.47885	-70.69260	41.48219	-70.68964	23	20	SW	<2	B4	>5	Clear	Severe	4.8	53	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	41.48219	-70.68964	41.46414	-70.72375	21	24	SW	<2	B4	>5	Clear	Severe	3.9	230	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	41.46414	-70.72375	41.44158	-70.75886	21	24	SW	<2	B5	>5	Clear	Severe	3.7	224	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	41.44158	-70.75886	41.42431	-70.80152	24	23	WSW	<2	B5	>5	Clear	Severe	4.3	239	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	41.42431	-70.80152	41.43739	-70.77482	22	18	WSW	<2	B5	2-5	Fog	Moderate	3.2	54	Standby	N/A
2022-08-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	41.43739	-70.77482	41.45002	-70.74524	22	18	W	<2	B3	2-5	Fog	None	2.7	228	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:20	41.45057	-70.74390	41.45783	-70.72825	27	13	WSW	<2	B5	>5	Cloudy	None	2.9	51	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:20	00:30	41.45783	-70.72825	41.46131	-70.72087	21	12	WSW	<2	B4	0.5-1	Cloudy	None	2.5	51	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	01:00	41.46131	-70.72087	41.47067	-70.70197	21	10	WSW	<2	B4	0.5-1	Cloudy	None	2.2	51	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	41.47067	-70.70197	41.48078	-70.68289	24	11	WSW	<2	B4	0.5-1	Cloudy	None	2.1	51	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	41.48078	-70.68289	41.49057	-70.65932	26	15	SW	<2	B4	0.5-1	Cloudy	None	2.2	55	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	41.49057	-70.65932	41.49632	-70.63027	25	16	SW	<2	B4	0.5-1	Cloudy	None	2.5	83	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	41.49632	-70.63027	41.49412	-70.59881	24	20	SW	<2	B4	0.5-1	Clear	None	3	114	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.49412	-70.59881	41.49518	-70.63292	26	21	WSW	2-4	B4	0.5-1	Clear	None	3.6	9	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.49518	-70.63292	41.48292	-70.67165	26	20	WSW	2-4	B4	0.5-1	Clear	None	4.4	240	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.48292	-70.67165	41.47691	-70.68865	24	17	WSW	2-4	B4	0.5-1	Clear	None	2.3	247	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.47691	-70.68865	41.47287	-70.69859	26	24	WSW	2-4	B4	0.5-1	Clear	None	1.5	236	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.47287	-70.69859	41.46931	-70.70601	25	22	WSW	2-4	B4	0.5-1	Clear	None	0.8	237	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.46931	-70.70601	41.46576	-70.71318	78	19	WSW	2-4	B4	0.5-1	Clear	None	0.7	237	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.46576	-70.71318	41.44873	-70.75141	22	19	WSW	2-4	B4	0.5-1	Clear	None	0.9	233	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.44873	-70.75141	41.40924	-70.81121	26	20	WSW	2-4	B4	0.5-1	Clear	None	6.9	230	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.40924	-70.81121	41.36514	-70.86856	20	20	WSW	2-4	B4	0.5-1	Clear	None	7.5	224	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	07:50	41.36514	-70.86856	41.32364	-70.85463	28	22	WSW	2-4	B4	0.5-1	Clear	None	7.5	210	Standby	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:50	08:00	41.32364	-70.85463	41.30667	-70.83198	28	13	SW	2-4	B4	0.5-1	Clear	None	7.5	138	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	41.30667	-70.83198	41.25395	-70.75942	17	10	SSW	2-4	B4	0.5-1	Clear	None	8.8	135	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	41.25395	-70.75942	41.19742	-70.73711	28	16	SW	2-4	B4	0.5-1	Clear	None	7.1	160	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	41.19742	-70.73711	41.13542	-70.72852	32	16	SW	2-4	B4	0.5-1	Clear	None	7.3	171	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	41.13542	-70.72852	41.07227	-70.72982	40	13	SW	2-4	B4	2-5	Clear	None	7.7	174	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	41.07227	-70.72982	41.00915	-70.73671	45	13	SW	2-4	B4	2-5	Clear	None	7	180	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.00915	-70.73671	40.97035	-70.69639	52	11	SW	2-4	B4	>5	Clear	Severe	7	180	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.97035	-70.69639	40.95284	-70.61804	49	4	S	2-4	B4	>5	Clear	Severe	7.3	100	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.95284	-70.61804	40.93369	-70.54276	52	6	SSE	2-4	B4	>5	Clear	Severe	7.4	100	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:30	40.93369	-70.54276	40.91432	-70.46768	48	6	S	2-4	B4	>5	Clear	Severe	8	104	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.91432	-70.46768	40.89777	-70.39196	48	6	S	<2	B3	>5	Clear	Severe	8	104	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.89777	-70.39196	40.90109	-70.38101	47	6	W	<2	B3	>5	Clear	Severe	4.3	55	Deploying/Retrieving	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.90109	-70.38101	40.89069	-70.39897	47	11	WSW	<2	B3	>5	Clear	Severe	2.5	221	Deploying/Retrieving	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.89069	-70.39897	40.88040	-70.41697	48	10	WSW	<2	B3	>5	Clear	Severe	1.9	222	Deploying/Retrieving	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:47	40.88040	-70.41697	40.87836	-70.42165	49	11	WSW	<2	B3	>5	Clear	Severe	2.7	222	Deploying/Retrieving	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:47	15:00	40.87836	-70.42165	40.88266	-70.45032	49	11	WSW	<2	B3	>5	Clear	Severe	2.7	222	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.88266	-70.45032	40.92734	-70.50160	52	17	WSW	<2	B3	>5	Clear	Severe	8	270	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.92734	-70.50160	40.98454	-70.55176	52	11	WSW	<2	B3	>5	Clear	Moderate	8.8	343	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.98454	-70.55176	41.02928	-70.62039	44	11	WSW	<2	B3	>5	Clear	Moderate	8.3	303	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	41.02928	-70.62039	41.08739	-70.66528	44	16	WSW	<2	B3	>5	Clear	Moderate	8.4	303	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	41.08739	-70.66528	41.15517	-70.70370	45	12	WSW	<2	B3	>5	Clear	Moderate	8.6	335	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	41.15517	-70.70370	41.22119	-70.74227	33	11	WSW	<2	B3	>5	Clear	Moderate	8.7	334	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	41.22119	-70.74227	41.27998	-70.79095	30	12	WSW	<2	B3	>5	Clear	Moderate	8.7	329	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	41.27998	-70.79095	41.33124	-70.85428	11	20	WSW	<2	B3	>5	Clear	Severe	8.5	300	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	41.33124	-70.85428	41.40415	-70.84700	19	17	WSW	<2	B3	>5	Clear	Severe	8.8	318	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	41.40415	-70.84700	41.46625	-70.84475	26	6	WSW	<2	B3	>5	Clear	Severe	9.8	14	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	41.46625	-70.84475	41.53689	-70.84910	17	10	WSW	<2	B3	>5	Clear	Severe	8.7	2	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	41.53689	-70.84910	41.60171	-70.89126	15	14	WSW	<2	B3	>5	Clear	Severe	8.7	33	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:25	41.60171	-70.89126	41.62253	-70.91385	10	16	WSW	<2	B3	>5	Clear	Severe	8.7	329	Transit	N/A
2022-08-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:25	00:00	41.62253	-70.91385	41.62259	-70.91393	11	10	WSW	<2	B1	>5	Clear	Severe	0	162	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:19	41.62251	-70.91388	41.62249	-70.91387	11	14	WSW	<2	B1	2-5	Clear	None	0	161	Standby	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:19	00:25	41.62249	-70.91387	41.62250	-70.91379	11	11	WSW	<2	B1	1-2	Clear	None	0	161	Standby	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:25	00:59	41.62250	-70.91379	41.59085	-70.88453	11	11	WSW	<2	B3	1-2	Clear	None	0.7	161	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	00:59	01:30	41.59085	-70.88453	41.53752	-70.84938	10	20	SW	<2	B3	1-2	Clear	None	7	159	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	41.53752	-70.84938	41.48312	-70.83980	17	24	SW	<2	B4	1-2	Clear	None	6.7	164	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	41.48312	-70.83980	41.43246	-70.83863	25	22	SW	<2	B4	1-2	Clear	None	6.5	188	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	41.43246	-70.83863	41.37742	-70.86856	12	16	SW	<2	B4	0.5-1	Clear	None	6.6	151	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.37742	-70.86856	41.32605	-70.85079	27	18	SW	<2	B4	0.5-1	Clear	None	7.3	190	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.32605	-70.85079	41.28641	-70.80125	20	10	SW	<2	B4	0.5-1	Clear	None	6.8	145	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.28641	-70.80125	41.24887	-70.74336	11	6	SW	<2	B4	0.5-1	Clear	None	6	124	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.24887	-70.74336	41.19829	-70.68015	29	6	SSW	<2	B4	0.5-1	Clear	None	8.4	130	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.19829	-70.68015	41.14908	-70.62007	32	8	S	<2	B4	0.5-1	Clear	None	7	130	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.14908	-70.62007	41.10509	-70.55501	42	10	S	<2	B4	0.5-1	Clear	None	8	124	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.10509	-70.55501	41.06209	-70.48974	40	10	S	<2	B4	0.5-1	Clear	None	7.7	128	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.06209	-70.48974	41.01766	-70.42573	45	11	S	<2	B4	0.5-1	Clear	None	7.6	128	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.01766	-70.42573	40.97130	-70.36274	42	10	SSW	<2	B4	0.5-1	Clear	None	7.7	127	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.97130	-70.36274	40.91878	-70.30862	42	9	SSW	<2	B3	0.5-1	Clear	None	7.5	138	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:15	40.91878	-70.30862	40.89972	-70.27973	42	9	S	<2	B3	0.5-1	Clear	None	8.1	143	Transit	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:15	08:30	40.89972	-70.27973	40.90175	-70.27865	41	9	SSW	<2	B3	0.5-1	Clear	None	0	89	Deploying/Retrieving	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.90175	-70.27865	40.90418	-70.25819	41	8	SSW	<2	B3	0.5-1	Clear	None	0	89	Deploying/Retrieving	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.90418	-70.25819	40.90561	-70.23121	39	6	SSW	<2	B3	0.5-1	Clear	None	3.4	97	Deploying/Retrieving	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	09:47	40.90561	-70.23121	40.90615	-70.21546	35	7	S	<2	B3	2-5	Clear	None	3.4	97	Deploying/Retrieving	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:47	10:07	40.90615	-70.21546	40.88939	-70.21222	33	8	SSW	<2	B3	>5	Clear	Slight	3.4	97	Soft Start	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:07	10:30	40.88939	-70.21222	40.86287	-70.21357	35	11	SW	<2	B2	>5	Clear	Severe	4.9	181	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.86287	-70.21357	40.82840	-70.21513	35	11	SW	<2	B2	>5	Clear	Severe	4.9	181	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:02	40.82840	-70.21513	40.82583	-70.21530	40	11	SW	<2	B2	>5	Clear	Severe	4.6	180	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:02	11:07	40.82583	-70.21530	40.81937	-70.21522	41	10	SSW	<2	B2	>5	Clear	Slight	4.7	176	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:07	11:30	40.81937	-70.21522	40.78879	-70.21474	42	11	SSW	<2	B2	>5	Clear	Slight	4.5	175	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:16	40.78879	-70.21474	40.72478	-70.21360	43	12	SSW	<2	B2	>5	Clear	Slight	5.1	177	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:16	12:30	40.72478	-70.21360	40.70577	-70.21327	45	11	SSW	<2	B3	>5	Fog	Moderate	5	176	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.70577	-70.21327	40.66559	-70.21247	46	12	SSW	<2	B3	>5	Fog	Moderate	5.1	174	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.66559	-70.21247	40.62607	-70.21174	49	12	SSW	<2	B3	>5	Cloudy	Severe	4.7	174	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	13:36	40.62607	-70.21174	40.61815	-70.21162	53	10	SSW	<2	B3	>5	Cloudy	Severe	4.9	174	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:36	13:38	40.61815	-70.21162	40.61550	-70.21154	53	10	SSW	<2	B3	>5	Cloudy	Severe	4.9	174	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:38	14:00	40.61550	-70.21154	40.61738	-70.23858	53	10	SSW	<2	B3	>5	Cloudy	Severe	4.9	174	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.61738	-70.23858	40.63687	-70.28557	55	6	WSW	<2	B2	>5	Fog	Severe	4.9	294	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:48	40.63687	-70.28557	40.65010	-70.30707	54	7	W	<2	B2	>5	Fog	Slight	4.9	292	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:48	14:52	40.65010	-70.30707	40.65065	-70.30033	53	4	SSE	<2	B2	>5	Fog	Slight	4.8	92	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:52	15:01	40.65065	-70.30033	40.65090	-70.28444	53	4	SSE	<2	B2	>5	Fog	Slight	4.8	89	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:01	15:03	40.65090	-70.28444	40.65094	-70.28092	52	4	SSE	<2	B2	>5	Fog	Slight	4.9	87	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:03	15:30	40.65094	-70.28092	40.65227	-70.30489	52	4	SSE	<2	B2	>5	Fog	Slight	4.9	87	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:03	40.65227	-70.30489	40.64999	-70.36190	53	6	SSE	<2	B2	>5	Fog	Slight	4.8	250	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:03	16:30	40.64999	-70.36190	40.64936	-70.40830	56	8	SSE	<2	B2	>5	Fog	Slight	4.7	260	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.64936	-70.40830	40.64363	-70.45715	58	9	W	<2	B2	>5	Fog	Slight	4.6	260	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:14	40.64363	-70.45715	40.62960	-70.47269	58	8	W	<2	B2	>5	Cloudy	Moderate	4.7	225	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:14	17:30	40.62960	-70.47269	40.62767	-70.48594	61	8	WSW	<2	B2	>5	Cloudy	Moderate	4.4	192	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	17:49	40.62767	-70.48594	40.65349	-70.48271	61	5	NW	<2	B2	>5	Cloudy	Moderate	4.9	3	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:49	18:00	40.65349	-70.48271	40.65010	-70.47466	61	5	NW	<2	B2	>5	Cloudy	Moderate	4.9	3	Soft Start	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:09	40.65010	-70.47466	40.63906	-70.47484	81	7	NW	<2	B2	>5	Cloudy	Moderate	4.3	183	Soft Start	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:09	18:18	40.63906	-70.47484	40.62812	-70.47457	81	7	NW	<2	B2	>5	Cloudy	Moderate	4.3	183	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:18	18:23	40.62812	-70.47457	40.62165	-70.47445	62	7	SSW	<2	B2	>5	Cloudy	Moderate	4.3	183	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:23	18:30	40.62165	-70.47445	40.61287	-70.47426	62	7	SSW	<2	B2	>5	Cloudy	Moderate	4.4	183	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	18:54	40.61287	-70.47426	40.58256	-70.47361	63	8	SSW	<2	B2	>5	Cloudy	Moderate	4.6	183	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:54	18:56	40.58256	-70.47361	40.58005	-70.47352	63	7	SW	<2	B2	>5	Cloudy	Moderate	4.5	180	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:56	19:00	40.58005	-70.47352	40.57546	-70.47145	64	7	SW	<2	B2	>5	Cloudy	Moderate	4.5	180	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.57546	-70.47145	40.57710	-70.41524	63	5	SSW	<2	B2	>5	Cloudy	Moderate	5	84	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	19:47	40.57710	-70.41524	40.58007	-70.38594	62	2	SSW	<2	B1	>5	Cloudy	Moderate	5	83	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:47	19:52	40.58007	-70.38594	40.58610	-70.38622	62	2	SSW	<2	B1	>5	Cloudy	Moderate	3.9	327	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:52	20:00	40.58610	-70.38622	40.59712	-70.38641	61	6	SSW	<2	B1	>5	Cloudy	Severe	4.9	347	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.59712	-70.38641	40.63878	-70.38728	60	6	NW	<2	B1	>5	Cloudy	Severe	5	348	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.63878	-70.38728	40.68140	-70.38819	56	3	NW	<2	B1	>5	Clear	Severe	4.9	347	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:06	40.68140	-70.38819	40.68980	-70.38834	52	3	NW	<2	B1	>5	Clear	Severe	5.1	351	Full Power	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:06	21:30	40.68980	-70.38834	40.67880	-70.41368	52	3	NW	<2	B1	>5	Clear	Severe	5.1	351	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.67880	-70.41368	40.64700	-70.44773	55	7	NW	<2	B1	>5	Clear	Severe	4.9	222	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.64700	-70.44773	40.64432	-70.39635	59	5	SE	<2	B1	>5	Fog	Severe	5	88	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.64432	-70.39635	40.64494	-70.34269	57	6	SE	<2	B1	>5	Fog	Severe	5	79	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.64494	-70.34269	40.64558	-70.29050	55	7	SE	<2	B1	>5	Clear	Severe	4.7	80	Silent	N/A
2022-08-20	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	40.64558	-70.29050	40.65006	-70.23824	53	6	SE	<2	B1	>5	Clear	Slight	4.6	80	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:30	40.65014	-70.23156	40.65063	-70.18689	51	7	SE	<2	B1	>5	Fog	None	4.7	76	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber; Bonfil, Neftali	RPS	00:30	01:00	40.65063	-70.18689	40.65124	-70.13511	51	7	SE	<2	B1	0.5-1	Fog	None	4.7	79	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.65124	-70.13511	40.65170	-70.08523	49	9	SE	<2	B1	0.5-1	Fog	None	4.9	90	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.65170	-70.08523	40.65224	-70.03871	49	7	ESE	<2	B1	0.5-1	Fog	None	4.4	71	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.65224	-70.03871	40.65517	-70.01062	50	8	ESE	<2	B1	0.5-1	Fog	None	4.2	93	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.65517	-70.01062	40.65442	-70.06455	49	3	WSW	<2	B1	0.05-0.1	Fog	None	5	270	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.65442	-70.06455	40.65104	-70.02974	64	3	W	<2	B1	0.05-0.1	Fog	None	4.7	295	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.65104	-70.02974	40.64721	-70.08356	50	2	SW	<2	B1	0.3-0.5	Fog	None	5.4	277	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:45	40.64721	-70.08356	40.64511	-70.09043	50	1	NW	<2	B1	0.3-0.5*	Fog	None	5.1	264	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:45	05:00	40.64511	-70.09043	40.64500	-70.11563	50	1	W	<2	B1	0.3-0.5*	Fog	None	5.1	264	Soft Start	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:05	40.64500	-70.11563	40.64487	-70.12412	50	5	ESE	<2	B2	0.3-0.5*	Fog	None	4.7	268	Soft Start	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:05	05:30	40.64487	-70.12412	40.64436	-70.16645	48	6	SE	<2	B2	0.3-0.5*	Fog	None	4.8	266	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	05:49	40.64436	-70.16645	40.65491	-70.18611	49	4	ESE	<2	B2	0.3-0.5*	Clear	None	4.8	267	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:49	05:53	40.65491	-70.18611	40.65519	-70.17968	47	13	E	<2	B2	0.3-0.5*	Clear	None	4.8	86	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:53	06:00	40.65519	-70.17968	40.65531	-70.16857	47	12	ESE	<2	B2	0.3-0.5*	Clear	None	4.5	87	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:15	40.65531	-70.16857	40.65556	-70.14474	49	13	ESE	<2	B2	0.3-0.5*	Clear	None	4.2	87	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:15	06:16	40.65556	-70.14474	40.65557	-70.14315	49	13	ESE	<2	B2	0.3-0.5*	Clear	None	4.2	87	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:16	06:30	40.65557	-70.14315	40.64943	-70.14906	49	12	ESE	<2	B2	0.3-0.5*	Clear	None	4.2	120	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	06:44	40.64943	-70.14906	40.65317	-70.16331	48	5	SSE	<2	B2	0.3-0.5*	Clear	None	4.8	238	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:44	06:49	40.65317	-70.16331	40.65348	-70.15527	48	12	E	<2	B2	0.3-0.5*	Clear	None	4.8	90	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:49	07:00	40.65348	-70.15527	40.65362	-70.13831	48	11	E	<2	B2	0.3-0.5*	Clear	None	4.3	90	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:28	40.65362	-70.13831	40.65445	-70.09392	49	14	E	<2	B2	<0.05	Fog	None	4.1	92	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:28	07:30	40.65445	-70.09392	40.65466	-70.09061	49	11	E	<2	B2	0.3-0.5	Clear	None	4.5	83	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.65466	-70.09061	40.65900	-70.04106	49	11	E	<2	B2	0.3-0.5*	Clear	None	4.5	83	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:28	40.65900	-70.04106	40.66194	-69.99497	49	11	E	<2	B2	0.3-0.5*	Clear	None	4.5	89	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:28	08:48	40.66194	-69.99497	40.66799	-70.00376	49	11	E	<2	B2	0.3-0.5*	Clear	None	4.5	89	Soft Start	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:48	08:53	40.66799	-70.00376	40.66792	-70.01129	49	11	E	<2	B2	0.3-0.5*	Fog	None	4.5	89	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:53	08:57	40.66792	-70.01129	40.66787	-70.01796	48	4	SSE	<2	B2	0.3-0.5*	Fog	None	4.6	254	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:57	09:00	40.66787	-70.01796	40.66781	-70.02289	48	4	SSE	<2	B2	0.3-0.5*	Fog	None	4.6	254	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.66781	-70.02289	40.66734	-70.07306	48	4	SSE	<2	B2	0.3-0.5*	Fog	None	4.6	254	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.66734	-70.07306	40.66695	-70.12447	46	5	S	<2	B2	1-2	Fog	None	4.8	260	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	40.66695	-70.12447	40.66642	-70.17516	47	6	S	<2	B2	2-5	Fog	None	4.7	277	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.66642	-70.17516	40.66592	-70.22677	48	4	S	<2	B2	>5	Fog	Moderate	4.5	259	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.66592	-70.22677	40.66533	-70.27926	48	3	S	<2	B2	>5	Clear	Severe	4.8	261	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.66533	-70.27926	40.66474	-70.32952	49	4	S	<2	B2	>5	Clear	Severe	4.8	254	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.66474	-70.32952	40.66420	-70.38037	53	4	SSE	<2	B2	>5	Clear	Severe	4.7	258	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	12:49	40.66420	-70.38037	40.66382	-70.41218	55	2	SSE	<2	B1	>5	Clear	Severe	4.6	263	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:49	12:51	40.66382	-70.41218	40.66379	-70.41553	56	2	SSE	<2	B1	>5	Clear	Severe	4.4	263	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:51	12:59	40.66379	-70.41553	40.67005	-70.41655	56	2	SSE	<2	B1	>5	Clear	Severe	4.4	263	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:59	13:03	40.67005	-70.41655	40.67012	-70.40959	54	12	E	<2	B2	>5	Clear	Severe	4.4	88	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:03	13:30	40.67012	-70.40959	40.67063	-70.36199	54	12	E	<2	B2	>5	Clear	Severe	4.7	88	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:02	40.67063	-70.36199	40.67128	-70.30474	53	13	E	<2	B2	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:02	14:30	40.67128	-70.30474	40.67183	-70.25491	51	11	E	<2	B2	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.67183	-70.25491	40.67251	-70.20113	49	10	ESE	<2	B2	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.67251	-70.20113	40.67306	-70.14798	47	11	E	<2	B2	>5	Clear	Severe	5.1	82	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.67306	-70.14798	40.67355	-70.09602	47	10	E	<2	B2	>5	Clear	Moderate	4.9	79	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.67355	-70.09602	40.67398	-70.04503	45	11	E	<2	B2	>5	Clear	Moderate	4.4	81	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	16:46	40.67398	-70.04503	40.67427	-70.01669	47	10	ESE	<2	B2	>5	Clear	Moderate	4.7	87	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:46	16:48	40.67427	-70.01669	40.67429	-70.01304	48	10	ESE	<2	B2	>5	Clear	Moderate	5.1	89	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:48	16:58	40.67429	-70.01304	40.66844	-70.00909	48	10	ESE	<2	B2	>5	Clear	Moderate	5.1	89	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	16:58	17:03	40.66844	-70.00909	40.66815	-70.01804	45	2	E	<2	B2	>5	Clear	Moderate	5	259	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:03	17:30	40.66815	-70.01804	40.66792	-70.06733	47	2	ESE	<2	B2	>5	Clear	Severe	4.9	263	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.66792	-70.06733	40.66734	-70.12215	46	2	ESE	<2	B2	>5	Clear	Severe	4.9	265	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.66734	-70.12215	40.66672	-70.17599	46	2	SE	<2	B1	>5	Clear	Severe	4.9	270	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.66672	-70.17599	40.66618	-70.22786	47	2	SE	<2	B2	>5	Clear	Severe	4.9	264	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.66618	-70.22786	40.66562	-70.27926	48	2	SE	<2	B2	>5	Clear	Severe	4.9	261	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.66562	-70.27926	40.66505	-70.32990	50	5	ENE	<2	B2	>5	Clear	Severe	4.5	259	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:29	40.66505	-70.32990	40.66443	-70.38083	52	5	ENE	<2	B2	>5	Clear	Severe	4.7	263	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:29	20:46	40.66443	-70.38083	40.66400	-70.41156	54	5	ENE	<2	B3	>5	Clear	Severe	5	261	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:46	20:48	40.66400	-70.41156	40.66401	-70.41513	56	5	ENE	<2	B3	>5	Clear	Severe	4.9	259	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:48	20:58	40.66401	-70.41513	40.66966	-70.41887	56	5	ENE	<2	B3	>5	Clear	Severe	4.9	259	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	20:58	21:03	40.66966	-70.41887	40.66980	-70.41032	55	16	E	<2	B3	>5	Clear	Severe	4.8	86	Silent	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:03	21:30	40.66980	-70.41032	40.67039	-70.36352	55	16	E	<2	B3	>5	Clear	Severe	4.8	92	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.67039	-70.36352	40.67099	-70.30886	54	15	E	<2	B3	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.67099	-70.30886	40.67164	-70.25387	52	16	E	<2	B3	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.67164	-70.25387	40.67217	-70.19954	49	16	E	<2	B3	>5	Fog	Severe	5	85	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.67217	-70.19954	40.67279	-70.14512	47	17	E	<2	B3	>5	Fog	Moderate	4.9	85	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	23:40	40.67279	-70.14512	40.67299	-70.12713	46	14	E	<2	B3	>5	Fog	Slight	5	80	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:40	23:50	40.67299	-70.12713	40.67314	-70.10959	46	14	E	<2	B3	1-2	Fog	None	5	80	Full Power	N/A
2022-08-21	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:50	00:00	40.67314	-70.10959	40.67332	-70.09237	45	16	E	<2	B3	<0.05	Fog	None	5.2	81	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:20	40.67341	-70.08898	40.67365	-70.05749	46	16	E	<2	B3	<0.05	Fog	None	4.6	90	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:20	00:58	40.67365	-70.05749	40.66850	-70.01541	48	17	E	<2	B3	<0.05	Fog	None	4.9	86	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:58	00:59	40.66850	-70.01541	40.66854	-70.01806	47	8	ESE	<2	B3	0.5-1	Cloudy	None	4.6	258	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	00:59	01:28	40.66854	-70.01806	40.66815	-70.06830	48	6	E	<2	B3	0.5-1	Cloudy	None	4.8	278	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:28	01:30	40.66815	-70.06830	40.66808	-70.07209	47	6	E	<2	B3	0.5-1	Cloudy	None	5.1	268	Soft Start	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	01:48	40.66808	-70.07209	40.66782	-70.10414	47	6	E	<2	B3	0.5-1	Cloudy	None	5.1	268	Soft Start	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:48	02:30	40.66782	-70.10414	40.66711	-70.17640	47	6	E	<2	B3	0.5-1	Cloudy	None	4.7	270	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.66711	-70.17640	40.66655	-70.22809	48	3	E	<2	B3	0.5-1	Cloudy	None	4.5	267	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.66655	-70.22809	40.66592	-70.28358	48	2	NE	<2	B3	0.5-1	Fog	None	5	268	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.66592	-70.28358	40.66530	-70.33885	51	2	E	<2	B3	0.5-1	Fog	None	5	264	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.66530	-70.33885	40.66468	-70.39243	63	5	ENE	<2	B3	0.5-1	Clear	None	5.1	261	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	04:41	40.66468	-70.39243	40.66441	-70.41178	55	6	ENE	<2	B3	0.5-1	Clear	None	4.6	273	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:41	04:43	40.66441	-70.41178	40.66433	-70.41529	64	5	ENE	<2	B3	0.5-1	Clear	None	5	259	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:43	04:54	40.66433	-70.41529	40.67135	-70.41554	64	5	ENE	<2	B3	0.5-1	Clear	None	5	259	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:54	05:00	40.67135	-70.41554	40.67143	-70.40545	64	5	NNE	<2	B3	0.5-1	Clear	None	4.8	7	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.67143	-70.40545	40.67203	-70.35761	55	16	E	<2	B4	0.5-1	Clear	None	4.2	90	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.67203	-70.35761	40.67254	-70.30997	66	19	NNE	<2	B4	0.5-1	Clear	None	4.4	90	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:20	40.67254	-70.30997	40.67287	-70.27848	66	16	NNE	<2	B4	0.5-1	Clear	None	4.4	94	Soft Start	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:20	06:30	40.67287	-70.27848	40.67306	-70.26276	48	16	N	<2	B4	0.5-1	Clear	None	4.5	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.67306	-70.26276	40.67354	-70.21560	48	18	NNE	<2	B4	0.5-1	Clear	None	4.3	90	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.67354	-70.21560	40.67400	-70.16996	47	19	E	<2	B4	0.5-1	Clear	None	4.8	93	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.67400	-70.16996	40.67445	-70.12646	47	19	E	<2	B4	0.5-1	Clear	None	4.2	91	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.67445	-70.12646	40.67493	-70.07676	46	21	E	<2	B5	0.5-1	Clear	None	4.4	94	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.67493	-70.07676	40.67543	-70.02660	46	19	E	<2	B5	0.5-1	Clear	None	4.4	96	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:06	40.67543	-70.02660	40.67547	-70.01636	47	20	E	<2	B5	0.5-1	Clear	None	4.7	94	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:06	09:20	40.67547	-70.01636	40.66872	-70.01761	47	20	E	<2	B5	0.5-1	Clear	None	4.7	95	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:20	09:30	40.66872	-70.01761	40.66852	-70.03513	47	20	E	<2	B5	0.5-1	Clear	None	4.9	257	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	09:45	40.66852	-70.03513	40.66832	-70.06159	47	8	ESE	<2	B4	1-2	Clear	None	4.8	254	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:45	10:00	40.66832	-70.06159	40.66807	-70.08808	47	8	ESE	<2	B4	1-2	Cloudy	None	4.8	254	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:15	40.66807	-70.08808	40.66784	-70.11441	48	10	E	<2	B4	>5	Cloudy	Slight	4.5	250	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:15	10:35	40.66784	-70.11441	40.66753	-70.14959	49	10	E	<2	B4	>5	Cloudy	Slight	4.5	250	Soft Start	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:35	11:00	40.66753	-70.14959	40.66709	-70.19272	46	12	ESE	<2	B4	>5	Cloudy	Slight	4.7	256	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.66709	-70.19272	40.66654	-70.24085	47	14	ESE	<2	B4	>5	Cloudy	None	4.2	256	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.66654	-70.24085	40.66602	-70.29129	49	8	ESE	<2	B4	>5	Precipitation	None	4.9	268	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.66602	-70.29129	40.66546	-70.34338	51	8	ESE	<2	B4	>5	Precipitation	None	4.9	266	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.66546	-70.34338	40.66485	-70.39728	53	7	ESE	<2	B4	>5	Precipitation	None	4.9	266	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:08	40.66485	-70.39728	40.66466	-70.41153	52	7	ESE	<2	B4	>5	Precipitation	None	5.2	262	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:08	13:10	40.66466	-70.41153	40.66459	-70.41500	52	8	ESE	<2	B4	>5	Precipitation	None	5.2	262	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:10	13:23	40.66459	-70.41500	40.66952	-70.41561	52	8	ESE	<2	B4	>5	Precipitation	None	5.2	262	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:23	13:26	40.66952	-70.41561	40.66954	-70.41066	54	8	ESE	<2	B4	>5	Precipitation	None	4.1	89	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:26	13:30	40.66954	-70.41066	40.66960	-70.40419	54	15	ESE	<2	B4	>5	Precipitation	None	4.3	89	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.66960	-70.40419	40.67021	-70.35274	54	15	ESE	<2	B4	>5	Precipitation	None	4.3	89	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.67021	-70.35274	40.67079	-70.30134	54	18	ESE	<2	B4	1-2	Precipitation	None	5.1	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.67079	-70.30134	40.67140	-70.25082	51	21	ESE	<2	B4	>5	Cloudy	None	4.5	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.67140	-70.25082	40.67192	-70.20002	48	17	ESE	<2	B3	>5	Cloudy	Slight	4.7	83	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.67192	-70.20002	40.67243	-70.14820	47	13	ESE	<2	B3	>5	Cloudy	Slight	4.4	84	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:28	40.67243	-70.14820	40.67293	-70.09780	46	15	ESE	<2	B3	>5	Cloudy	Moderate	5	85	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:28	17:00	40.67293	-70.09780	40.67343	-70.04218	45	15	ESE	<2	B3	>5	Cloudy	Slight	4.8	91	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:14	40.67343	-70.04218	40.67364	-70.01689	47	10	SSE	<2	B4	>5	Cloudy	Moderate	5.1	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:14	17:16	40.67364	-70.01689	40.67371	-70.01323	47	8	SSE	<2	B4	>5	Cloudy	Moderate	4.9	87	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:16	17:27	40.67371	-70.01323	40.66924	-70.00938	47	8	SSE	<2	B4	>5	Cloudy	Moderate	4.2	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:27	17:32	40.66924	-70.00938	40.66908	-70.01837	47	10	SSE	<2	B4	>5	Cloudy	Moderate	5.1	262	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:32	18:00	40.66908	-70.01837	40.66862	-70.06906	47	10	SSE	<2	B4	>5	Cloudy	Moderate	5.1	262	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.66862	-70.06906	40.66808	-70.12203	46	16	SSE	<2	B4	>5	Cloudy	Moderate	4.8	256	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.66808	-70.12203	40.66749	-70.17378	46	18	SW	<2	B4	>5	Cloudy	Moderate	4.7	257	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.66749	-70.17378	40.66703	-70.22474	47	18	SW	<2	B4	>5	Cloudy	Moderate	4.7	258	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.66703	-70.22474	40.66644	-70.27484	48	18	SW	<2	B4	>5	Cloudy	Moderate	4.5	258	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.66644	-70.27484	40.66593	-70.32492	50	16	SW	<2	B4	>5	Precipitation	Moderate	4.7	259	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.66593	-70.32492	40.66528	-70.37823	52	15	SW	<2	B4	>5	Precipitation	Moderate	4.7	263	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:11	40.66528	-70.37823	40.66500	-70.39709	55	15	SW	<2	B4	>5	Cloudy	Moderate	4.5	261	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:11	21:20	40.66500	-70.39709	40.66481	-70.41197	56	18	SW	<2	B4	1-2	Precipitation	Moderate	4.8	261	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:20	21:22	40.66481	-70.41197	40.66482	-70.41531	57	22	SW	<2	B5	1-2	Precipitation	None	4.8	260	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:22	21:30	40.66482	-70.41531	40.67136	-70.41624	57	22	SW	<2	B5	1-2	Precipitation	None	4.8	260	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	21:34	40.67136	-70.41624	40.67165	-70.40924	57	22	SW	<2	B5	1-2	Precipitation	None	4.8	260	Silent	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:34	22:00	40.67165	-70.40924	40.67219	-70.36331	55	20	SW	<2	B5	2-5	Precipitation	None	5.2	92	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.67219	-70.36331	40.67285	-70.30968	54	6	WSW	<2	B4	>5	Cloudy	None	4.8	87	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.67285	-70.30968	40.67339	-70.25303	51	5	SSW	<2	B4	>5	Cloudy	None	5	86	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:30	40.67339	-70.25303	40.67408	-70.19729	49	6	S	<2	B4	>5	Cloudy	None	5.4	83	Full Power	N/A
2022-08-22	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	40.67408	-70.19729	40.67468	-70.14335	47	5	ESE	<2	B3	2-5	Cloudy	None	4.5	79	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:10	40.67475	-70.13476	40.67484	-70.12561	46	6	E	<2	B4	1-2	Cloudy	None	5.2	82	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:10	00:30	40.67484	-70.12561	40.67516	-70.09051	45	9	E	<2	B4	0.3-0.5*	Precipitation	None	4.8	79	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:30	01:00	40.67516	-70.09051	40.67567	-70.03828	45	18	S	<2	B4	0.3-0.5*	Precipitation	None	4.9	87	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:13	40.67567	-70.03828	40.67579	-70.01591	47	12	SSW	<2	B4	0.3-0.5*	Precipitation	None	4.9	87	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:13	01:14	40.67579	-70.01591	40.67571	-70.01423	47	12	SSW	<2	B4	0.3-0.5*	Precipitation	None	4.9	87	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:14	01:27	40.67571	-70.01423	40.66937	-70.01097	47	12	SSW	<2	B4	0.5-1	Cloudy	None	4.9	87	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:27	01:31	40.66937	-70.01097	40.66933	-70.01759	63	16	SW	<2	B4	0.5-1	Cloudy	None	4.3	267	Silent	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:31	02:00	40.66933	-70.01759	40.66892	-70.06675	65	16	SW	<2	B4	0.5-1	Cloudy	None	4.8	269	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.66892	-70.06675	40.66845	-70.11818	47	17	SW	<2	B4	0.5-1	Cloudy	None	4.6	268	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.66845	-70.11818	40.66795	-70.17006	45	15	SSW	<2	B4	0.5-1	Cloudy	None	4.7	271	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.66795	-70.17006	40.66741	-70.22435	49	14	SW	2-4	B4	0.3-0.5*	Clear	None	4.7	275	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.66741	-70.22435	40.66681	-70.27909	48	12	SW	2-4	B4	0.3-0.5*	Clear	None	5.1	257	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.66681	-70.27909	40.66620	-70.33291	50	10	SSW	2-4	B4	0.3-0.5*	Clear	None	4.9	270	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.66620	-70.33291	40.66551	-70.38670	53	11	SW	2-4	B4	0.3-0.5*	Clear	None	5.1	269	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:14	40.66551	-70.38670	40.66519	-70.41103	54	13	SSW	2-4	B4	0.3-0.5*	Precipitation	None	4.9	265	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:14	05:30	40.66519	-70.41103	40.66926	-70.41516	55	14	SW	2-4	B4	0.3-0.5*	Precipitation	None	4.9	264	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	05:33	40.66926	-70.41516	40.66932	-70.41007	65	6	S	2-4	B4	0.3-0.5*	Precipitation	None	5	81	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:33	06:00	40.66932	-70.41007	40.66986	-70.36475	64	5	SSW	2-4	B4	0.3-0.5*	Precipitation	None	4.8	83	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.66986	-70.36475	40.67043	-70.31562	53	4	S	2-4	B2	0.3-0.5*	Cloudy	None	4.4	83	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.67043	-70.31562	40.67091	-70.26982	61	3	SSE	2-4	B2	0.3-0.5*	Cloudy	None	4.6	82	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.67091	-70.26982	40.67138	-70.22555	47	9	S	2-4	B2	0.3-0.5*	Cloudy	None	3.6	109	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.67138	-70.22555	40.67186	-70.17896	48	9	S	2-4	B2	0.3-0.5*	Cloudy	None	4.3	81	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.67186	-70.17896	40.67231	-70.13328	47	5	S	2-4	B2	0.3-0.5*	Cloudy	None	4.5	82	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.67231	-70.13328	40.67271	-70.08683	46	6	SSE	2-4	B2	0.3-0.5*	Clear	None	4.1	93	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.67271	-70.08683	40.67312	-70.04101	48	7	SE	2-4	B2	0.3-0.5*	Clear	None	4	91	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	09:45	40.67312	-70.04101	40.67339	-70.01745	46	4	SE	2-4	B2	1-2	Fog	None	4.1	93	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:45	09:47	40.67339	-70.01745	40.67339	-70.01428	47	5	S	2-4	B2	2-5	Fog	Slight	4.2	92	Silent	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:47	10:03	40.67339	-70.01428	40.66955	-70.01135	47	3	S	2-4	B2	2-5	Fog	Slight	4.8	92	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:03	10:08	40.66955	-70.01135	40.66949	-70.01958	47	9	SW	2-4	B2	2-5	Clear	Slight	5.1	251	Silent	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:08	10:30	40.66949	-70.01958	40.66924	-70.05752	48	9	SW	2-4	B2	2-5	Clear	Slight	4.4	250	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.66924	-70.05752	40.66868	-70.10970	49	9	SW	2-4	B2	2-5	Clear	Slight	5.1	256	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.66868	-70.10970	40.66810	-70.16270	45	9	W	2-4	B2	2-5	Clear	Severe	5.1	256	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	40.66810	-70.16270	40.66767	-70.21451	46	10	SW	2-4	B2	2-5	Clear	Severe	4.8	254	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.66767	-70.21451	40.66712	-70.26737	47	9	WSW	2-4	B2	2-5	Cloudy	None	4.8	258	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.66712	-70.26737	40.66658	-70.31940	51	7	SW	2-4	B2	2-5	Cloudy	None	4.7	265	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.66658	-70.31940	40.66597	-70.37361	52	8	SW	2-4	B2	2-5	Cloudy	None	4.5	263	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.66597	-70.37361	40.66544	-70.42665	54	7	SW	2-4	B2	2-5	Cloudy	None	5.1	260	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:08	40.66544	-70.42665	40.66898	-70.41591	55	7	SW	2-4	B2	2-5	Cloudy	None	4.7	29	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:08	14:11	40.66898	-70.41591	40.66905	-70.41053	55	9	SE	2-4	B2	2-5	Cloudy	None	4.9	89	Silent	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:11	14:30	40.66905	-70.41053	40.66943	-70.37663	55	8	SE	2-4	B2	2-5	Cloudy	None	4.7	90	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.66943	-70.37663	40.67006	-70.32411	53	9	SE	2-4	B2	2-5	Cloudy	Slight	4.9	90	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.67006	-70.32411	40.67063	-70.27291	52	11	SE	2-4	B2	2-5	Cloudy	Slight	4.7	85	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.67063	-70.27291	40.67113	-70.22050	49	15	SE	<2	B2	2-5	Cloudy	Slight	5	85	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.67113	-70.22050	40.67168	-70.16940	48	7	SSE	<2	B2	2-5	Cloudy	Slight	4.6	87	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.67168	-70.16940	40.67220	-70.11692	46	7	SSE	<2	B2	2-5	Cloudy	Slight	4.6	91	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.67220	-70.11692	40.67269	-70.06500	45	9	SSE	<2	B2	>5	Cloudy	Slight	4.9	89	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.67269	-70.06500	40.67319	-70.01312	47	7	SSE	<2	B2	>5	Cloudy	Slight	4.3	83	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.67319	-70.01312	40.66975	-70.04050	48	7	SSE	<2	B2	>5	Cloudy	Slight	4.7	81	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	19:00	40.66975	-70.04050	40.66921	-70.09523	46	13	SSW	<2	B3	>5	Cloudy	Slight	5.3	265	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	19:30	40.66921	-70.09523	40.66865	-70.14751	45	12	SSW	<2	B3	>5	Cloudy	Slight	4.5	261	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	19:32	40.66865	-70.14751	40.66853	-70.15105	46	19	SSW	<2	B3	>5	Cloudy	Slight	4.8	261	Full Power	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:32	20:00	40.66853	-70.15105	40.65316	-70.17300	46	19	SSW	<2	B3	>5	Cloudy	Slight	5.1	259	Silent	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:10	40.65316	-70.17300	40.64860	-70.17522	48	22	SSW	<2	B4	>5	Cloudy	Severe	1.6	199	Deploying/Retrieving	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:10	20:40	40.64860	-70.17522	40.63104	-70.18246	49	22	SSW	<2	B4	>5	Cloudy	Severe	2.6	199	Deploying/Retrieving	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:40	21:00	40.63104	-70.18246	40.62164	-70.18474	52	21	SSW	<2	B4	>5	Cloudy	Severe	2.2	205	Deploying/Retrieving	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	40.62164	-70.18474	40.61492	-70.18571	54	22	SSW	<2	B5	>5	Cloudy	Severe	1.7	205	Standby	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.61492	-70.18571	40.64622	-70.17115	54	14	SSW	2-4	B5	>5	Cloudy	Severe	4.3	5	Standby	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.64622	-70.17115	40.67815	-70.15658	51	11	SSW	2-4	B5	>5	Cloudy	Severe	3.9	6	Standby	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	22:30	40.67815	-70.15658	40.67815	-70.15658	43	17	SSW	<2	B4	>5	Cloudy	Severe	2.4	185	Standby	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	23:00	40.67815	-70.15658	40.71050	-70.14154	47	12	SSW	<2	B5	>5	Cloudy	Moderate	3.9	6	Standby	N/A
2022-08-23	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	00:00	40.71050	-70.14154	40.71240	-70.12741	45	10	SSW	<2	B5	>5	Cloudy	Severe	4	6	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:17	40.70713	-70.12827	40.69990	-70.12992	45	14	SSW	2-4	B4	2-5	Cloudy	None	3.6	200	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:17	01:00	40.69990	-70.12992	40.66942	-70.13828	46	11	SSW	2-4	B4	0.5-1	Cloudy	None	2.7	200	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.66942	-70.13828	40.64536	-70.14667	47	13	S	2-4	B4	0.5-1	Cloudy	None	3.2	202	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:30	40.64536	-70.14667	40.62637	-70.15437	50	12	S	2-4	B4	0.5-1	Cloudy	None	3.4	203	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	40.62637	-70.15437	40.64686	-70.14668	52	8	SW	2-4	B4	0.5-1	Cloudy	None	2.4	20	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.64686	-70.14668	40.66772	-70.14200	52	7	WSW	2-4	B4	0.5-1	Clear	None	2.7	5	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	40.66772	-70.14200	40.68805	-70.13956	46	10	SSW	2-4	B4	0.5-1	Clear	None	2.3	33	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.68805	-70.13956	40.70823	-70.13926	46	8	SW	2-4	B4	0.5-1	Clear	None	2.4	356	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.70823	-70.13926	40.72941	-70.13856	50	8	SW	2-4	B4	0.5-1	Clear	None	2.3	354	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.72941	-70.13856	40.75166	-70.13809	43	8	SSW	2-4	B4	0.5-1	Clear	None	2.6	5	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.75166	-70.13809	40.76605	-70.14274	62	8	SSW	2-4	B4	0.3-0.5	Clear	None	2.9	5	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.76605	-70.14274	40.75312	-70.15018	82	14	SW	2-4	B4	0.3-0.5	Clear	None	2	181	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.75312	-70.15018	40.74062	-70.15774	82	14	SSW	2-4	B4	0.3-0.5	Clear	None	1.6	180	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.74062	-70.15774	40.72839	-70.16636	52	15	SW	2-4	B4	0.3-0.5	Clear	None	2.2	181	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.72839	-70.16636	40.71893	-70.17456	44	16	SSW	2-4	B4	0.3-0.5	Clear	None	1.4	181	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.71893	-70.17456	40.71111	-70.18166	45	17	SSW	2-4	B4	0.3-0.5	Clear	None	1.6	181	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.71111	-70.18166	40.70350	-70.18797	46	17	SW	2-4	B4	0.3-0.5	Clear	None	1	216	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.70350	-70.18797	40.69706	-70.19347	52	15	SW	2-4	B4	0.3-0.5	Clear	None	1.2	181	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:30	09:35	40.69706	-70.19347	40.69772	-70.19384	62	11	SW	2-4	B4	0.3-0.5	Clear	None	0.8	174	Standby	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:35	10:00	40.69772	-70.19384	40.69561	-70.19910	62	11	SW	2-4	B4	1-2	Clear	None	0.8	174	Deploying/Retrieving	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:15	40.69561	-70.19910	40.68712	-70.20224	45	14	SW	2-4	B4	1-2	Clear	None	1.7	189	Deploying/Retrieving	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:15	10:30	40.68712	-70.20224	40.67705	-70.18350	45	12	S	2-4	B4	>5	Clear	Slight	3.7	130	Soft Start	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	10:35	40.67705	-70.18350	40.67359	-70.17713	46	14	SSW	2-4	B4	>5	Clear	Moderate	4.3	129	Soft Start	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:35	11:00	40.67359	-70.17713	40.65610	-70.14364	46	14	SE	2-4	B4	>5	Clear	Moderate	4.3	129	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:04	40.65610	-70.14364	40.65400	-70.13785	46	14	SE	2-4	B4	>5	Clear	Moderate	4.3	99	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:04	11:08	40.65400	-70.13785	40.65363	-70.13079	48	8	S	2-4	B4	>5	Clear	Severe	4.7	99	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:08	11:22	40.65363	-70.13079	40.65389	-70.10615	47	8	SSW	2-4	B4	>5	Clear	Severe	4.6	96	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:22	11:24	40.65389	-70.10615	40.65397	-70.10263	47	8	SSW	2-4	B4	>5	Clear	Severe	4.9	92	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:24	11:30	40.65397	-70.10263	40.65779	-70.09376	47	6	SW	2-4	B4	>5	Clear	Severe	5.2	68	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	11:48	40.65779	-70.09376	40.66909	-70.10388	47	6	SW	2-4	B4	>5	Clear	Severe	4.5	30	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:48	12:00	40.66909	-70.10388	40.66888	-70.12428	47	6	SW	2-4	B4	>5	Clear	Severe	4.5	30	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	40.66888	-70.12428	40.66831	-70.17585	45	15	WSW	2-4	B4	>5	Clear	Severe	4.7	254	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.66831	-70.17585	40.66776	-70.22704	47	16	WSW	2-4	B4	>5	Clear	Severe	4.7	252	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.66776	-70.22704	40.66729	-70.27677	47	17	W	2-4	B4	>5	Clear	Severe	4.7	259	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.66729	-70.27677	40.66673	-70.32783	51	16	WSW	2-4	B4	>5	Clear	Severe	4.5	261	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.66673	-70.32783	40.66609	-70.38017	52	15	W	2-4	B4	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:49	40.66609	-70.38017	40.66573	-70.41270	54	16	W	2-4	B4	>5	Clear	Severe	4.8	266	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:49	14:50	40.66573	-70.41270	40.66564	-70.41439	55	17	W	2-4	B4	>5	Clear	Severe	4.3	266	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:50	14:57	40.66564	-70.41439	40.67138	-70.41752	55	17	W	2-4	B4	>5	Clear	Severe	4.9	266	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:57	15:01	40.67138	-70.41752	40.67196	-70.41013	55	8	W	<2	B3	>5	Clear	Severe	5.2	84	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:01	15:30	40.67196	-70.41013	40.67253	-70.35756	55	8	W	<2	B3	>5	Clear	Severe	5.2	84	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.67253	-70.35756	40.67314	-70.30476	53	6	WSW	<2	B3	>5	Clear	Severe	4.8	81	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	40.67314	-70.30476	40.67374	-70.25247	51	5	WSW	<2	B3	>5	Clear	Severe	5	76	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	40.67374	-70.25247	40.67425	-70.20141	49	6	WSW	<2	B3	>5	Clear	Severe	4.8	76	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	40.67425	-70.20141	40.67478	-70.14923	47	6	WSW	<2	B3	>5	Clear	Severe	5	82	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	18:00	40.67478	-70.14923	40.67535	-70.09758	45	6	WSW	<2	B3	>5	Clear	Severe	5.2	81	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	18:30	40.67535	-70.09758	40.67578	-70.04638	45	6	WSW	<2	B3	>5	Clear	Severe	4.6	81	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:30	18:48	40.67578	-70.04638	40.67608	-70.01619	46	4	WSW	<2	B3	>5	Clear	Severe	4.6	81	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:48	18:50	40.67608	-70.01619	40.67613	-70.01279	48	4	WSW	<2	B3	>5	Clear	Severe	4.6	81	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:50	19:03	40.67613	-70.01279	40.67216	-70.01011	47	4	WSW	<2	B3	>5	Clear	Severe	4.6	81	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:03	19:08	40.67216	-70.01011	40.67232	-70.01886	47	13	WSW	<2	B3	>5	Clear	Severe	5	271	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:08	19:30	40.67232	-70.01886	40.67200	-70.05668	47	12	WSW	<2	B3	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:30	20:00	40.67200	-70.05668	40.67151	-70.10860	47	12	WSW	<2	B3	>5	Clear	Severe	4.4	270	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	20:30	40.67151	-70.10860	40.67099	-70.16080	45	12	WSW	<2	B3	>5	Clear	Severe	4.7	268	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:30	21:00	40.67099	-70.16080	40.67033	-70.21478	46	13	WSW	<2	B3	>5	Clear	Severe	4.2	263	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:30	40.67033	-70.21478	40.66978	-70.26942	48	14	WSW	<2	B3	>5	Clear	Severe	5	266	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:30	22:00	40.66978	-70.26942	40.66920	-70.32357	51	14	SW	<2	B3	>5	Clear	Severe	5.2	265	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	22:30	40.66920	-70.32357	40.66859	-70.37709	52	15	SW	<2	B3	>5	Clear	Severe	5.1	265	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:30	22:50	40.66859	-70.37709	40.66819	-70.41224	58	14	SW	<2	B3	>5	Clear	Severe	4.5	259	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:50	22:52	40.66819	-70.41224	40.66820	-70.41565	56	14	WSW	<2	B3	>5	Clear	Severe	4.8	259	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:52	23:04	40.66820	-70.41565	40.67241	-70.41939	56	14	WSW	<2	B3	>5	Clear	Severe	4.9	262	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:04	23:09	40.67241	-70.41939	40.67219	-70.41058	55	6	SSW	<2	B2	>5	Clear	Severe	5.1	98.5	Silent	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:09	23:30	40.67219	-70.41058	40.67259	-70.37530	55	7	S	<2	B2	>5	Clear	Moderate	4.9	83	Full Power	N/A
2022-08-24	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:30	00:00	40.67259	-70.37530	40.67318	-70.32484	54	7	S	<2	B2	>5	Clear	None	4.7	87	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	00:00	00:17	40.67322	-70.32168	40.67355	-70.29327	52	6	SSW	<2	B2	2-5	Clear	None	4.9	89	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Huizar, Heber	RPS	00:17	01:00	40.67355	-70.29327	40.67439	-70.21537	51	6	SSW	<2	B2	0.5-1	Clear	None	4.7	89	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:00	01:30	40.67439	-70.21537	40.67492	-70.16273	47	5	SSW	<2	B2	0.5-1	Clear	None	5.1	93	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	40.67492	-70.16273	40.67543	-70.11053	45	5	SSW	<2	B2	0.5-1	Clear	None	4.9	85	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	40.67543	-70.11053	40.67602	-70.05845	45	6	SSW	<2	B2	0.5-1	Clear	None	5	86	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	02:54	40.67602	-70.05845	40.67639	-70.01674	46	5	SSW	<2	B2	0.5-1	Clear	None	4.7	84	Full Power	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:54	03:00	40.67639	-70.01674	40.67643	-70.00635	47	4	SW	<2	B2	0.5-1	Clear	None	4.8	88	Deploying/Retrieving	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	40.67643	-70.00635	40.67539	-69.97764	48	6	SW	<2	B2	0.5-1	Clear	None	2.7	84	Deploying/Retrieving	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	03:47	40.67539	-69.97764	40.67455	-69.96644	50	7	SSW	<2	B2	0.5-1	Clear	None	2.5	102	Deploying/Retrieving	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:47	04:00	40.67455	-69.96644	40.68307	-69.97979	48	6	W	<2	B2	0.5-1	Clear	None	1.2	69	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	40.68307	-69.97979	40.70702	-70.03172	48	13	W	<2	B3	0.5-1	Clear	None	5.7	315	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	40.70702	-70.03172	40.72463	-70.08708	43	14	W	<2	B3	0.5-1	Clear	None	5.3	293	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	40.72463	-70.08708	40.74509	-70.14484	42	15	WSW	<2	B3	0.5-1	Clear	None	5.5	293	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	40.74509	-70.14484	40.76711	-70.20443	48	13	W	<2	B3	0.5-1	Clear	None	6	293	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	40.76711	-70.20443	40.78401	-70.26602	44	17	W	<2	B3	0.5-1	Clear	None	5.9	293	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	40.78401	-70.26602	40.81018	-70.31324	45	14	W	<2	B3	0.5-1	Clear	None	4.4	293	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	40.81018	-70.31324	40.84636	-70.35041	46	14	W	<2	B3	0.5-1	Clear	None	5.7	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	40.84636	-70.35041	40.88292	-70.38579	49	14	W	<2	B3	0.5-1	Clear	None	5.4	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	40.88292	-70.38579	40.92162	-70.41963	46	12	W	<2	B3	0.5-1	Clear	None	5.6	317	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	40.92162	-70.41963	40.96067	-70.45327	46	13	W	<2	B3	0.5-1	Clear	None	5.6	323	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	40.96067	-70.45327	40.99743	-70.48968	45	12	WNW	<2	B3	0.5-1	Clear	None	5.5	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.99743	-70.48968	41.02967	-70.53077	49	12	W	<2	B3	1-2	Clear	None	5.6	313	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	41.02967	-70.53077	41.06192	-70.57052	49	11	WSW	<2	B3	>5	Clear	Severe	5.4	314	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	41.06192	-70.57052	41.09815	-70.60573	49	9	W	<2	B3	>5	Clear	Severe	5.4	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	41.09815	-70.60573	41.13533	-70.64002	48	7	SW	<2	B3	>5	Clear	Severe	5.3	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	12:00	41.13533	-70.64002	41.17250	-70.67346	48	6	SW	<2	B3	>5	Clear	Severe	5.6	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:30	41.17250	-70.67346	41.20966	-70.70746	34	5	SW	<2	B3	>5	Clear	Severe	5.4	322	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	41.20966	-70.70746	41.24434	-70.74488	30	6	SW	<2	B3	>5	Clear	Severe	5.3	315	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	41.24434	-70.74488	41.27687	-70.78270	28	6	W	<2	B3	>5	Clear	Severe	5.4	316	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	41.27687	-70.78270	41.30485	-70.82811	11	8	W	<2	B3	>5	Clear	Severe	4.6	299	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	41.30485	-70.82811	41.34071	-70.86186	17	11	WNW	<2	B3	>5	Clear	Severe	5.8	308	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	41.34071	-70.86186	41.38389	-70.86164	27	7	NW	<2	B2	>5	Clear	Severe	5.7	330	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	41.38389	-70.86164	41.42406	-70.84015	25	5	NNE	<2	B1	>5	Clear	Severe	5.5	16	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	41.42406	-70.84015	41.46977	-70.84444	11	2	NNE	<2	B1	>5	Clear	Severe	5.9	334	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:30	41.46977	-70.84444	41.52081	-70.84102	12	2	NNE	<2	B1	>5	Clear	Severe	6	334	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:30	17:00	41.52081	-70.84102	41.56864	-70.87185	15	3	NNE	<2	B1	>5	Clear	Moderate	6.2	340	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	17:30	41.56864	-70.87185	41.61691	-70.90130	10	1	SW	<2	B1	>5	Clear	Moderate	6.3	331	Transit	N/A
2022-08-25	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:30	17:55	41.61691	-70.90130	41.62143	-70.91348	10	4	S	<2	B1	>5	Clear	Moderate	4.5	332	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:15	01:30	41.62140	-70.91350	41.63111	-70.91445	5	8	WSW	<2	B2	0.5-1	Cloudy	None	0.5	176	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	01:30	02:00	41.63111	-70.91445	41.59163	-70.88548	11	10	WSW	<2	B2	0.5-1	Cloudy	None	4.5	132	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:00	02:30	41.59163	-70.88548	41.54232	-70.85329	11	24	S	<2	B4	0.5-1	Cloudy	None	6.5	153	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali; Danos, Laura	RPS	02:30	03:00	41.54232	-70.85329	41.48752	-70.84141	14	23	S	<2	B4	0.5-1	Cloudy	None	6.5	148	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:00	03:30	41.48752	-70.84141	41.42886	-70.83701	15	17	S	<2	B4	0.5-1	Cloudy	None	7.2	183	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	03:30	04:00	41.42886	-70.83701	41.38016	-70.86563	15	17	SSE	<2	B4	0.5-1	Cloudy	None	7.6	136	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:00	04:30	41.38016	-70.86563	41.33166	-70.85712	28	14	S	<2	B4	0.5-1	Cloudy	None	6.4	202	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	04:30	05:00	41.33166	-70.85712	41.29363	-70.81549	22	14	SSE	<2	B4	0.5-1	Cloudy	None	5.8	149	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:00	05:30	41.29363	-70.81549	41.26169	-70.76496	12	14	S	<2	B4	0.5-1	Cloudy	None	6.1	125	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	05:30	06:00	41.26169	-70.76496	41.22510	-70.73647	23	14	S	<2	B4	0.5-1	Cloudy	None	5.4	140	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:00	06:30	41.22510	-70.73647	41.18695	-70.72871	30	18	SSW	2-4	B4	0.5-1	Cloudy	None	5	160	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Toxtle, Miguel	RPS	06:30	07:00	41.18695	-70.72871	41.14186	-70.72572	30	17	SSW	2-4	B4	0.5-1	Cloudy	None	4.5	169	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:00	07:30	41.14186	-70.72572	41.09855	-70.72451	38	16	WSW	2-4	B4	0.5-1	Cloudy	None	5.7	170	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	07:30	08:00	41.09855	-70.72451	41.04910	-70.72385	40	14	SW	2-4	B5	0.5-1	Cloudy	None	5.1	180	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:00	08:30	41.04910	-70.72385	41.02489	-70.67204	39	15	SW	2-4	B5	0.5-1	Cloudy	None	6.4	184	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Danos, Laura	RPS	08:30	09:00	41.02489	-70.67204	41.00897	-70.60834	38	6	SW	2-4	B5	0.5-1	Clear	None	6.4	115	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Danos, Laura; Toxtle, Miguel	RPS	09:00	09:30	41.00897	-70.60834	40.98521	-70.55380	46	8	SW	2-4	B5	0.5-1	Clear	None	6.9	100	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	09:30	10:00	40.98521	-70.55380	40.93755	-70.54215	51	14	SW	2-4	B4	1-2	Clear	None	7.3	167	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:00	10:30	40.93755	-70.54215	40.89624	-70.54224	50	12	SW	2-4	B4	1-2	Clear	None	6.5	169	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	10:30	11:00	40.89624	-70.54224	40.87657	-70.55334	53	13	SW	2-4	B4	>5	Clear	None	2.4	195	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:00	11:30	40.87657	-70.55334	40.85662	-70.56392	55	12	WSW	2-4	B3	>5	Clear	None	2.7	195	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:30	11:58	40.85662	-70.56392	40.83694	-70.57509	53	9	WSW	2-4	B3	>5	Clear	None	3	197	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	11:58	12:30	40.83694	-70.57509	40.83645	-70.55949	52	12	W	2-4	B3	>5	Clear	Moderate	3.2	216	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:30	13:00	40.83645	-70.55949	40.84213	-70.52679	53	7	W	2-4	B3	>5	Clear	Severe	2.2	82	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:30	40.84213	-70.52679	40.84730	-70.49077	56	3	W	2-4	B2	>5	Clear	Severe	3.4	82	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	14:00	40.84730	-70.49077	40.83795	-70.46558	55	4	NW	2-4	B2	>5	Clear	Severe	3.4	84	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	40.83795	-70.46558	40.83196	-70.40425	53	3	N	2-4	B2	>5	Cloudy	Severe	5.3	98	Standby	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.83196	-70.40425	40.82909	-70.36401	51	3	N	2-4	B2	>5	Cloudy	None	4.8	94	Standby	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:30	40.82909	-70.36401	40.83036	-70.36827	50	3	N	<2	B2	>5	Cloudy	None	3.3	95	Standby	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:30	16:00	40.83036	-70.36827	40.85349	-70.38824	49	13	N	<2	B2	>5	Cloudy	None	3.3	341	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	17:00	40.85349	-70.38824	40.91966	-70.42647	50	8	N	<2	B2	>5	Cloudy	None	4.5	341	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	17:00	18:00	40.91966	-70.42647	40.98985	-70.49476	47	10	N	<2	B3	>5	Cloudy	None	4.8	318	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	18:00	19:00	40.98985	-70.49476	41.07355	-70.58674	47	18	N	<2	B4	>5	Cloudy	None	5.3	324	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	19:00	20:00	41.07355	-70.58674	41.18669	-70.68982	43	18	N	<2	B4	>5	Cloudy	None	6.3	324	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Bonfil, Neftali	RPS	20:00	21:00	41.18669	-70.68982	41.29759	-70.81886	37	17	N	<2	B4	>5	Cloudy	None	5.7	328	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	41.29759	-70.81886	41.42131	-70.83872	14	12	N	<2	B4	>5	Clear	Severe	8.2	318	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	41.42131	-70.83872	41.55784	-70.86230	7	20	NNE	<2	B4	>5	Clear	Severe	8.5	5	Transit	N/A
2022-08-27	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:45	41.55784	-70.86230	41.62192	-70.91348	7	14	N	<2	B2	>5	Clear	Moderate	8.3	324	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:09	17:30	41.62219	-70.91335	41.61390	-70.89916	11	10	SSE	<2	B1	>5	Cloudy	Slight	0	160	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:30	18:00	41.61390	-70.89916	41.55737	-70.86220	8	22	SSE	<2	B1	>5	Cloudy	None	7.5	153	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	41.55737	-70.86220	41.43403	-70.83836	11	23	SSE	<2	B1	>5	Cloudy	None	7.7	150	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	41.43403	-70.83836	41.35907	-70.87268	10	14	SSE	<2	B3	>5	Cloudy	None	6.9	206	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	41.35907	-70.87268	41.35907	-70.87268	18	15	E	<2	B3	>5	Cloudy	None	6.7	148	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	41.35907	-70.87268	41.13589	-70.63626	31	22	SE	<2	B3	>5	Cloudy	None	7.8	138	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	41.13589	-70.63626	41.02644	-70.53438	42	20	SE	<2	B3	>5	Cloudy	None	8	138	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:15	41.02644	-70.53438	40.99870	-70.50881	46	17	SE	<2	B3	>5	Cloudy	None	8.2	141	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:15	23:45	40.99870	-70.50881	40.94440	-70.45931	47	17	ESE	<2	B3	>5	Cloudy	None	8	142	Transit	N/A
2022-09-05	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:45	00:00	40.94440	-70.45931	40.91967	-70.43599	46	17	ESE	<2	B3	0.5-1	Cloudy	None	7.6	141	Transit	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	00:45	40.91464	-70.43117	40.85273	-70.37502	48	16	ESE	<2	B3	0.5-1	Cloudy	None	7.5	140	Transit	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:45	01:00	40.85273	-70.37502	40.84990	-70.37645	49	7	ESE	<2	B3	0.5-1	Cloudy	None	0.6	351	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	01:31	40.84990	-70.37645	40.83511	-70.36657	49	9	E	<2	B3	0.5-1	Cloudy	None	0.6	125	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:31	01:52	40.83511	-70.36657	40.82342	-70.35063	49	9	E	<2	B3	0.5-1	Cloudy	None	0.6	124	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:52	02:00	40.82342	-70.35063	40.81723	-70.34064	48	15	N	<2	B3	0.5-1	Cloudy	None	0.6	115	Soft Start	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	02:12	40.81723	-70.34064	40.80494	-70.32991	44	14	E	<2	B3	0.5-1	Cloudy	None	4.4	144	Soft Start	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:12	03:00	40.80494	-70.32991	40.77471	-70.29955	44	14	E	<2	B3	0.5-1	Cloudy	None	4.1	135	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	03:14	40.77471	-70.29955	40.76044	-70.30212	44	7	ESE	<2	B3	0.5-1	Cloudy	None	5	248	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:14	03:19	40.76044	-70.30212	40.75354	-70.30179	48	7	ESE	<2	B3	0.5-1	Cloudy	None	5	178	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:19	04:00	40.75354	-70.30179	40.69938	-70.30077	48	11	N	<2	B3	0.5-1	Cloudy	None	5.2	178	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.69938	-70.30077	40.64027	-70.29940	48	14	E	<2	B3	0.5-1	Cloudy	None	5.4	154	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	05:02	40.64027	-70.29940	40.64027	-70.29940	57	13	ESE	<2	B3	0.5-1	Cloudy	None	5.3	154	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:02	05:03	40.64027	-70.29940	40.64027	-70.29940	57	13	ESE	<2	B3	0.5-1	Cloudy	None	5.2	154	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:03	06:00	40.64027	-70.29940	40.64956	-70.38571	57	13	ESE	<2	B3	0.5-1	Cloudy	None	5.4	154	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	40.64956	-70.38571	40.67521	-70.36460	57	7	NE	<2	B3	0.5-1	Cloudy	None	5.4	303	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.67521	-70.36460	40.67636	-70.26925	52	17	E	<2	B3	0.5-1	Cloudy	None	4.6	97	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.67636	-70.26925	40.67728	-70.17524	48	18	E	<2	B3	0.5-1	Cloudy	None	4.6	98	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:40	40.67728	-70.17524	40.67798	-70.11055	46	16	E	<2	B3	0.5-1	Cloudy	None	4.4	92	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	09:40	10:00	40.67798	-70.11055	40.67818	-70.07637	44	19	E	<2	B3	1-2	Cloudy	None	5	92	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.67818	-70.07637	40.67238	-70.03257	44	19	WSW	<2	B3	1-2	Cloudy	None	5	92	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	40.67238	-70.03257	40.67157	-70.12908	44	10	WSW	<2	B3	>5	Cloudy	None	4.7	271	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.67157	-70.12908	40.67050	-70.23235	46	8	ENE	<2	B3	>5	Cloudy	None	4.9	265	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	40.67050	-70.23235	40.66950	-70.33055	46	12	ENE	<2	B3	>5	Cloudy	None	4.5	267	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:49	40.66950	-70.33055	40.66856	-70.41211	52	11	ENE	<2	B3	>5	Cloudy	None	4.6	266	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:49	14:50	40.66856	-70.41211	40.66851	-70.41395	55	11	ENE	<2	B3	>5	Precipitation	None	4.8	266	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:50	15:00	40.66851	-70.41395	40.67227	-70.42564	55	11	ENE	<2	B3	>5	Precipitation	None	4.8	266	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:06	40.67227	-70.42564	40.67116	-70.41603	54	10	ENE	<2	B4	>5	Precipitation	None	4.3	46	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:06	15:10	40.67116	-70.41603	40.67136	-70.40920	54	20	ENE	<2	B4	>5	Precipitation	None	4.9	79	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:10	16:00	40.67136	-70.40920	40.67241	-70.32697	54	20	ENE	<2	B4	>5	Precipitation	None	4.5	73	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:33	40.67241	-70.32697	40.67287	-70.27479	52	22	ENE	<2	B4	>5	Precipitation	None	4.5	86	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:33	16:35	40.67287	-70.27479	40.67291	-70.27171	49	19	ENE	<2	B4	>5	Precipitation	None	4	82	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:35	17:00	40.67291	-70.27171	40.67339	-70.23072	49	17	ENE	<2	B4	>5	Precipitation	None	4	82	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.67339	-70.23072	40.67433	-70.13334	45	25	ENE	<2	B4	>5	Precipitation	None	4.7	96	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	40.67433	-70.13334	40.67520	-70.03628	43	26	ENE	<2	B4	>5	Precipitation	None	4.2	84	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	19:20	40.67520	-70.03628	40.67288	-70.00432	45	23	ENE	<2	B4	>5	Precipitation	None	4.9	97	Full Power	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:20	20:00	40.67288	-70.00432	40.66993	-70.08055	45	23	ENE	<2	B4	>5	Precipitation	None	4.9	97	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	20:15	40.66993	-70.08055	40.67023	-70.10656	44	14	ENE	<2	B4	>5	Precipitation	None	5.7	271	Silent	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:15	21:00	40.67023	-70.10656	40.67421	-70.13390	44	14	ENE	<2	B4	>5	Precipitation	None	5.7	271	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:01	40.67421	-70.13390	40.67513	-70.15509	44	15	ENE	<2	B4	>5	Precipitation	None	1.3	330	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:01	22:39	40.67513	-70.15509	40.67678	-70.16608	46	13	E	<2	B4	>5	Precipitation	None	1	332	Deploying/Retrieving	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:39	22:55	40.67678	-70.16608	40.69223	-70.17707	46	13	ENE	<2	B4	>5	Cloudy	None	3.1	330	Standby	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:55	23:40	40.69223	-70.17707	40.77607	-70.25599	49	14	ENE	<2	B4	>5	Cloudy	None	6.6	327	Transit	N/A
2022-09-06	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:40	00:00	40.77607	-70.25599	40.81089	-70.28911	45	13	NNE	<2	B4	0.5-1	Cloudy	None	8	320	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.81564	-70.29368	40.91707	-70.39659	47	16	NNE	<2	B4	0.5-1	Cloudy	None	7.8	320	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.91707	-70.39659	41.02019	-70.50601	45	17	N	<2	B4	0.5-1	Cloudy	None	7.8	320	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	41.02019	-70.50601	41.12416	-70.61796	46	16	N	<2	B4	0.5-1	Cloudy	None	8	320	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	41.12416	-70.61796	41.22581	-70.73666	40	16	NE	<2	B4	0.5-1	Cloudy	None	7	321	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	41.22581	-70.73666	41.33345	-70.85519	28	15	NE	<2	B4	0.5-1	Cloudy	None	8	320	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	41.33345	-70.85519	41.44407	-70.84668	21	15	NE	<2	B4	0.5-1	Cloudy	None	8.3	320	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	41.44407	-70.84668	41.55641	-70.86096	10	23	NE	<2	B4	0.5-1	Cloudy	None	7.6	3	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	41.55641	-70.86096	41.62419	-70.91419	10	23	NE	<2	B4	0.5-1	Cloudy	None	6.4	330	Transit	N/A
2022-09-07	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	08:10	41.62419	-70.91419	41.62264	-70.91414	12	5	NE	<2	B1	0.5-1	Cloudy	None	2.6	175	Transit	N/A
2022-09-10	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:57	23:40	41.62192	-70.91356	41.58213	-70.88004	6	2	E	<2	B1	>5	Clear	Slight	0.1	160	Transit	N/A
2022-09-10	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:40	00:00	41.58213	-70.88004	41.54998	-70.85686	40	9	S	<2	B2	1-2	Clear	None	6.4	146	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	41.42953	-70.82939	41.42953	-70.82939	16	9	S	<2	B2	1-2	Clear	None	6.8	160	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	01:00	02:00	41.42953	-70.82939	41.46064	-70.72529	20	6	E	<2	B2	1-2	Clear	None	7.8	75	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	41.46064	-70.72529	41.49889	-70.61623	22	4	E	<2	B2	1-2	Clear	None	5.2	61	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	41.49889	-70.61623	41.47589	-70.51591	23	5	SSW	<2	B3	1-2	Clear	None	0	0	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	41.47589	-70.51591	41.45571	-70.43802	19	5	W	<2	B3	1-2	Clear	None	4.4	102	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	41.45571	-70.43802	41.46957	-70.49053	23	6	WSW	<2	B3	1-2	Clear	None	3.3	102	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	41.46957	-70.49053	41.50102	-70.62312	15	13	WSW	<2	B3	1-2	Clear	None	5.6	206	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	41.50102	-70.62312	41.48806	-70.66696	23	7	WSW	<2	B3	1-2	Clear	None	0.8	110	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	08:27	41.48806	-70.66696	41.47688	-70.68825	25	7	W	<2	B3	1-2	Clear	None	0.7	57	Standby	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:27	09:00	41.47688	-70.68825	41.43312	-70.76830	25	15	W	<2	B3	1-2	Clear	None	9	225	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:40	41.43312	-70.76830	41.39063	-70.85046	21	15	W	<2	B3	1-2	Clear	None	7.4	235	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	09:40	10:00	41.39063	-70.85046	41.37410	-70.89237	27	14	W	<2	B3	2-5	Cloudy	None	6.4	230	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	41.37410	-70.89237	41.31753	-70.99540	23	15	W	<2	B3	2-5	Cloudy	None	6.4	230	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	41.31753	-70.99540	41.34784	-71.02973	23	10	SW	<2	B3	2-5	Cloudy	None	6.4	230	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:19	41.34784	-71.02973	41.37710	-71.04478	25	16	WNW	<2	B3	>5	Cloudy	None	8.4	320	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:19	12:56	41.37710	-71.04478	41.38571	-71.06452	25	16	WNW	<2	B3	>5	Cloudy	None	8.4	320	Deploying/Retrieving	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:56	13:00	41.38571	-71.06452	41.38694	-71.06817	24	11	W	<2	B3	>5	Cloudy	None	2.8	280	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:12	41.38694	-71.06817	41.39135	-71.08001	24	11	W	<2	B3	>5	Cloudy	None	2.7	280	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:12	13:32	41.39135	-71.08001	41.39475	-71.06637	23	12	W	<2	B3	>5	Cloudy	None	4.9	328	Soft Start	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:32	14:00	41.39475	-71.06637	41.36176	-71.04754	23	7	SW	<2	B3	>5	Cloudy	Slight	4.9	136	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:30	41.36176	-71.04754	41.37492	-71.05205	22	11	WSW	<2	B3	>5	Cloudy	Severe	4.7	169	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	14:34	41.37492	-71.05205	41.36951	-71.05025	22	10	SW	<2	B3	>5	Cloudy	Severe	4.4	166	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:34	14:41	41.36951	-71.05025	41.36080	-71.04716	22	11	SW	<2	B3	>5	Cloudy	Severe	4.4	165	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:41	14:42	41.36080	-71.04716	41.35956	-71.04668	22	11	SW	<2	B3	>5	Cloudy	Severe	4.4	165	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:42	14:55	41.35956	-71.04668	41.35884	-71.03902	22	11	SW	<2	B3	>5	Cloudy	Severe	4.4	165	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	14:55	14:59	41.35884	-71.03902	41.36407	-71.04102	22	11	SW	<2	B3	>5	Cloudy	Severe	4.4	165	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	14:59	15:02	41.36407	-71.04102	41.36792	-71.04235	23	12	W	<2	B3	>5	Cloudy	Slight	5.9	340	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:02	15:07	41.36792	-71.04235	41.37432	-71.04459	23	12	W	<2	B3	>5	Cloudy	Slight	5.9	339	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:07	15:27	41.37432	-71.04459	41.36817	-71.02624	22	3	W	<2	B3	>5	Cloudy	Slight	5.2	53	Soft Start	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:27	15:29	41.36817	-71.02624	41.36590	-71.02776	24	3	W	<2	B3	>5	Cloudy	Slight	5.2	248	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:29	15:34	41.36590	-71.02776	41.36342	-71.03447	26	14	W	<2	B3	>5	Cloudy	Slight	4.4	250	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:34	15:38	41.36342	-71.03447	41.36115	-71.03976	26	14	W	<2	B3	>5	Cloudy	Slight	4	258	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:38	15:40	41.36115	-71.03976	41.36042	-71.04275	26	14	W	<2	B3	>5	Cloudy	Slight	4	258	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:40	15:57	41.36042	-71.04275	41.35687	-71.03616	26	14	W	<2	B3	>5	Cloudy	Slight	4.4	258	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:57	16:00	41.35687	-71.03616	41.35969	-71.03790	26	11	W	<2	B3	>5	Cloudy	Slight	4	329	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	16:02	41.35969	-71.03790	41.36162	-71.03911	26	11	W	<2	B3	>5	Cloudy	Slight	4.3	327	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:02	16:10	41.36162	-71.03911	41.36955	-71.04272	25	11	W	<2	B3	>5	Cloudy	Slight	4	325	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:10	16:12	41.36955	-71.04272	41.37166	-71.04331	26	11	W	<2	B3	>5	Cloudy	Slight	4.4	325	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:12	16:35	41.37166	-71.04331	41.36598	-71.02826	25	11	WSW	<2	B3	>5	Cloudy	Slight	4.3	325	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:35	16:39	41.36598	-71.02826	41.36381	-71.03380	25	14	WSW	<2	B3	>5	Cloudy	Slight	4.3	252	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:39	16:44	41.36381	-71.03380	41.36128	-71.04104	25	14	WSW	<2	B3	>5	Cloudy	Slight	4.3	250	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:44	16:46	41.36128	-71.04104	41.36025	-71.04393	25	14	WSW	<2	B3	>5	Cloudy	Slight	4.2	250	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:46	17:00	41.36025	-71.04393	41.35851	-71.03896	22	15	WSW	<2	B3	>5	Cloudy	Slight	4.4	250	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	17:05	41.35851	-71.03896	41.36461	-71.04122	21	11	W	<2	B3	>5	Cloudy	Slight	4.8	349	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:05	17:11	41.36461	-71.04122	41.37170	-71.04376	21	11	W	<2	B3	>5	Cloudy	Slight	4.8	349	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:11	17:13	41.37170	-71.04376	41.37409	-71.04462	21	11	W	<2	B3	>5	Cloudy	Slight	4.8	349	Silent	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:13	17:14	41.37409	-71.04462	41.37529	-71.04512	21	11	W	<2	B3	>5	Cloudy	Slight	4.8	349	Full Power	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:14	18:00	41.37529	-71.04512	41.40024	-71.06222	20	11	W	<2	B3	>5	Cloudy	Slight	2.6	347	Deploying/Retrieving	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	18:09	41.40024	-71.06222	41.39992	-71.06103	22	6	W	<2	B3	>5	Cloudy	Slight	0.2	137	Deploying/Retrieving	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:09	19:00	41.39992	-71.06103	41.30585	-70.96300	22	10	W	<2	B3	>5	Cloudy	Slight	2.9	132	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	41.30585	-70.96300	41.19087	-70.85788	35	14	SSW	<2	B3	>5	Cloudy	None	8.7	143	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	41.19087	-70.85788	41.11044	-70.72244	24	9	SW	<2	B3	>5	Cloudy	None	7.6	125	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	41.11044	-70.72244	41.02329	-70.59254	41	8	SW	<2	B3	>5	Cloudy	None	7.9	123	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	41.02329	-70.59254	40.94145	-70.46215	45	7	SW	<2	B3	>5	Precipitation	None	7.9	123	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:40	40.94145	-70.46215	40.88746	-70.37550	46	7	SSW	<2	B3	2-5	Cloudy	None	7.7	126	Transit	N/A
2022-09-11	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:40	00:00	40.88746	-70.37550	40.86080	-70.33240	47	9	SSW	<2	B3	0.5-1	Cloudy	None	7.7	126	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.85594	-70.32445	40.78168	-70.19650	46	8	S	<2	B3	0.5-1	Cloudy	None	7.5	126	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.78168	-70.19650	40.71505	-70.07279	42	10	S	<2	B3	0.5-1	Cloudy	None	7.8	126	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	02:26	40.71505	-70.07279	40.72063	-70.06492	41	7	SW	<2	B3	0.5-1	Cloudy	None	0.3	42	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:26	03:00	40.72063	-70.06492	40.70900	-70.03026	40	6	SW	<2	B3	0.5-1	Cloudy	None	3.1	111	Deploying/Retrieving	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	03:13	40.70900	-70.03026	40.70351	-70.01554	41	8	SW	<2	B3	0.5-1	Cloudy	None	2.8	111	Deploying/Retrieving	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:13	03:33	40.70351	-70.01554	40.68946	-69.99680	43	4	S	<2	B3	0.5-1	Cloudy	None	4.3	130	Soft Start	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:33	04:00	40.68946	-69.99680	40.67040	-70.01176	44	8	S	<2	B3	0.5-1	Cloudy	None	4.1	150	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	04:04	40.67040	-70.01176	40.67034	-70.01837	45	11	S	<2	B3	0.5-1	Cloudy	None	5	150	Silent	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:04	04:57	40.67034	-70.01837	40.66969	-70.09992	45	11	S	<2	B3	0.5-1	Cloudy	None	5	150	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:57	04:58	40.66969	-70.09992	40.66969	-70.10145	45	11	S	<2	B3	0.5-1	Cloudy	None	5	150	Silent	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:58	05:00	40.66969	-70.10145	40.66963	-70.10456	45	11	S	<2	B3	0.5-1	Cloudy	None	5	150	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.66963	-70.10456	40.67678	-70.01091	45	3	WNW	<2	B1	0.5-1	Cloudy	None	4.9	150	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	06:04	40.67678	-70.01091	40.67149	-70.00926	47	7	SSW	<2	B2	0.5-1	Cloudy	None	5.2	143	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:04	06:10	40.67149	-70.00926	40.67047	-70.01849	47	12	SSW	<2	B2	0.5-1	Cloudy	None	4.7	143	Silent	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:10	07:00	40.67047	-70.01849	40.66972	-70.10231	47	12	SSW	<2	B2	0.5-1	Cloudy	None	5.8	143	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.66972	-70.10231	40.66864	-70.20642	45	6	W	<2	B2	0.5-1	Cloudy	None	4.8	275	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.66864	-70.20642	40.66841	-70.22782	48	9	SSW	<2	B2	0.5-1	Precipitation	None	3.9	268	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.66841	-70.22782	40.66950	-70.42175	43	10	S	<2	B2	0.5-1	Precipitation	None	4	277	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.66950	-70.42175	40.67328	-70.33758	43	15	ESE	<2	B3	2-5	Precipitation	None	4	92	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	40.67328	-70.33758	40.67435	-70.24242	48	17	SE	<2	B4	>5	Cloudy	None	3.9	92	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.67435	-70.24242	40.67542	-70.13981	49	18	ESE	<2	B4	>5	Precipitation	None	5	93	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	40.67542	-70.13981	40.67635	-70.03720	47	18	SE	<2	B4	>5	Precipitation	None	4.5	99	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:12	40.67635	-70.03720	40.67653	-70.01620	48	22	SE	<2	B4	>5	Precipitation	None	4.3	100	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:12	14:13	40.67653	-70.01620	40.67653	-70.01255	48	22	SE	<2	B4	>5	Precipitation	None	4.7	99	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:13	14:26	40.67653	-70.01255	40.67078	-70.01096	48	22	SE	<2	B4	>5	Precipitation	None	4.5	99	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:26	14:30	40.67078	-70.01096	40.67065	-70.01769	49	14	SE	<2	B3	>5	Precipitation	None	4.4	258	Silent	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:30	15:00	40.67065	-70.01769	40.67012	-70.06511	49	11	SE	<2	B3	>5	Precipitation	None	4.3	252	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	16:00	40.67012	-70.06511	40.66924	-70.16219	47	9	SE	<2	B3	>5	Cloudy	None	4.5	257	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	17:00	40.66924	-70.16219	40.66834	-70.25705	47	10	S	<2	B3	>5	Cloudy	None	4.5	258	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.66834	-70.25705	40.66736	-70.35076	47	11	S	<2	B3	>5	Cloudy	Moderate	4.6	271	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	18:39	40.66736	-70.35076	40.66664	-70.41194	51	11	SSE	<2	B3	>5	Clear	Severe	4.5	276	Full Power	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:39	19:00	40.66664	-70.41194	40.66598	-70.44533	52	8	SSE	<2	B3	>5	Clear	Severe	4.4	264	Silent	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	19:55	40.66598	-70.44533	40.67828	-70.46223	55	6	ESE	<2	B3	>5	Clear	Moderate	2.5	298	Deploying/Retrieving	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:55	20:00	40.67828	-70.46223	40.68455	-70.46303	53	6	ENE	<2	B3	>5	Clear	Moderate	3.2	4	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	40.68455	-70.46303	40.81250	-70.53054	52	8	NNE	<2	B3	>5	Clear	Moderate	8.1	337	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	40.81250	-70.53054	40.93850	-70.59717	53	25	NNE	<2	B3	>5	Cloudy	Moderate	8.4	333	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.93850	-70.59717	41.06644	-70.66302	49	7	NNE	<2	B3	>5	Cloudy	Slight	8.2	338	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:35	41.06644	-70.66302	41.13978	-70.70470	45	8	N	<2	B3	2-5	Cloudy	None	8.1	336	Transit	N/A
2022-09-12	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:35	00:00	41.13978	-70.70470	41.19256	-70.73722	32	7	N	<2	B3	0.5-1	Cloudy	None	8.6	336	Transit	N/A
2022-09-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	41.22613	-70.74753	41.30382	-70.82446	96	7	N	<2	B3	0.5-1	Cloudy	None	8.1	10	Transit	N/A
2022-09-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	41.30382	-70.82446	41.43619	-70.83948	18	6	N	<2	B3	0.5-1	Cloudy	None	9.1	315	Transit	N/A
2022-09-13	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	41.43619	-70.83948	41.55363	-70.85904	10	3	W	<2	B3	0.5-1	Cloudy	None	6.1	333	Transit	N/A
2022-09-13	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	41.55363	-70.85904	41.62162	-70.91339	9	8	W	<2	B3	0.5-1	Cloudy	None	8.3	332	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:05	01:00	41.62168	-70.91354	41.57170	-70.87340	11	7	NNE	<2	B1	0.5-1	Cloudy	None	1	165	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	41.57170	-70.87340	41.46165	-70.84493	12	22	S	2-4	B5	0.5-1	Cloudy	None	7.2	155	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	41.46165	-70.84493	41.35509	-70.87021	27	25	S	2-4	B5	0.5-1	Cloudy	None	7.3	188	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	41.35509	-70.87021	41.25685	-70.76194	26	22	S	2-4	B5	0.5-1	Cloudy	None	7.3	157	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	41.25685	-70.76194	41.13511	-70.69949	54	13	NW	2-4	B4	0.5-1	Cloudy	None	7.7	45	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	41.13511	-70.69949	41.01378	-70.62389	40	18	SW	2-4	B4	0.5-1	Cloudy	None	7.9	158	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	41.01378	-70.62389	40.89326	-70.54613	47	15	WSW	2-4	B4	0.5-1	Cloudy	None	8	155	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.89326	-70.54613	40.76828	-70.47532	52	13	W	2-4	B4	0.5-1	Cloudy	None	8	155	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.76828	-70.47532	40.67006	-70.46901	52	16	W	2-4	B4	0.5-1	Cloudy	None	8.5	155	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:45	40.67006	-70.46901	40.67525	-70.41556	56	23	W	2-4	B4	0.5-1	Cloudy	None	5.4	201	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	09:45	10:00	40.67525	-70.41556	40.68529	-70.41515	56	23	W	2-4	B4	2-5	Cloudy	None	5.4	201	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.68529	-70.41515	40.68020	-70.41650	56	23	W	2-4	B4	>5	Cloudy	None	5.4	201	Transit	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:22	40.68020	-70.41650	40.67496	-70.42124	52	15	W	2-4	B4	>5	Cloudy	None	2.6	76	Deploying/Retrieving	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:22	11:50	40.67496	-70.42124	40.67270	-70.41627	52	20	W	2-4	B4	>5	Clear	Slight	4	231	Soft Start	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:50	11:55	40.67270	-70.41627	40.67275	-70.40900	52	15	W	2-4	B4	>5	Clear	Severe	4	88	Silent	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:55	12:00	40.67275	-70.40900	40.67289	-70.40050	52	15	W	2-4	B4	>5	Clear	Severe	4	88	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.67289	-70.40050	40.67410	-70.29727	54	16	NW	2-4	B4	>5	Clear	Severe	4.7	86	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	40.67410	-70.29727	40.67512	-70.19639	50	15	NW	2-4	B4	>5	Clear	Severe	4.5	86	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	15:02	40.67512	-70.19639	40.67614	-70.08645	46	11	WNW	<2	B3	>5	Clear	Severe	4.9	86	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:02	15:43	40.67614	-70.08645	40.67682	-70.01629	46	11	W	<2	B3	>5	Clear	Severe	4.6	88	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:43	15:44	40.67682	-70.01629	40.67682	-70.01454	5	10	W	<2	B3	>5	Clear	Severe	4.6	89	Silent	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:44	15:56	40.67682	-70.01454	40.67099	-70.01054	46	10	W	<2	B3	>5	Clear	Severe	4.9	90	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:56	16:01	40.67099	-70.01054	40.67089	-70.01863	46	20	W	<2	B3	>5	Clear	Severe	4.9	150	Silent	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:01	17:00	40.67089	-70.01863	40.67013	-70.10953	46	21	W	<2	B3	>5	Clear	Severe	4	264	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.67013	-70.10953	40.66929	-70.20171	43	22	W	2-4	B3	>5	Clear	Severe	3.4	294	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	40.66929	-70.20171	40.66819	-70.29868	45	21	W	2-4	B3	>5	Clear	Severe	4.2	272	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	40.66819	-70.29868	40.66675	-70.40074	48	23	WSW	2-4	B3	>5	Clear	Severe	4.3	255	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	20:07	40.66675	-70.40074	40.66678	-70.41276	52	26	W	2-4	B3	>5	Clear	Severe	4.9	257	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:07	20:08	40.66678	-70.41276	40.66677	-70.41450	52	26	W	2-4	B3	>5	Clear	Severe	4.9	257	Silent	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:08	20:18	40.66677	-70.41450	40.67330	-70.41926	52	26	W	2-4	B3	>5	Clear	Severe	5	257	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:18	20:23	40.67330	-70.41926	40.67310	-70.40913	52	26	W	2-4	B3	>5	Clear	Severe	6.2	91	Silent	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:23	21:00	40.67310	-70.40913	40.67390	-70.34222	52	26	W	2-4	B3	>5	Clear	Severe	5	82	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	40.67390	-70.34222	40.67508	-70.23598	51	16	W	<2	B4	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.67508	-70.23598	40.67610	-70.13629	52	15	W	<2	B4	>5	Clear	Moderate	4.8	79	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:34	40.67610	-70.13629	40.67652	-70.08248	46	12	W	<2	B4	>5	Clear	None	4.5	76	Full Power	N/A
2022-09-14	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:34	00:00	40.67652	-70.08248	40.67691	-70.04302	44	13	W	<2	B4	>5	Clear	None	4.3	76	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	00:18	40.67689	-70.03930	40.67717	-70.01666	48	8	W	<2	B4	0.5-1	Clear	None	4.2	78	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:18	00:20	40.67717	-70.01666	40.67717	-70.01378	48	8	W	<2	B4	0.5-1	Clear	None	3.9	79	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:20	00:30	40.67717	-70.01378	40.67122	-70.01004	48	8	W	<2	B4	0.5-1	Clear	None	3.9	79	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:30	00:34	40.67122	-70.01004	40.67123	-70.01765	45	10	W	<2	B4	0.5-1	Clear	None	5.7	268	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:34	01:00	40.67123	-70.01765	40.67089	-70.06089	45	10	W	<2	B4	0.5-1	Clear	None	4.7	268	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.67089	-70.06089	40.66995	-70.15607	46	21	W	<2	B4	0.5-1	Clear	None	4.3	269	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	40.66995	-70.15607	40.66901	-70.24644	44	19	W	2-4	B4	0.5-1	Clear	None	4.4	243	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	40.66901	-70.24644	40.66787	-70.34244	46	19	W	2-4	B4	0.5-1	Clear	None	4.1	260	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	04:44	40.66787	-70.34244	40.66708	-70.41222	46	20	W	2-4	B4	0.5-1	Clear	None	4.3	265	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:44	04:46	40.66708	-70.41222	40.66704	-70.41542	46	20	W	2-4	B4	0.5-1	Clear	None	4.1	265	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:46	04:54	40.66704	-70.41542	40.67322	-70.41875	46	20	W	2-4	B4	0.5-1	Clear	None	4.1	327	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:54	04:59	40.67322	-70.41875	40.67320	-70.40951	55	10	W	2-4	B4	0.5-1	Clear	None	5.7	86	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:59	05:00	40.67320	-70.40951	40.67326	-70.40800	55	10	W	2-4	B4	0.5-1	Clear	None	4.7	80	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.67326	-70.40800	40.67445	-70.31105	55	10	W	2-4	B4	0.5-1	Clear	None	4.7	84	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	40.67445	-70.31105	40.67569	-70.20733	55	10	W	2-4	B4	0.5-1	Clear	None	4.7	84	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.67569	-70.20733	40.67672	-70.10569	46	10	W	2-4	B4	0.5-1	Clear	None	4.6	78	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.67672	-70.10569	40.67765	-70.00353	45	9	W	2-4	B4	0.5-1	Clear	None	4.9	73	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:16	40.67765	-70.00353	40.67146	-70.01111	48	15	W	2-4	B4	0.5-1	Clear	None	4.9	98	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:16	09:20	40.67146	-70.01111	40.67150	-70.01764	48	15	W	2-4	B4	0.5-1	Clear	None	4.8	270	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:20	09:50	40.67150	-70.01764	40.67105	-70.06911	46	19	W	2-4	B4	0.5-1	Clear	None	4.6	271	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	09:50	10:00	40.67105	-70.06911	40.67093	-70.08614	43	20	W	<2	B4	2-5	Clear	Slight	4.8	277	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.67093	-70.08614	40.66994	-70.19059	43	21	W	<2	B4	>5	Clear	Slight	4.6	277	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	40.66994	-70.19059	40.66884	-70.29205	43	25	W	<2	B5	>5	Clear	Slight	4.6	277	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.66884	-70.29205	40.66764	-70.39300	45	27	NNW	2-4	B6	>5	Clear	Severe	4.8	277	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:12	40.66764	-70.39300	40.66746	-70.41196	55	26	NNW	2-4	B6	>5	Clear	Severe	4.5	271	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:12	13:14	40.66746	-70.41196	40.66735	-70.41509	55	26	NNW	2-4	B6	>5	Clear	Severe	4.5	271	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:14	13:30	40.66735	-70.41509	40.67069	-70.41047	55	26	NNW	2-4	B6	>5	Clear	Severe	4.1	278	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:30	13:56	40.67069	-70.41047	40.64580	-70.39206	55	18	NNW	2-4	B5	>5	Clear	Severe	4.1	278	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:56	14:00	40.64580	-70.39206	40.64304	-70.38938	58	19	NNW	2-4	B5	>5	Clear	Severe	3.2	137	Deploying/Retrieving	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:33	40.64304	-70.38938	40.62423	-70.36712	58	19	NNW	2-4	B5	>5	Clear	Severe	3.2	137	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-15	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:33	15:00	40.62423	-70.36712	40.64055	-70.37801	58	20	NNW	2-4	B5	>5	Clear	Severe	3	132	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	16:00	40.64055	-70.37801	40.69312	-70.40367	57	19	NNW	2-4	B5	>5	Clear	Severe	2.9	329	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	17:00	40.69312	-70.40367	40.66978	-70.37401	53	20	NNW	2-4	B5	>5	Clear	Severe	2.5	331	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.66978	-70.37401	40.60837	-70.33185	52	13	NNE	2-4	B5	>5	Clear	Severe	4	143	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	40.60837	-70.33185	40.55069	-70.30759	56	7	NNW	2-4	B5	>5	Clear	Severe	3.1	162	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	40.55069	-70.30759	40.61886	-70.39328	59	10	N	2-4	B5	>5	Clear	Severe	4.9	92	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	20:47	40.61886	-70.39328	40.65727	-70.43635	57	19	NW	2-4	B5	>5	Clear	Severe	6.4	322	Standby	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:47	21:00	40.65727	-70.43635	40.66449	-70.44477	54	15	NW	2-4	B5	>5	Clear	Severe	2.5	315	Deploying/Retrieving	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:06	40.66449	-70.44477	40.66696	-70.44782	56	15	NW	<2	B5	>5	Clear	Severe	2.3	316	Deploying/Retrieving	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:06	21:26	40.66696	-70.44782	40.67375	-70.42323	56	15	NW	<2	B3	>5	Clear	Severe	2.3	340	Soft Start	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:26	21:29	40.67375	-70.42323	40.67381	-70.41849	54	6	NNW	<2	B3	>5	Clear	Severe	4.4	76	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:29	21:34	40.67381	-70.41849	40.67398	-70.40969	54	6	NNW	<2	B3	>5	Clear	Severe	5	75	Silent	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:34	22:00	40.67398	-70.40969	40.67446	-70.36513	54	7	NNW	<2	B3	>5	Clear	Severe	4.8	75	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.67446	-70.36513	40.67561	-70.26459	52	10	NW	<2	B3	>5	Clear	Severe	4.5	78	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:31	40.67561	-70.26459	40.67589	-70.21494	48	10	NW	<2	B3	>5	Clear	None	4.4	78	Full Power	N/A
2022-09-15	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:31	00:00	40.67589	-70.21494	40.67649	-70.17101	44	11	NW	<2	B3	>5	Clear	None	4.1	84	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.67657	-70.16679	40.67737	-70.08381	46	12	NW	<2	B3	0.5-1	Clear	None	4.3	79	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.67737	-70.08381	40.67271	-70.00946	46	15	N	<2	B3	0.5-1	Clear	None	4	83	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	02:01	40.67271	-70.00946	40.67287	-70.01124	46	15	NW	2-4	B3	0.5-1	Clear	None	4.7	273	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:01	02:05	40.67287	-70.01124	40.67286	-70.01797	46	15	NW	2-4	B3	0.5-1	Clear	None	4.7	273	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:05	03:00	40.67286	-70.01797	40.67207	-70.11196	46	15	NW	2-4	B3	0.5-1	Clear	None	4.6	273	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	40.67207	-70.11196	40.67094	-70.21040	43	19	NW	<2	B3	0.5-1	Clear	None	4.8	264	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.67094	-70.21040	40.66988	-70.30909	48	18	NW	<2	B3	0.5-1	Clear	None	4.2	269	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.66988	-70.30909	40.66871	-70.40884	51	20	NW	<2	B3	0.5-1	Clear	None	4.5	270	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	06:02	40.66871	-70.40884	40.66865	-70.41218	51	16	NW	<2	B3	0.5-1	Clear	None	4.5	267	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:02	06:04	40.66865	-70.41218	40.66864	-70.41543	54	16	NW	<2	B3	0.5-1	Clear	None	4.5	267	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:04	06:17	40.66864	-70.41543	40.67428	-70.41637	54	16	NW	<2	B3	0.5-1	Clear	None	4.5	267	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:17	06:21	40.67428	-70.41637	40.67439	-70.40952	54	18	NW	<2	B3	0.5-1	Clear	None	4.5	87	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:21	07:00	40.67439	-70.40952	40.67511	-70.34526	54	18	NW	<2	B3	0.5-1	Clear	None	4.1	82	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	07:16	40.67511	-70.34526	40.67545	-70.31819	52	14	N	<2	B3	0.5-1	Clear	None	4.4	86	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:16	07:16	40.67545	-70.31819	40.67545	-70.31799	52	14	N	<2	B3	0.5-1	Clear	None	4.4	86	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:16	08:00	40.67545	-70.31799	40.67626	-70.24378	52	14	N	<2	B3	0.5-1	Clear	None	4.4	86	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.67626	-70.24378	40.67733	-70.14233	48	17	N	<2	B3	0.5-1	Clear	None	4.5	81	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:50	40.67733	-70.14233	40.67813	-70.05886	48	12	N	<2	B3	0.5-1	Clear	None	4.9	77	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	09:50	10:00	40.67813	-70.05886	40.67824	-70.04199	46	14	N	<2	B3	2-5	Clear	None	4.6	79	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	10:15	40.67824	-70.04199	40.67851	-70.01698	46	14	N	<2	B3	2-5	Clear	None	4.6	79	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:15	10:17	40.67851	-70.01698	40.67854	-70.01362	46	14	N	<2	B3	2-5	Clear	None	4.6	79	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:17	10:28	40.67854	-70.01362	40.67217	-70.01052	46	14	NNW	<2	B3	>5	Clear	Slight	4.9	274	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:28	10:33	40.67217	-70.01052	40.67211	-70.01904	46	15	NNW	<2	B3	>5	Clear	Slight	4.6	272	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:33	11:00	40.67211	-70.01904	40.67171	-70.06640	46	15	NNW	<2	B3	>5	Clear	Slight	4.9	273	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	40.67171	-70.06640	40.67064	-70.17196	46	16	NW	<2	B3	>5	Clear	Severe	4.5	270	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.67064	-70.17196	40.66958	-70.27278	46	13	NW	<2	B3	>5	Clear	Severe	4.3	274	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	40.66958	-70.27278	40.66838	-70.37805	50	15	NW	<2	B3	>5	Clear	Severe	4.7	270	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:20	40.66838	-70.37805	40.66792	-70.41188	55	11	NW	<2	B3	>5	Clear	Severe	4.6	270	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:20	14:22	40.66792	-70.41188	40.66790	-70.41878	55	11	NW	<2	B3	>5	Clear	Severe	3.4	268	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:22	14:50	40.66790	-70.41878	40.67330	-70.41762	55	11	NW	<2	B3	>5	Clear	Severe	3.4	268	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:50	14:55	40.67330	-70.41762	40.67350	-70.40992	53	6	NW	<2	B2	>5	Clear	Severe	5	90	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:55	15:00	40.67350	-70.40992	40.67352	-70.40110	53	6	NW	<2	B2	>5	Clear	Severe	5	90	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	16:00	40.67352	-70.40110	40.67478	-70.29823	54	5	NW	<2	B2	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	17:00	40.67478	-70.29823	40.67594	-70.19148	53	11	NNW	<2	B2	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.67594	-70.19148	40.67710	-70.08267	44	10	NNW	<2	B2	>5	Clear	Severe	5.2	86	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	18:35	40.67710	-70.08267	40.67771	-70.01731	43	11	NW	<2	B2	>5	Clear	Severe	5	87	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:35	18:37	40.67771	-70.01731	40.67775	-70.01382	45	11	NW	<2	B2	>5	Clear	Severe	4.8	79	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:37	18:49	40.67775	-70.01382	40.67021	-70.01185	45	11	NW	<2	B2	>5	Clear	Severe	4.8	79	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:49	18:53	40.67021	-70.01185	40.67015	-70.01805	45	11	NW	<2	B2	>5	Clear	Severe	4.1	270	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:53	19:00	40.67015	-70.01805	40.67015	-70.02471	45	11	NW	<2	B2	>5	Clear	Severe	4.3	271	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	40.67015	-70.02471	40.66937	-70.12298	45	18	WNW	<2	B2	>5	Clear	Severe	4.3	271	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	40.66937	-70.12298	40.66830	-70.21308	43	17	W	<2	B2	>5	Clear	Severe	4.4	276	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:00	40.66830	-70.21308	40.66727	-70.30597	45	17	W	<2	B2	>5	Clear	Severe	4.1	274	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.66727	-70.30597	40.66616	-70.40580	52	17	WNW	<2	B2	>5	Clear	Severe	4.4	276	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:04	40.66616	-70.40580	40.66608	-70.41274	55	14	WNW	<2	B2	>5	Clear	Slight	4.8	275	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:04	23:05	40.66608	-70.41274	40.66603	-70.41452	55	15	WNW	<2	B2	>5	Clear	None	5	272	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:05	23:16	40.66603	-70.41452	40.67386	-70.41764	55	15	WNW	<2	B2	>5	Clear	None	5	292	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:16	23:20	40.67386	-70.41764	40.67418	-70.41066	55	8	NW	<2	B2	2-5	Clear	None	4.9	72	Silent	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:20	23:30	40.67418	-70.41066	40.67432	-70.39295	54	8	NW	<2	B2	2-5	Clear	None	4.8	75	Full Power	N/A
2022-09-16	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:30	00:00	40.67432	-70.39295	40.67493	-70.34048	54	6	NW	<2	B2	1-2	Clear	None	4.9	78	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.67497	-70.33282	40.67606	-70.23965	51	7	NW	<2	B2	1-2	Clear	None	4.6	77	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.67606	-70.23965	40.67703	-70.14718	47	8	N	<2	B2	1-2	Clear	None	4.6	77	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	40.67703	-70.14718	40.67807	-70.05855	46	8	NE	<2	B2	1-2	Clear	None	4.1	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	03:29	40.67807	-70.05855	40.67833	-70.01749	46	8	NE	<2	B2	1-2	Clear	None	4	82	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:29	04:00	40.67833	-70.01749	40.67147	-70.04794	46	6	NE	<2	B2	1-2	Clear	None	4	82	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.67147	-70.04794	40.67050	-70.15442	46	6	NE	<2	B2	1-2	Clear	None	5	266	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.67050	-70.15442	40.66937	-70.25714	46	5	W	<2	B2	1-2	Clear	None	4.5	260	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	40.66937	-70.25714	40.66822	-70.35933	46	15	NNE	<2	B2	1-2	Clear	None	4.8	262	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	07:32	40.66822	-70.35933	40.66758	-70.41365	53	7	N	<2	B2	1-2	Clear	None	4.7	264	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:32	07:34	40.66758	-70.41365	40.66755	-70.41550	52	7	N	<2	B2	1-2	Clear	None	4.9	267	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:34	08:00	40.66755	-70.41550	40.66357	-70.42468	52	6	N	<2	B2	1-2	Clear	None	5.1	170	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	08:14	40.66357	-70.42468	40.66302	-70.43087	56	9	N	<2	B2	1-2	Clear	None	5.1	170	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:14	08:18	40.66302	-70.43087	40.66326	-70.42407	56	15	NE	<2	B3	1-2	Clear	None	4.5	89	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:18	08:34	40.66326	-70.42407	40.66330	-70.43114	56	15	NE	<2	B3	1-2	Clear	None	4.5	89	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:34	08:38	40.66330	-70.43114	40.66354	-70.42418	56	14	NE	<2	B3	1-2	Clear	None	4.7	81	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:38	09:00	40.66354	-70.42418	40.66392	-70.38746	55	14	NE	<2	B3	1-2	Clear	None	4.7	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.66392	-70.38746	40.66508	-70.28370	55	16	NE	<2	B3	1-2	Clear	None	4.7	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.66508	-70.28370	40.66620	-70.18090	51	15	NE	<2	B3	2-5	Clear	Slight	4.6	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	40.66620	-70.18090	40.66714	-70.08368	51	16	NE	<2	B3	>5	Clear	Severe	4.6	81	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	12:43	40.66714	-70.08368	40.66776	-70.01699	47	15	NE	<2	B3	>5	Clear	Severe	4.3	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:43	12:45	40.66776	-70.01699	40.66781	-70.01391	48	12	NE	<2	B3	>5	Clear	Severe	4.1	82	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:45	12:58	40.66781	-70.01391	40.66291	-70.01174	48	12	NE	<2	B3	>5	Clear	Severe	4.1	82	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:58	13:00	40.66291	-70.01174	40.66306	-70.01555	48	8	NE	<2	B3	>5	Clear	Severe	3.9	267	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	13:01	40.66306	-70.01555	40.66286	-70.01958	48	8	NE	<2	B3	>5	Clear	Severe	3.9	267	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:01	14:00	40.66286	-70.01958	40.66200	-70.11903	48	8	NE	<2	B3	>5	Clear	Severe	3.9	267	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:59	40.66200	-70.11903	40.66080	-70.21756	47	7	N	<2	B3	>5	Clear	Severe	4.6	269	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	14:59	16:00	40.66080	-70.21756	40.65987	-70.31837	49	8	NNE	<2	B3	>5	Clear	Severe	4.6	266	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:00	17:00	40.65987	-70.31837	40.65861	-70.40996	53	8	N	<2	B3	>5	Clear	Severe	4.5	265	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	17:10	40.65861	-70.40996	40.65850	-70.42525	54	5	N	<2	B3	>5	Clear	Severe	4.1	270	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:10	17:12	40.65850	-70.42525	40.65858	-70.42831	54	5	N	<2	B3	>5	Clear	Severe	4.2	270	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:12	17:22	40.65858	-70.42831	40.66335	-70.43403	54	5	N	<2	B3	>5	Clear	Severe	4.2	270	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:22	17:27	40.66335	-70.43403	40.66319	-70.42470	54	5	N	<2	B3	>5	Clear	Severe	4.2	83	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:27	18:00	40.66319	-70.42470	40.66390	-70.36833	53	10	NE	<2	B3	>5	Clear	Severe	4.6	84	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	40.66390	-70.36833	40.66497	-70.26377	52	11	E	<2	B3	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	40.66497	-70.26377	40.66596	-70.16105	48	11	E	<2	B3	>5	Clear	Severe	4.7	84	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	40.66596	-70.16105	40.66714	-70.05852	44	6	ENE	<2	B3	>5	Clear	Severe	4.5	82	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:25	40.66714	-70.05852	40.66752	-70.01620	40	5	ENE	<2	B2	>5	Clear	Severe	4.6	81	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:25	21:26	40.66752	-70.01620	40.66752	-70.01450	51	5	ENE	<2	B2	>5	Clear	Severe	4.7	84	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:26	21:45	40.66752	-70.01450	40.66257	-70.01104	52	5	E	<2	B2	>5	Clear	Severe	5.5	84	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:45	21:49	40.66257	-70.01104	40.66253	-70.01779	52	3	E	<2	B2	>5	Clear	Severe	4.6	270	Silent	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:49	22:00	40.66253	-70.01779	40.66241	-70.03651	52	3	E	<2	B2	>5	Clear	Severe	4.6	267	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.66241	-70.03651	40.66148	-70.14345	48	5	E	<2	B2	>5	Clear	Severe	4.7	271	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:35	40.66148	-70.14345	40.66072	-70.20466	48	4	W	<2	B2	2-5	Clear	Slight	4.8	274	Full Power	N/A
2022-09-17	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:35	00:00	40.66072	-70.20466	40.66024	-70.24881	48	4	W	<2	B2	2-5	Clear	Slight	4.8	274	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.66027	-70.25382	40.65919	-70.35484	50	12	WSW	<2	B2	0.5-1	Clear	None	4.9	269	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	02:00	40.65919	-70.35484	40.66298	-70.41887	54	9	SW	<2	B2	0.5-1	Clear	None	5	268	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	03:00	40.66298	-70.41887	40.66418	-70.32025	55	5	S	<2	B2	0.5-1	Clear	None	4.6	86	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	40.66418	-70.32025	40.66510	-70.22392	52	5	S	<2	B2	0.5-1	Clear	None	4.4	88	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.66510	-70.22392	40.66614	-70.12929	48	8	S	<2	B2	0.5-1	Clear	None	4.4	88	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.66614	-70.12929	40.66702	-70.03453	47	9	S	<2	B2	0.5-1	Clear	None	4.3	92	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	40.66702	-70.03453	40.66197	-70.06524	47	9	SSW	<2	B2	0.5-1	Clear	None	4.4	96	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.66197	-70.06524	40.66081	-70.16650	48	18	SW	<2	B4	0.5-1	Clear	None	4.6	258	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	09:00	40.66081	-70.16650	40.65970	-70.26687	47	19	WSW	<2	B4	0.5-1	Clear	None	4.5	264	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:32	40.65970	-70.26687	40.65344	-70.24186	47	13	WSW	<2	B4	0.5-1	Clear	None	5.3	220	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:32	09:37	40.65344	-70.24186	40.65344	-70.24186	46	22	SW	<2	B4	0.5-1	Clear	None	4.5	260	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:37	10:00	40.65344	-70.24186	40.65344	-70.24186	47	21	SW	<2	B4	0.5-1	Clear	None	4.7	262	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.65344	-70.24186	40.65870	-70.37288	49	21	SW	<2	B4	2-5	Clear	Slight	4.7	264	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:32	40.65870	-70.37288	40.65801	-70.42590	80	22	SW	<2	B4	>5	Clear	Moderate	4.7	264	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:32	11:34	40.65801	-70.42590	40.65816	-70.42914	56	18	SW	<2	B4	>5	Clear	Severe	4.6	261	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:34	11:46	40.65816	-70.42914	40.66359	-70.43178	56	17	SW	<2	B4	>5	Clear	Severe	4.6	261	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:46	11:51	40.66359	-70.43178	40.66279	-70.42351	56	17	SW	<2	B4	>5	Clear	Severe	4.5	115	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:51	12:00	40.66279	-70.42351	40.66277	-70.40744	55	10	SW	<2	B3	>5	Clear	Severe	4.7	95	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	40.66277	-70.40744	40.66467	-70.30139	55	9	SW	<2	B3	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	40.66467	-70.30139	40.66526	-70.19861	51	10	SSW	<2	B3	>5	Clear	Severe	4.7	83	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	15:00	40.66526	-70.19861	40.66616	-70.09591	47	10	SW	<2	B3	>5	Clear	Severe	4.6	81	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:44	40.66616	-70.09591	40.66682	-70.01693	47	12	SW	<2	B4	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:44	15:47	40.66682	-70.01693	40.66699	-70.01160	48	14	SW	<2	B4	>5	Clear	Severe	4.9	87	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:47	15:58	40.66699	-70.01160	40.66199	-70.00943	48	14	SW	<2	B4	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:58	16:03	40.66199	-70.00943	40.66196	-70.01803	52	23	WSW	<2	B4	>5	Clear	Severe	4.6	257	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:03	17:00	40.66196	-70.01803	40.66116	-70.11201	60	23	WSW	<2	B4	>5	Clear	Severe	4.5	259	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	18:00	40.66116	-70.11201	40.66044	-70.20953	45	26	W	<2	B4	>5	Clear	Severe	4.6	262	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	19:00	40.66044	-70.20953	40.65902	-70.30263	46	22	WSW	<2	B4	>5	Clear	Severe	4.6	264	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	20:00	40.65902	-70.30263	40.65800	-70.39390	51	23	WSW	<2	B4	>5	Clear	Severe	3.9	262	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	20:22	40.65800	-70.39390	40.65764	-70.42575	51	22	SW	<2	B4	>5	Clear	Severe	4.3	265	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:22	20:24	40.65764	-70.42575	40.65763	-70.42864	51	22	SW	<2	B4	>5	Clear	Severe	4.7	265	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:24	20:36	40.65763	-70.42864	40.66257	-70.43104	51	22	SW	<2	B4	>5	Clear	Severe	4.7	265	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:36	20:40	40.66257	-70.43104	40.66250	-70.42397	51	22	SW	<2	B4	>5	Clear	Severe	4.7	265	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:40	21:00	40.66250	-70.42397	40.65710	-70.43287	51	22	SW	<2	B4	>5	Clear	Severe	4.7	265	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	21:07	40.65710	-70.43287	40.66227	-70.43257	50	13	W	<2	B5	>5	Fog	Severe	4.9	307	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:07	21:12	40.66227	-70.43257	40.66245	-70.42376	56	13	W	<2	B5	>5	Fog	Severe	4.8	84	Silent	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:12	22:00	40.66245	-70.42376	40.66335	-70.34050	56	14	W	<2	B5	>5	Fog	Severe	4.8	85	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	22:00	23:00	40.66335	-70.34050	40.66467	-70.23456	53	12	W	<2	B5	>5	Fog	Severe	4.8	82	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	23:00	23:34	40.66467	-70.23456	40.66518	-70.17585	48	12	SSW	<2	B4	2-5	Fog	None	4.7	76	Full Power	N/A
2022-09-18	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	23:34	00:00	40.66518	-70.17585	40.66564	-70.13146	48	16	SW	<2	B4	2-5	Fog	None	4.9	98	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Huizar, Heber	RPS	00:00	01:00	40.66564	-70.12790	40.66653	-70.03821	46	15	ESE	<2	B4	0.5-1	Fog	None	4.3	72	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:00	01:17	40.66653	-70.03821	40.66686	-70.01386	48	12	SW	<2	B4	0.5-1	Fog	None	4	78	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:17	01:47	40.66686	-70.01386	40.66773	-70.02923	45	12	SW	<2	B4	0.5-1	Clear	None	3.8	76	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	01:47	02:00	40.66773	-70.02923	40.66442	-70.04581	45	12	SW	<2	B4	0.5-1	Clear	None	3.8	76	Deploying/Retrieving	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:00	02:40	40.66442	-70.04581	40.66221	-70.06058	45	21	WSW	<2	B4	0.5-1	Clear	None	2.1	255	Deploying/Retrieving	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura; Fuhr Ely, Gabriele	RPS	02:40	03:00	40.66221	-70.06058	40.67632	-70.10132	45	21	WSW	<2	B4	0.5-1	Clear	None	6.6	315	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	03:00	04:00	40.67632	-70.10132	40.71446	-70.22251	43	23	WSW	2-4	B5	0.5-1	Clear	None	5.6	290	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.71446	-70.22251	40.75126	-70.33842	43	24	WSW	2-4	B5	0.5-1	Clear	None	6	285	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	05:00	06:00	40.75126	-70.33842	40.79149	-70.45391	43	25	WSW	2-4	B5	0.5-1	Clear	None	6.2	286	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Breton, Elizabeth	RPS	06:00	07:00	40.79149	-70.45391	40.82891	-70.57245	49	24	W	2-4	B5	0.5-1	Clear	None	5.9	286	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	07:00	08:00	40.82891	-70.57245	40.86718	-70.69079	54	22	WSW	2-4	B5	0.5-1	Clear	None	5.2	286	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:00	08:14	40.86718	-70.69079	40.87790	-70.71800	54	20	W	2-4	B5	0.5-1	Cloudy	None	5.9	285	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio; Fuhr Ely, Gabriele	RPS	08:14	09:00	40.87790	-70.71800	40.91841	-70.80710	36	9	ENE	<2	B3	>5	Cloudy	Severe	1	306	Deploying/Retrieving	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.91841	-70.80710	41.01993	-70.85579	51	20	W	2-4	B5	0.5-1	Cloudy	None	6.4	297	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	41.01993	-70.85579	41.12909	-70.89531	44	16	W	2-4	B4	1-2	Cloudy	Slight	6.8	335	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	12:00	41.12909	-70.89531	41.19917	-70.92264	44	14	W	2-4	B4	>5	Cloudy	Moderate	4.1	345	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	12:00	13:00	41.19917	-70.92264	41.30362	-70.99103	55	16	W	2-4	B4	>5	Cloudy	Moderate	4.2	317	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	13:00	14:00	41.30362	-70.99103	41.30361	-70.99209	34	8	W	<2	B3	>5	Cloudy	Severe	6.5	205	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:00	14:12	41.30361	-70.99209	41.29244	-70.97871	35	14	ENE	<2	B3	>5	Cloudy	Severe	5.2	130	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Abeytia, Flavio	RPS	14:12	15:00	41.29244	-70.97871	41.27605	-70.99924	36	9	ENE	<2	B3	>5	Cloudy	Severe	1	306	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:00	15:34	41.27605	-70.99924	41.29101	-70.97654	38	13	E	<2	B3	2-5	Fog	Severe	3.1	40	Standby	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:34	15:54	41.29101	-70.97654	41.31140	-70.99203	39	11	E	<2	B3	2-5	Fog	Moderate	4.2	19	Soft Start	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	15:54	16:02	41.31140	-70.99203	41.30494	-70.99419	34	11	E	<2	B3	2-5	Fog	Moderate	3.9	234	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:02	16:06	41.30494	-70.99419	41.30061	-70.99027	35	14	ESE	<2	B3	2-5	Fog	Severe	4.9	133	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:06	16:13	41.30061	-70.99027	41.29292	-70.98451	35	14	ESE	<2	B3	2-5	Fog	Severe	4.9	137	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:13	16:15	41.29292	-70.98451	41.29055	-70.98331	36	12	ESE	<2	B3	2-5	Fog	Severe	4.6	151	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:15	16:43	41.29055	-70.98331	41.30464	-70.99372	36	12	ESE	<2	B3	2-5	Fog	Severe	4.6	151	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:43	16:47	41.30464	-70.99372	41.30046	-70.98977	35	15	ESE	<2	B3	2-5	Fog	Severe	4.6	136	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:47	16:54	41.30046	-70.98977	41.29382	-70.98471	35	19	ESE	<2	B3	2-5	Fog	Severe	4.4	133	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	16:54	16:55	41.29382	-70.98471	41.29129	-70.98399	34	19	ESE	<2	B3	2-5	Fog	Severe	4.4	133	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	16:55	17:00	41.29129	-70.98399	41.28817	-70.97772	38	17	ESE	<2	B3	2-5	Fog	Severe	4.4	88	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:00	17:23	41.28817	-70.97772	41.30605	-70.99419	38	9	N	<2	B3	2-5	Fog	None	5.6	330	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:23	17:27	41.30605	-70.99419	41.30190	-70.99054	32	9	N	<2	B3	2-5	Fog	None	4.9	140	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:27	17:35	41.30190	-70.99054	41.29427	-70.98184	32	9	N	<2	B3	2-5	Fog	None	4.5	121	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:35	17:37	41.29427	-70.98184	41.29245	-70.97937	32	9	N	<2	B3	2-5	Fog	None	4.5	138	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	17:37	18:00	41.29245	-70.97937	41.30536	-70.99746	32	9	N	<2	B3	2-5	Fog	None	4.8	161	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:00	18:03	41.30536	-70.99746	41.30475	-70.99314	33	13	ESE	<2	B3	2-5	Fog	None	4.8	143	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:03	18:07	41.30475	-70.99314	41.30100	-70.98930	33	13	ESE	<2	B3	2-5	Fog	None	4.8	143	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:07	18:13	41.30100	-70.98930	41.29511	-70.98320	33	13	ESE	<2	B3	2-5	Fog	None	4.8	141	Full Power	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	18:13	19:00	41.29511	-70.98320	41.28074	-70.94253	34	16	SE	<2	B3	2-5	Fog	None	4.4	116	Silent	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:00	19:05	41.28074	-70.94253	41.28215	-70.94288	35	10	N	<2	B3	2-5	Fog	None	1.2	25	Deploying/Retrieving	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	19:05	20:00	41.28215	-70.94288	41.39191	-70.85882	35	10	N	<2	B3	2-5	Fog	None	5.2	38	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Danos, Laura	RPS	20:00	21:00	41.39191	-70.85882	41.51291	-70.83777	24	11	E	<2	B3	2-5	Fog	None	8.4	21	Transit	N/A
2022-09-19	*GO Pursuit*	HRG	Visual	Huizar, Heber	RPS	21:00	22:05	41.51291	-70.83777	41.62381	-70.91345	18	6	E	<2	B2	2-5	Fog	None	8	354	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.62144	-70.91349	41.58286	-70.88025	6	6	S	<2	B2	>5	Cloudy	Severe	0.3	164	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.58286	-70.88025	41.47153	-70.84325	12	10	S	<2	B3	>5	Cloudy	Moderate	6.7	150	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.47153	-70.84325	41.35006	-70.87278	29	11	SSW	<2	B3	>5	Cloudy	Moderate	8.6	185	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.35006	-70.87278	41.24421	-70.75102	28	17	SSE	<2	B4	>5	Cloudy	Severe	7	162	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.24421	-70.75102	41.14500	-70.68973	27	16	SSE	<2	B4	>5	Cloudy	Moderate	6.6	158	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.14500	-70.68973	41.04117	-70.62995	38	14	SSE	<2	B3	>5	Cloudy	Moderate	7.8	143	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:56	41.04117	-70.62995	40.94290	-70.57568	38	14	SSE	<2	B3	>5	Cloudy	Moderate	7.8	132	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:56	20:00	40.94290	-70.57568	40.84396	-70.50563	39	17	SSE	<2	B4	>5	Cloudy	Moderate	7.8	113	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.84396	-70.50563	40.79184	-70.37629	39	17	SSE	<2	B4	>5	Cloudy	Moderate	7	115	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.79184	-70.37629	40.74480	-70.24733	49	14	ESE	<2	B3	>5	Clear	Moderate	6.4	123	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	23:00	40.74480	-70.24733	40.70832	-70.14736	46	8	ESE	<2	B3	>5	Clear	Severe	6.5	113	Transit	N/A
2022-09-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.70832	-70.14736	40.68038	-70.18250	45	10	ESE	<2	B3	2-5	Clear	None	6.4	108	Transit	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.67856	-70.18672	40.66590	-70.21420	31	15	SW	<2	B3	1-2	Clear	None	3.8	226	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:30	01:00	40.66590	-70.21420	40.65065	-70.24267	47	14	SW	<2	B3	1-2	Clear	None	3.5	225	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	01:00	02:00	40.65065	-70.24267	40.62901	-70.27894	52	15	W	<2	B3	1-2	Clear	None	2.8	200	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	03:00	40.62901	-70.27894	40.66841	-70.19703	52	11	W	<2	B3	1-2	Clear	None	4.4	36	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	40.66841	-70.19703	40.70186	-70.11667	48	3	WSW	<2	B2	1-2	Clear	None	4.4	56	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	04:00	05:00	40.70186	-70.11667	40.67959	-70.18092	41	10	W	<2	B2	1-2	Clear	None	2	215	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	05:00	06:00	40.67959	-70.18092	40.65430	-70.24485	46	15	SW	<2	B2	1-2	Clear	None	3	250	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	06:00	07:00	40.65430	-70.24485	40.63439	-70.27445	46	10	SW	<2	B2	1-2	Clear	None	3.9	251	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	08:00	40.63439	-70.27445	40.66661	-70.21203	50	10	SW	<2	B2	1-2	Clear	None	3.6	46	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	08:00	09:00	40.66661	-70.21203	40.69048	-70.16868	47	5	NW	<2	B2	1-2	Clear	None	3.3	46	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:00	10:00	40.69048	-70.16868	40.67513	-70.20318	45	7	NW	<2	B2	1-2	Clear	None	3.6	52	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:00	10:57	40.67513	-70.20318	40.64341	-70.27687	44	15	W	<2	B2	2-5	Clear	None	4	255	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:57	11:59	40.64341	-70.27687	40.65982	-70.25108	53	7	W	<2	B3	>5	Clear	None	4	223	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:59	13:00	40.65982	-70.25108	40.66464	-70.13739	52	6	W	<2	B3	>5	Clear	None	4.9	90	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:57	40.66464	-70.13739	40.66443	-70.02481	48	5	WSW	<2	B3	>5	Clear	Severe	5.6	87	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:57	15:00	40.66443	-70.02481	40.66635	-69.92654	49	6	W	<2	B3	>5	Clear	Severe	5.4	95	Standby	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.66635	-69.92654	40.67383	-69.95839	51	12	S	<2	B4	>5	Clear	Moderate	1.7	54	Deploying/Retrieving	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:15	40.67383	-69.95839	40.67307	-69.96788	63	18	WSW	<2	B4	>5	Cloudy	Moderate	1.9	276	Deploying/Retrieving	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:15	16:35	40.67307	-69.96788	40.66811	-69.98711	49	19	WSW	<2	B4	>5	Cloudy	Moderate	2.3	262	Soft Start	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:35	16:53	40.66811	-69.98711	40.66197	-70.01092	49	20	WSW	<2	B4	>5	Cloudy	Moderate	3.3	255	Full Power	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:53	16:58	40.66197	-70.01092	40.66180	-70.01916	49	19	WSW	<2	B4	>5	Cloudy	Moderate	4.3	250	Silent	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:58	17:00	40.66180	-70.01916	40.66174	-70.02173	48	19	WSW	<2	B4	>5	Cloudy	Severe	4.6	266	Full Power	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.66174	-70.02173	40.66095	-70.11529	48	20	WSW	<2	B4	>5	Cloudy	Severe	4.4	266	Full Power	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.66095	-70.11529	40.65984	-70.21412	48	24	WSW	<2	B4	>5	Clear	Severe	4	290	Full Power	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:24	40.65984	-70.21412	40.65958	-70.25530	46	21	WSW	<2	B4	>5	Clear	Severe	4	294	Full Power	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:24	20:03	40.65958	-70.25530	40.65995	-70.32322	46	19	WSW	<2	B4	>5	Clear	Severe	4	296	Silent	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:03	21:00	40.65995	-70.32322	40.65766	-70.42773	45	19	WSW	<2	B4	>5	Clear	Severe	4.1	298	Silent	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.65766	-70.42773	40.66095	-70.34647	57	17	WSW	<2	B4	>5	Cloudy	Severe	5	272	Silent	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:56	40.66095	-70.34647	40.66161	-70.27192	53	7	E	<2	B3	>5	Cloudy	Severe	3.5	87	Silent	N/A
2022-09-28	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:56	00:00	40.66161	-70.27192	40.66414	-70.17185	50	6	W	<2	B3	2-5	Cloudy	None	3.8	85	Silent	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:00	01:00	40.66432	-70.16625	40.66729	-70.06399	45	5	W	<2	B3	1-2	Clear	None	4.8	86	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele; Ramsarran, Celine	RPS	01:00	01:56	40.66729	-70.06399	40.66340	-70.04741	46	5	W	<2	B3	1-2	Clear	None	5.2	90	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele; Ramsarran, Celine	RPS	01:56	02:00	40.66340	-70.04741	40.66095	-70.05193	45	13	W	<2	B3	1-2	Clear	None	3.8	217	Soft Start	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Ramsarran, Celine	RPS	02:00	02:32	40.66095	-70.05193	40.66141	-70.01158	45	13	W	<2	B3	1-2	Clear	None	3.8	217	Soft Start	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Ramsarran, Celine	RPS	02:32	02:36	40.66141	-70.01158	40.66178	-70.01783	45	13	W	<2	B3	1-2	Clear	None	4.8	267	Silent	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Ramsarran, Celine	RPS	02:36	02:58	40.66178	-70.01783	40.66142	-70.05586	45	13	W	<2	B3	1-2	Clear	None	4.8	267	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	02:58	04:01	40.66142	-70.05586	40.65964	-70.15547	49	11	WNW	<2	B3	1-2	Cloudy	None	4.7	259	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:01	04:58	40.65964	-70.15547	40.65948	-70.25120	48	9	WNW	<2	B3	1-2	Cloudy	None	4.4	252	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	04:58	06:00	40.65948	-70.25120	40.65839	-70.35472	50	10	WNW	<2	B3	1-2	Clear	None	4.9	261	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:00	06:40	40.65839	-70.35472	40.65748	-70.42606	54	10	NW	<2	B3	1-2	Clear	None	5	267	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:40	06:42	40.65748	-70.42606	40.65745	-70.42966	54	13	NW	<2	B3	1-2	Clear	None	5	267	Silent	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:42	07:00	40.65745	-70.42966	40.66081	-70.42031	54	13	NW	<2	B3	1-2	Clear	None	5	267	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:00	07:59	40.66081	-70.42031	40.66126	-70.42822	56	18	N	<2	B3	1-2	Clear	None	4	79	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:59	09:00	40.66126	-70.42822	40.65856	-70.40706	55	13	N	<2	B4	1-2	Cloudy	None	4	273	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.65856	-70.40706	40.61865	-70.43307	53	21	N	<2	B4	1-2	Cloudy	None	3.9	9	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:00	11:00	40.61865	-70.43307	40.62148	-70.44420	61	14	N	<2	B4	2-5	Cloudy	Slight	4	189	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:58	40.62148	-70.44420	40.66269	-70.43887	58	23	N	<2	B4	>5	Cloudy	Moderate	4.5	14	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:58	12:59	40.66269	-70.43887	40.67786	-70.45343	57	21	NNE	<2	B5	>5	Cloudy	Severe	4.2	21	Full Power	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:59	13:24	40.67786	-70.45343	40.65666	-70.45609	56	18	N	<2	B6	>5	Cloudy	Severe	4.3	215	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:24	14:00	40.65666	-70.45609	40.62592	-70.44543	56	14	NNE	<2	B5	>5	Cloudy	Slight	3.8	156	Silent	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.65666	-70.45609	40.62592	-70.44543	56	14	NNE	<2	B5	>5	Cloudy	Slight	3.8	156	Silent	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:43	40.62592	-70.44543	40.60461	-70.44812	61	14	SSE	2-4	B5	>5	Cloudy	Moderate	3	188	Deploying/Retrieving	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:43	16:00	40.60461	-70.44812	40.61527	-70.45228	63	17	NNW	2-4	B5	>5	Cloudy	Moderate	2.4	311	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.61527	-70.45228	40.65310	-70.46406	61	19	N	2-4	B5	>5	Cloudy	Moderate	2.4	342	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:02	40.65310	-70.46406	40.70232	-70.47464	58	18	N	2-4	B5	>5	Cloudy	Moderate	2.1	346	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:02	19:00	40.70232	-70.47464	40.74082	-70.48414	54	18	N	2-4	B4	>5	Cloudy	Moderate	2.8	353	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.74082	-70.48414	40.71857	-70.48686	54	20	NNE	2-4	B4	>5	Cloudy	Moderate	2.9	353	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.71857	-70.48686	40.66514	-70.50570	54	16	NE	<2	B4	>5	Cloudy	Slight	3.4	169	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.66514	-70.50570	40.61409	-70.54328	58	17	S	<2	B4	>5	Cloudy	Slight	3.5	202	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	23:00	40.61409	-70.54328	40.62437	-70.52094	63	14	SSW	<2	B4	>5	Cloudy	None	3.7	214	Standby	N/A
2022-09-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.62437	-70.52094	40.66281	-70.46748	63	14	SSW	<2	B4	2-5	Cloudy	None	3.7	48	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.66732	-70.46124	40.68451	-70.43865	35	20	NE	<2	B3	1-2	Cloudy	None	3.9	47	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:30	01:00	40.68451	-70.43865	40.70699	-70.41076	52	24	NE	<2	B3	1-2	Cloudy	None	3.7	43	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	01:00	02:00	40.70699	-70.41076	40.73747	-70.37379	52	23	NE	<2	B3	1-2	Cloudy	None	3.9	44	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	02:59	40.73747	-70.37379	40.68861	-70.46148	48	13	NE	<2	B3	1-2	Cloudy	None	4.8	47	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	02:59	04:00	40.68861	-70.46148	40.63320	-70.54498	56	13	NE	<2	B3	1-2	Clear	None	4.9	220	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	04:00	05:00	40.63320	-70.54498	40.61396	-70.56054	60	14	NE	<2	B3	1-2	Clear	None	5.1	220	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	05:00	06:00	40.61396	-70.56054	40.63164	-70.50975	60	23	NE	<2	B3	1-2	Clear	None	2.3	63	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	06:00	07:00	40.63164	-70.50975	40.65765	-70.46558	59	24	NE	<2	B3	1-2	Clear	None	2.5	55	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	07:57	40.65765	-70.46558	40.68369	-70.42773	55	23	NE	<2	B3	1-2	Clear	None	2.5	48	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	07:57	09:00	40.68369	-70.42773	40.65200	-70.48462	57	23	NE	<2	B3	1-2	Clear	None	2.4	48	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:00	09:59	40.65200	-70.48462	40.60895	-70.56324	59	14	NE	<2	B3	2-5	Clear	None	4.5	226	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:59	10:57	40.60895	-70.56324	40.62222	-70.53695	64	14	NE	<2	B3	>5	Clear	None	4.2	226	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:57	11:56	40.62222	-70.53695	40.64632	-70.50207	62	22	NE	<2	B5	>5	Cloudy	None	2.6	53	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:56	13:01	40.64632	-70.50207	40.62251	-70.47880	60	23	ENE	<2	B5	>5	Cloudy	None	2.2	61	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:01	13:58	40.62251	-70.47880	40.63666	-70.45092	62	20	ENE	<2	B5	>5	Cloudy	Moderate	2.9	64	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:58	15:00	40.63666	-70.45092	40.64799	-70.41988	60	22	ENE	<2	B5	>5	Cloudy	Moderate	1.7	68	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:18	40.64799	-70.41988	40.65136	-70.40900	58	20	ENE	<2	B5	>5	Cloudy	Moderate	1.8	64	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:18	15:37	40.65136	-70.40900	40.65160	-70.41001	58	21	ENE	<2	B5	>5	Cloudy	Moderate	1.8	64	Deploying/Retrieving	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:37	16:00	40.65160	-70.41001	40.64572	-70.43596	58	14	NW	<2	B5	>5	Cloudy	Moderate	1.1	211	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.64572	-70.43596	40.62823	-70.50231	60	15	SW	<2	B5	>5	Cloudy	Moderate	3.7	249	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:16	40.62823	-70.50231	40.63641	-70.48508	62	22	ENE	<2	B5	>5	Cloudy	Slight	3.1	68	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:16	18:00	40.63641	-70.48508	40.66140	-70.43330	61	23	ENE	<2	B5	>5	Cloudy	Moderate	3.6	62	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:54	40.66140	-70.43330	40.68821	-70.36944	60	23	ENE	<2	B5	>5	Cloudy	Moderate	3.9	57	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:54	20:00	40.68821	-70.36944	40.71636	-70.29428	60	20	ENE	<2	B5	>5	Cloudy	Moderate	3.9	58	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.71636	-70.29428	40.70947	-70.31369	60	21	ENE	<2	B5	>5	Cloudy	Moderate	3.9	58	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:14	40.70947	-70.31369	40.70233	-70.33222	58	18	S	<2	B5	>5	Cloudy	Moderate	4	242	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:14	22:00	40.70233	-70.33222	40.67925	-70.39447	49	15	WSW	<2	B5	>5	Cloudy	None	4.2	248	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:51	40.67925	-70.39447	40.65181	-70.46088	53	14	SW	<2	B5	>5	Cloudy	None	4	244	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:51	23:00	40.65181	-70.46088	40.64947	-70.46993	58	16	SW	<2	B5	2-5	Cloudy	None	4	245	Standby	N/A
2022-09-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.64947	-70.46993	40.73790	-70.49444	58	16	SW	<2	B5	1-2	Cloudy	None	2.7	245	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.74808	-70.50229	40.79009	-70.53457	39	18	ENE	2-4	B4	1-2	Cloudy	None	7.5	333	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:30	01:00	40.79009	-70.53457	40.84365	-70.57411	51	22	ENE	2-4	B4	1-2	Cloudy	None	7.3	335	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	01:00	01:00	40.84365	-70.57411	40.84411	-70.57443	51	22	ENE	2-4	B4	1-2	Cloudy	None	7.3	335	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	01:00	02:00	40.84411	-70.57443	40.95393	-70.64782	52	20	NE	2-4	B4	1-2	Cloudy	None	7.8	334	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	03:01	40.95393	-70.64782	41.07066	-70.71694	48	18	NE	2-4	B4	1-2	Cloudy	None	7.5	335	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:01	04:00	41.07066	-70.71694	41.15229	-70.74598	46	18	NE	<2	B4	1-2	Cloudy	None	7.6	335	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.15229	-70.74598	41.23489	-70.76138	33	18	NE	<2	B4	1-2	Cloudy	None	4.9	351	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	05:00	06:00	41.23489	-70.76138	41.29670	-70.81270	26	22	NE	<2	B4	1-2	Cloudy	None	4.7	355	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	06:00	07:00	41.29670	-70.81270	41.36562	-70.87146	14	13	NNE	<2	B4	1-2	Cloudy	None	4.7	311	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	08:00	41.36562	-70.87146	41.40598	-70.81955	20	20	ENE	<2	B4	1-2	Cloudy	None	5.2	7	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	08:00	09:00	41.40598	-70.81955	41.43203	-70.78877	21	22	NE	<2	B4	1-2	Cloudy	None	2.6	30	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:00	10:00	41.43203	-70.78877	41.41116	-70.85435	23	16	NE	<2	B3	1-2	Cloudy	None	1.2	262	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:00	10:17	41.41116	-70.85435	41.40523	-70.86905	21	10	N	<2	B3	1-2	Cloudy	None	5	235	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:17	11:00	41.40523	-70.86905	41.46558	-70.84487	30	24	NE	<2	B3	2-5	Precipitation	None	4.7	42	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:59	41.46558	-70.84487	41.58985	-70.88403	29	24	NE	<2	B5	>5	Precipitation	None	8.8	9	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:59	12:35	41.58985	-70.88403	41.62142	-70.91359	9	16	N	<2	B3	>5	Precipitation	None	8.3	337	Transit	N/A
2022-10-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:35	12:36	41.62142	-70.91359	41.62134	-70.91360	6	9	NW	<2	B3	>5	Precipitation	None	0	162	Standby	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	20:52	21:00	41.62145	-70.91345	41.62429	-70.91369	6	17	SE	<2	B3	2-5	Cloudy	None	0.2	122	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	41.62429	-70.91369	41.54687	-70.85584	7	18	SE	<2	B3	2-5	Cloudy	None	2	351	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	22:12	41.54687	-70.85584	41.52903	-70.84454	9	16	SSE	<2	B3	2-5	Cloudy	None	6	148	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:12	22:43	41.52903	-70.84454	41.47705	-70.84082	16	18	ESE	<2	B3	2-5	Fog	None	6	153	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:43	22:52	41.47705	-70.84082	41.46122	-70.84520	17	18	S	<2	B3	1-2	Fog	None	7.7	160	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:52	23:00	41.46122	-70.84520	41.44835	-70.84765	25	19	S	<2	B3	0.5-1	Precipitation	None	5.9	184	Transit	N/A
2022-10-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.44835	-70.84765	41.35951	-70.87112	25	19	S	<2	B3	0.5-1	Precipitation	None	5.9	184	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.31587	-70.84027	41.31264	-70.83612	25	28	NNE	<2	B4	0.5-1	Precipitation	None	5.6	162	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:30	00:57	41.31264	-70.83612	41.27542	-70.78608	58	15	NNE	<2	B4	0.5-1	Precipitation	None	7	129	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	00:57	02:00	41.27542	-70.78608	41.22347	-70.70944	15	18	N	<2	B4	0.5-1	Precipitation	None	4.9	121	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	02:59	41.22347	-70.70944	41.17538	-70.65114	11	13	N	<2	B4	0.5-1	Precipitation	None	4.1	121	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	02:59	04:00	41.17538	-70.65114	41.12754	-70.59910	34	14	NNE	<2	B4	0.5-1	Cloudy	None	3.7	122	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	04:00	05:00	41.12754	-70.59910	41.05788	-70.58967	39	18	NNE	<2	B4	0.5-1	Cloudy	None	3.8	121	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	05:00	06:00	41.05788	-70.58967	40.97447	-70.59982	43	14	N	<2	B4	0.5-1	Cloudy	None	5.1	170	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	06:00	07:00	40.97447	-70.59982	40.89494	-70.59480	46	14	N	<2	B4	0.5-1	Cloudy	None	4.7	170	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	08:01	40.89494	-70.59480	40.81509	-70.57941	50	13	NNE	<2	B4	0.5-1	Cloudy	None	4.7	180	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	08:01	09:00	40.81509	-70.57941	40.73593	-70.54971	55	17	N	<2	B4	0.5-1	Cloudy	None	4.7	154	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:00	10:00	40.73593	-70.54971	40.65768	-70.50328	58	15	N	<2	B4	0.5-1	Cloudy	None	4.4	154	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:00	10:13	40.65768	-70.50328	40.63930	-70.49544	59	10	N	<2	B4	0.5-1	Cloudy	None	5.1	153	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:13	10:57	40.63930	-70.49544	40.60659	-70.50238	61	13	N	<2	B4	0.5-1	Cloudy	None	5.7	158	Transit	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:57	12:00	40.60659	-70.50238	40.60652	-70.47880	64	20	N	<2	B5	1-2	Cloudy	None	4.4	30	Standby	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:58	40.60652	-70.47880	40.61766	-70.46925	63	12	N	<2	B4	>5	Cloudy	None	3.1	185	Standby	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:58	13:57	40.61766	-70.46925	40.60783	-70.47743	61	12	NW	<2	B4	>5	Fog	None	3.2	186	Standby	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:57	14:24	40.60783	-70.47743	40.60613	-70.44348	62	12	NW	<2	B4	>5	Cloudy	None	3.1	89	Standby	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:24	14:44	40.60613	-70.44348	40.60580	-70.42600	61	14	NW	<2	B4	>5	Cloudy	None	1.9	82	Deploying/Retrieving	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:44	15:00	40.60580	-70.42600	40.60727	-70.40298	61	18	NW	<2	B4	>5	Cloudy	None	4.2	76	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:12	40.60727	-70.40298	40.60713	-70.38649	58	16	N	<2	B4	>5	Cloudy	None	3.8	76	Deploying/Retrieving	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:12	15:33	40.60713	-70.38649	40.60395	-70.41384	50	13	N	<2	B4	1-2	Cloudy	Moderate	4.6	160	Soft Start	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:33	16:00	40.60395	-70.41384	40.60826	-70.46093	61	15	NNW	<2	B4	2-5	Cloudy	None	4.9	269	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:21	40.60826	-70.46093	40.61664	-70.48796	62	15	NNW	<2	B4	>5	Cloudy	None	4.2	78	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:21	16:27	40.61664	-70.48796	40.61723	-70.47927	91	15	NNW	<2	B4	>5	Cloudy	None	3.9	88	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:27	17:00	40.61723	-70.47927	40.61780	-70.43036	61	9	NNW	<2	B3	>5	Cloudy	None	4.2	95	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:19	40.61780	-70.43036	40.61821	-70.40135	60	9	NNW	<2	B3	>5	Cloudy	None	4	97	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:19	17:31	40.61821	-70.40135	40.61839	-70.38401	59	9	NNW	<2	B3	2-5	Fog	None	4.2	98	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:31	17:50	40.61839	-70.38401	40.61870	-70.35695	58	10	NW	<2	B3	1-2	Fog	None	4.2	80	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:50	18:30	40.61870	-70.35695	40.61940	-70.29837	55	9	NNW	<2	B3	2-5	Fog	None	4.5	81	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:30	18:31	40.61940	-70.29837	40.61943	-70.29687	55	5	NW	<2	B2	2-5	Cloudy	None	4.5	81	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:31	18:59	40.61943	-70.29687	40.61286	-70.29495	52	4	NW	<2	B2	2-5	Cloudy	None	4.5	81	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:59	19:00	40.61286	-70.29495	40.61285	-70.29664	55	15	NNW	<2	B4	2-5	Cloudy	None	5.5	269	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:03	40.61285	-70.29664	40.61284	-70.30111	55	15	NNW	<2	B4	>5	Cloudy	None	5.5	269	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:03	20:00	40.61284	-70.30111	40.61167	-70.39741	55	15	NNW	<2	B4	>5	Cloudy	None	5.5	269	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:49	40.61167	-70.39741	40.61055	-70.48329	59	9	NNW	<2	B3	>5	Cloudy	Moderate	4.8	265	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:49	20:50	40.61055	-70.48329	40.61053	-70.48509	59	9	NNW	<2	B3	>5	Clear	Moderate	5	264	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:50	20:59	40.61053	-70.48509	40.61674	-70.48698	59	9	NNW	<2	B3	>5	Clear	Moderate	4.8	277	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:59	21:04	40.61674	-70.48698	40.61694	-70.47949	60	10	NW	<2	B3	>5	Clear	Moderate	3.9	85	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:04	22:00	40.61694	-70.47949	40.61800	-70.38272	61	9	NNW	<2	B3	>5	Cloudy	Severe	4.8	90	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:42	40.61800	-70.38272	40.61893	-70.31102	59	5	NW	<2	B2	>5	Cloudy	None	4.7	88	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:42	22:50	40.61893	-70.31102	40.61908	-70.29711	56	4	NW	<2	B2	2-5	Cloudy	None	5	92	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:50	22:51	40.61908	-70.29711	40.61914	-70.29532	58	2	NW	<2	B2	1-2	Cloudy	None	4.6	98	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:51	22:59	40.61914	-70.29532	40.61303	-70.29215	58	2	NW	<2	B2	1-2	Cloudy	None	4.4	98	Full Power	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:59	23:04	40.61303	-70.29215	40.61252	-70.30055	57	7	NW	<2	B2	1-2	Cloudy	None	4.6	270	Silent	N/A
2022-10-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:04	00:00	40.61252	-70.30055	40.61142	-70.39500	57	7	NW	<2	B2	1-2	Cloudy	None	4.8	270	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:00	00:51	40.61245	-70.39956	40.61036	-70.48302	58	2	WNW	<2	B2	1-2	Cloudy	None	4.9	20	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:51	00:53	40.61036	-70.48302	40.61024	-70.48599	62	7	W	<2	B2	1-2	Cloudy	None	4.7	265	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:53	01:00	40.61024	-70.48599	40.61144	-70.49723	62	7	W	<2	B2	1-2	Cloudy	None	5	265	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	01:00	01:09	40.61144	-70.49723	40.61653	-70.48770	63	4	NW	<2	B2	1-2	Cloudy	None	4.6	345	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele; Ramsarran, Celine	RPS	01:09	01:14	40.61653	-70.48770	40.61671	-70.47833	61	5	SE	<2	B2	1-2	Cloudy	None	4.7	85	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele; Ramsarran, Celine	RPS	01:14	02:00	40.61671	-70.47833	40.61736	-70.40811	62	5	SE	<2	B2	1-2	Cloudy	None	4.7	85	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Ramsarran, Celine	RPS	02:00	02:30	40.61736	-70.40811	40.61805	-70.35330	57	3	SE	<2	B2	1-2	Cloudy	None	4.4	81	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:30	02:58	40.61805	-70.35330	40.61930	-70.30371	58	1	E	<2	B2	1-2	Cloudy	None	4.3	81	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	02:58	03:04	40.61930	-70.30371	40.61907	-70.29692	56	1	SE	<2	B1	1-2	Clear	None	4.3	80	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	03:04	03:05	40.61907	-70.29692	40.61912	-70.29531	56	1	SE	<2	B1	1-2	Clear	None	4.3	80	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	03:05	03:15	40.61912	-70.29531	40.61262	-70.29125	56	1	SE	<2	B1	1-2	Clear	None	4.3	80	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	03:15	03:21	40.61262	-70.29125	40.61232	-70.30145	54	9	SW	<2	B1	1-2	Clear	None	4.4	270	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	03:21	04:00	40.61232	-70.30145	40.61155	-70.36625	54	11	SW	<2	B1	1-2	Clear	None	4.4	272	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	05:00	40.61155	-70.36625	40.61015	-70.46931	54	14	W	<2	B1	1-2	Clear	None	4.6	267	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	05:00	05:07	40.61015	-70.46931	40.61002	-70.48133	62	13	WSW	<2	B2	1-2	Clear	None	4.6	263	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	05:07	05:09	40.61002	-70.48133	40.61014	-70.48534	62	13	WSW	<2	B2	1-2	Clear	None	4.6	263	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	05:09	06:00	40.61014	-70.48534	40.61587	-70.51903	62	13	WSW	<2	B2	1-2	Clear	None	4.5	263	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:00	06:23	40.61587	-70.51903	40.61634	-70.48506	60	7	S	<2	B2	1-2	Clear	None	3.9	89	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:23	06:27	40.61634	-70.48506	40.61643	-70.47966	62	5	SW	<2	B2	1-2	Clear	None	3.9	89	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:27	07:01	40.61643	-70.47966	40.61701	-70.43036	61	6	SW	<2	B2	1-2	Clear	None	4	89	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:01	08:02	40.61701	-70.43036	40.61804	-70.34077	60	6	SSW	<2	B2	1-2	Clear	None	3.9	89	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:02	08:29	40.61804	-70.34077	40.61894	-70.30121	57	5	SSW	<2	B2	1-2	Clear	None	4.3	91	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:29	08:31	40.61894	-70.30121	40.61925	-70.29899	57	3	S	<2	B2	1-2	Clear	None	4.4	90	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:31	08:45	40.61925	-70.29899	40.61204	-70.29541	58	4	S	<2	B2	1-2	Clear	None	4.4	90	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:45	08:48	40.61204	-70.29541	40.61197	-70.30034	58	10	SW	<2	B2	1-2	Clear	None	5	255	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:48	09:00	40.61197	-70.30034	40.61176	-70.32107	59	8	SW	<2	B2	1-2	Clear	None	4.7	260	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.61176	-70.32107	40.61087	-70.42056	56	13	WSW	<2	B2	1-2	Cloudy	None	4.7	253	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	10:00	10:28	40.61087	-70.42056	40.60976	-70.46966	59	13	SW	<2	B2	1-2	Cloudy	None	4.4	252	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:28	10:35	40.60976	-70.46966	40.60971	-70.48156	66	11	SW	<2	B2	1-2	Cloudy	None	4.6	259	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:35	10:37	40.60971	-70.48156	40.60970	-70.48463	66	11	SW	<2	B2	>5	Cloudy	Moderate	4.6	259	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:37	10:48	40.60970	-70.48463	40.61608	-70.48394	66	11	SW	<2	B2	>5	Cloudy	Moderate	4.6	259	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:48	10:51	40.61608	-70.48394	40.61607	-70.47922	59	7	SSE	<2	B2	>5	Cloudy	Moderate	4.6	92	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:51	11:00	40.61607	-70.47922	40.61633	-70.46477	59	7	SSE	<2	B2	>5	Cloudy	Moderate	4.6	92	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:56	40.61633	-70.46477	40.61740	-70.36883	59	9	SSE	<2	B2	>5	Cloudy	Severe	4.4	90	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:56	12:37	40.61740	-70.36883	40.61821	-70.29783	58	9	SSE	<2	B2	>5	Clear	Severe	4.7	89	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:37	12:39	40.61821	-70.29783	40.61824	-70.29512	57	9	SSE	<2	B2	>5	Cloudy	Severe	4.7	94	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:39	12:48	40.61824	-70.29512	40.61353	-70.28837	57	9	SSE	<2	B2	>5	Cloudy	Severe	4.7	94	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	12:48	13:00	40.61353	-70.28837	40.61312	-70.30458	56	13	SSW	<2	B3	0.1-0.3	Fog	Severe	4.9	238	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	13:00	13:30	40.61312	-70.30458	40.61328	-70.28862	57	12	SSW	<2	B3	0.1-0.3	Fog	Severe	3.8	268	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:30	14:00	40.61328	-70.28862	40.62089	-70.27498	57	10	SSW	<2	B3	2-5	Clear	Severe	3.3	276	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:21	40.62089	-70.27498	40.61180	-70.29291	55	13	S	<2	B3	>5	Clear	Moderate	3.8	153	Soft Start	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:21	14:24	40.61180	-70.29291	40.61168	-70.29622	57	13	SW	<2	B3	>5	Clear	Moderate	3.2	264	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:24	14:28	40.61168	-70.29622	40.61162	-70.30219	57	13	SW	<2	B3	>5	Clear	Moderate	3.4	265	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:28	15:00	40.61162	-70.30219	40.61111	-70.35591	57	13	SW	<2	B3	>5	Clear	Moderate	4.8	264	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.61111	-70.35591	40.60980	-70.46338	59	13	SW	<2	B3	>5	Clear	Severe	4.9	270	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:11	40.60980	-70.46338	40.61022	-70.48208	61	15	SSW	<2	B4	>5	Clear	Severe	4.7	273	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:11	16:13	40.61022	-70.48208	40.61164	-70.48499	62	11	SSW	<2	B4	>5	Clear	Severe	4.7	303	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:13	16:27	40.61164	-70.48499	40.61573	-70.48611	61	14	SSW	<2	B4	>5	Clear	Severe	4.4	274	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:27	16:31	40.61573	-70.48611	40.61589	-70.47984	61	11	SSW	<2	B4	>5	Clear	Severe	4.4	86	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:31	17:00	40.61589	-70.47984	40.61644	-70.43557	62	10	SSW	<2	B4	>5	Clear	Severe	4.2	87	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:01	40.61644	-70.43557	40.61758	-70.33990	60	9	SSW	<2	B3	>5	Clear	Severe	4.2	90	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:01	18:28	40.61758	-70.33990	40.61786	-70.29856	57	9	SSW	<2	B3	>5	Clear	Severe	4.1	87	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:28	18:29	40.61786	-70.29856	40.61789	-70.29556	57	10	SSW	<2	B3	>5	Clear	Severe	4.1	87	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:29	18:38	40.61789	-70.29556	40.61164	-70.29499	57	10	SSW	<2	B3	>5	Clear	Severe	4.1	87	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:38	18:42	40.61164	-70.29499	40.61138	-70.30088	56	14	SSW	<2	B3	>5	Clear	Severe	4.9	272	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:42	19:00	40.61138	-70.30088	40.61108	-70.33245	56	14	SSW	<2	B3	>5	Clear	Severe	4.9	272	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.61108	-70.33245	40.60979	-70.43528	56	16	SW	<2	B3	>5	Clear	Severe	4.8	250	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:28	40.60979	-70.43528	40.60914	-70.48199	55	18	SW	<2	B3	>5	Clear	Severe	4.5	250	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:28	20:30	40.60914	-70.48199	40.60907	-70.48622	55	18	SW	<2	B3	>5	Clear	Severe	4.5	256	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:30	20:41	40.60907	-70.48622	40.61537	-70.48642	55	18	SW	<2	B3	>5	Clear	Severe	4.5	256	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:41	21:15	40.61537	-70.48642	40.61614	-70.42913	60	12	SW	<2	B3	>5	Clear	Severe	4.5	95	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:15	21:45	40.61614	-70.42913	40.61592	-70.44352	60	9	SW	<2	B3	>5	Clear	Severe	4.8	91	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:45	22:00	40.61592	-70.44352	40.61703	-70.35235	60	12	SW	<2	B3	>5	Clear	Severe	4.5	96	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:31	40.61703	-70.35235	40.61762	-70.29868	58	8	SW	<2	B3	>5	Clear	Moderate	4.6	83	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:31	22:32	40.61762	-70.29868	40.61766	-70.29691	56	8	SW	<2	B3	2-5	Clear	None	4.9	88	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:32	22:41	40.61766	-70.29691	40.61306	-70.29344	56	8	SW	<2	B3	2-5	Clear	None	4.9	89	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:41	22:46	40.61306	-70.29344	40.61292	-70.30194	56	15	SW	<2	B3	1-2	Clear	None	4.6	270	Silent	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:46	23:00	40.61292	-70.30194	40.61267	-70.32642	57	16	SW	<2	B3	1-2	Clear	None	4.6	272	Full Power	N/A
2022-10-07	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.61267	-70.32642	40.61162	-70.42220	57	18	SW	<2	B3	0.5-1	Clear	None	4.4	272	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:00	00:38	40.61157	-70.42530	40.61088	-70.48189	59	22	WSW	<2	B3	1-2	Clear	None	4.2	259	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:38	00:40	40.61088	-70.48189	40.61080	-70.48500	59	22	WSW	<2	B3	1-2	Clear	None	4.3	259	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:40	00:47	40.61080	-70.48500	40.61535	-70.48672	59	22	WSW	<2	B3	1-2	Clear	None	4.2	259	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:47	00:51	40.61535	-70.48672	40.61520	-70.47995	59	14	SW	<2	B3	1-2	Clear	None	4.7	87	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	00:51	01:14	40.61520	-70.47995	40.61576	-70.43982	59	14	SW	<2	B3	1-2	Clear	None	4.6	88	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele; Ramsarran, Celine	RPS	01:14	01:24	40.61576	-70.43982	40.61571	-70.42194	60	9	W	<2	B3	1-2	Clear	None	4.8	87	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	01:24	02:00	40.61571	-70.42194	40.61650	-70.37337	59	22	WSW	<2	B3	1-2	Clear	None	4.4	259	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Ramsarran, Celine	RPS	02:00	02:30	40.61650	-70.37337	40.61732	-70.30839	56	11	WSW	<2	B3	1-2	Clear	None	4.7	84	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:30	02:35	40.61732	-70.30839	40.61739	-70.29983	57	14	SW	<2	B3	1-2	Clear	None	4.8	83	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:35	02:37	40.61739	-70.29983	40.61764	-70.29648	56	14	SW	<2	B3	1-2	Clear	None	4.5	81	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:37	02:51	40.61764	-70.29648	40.61340	-70.29347	56	14	SW	<2	B3	1-2	Clear	None	4.6	81	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:51	02:56	40.61340	-70.29347	40.61330	-70.30181	58	22	W	<2	B3	1-2	Clear	None	4.6	269	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	02:56	03:00	40.61330	-70.30181	40.61328	-70.30862	55	23	W	<2	B3	1-2	Clear	None	4.5	268	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	03:00	04:00	40.61328	-70.30862	40.61207	-70.40927	57	21	W	<2	B4	1-2	Clear	None	4.6	267	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:00	04:41	40.61207	-70.40927	40.61122	-70.48096	57	25	W	<2	B4	1-2	Clear	None	4.9	268	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:41	04:43	40.61122	-70.48096	40.61117	-70.48462	57	17	NW	<2	B4	1-2	Clear	None	4.9	271	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	04:43	04:57	40.61117	-70.48462	40.61494	-70.48983	57	18	NW	<2	B4	1-2	Clear	None	4.6	290	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	04:57	05:03	40.61494	-70.48983	40.61512	-70.47991	57	10	NW	<2	B4	1-2	Clear	None	4.3	81	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	05:03	06:00	40.61512	-70.47991	40.61625	-70.38986	62	11	NW	<2	B4	1-2	Clear	None	4.3	79	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	06:00	06:56	40.61625	-70.38986	40.61719	-70.29949	59	9	NNW	<2	B3	1-2	Cloudy	None	4.4	78	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	06:56	07:00	40.61719	-70.29949	40.61738	-70.29263	56	16	NNW	<2	B4	1-2	Cloudy	None	4	50	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:00	07:15	40.61738	-70.29263	40.61359	-70.30180	55	20	NW	<2	B4	1-2	Cloudy	None	4.6	275	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:15	07:59	40.61359	-70.30180	40.61274	-70.37704	57	20	NW	<2	B4	1-2	Cloudy	None	4.7	274	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:59	08:58	40.61274	-70.37704	40.61160	-70.47919	59	23	NNW	<2	B5	1-2	Clear	None	4.6	272	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	08:58	09:01	40.61160	-70.47919	40.61174	-70.48394	60	21	NW	<2	B5	1-2	Clear	None	4.6	272	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:01	09:03	40.61174	-70.48394	40.61199	-70.48793	59	23	NW	<2	B5	1-2	Clear	None	4.5	272	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:03	09:17	40.61199	-70.48793	40.61436	-70.48926	60	23	NW	<2	B5	1-2	Clear	None	4.5	250	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:17	09:24	40.61436	-70.48926	40.61448	-70.47832	60	17	N	<2	B5	1-2	Clear	None	4.4	87	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:24	10:00	40.61448	-70.47832	40.61516	-70.42112	60	15	N	<2	B5	1-2	Clear	None	4.6	85	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	10:00	10:30	40.61516	-70.42112	40.61600	-70.37024	61	14	N	<2	B5	1-2	Clear	None	4.8	87	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:30	11:00	40.61600	-70.37024	40.61642	-70.32002	61	14	N	<2	B3	2-5	Clear	None	4.5	87	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:15	40.61642	-70.32002	40.61670	-70.29579	56	14	N	<2	B3	>5	Clear	None	4.7	86	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:15	11:16	40.61670	-70.29579	40.61669	-70.29428	55	17	N	<2	B3	>5	Clear	Moderate	4.5	196	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:16	11:30	40.61669	-70.29428	40.61436	-70.29474	55	17	N	<2	B3	>5	Clear	Moderate	4.6	279	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:30	11:34	40.61436	-70.29474	40.61423	-70.30100	55	20	N	<2	B4	>5	Clear	Moderate	4.6	274	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:34	11:59	40.61423	-70.30100	40.61370	-70.34331	55	20	N	<2	B4	>5	Clear	Moderate	4.9	271	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:59	13:02	40.61370	-70.34331	40.61244	-70.44649	58	20	NNW	<2	B5	>5	Cloudy	Moderate	4.4	271	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:02	13:25	40.61244	-70.44649	40.61186	-70.48228	61	15	NW	<2	B4	>5	Cloudy	None	4.3	270	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:25	13:27	40.61186	-70.48228	40.61191	-70.48646	62	22	NNW	<2	B5	>5	Cloudy	None	4.2	273	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:27	13:48	40.61191	-70.48646	40.61299	-70.51950	61	22	NNW	<2	B5	>5	Cloudy	None	4.2	273	Full Power	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:48	14:00	40.61299	-70.51950	40.61256	-70.50764	62	17	NNW	<2	B5	>5	Cloudy	None	4.6	319	Silent	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.61256	-70.50764	40.61995	-70.48707	62	10	N	<2	B4	>5	Cloudy	None	4	123	Deploying/Retrieving	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:18	40.61995	-70.48707	40.61394	-70.48520	61	10	NW	<2	B4	>5	Cloudy	None	0.7	152	Standby	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:18	16:00	40.61394	-70.48520	40.70239	-70.51235	62	14	NW	<2	B4	>5	Cloudy	None	4.9	123	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.70239	-70.51235	40.85088	-70.59626	56	21	NW	<2	B4	>5	Cloudy	Moderate	9.6	337	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.85088	-70.59626	40.97875	-70.65376	54	22	NW	<2	B4	>5	Cloudy	Moderate	9.7	340	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.97875	-70.65376	41.10264	-70.69733	49	13	WNW	<2	B4	>5	Clear	Severe	4.4	342	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.10264	-70.69733	41.25542	-70.76387	46	14	WNW	<2	B3	>5	Clear	Severe	9.7	338	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:45	41.25542	-70.76387	41.34683	-70.86489	20	17	W	<2	B2	>5	Clear	Severe	9.8	321	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	20:45	21:00	41.34683	-70.86489	41.38435	-70.86229	24	12	W	<2	B2	>5	Clear	Severe	9.7	350	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	21:16	41.38435	-70.86229	41.42359	-70.83820	25	8	W	<2	B2	>5	Clear	Moderate	9.2	74	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:16	22:00	41.42359	-70.83820	41.53885	-70.84979	25	8	W	<2	B2	>5	Clear	Moderate	9.2	74	Transit	N/A
2022-10-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:57	41.53885	-70.84979	41.62155	-70.91329	15	17	W	<2	B2	>5	Clear	Moderate	9.7	334	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:17	04:00	41.62145	-70.91354	41.60177	-70.89132	9	10	WNW	<2	B3	1-2	Clear	Moderate	2.6	175	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	04:00	04:59	41.60177	-70.89132	41.53086	-70.84564	7	8	W	<2	B3	1-2	Clear	None	4.8	151	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	04:59	06:00	41.53086	-70.84564	41.42712	-70.83961	15	11	W	<2	B3	1-2	Clear	None	5.7	152	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	06:00	07:00	41.42712	-70.83961	41.30808	-70.82732	16	11	W	<2	B3	1-2	Clear	None	8.9	193	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	08:01	41.30808	-70.82732	41.20718	-70.73717	13	8	NW	<2	B3	1-2	Clear	None	7.6	135	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	08:01	09:00	41.20718	-70.73717	41.09118	-70.67422	31	5	W	<2	B3	1-2	Clear	None	7.7	149	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	09:00	10:00	41.09118	-70.67422	40.97755	-70.61300	45	9	W	<2	B3	1-2	Clear	None	7.4	150	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:00	10:17	40.97755	-70.61300	40.94492	-70.59472	49	6	W	<2	B3	1-2	Clear	None	7.1	150	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:17	10:58	40.94492	-70.59472	40.86630	-70.55612	53	4	NW	<2	B3	2-5	Clear	None	7.3	150	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:58	11:57	40.86630	-70.55612	40.74996	-70.51040	55	8	WNW	<2	B3	>5	Clear	Moderate	7.5	159	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:57	12:57	40.74996	-70.51040	40.66072	-70.44242	56	12	SW	<2	B4	>5	Clear	Severe	7.5	162	Transit	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:57	13:39	40.66072	-70.44242	40.64918	-70.40078	58	15	NW	<2	B4	>5	Clear	Severe	0.6	127	Deploying/Retrieving	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:39	14:00	40.64918	-70.40078	40.65038	-70.41911	58	14	W	<2	B4	>5	Clear	Severe	3.7	181	Soft Start	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:13	40.65038	-70.41911	40.66115	-70.43145	57	24	W	<2	B5	>5	Clear	Severe	4.8	294	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:13	14:18	40.66115	-70.43145	40.66226	-70.42348	57	24	W	<2	B5	>5	Clear	Severe	4.8	294	Silent	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:18	15:00	40.66226	-70.42348	40.66305	-70.35089	55	13	W	<2	B5	>5	Clear	Severe	4.8	89	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.66305	-70.35089	40.66419	-70.24602	53	15	W	<2	B5	>5	Clear	Severe	4.7	95	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.66419	-70.24602	40.66533	-70.14199	49	14	W	<2	B5	>5	Clear	Severe	4.9	95	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:04	40.66533	-70.14199	40.66640	-70.03595	46	19	W	<2	B5	>5	Clear	Severe	4.8	100	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:04	18:17	40.66640	-70.03595	40.66653	-70.01615	45	19	W	<2	B5	>5	Clear	Severe	4.4	77	Full Power	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:17	19:00	40.66653	-70.01615	40.66454	-69.95901	45	19	W	<2	B4	>5	Clear	Severe	4.4	77	Deploying/Retrieving	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:02	40.66454	-69.95901	40.66250	-70.00036	44	20	W	<2	B4	>5	Clear	Severe	2.5	75	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:02	21:00	40.66250	-70.00036	40.66534	-70.04829	42	23	W	<2	B4	>5	Clear	Severe	2.3	266	Standby	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	21:50	40.66534	-70.04829	40.66934	-70.09346	48	28	W	<2	B5	>5	Clear	Severe	3.1	270	Standby	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:50	22:11	40.66934	-70.09346	40.67053	-70.11003	48	28	W	<2	B5	>5	Clear	Severe	3.1	270	Standby	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:11	22:46	40.67053	-70.11003	40.67064	-70.13799	48	25	W	<2	B5	>5	Clear	None	2	271	Standby	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:46	22:57	40.67064	-70.13799	40.66995	-70.14652	47	23	W	<2	B5	2-5	Clear	None	2.4	273	Standby	N/A
2022-10-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:57	00:00	40.66995	-70.14652	40.66537	-70.19360	44	21	W	<2	B5	1-2	Clear	None	2.9	258	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:28	40.66535	-70.19472	40.66423	-70.21300	46	23	W	2-4	B4	0.5-1	Clear	None	1.7	262	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:28	01:00	40.66423	-70.21300	40.66186	-70.23595	46	24	W	2-4	B4	0.5-1	Clear	None	2.5	263	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	01:00	02:00	40.66186	-70.23595	40.65825	-70.27775	50	26	W	2-4	B4	0.5-1	Clear	None	2.3	265	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	03:00	40.65825	-70.27775	40.65456	-70.32432	50	24	W	2-4	B4	0.5-1	Clear	None	2.3	265	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	03:59	40.65456	-70.32432	40.64285	-70.38780	52	18	W	2-4	B5	0.5-1	Clear	None	2.5	265	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	03:59	05:01	40.64285	-70.38780	40.62341	-70.46140	55	20	W	2-4	B5	0.5-1	Clear	None	3.7	257	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	05:01	05:40	40.62341	-70.46140	40.61390	-70.48064	61	17	W	2-4	B5	0.5-1	Clear	None	2.3	257	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	05:40	05:59	40.61390	-70.48064	40.61203	-70.45891	61	9	NW	<2	B4	0.5-1	Clear	None	2.3	85	Standby	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Dalton, Tavis	RPS	05:59	07:01	40.61203	-70.45891	40.60389	-70.44898	62	8	NW	<2	B4	0.5-1	Clear	None	2.8	85	Deploying/Retrieving	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:01	07:18	40.60389	-70.44898	40.60367	-70.47062	61	14	NW	<2	B4	0.5-1	Clear	None	4.2	270	Deploying/Retrieving	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:18	07:40	40.60367	-70.47062	40.61449	-70.48695	62	6	NW	<2	B3	0.5-1	Clear	None	3.8	77	Soft Start	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	07:40	08:01	40.61449	-70.48695	40.61501	-70.45480	62	6	W	<2	B3	0.5-1	Clear	None	4.1	82	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Fuhr Ely, Gabriele	RPS	08:01	09:00	40.61501	-70.45480	40.61617	-70.36406	61	5	W	<2	B3	0.5-1	Clear	None	4.2	82	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:00	09:44	40.61617	-70.36406	40.61687	-70.29869	56	7	W	<2	B3	0.5-1	Clear	None	4.2	84	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:44	09:46	40.61687	-70.29869	40.61691	-70.29601	54	5	NW	<2	B3	0.5-1	Clear	None	4	84	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:46	09:59	40.61691	-70.29601	40.61307	-70.29001	54	5	NW	<2	B3	0.5-1	Clear	None	4.1	84	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	09:59	10:06	40.61307	-70.29001	40.61380	-70.30078	43	13	WNW	<2	B3	0.5-1	Clear	None	4.1	260	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth; Fuhr Ely, Gabriele	RPS	10:06	10:30	40.61380	-70.30078	40.61338	-70.34162	55	15	WNW	<2	B3	1-2	Clear	None	5.3	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	10:30	11:00	40.61338	-70.34162	40.61283	-70.39256	57	15	WNW	<2	B3	2-5	Clear	None	4.7	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:00	11:53	40.61283	-70.39256	40.61172	-70.48150	59	13	WNW	<2	B3	>5	Clear	None	4.7	259	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:53	11:55	40.61172	-70.48150	40.61166	-70.48494	61	10	WNW	<2	B3	>5	Clear	Moderate	5	262	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	11:55	12:00	40.61166	-70.48494	40.60941	-70.49221	61	10	WNW	<2	B3	>5	Clear	Moderate	4.1	230	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:07	40.60941	-70.49221	40.61224	-70.48714	61	9	N	<2	B3	>5	Clear	Moderate	4.7	351	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:07	12:12	40.61224	-70.48714	40.61228	-70.47879	62	1	NNE	<2	B2	>5	Clear	Severe	4.6	89	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:12	13:00	40.61228	-70.47879	40.61326	-70.39557	60	2	SE	<2	B2	>5	Clear	Severe	4.4	89	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:59	40.61326	-70.39557	40.61440	-70.29900	59	2	SE	<2	B2	>5	Clear	Severe	4.3	90	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:59	14:01	40.61440	-70.29900	40.61440	-70.29606	57	3	SE	<2	B2	>5	Clear	Moderate	4.7	88	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:01	14:16	40.61440	-70.29606	40.61117	-70.29630	57	3	SE	<2	B2	>5	Clear	Moderate	4.7	88	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:16	14:20	40.61117	-70.29630	40.61111	-70.30091	57	9	WSW	<2	B2	>5	Clear	Moderate	4	261	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:20	15:00	40.61111	-70.30091	40.61047	-70.36289	57	9	WSW	<2	B2	>5	Clear	Moderate	4.6	263	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:18	40.61047	-70.36289	40.61007	-70.39121	59	10	SSW	<2	B2	>5	Clear	Severe	4.5	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:18	15:27	40.61007	-70.39121	40.60991	-70.40584	60	13	SSW	<2	B2	>5	Clear	Severe	4.5	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:27	15:42	40.60991	-70.40584	40.60963	-70.43081	60	14	SSW	<2	B2	>5	Clear	Severe	4.3	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:42	16:00	40.60963	-70.43081	40.60926	-70.46032	61	14	SSW	<2	B2	>5	Clear	Severe	5	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:13	40.60926	-70.46032	40.60900	-70.48161	62	14	SW	<2	B2	>5	Clear	Moderate	4.6	262	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:13	16:39	40.60900	-70.48161	40.60864	-70.49398	92	14	SW	<2	B2	>5	Clear	Moderate	4.8	262	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:39	17:00	40.60864	-70.49398	40.60913	-70.45844	62	6	SW	<2	B2	>5	Clear	Moderate	4.9	82	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:02	40.60913	-70.45844	40.61026	-70.35644	61	6	SW	<2	B2	>5	Clear	Moderate	4.5	83	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:02	18:38	40.61026	-70.35644	40.61094	-70.29918	61	6	SW	<2	B2	>5	Clear	Moderate	4.5	83	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:38	18:40	40.61094	-70.29918	40.61098	-70.29461	61	6	SW	<2	B2	>5	Clear	Moderate	4.5	83	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:40	18:56	40.61098	-70.29461	40.60051	-70.29564	54	6	SW	<2	B2	>5	Clear	Moderate	4.3	107	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:56	19:00	40.60051	-70.29564	40.60054	-70.30123	53	6	SW	<2	B2	>5	Clear	Moderate	4.3	286	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.60054	-70.30123	40.59928	-70.40525	59	15	WSW	<2	B2	>5	Clear	Moderate	4.2	266	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:53	40.59928	-70.40525	40.59821	-70.49540	58	15	WSW	<2	B2	>5	Clear	Moderate	4.5	268	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:53	20:55	40.59821	-70.49540	40.59819	-70.49864	58	15	WSW	<2	B2	>5	Clear	Moderate	4.5	268	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:55	21:25	40.59819	-70.49864	40.58512	-70.47236	57	8	WSW	<2	B2	>5	Clear	Moderate	4.4	97	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:25	21:52	40.58512	-70.47236	40.57958	-70.43085	63	6	WSW	<2	B2	>5	Clear	Moderate	4.5	97	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:52	21:58	40.57958	-70.43085	40.58692	-70.42994	62	7	WSW	<2	B2	>5	Clear	Moderate	4.1	358	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:58	22:00	40.58692	-70.42994	40.58927	-70.43005	62	5	WSW	<2	B2	>5	Clear	Moderate	4.6	357	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:40	40.58927	-70.43005	40.64304	-70.43110	62	5	WSW	<2	B2	>5	Clear	Moderate	4.8	359	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:40	22:51	40.64304	-70.43110	40.65697	-70.43137	58	7	WSW	<2	B2	2-5	Clear	None	4.7	356	Full Power	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:51	22:53	40.65697	-70.43137	40.65966	-70.43142	56	9	WSW	<2	B2	1-2	Clear	None	4.8	357	Silent	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:53	23:00	40.65966	-70.43142	40.66900	-70.42981	56	7	WSW	<2	B2	1-2	Clear	None	5.1	357	Deploying/Retrieving	N/A
2022-10-10	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.66900	-70.42981	40.69583	-70.41189	54	9	WSW	<2	B2	1-2	Clear	None	4.7	11	Deploying/Retrieving	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.70056	-70.41506	40.74710	-70.44802	51	12	WSW	<2	B2	0.5-1	Clear	None	5.4	327	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	00:30	01:03	40.74710	-70.44802	40.82898	-70.50209	50	16	WSW	<2	B2	0.5-1	Clear	None	9.6	327	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	01:03	02:00	40.82898	-70.50209	40.96408	-70.58413	53	17	WNW	<2	B2	0.5-1	Clear	None	9.7	328	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	02:00	02:59	40.96408	-70.58413	41.10450	-70.66903	46	16	WNW	<2	B2	0.5-1	Cloudy	None	8.4	329	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	02:59	03:59	41.10450	-70.66903	41.24666	-70.75463	45	13	W	<2	B3	0.5-1	Cloudy	None	9.3	329	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	03:59	05:01	41.24666	-70.75463	41.36457	-70.87105	24	17	W	<2	B3	0.5-1	Cloudy	None	9.3	329	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Fuhr Ely, Gabriele	RPS	05:01	05:58	41.36457	-70.87105	41.49575	-70.84005	25	15	N	<2	B3	0.5-1	Cloudy	None	9.4	20	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	05:58	07:00	41.49575	-70.84005	41.57845	-70.87687	14	5	N	<2	B2	0.5-1	Cloudy	None	5.3	7	Transit	N/A
2022-10-11	*GO Pursuit*	HRG	Visual	Breton, Elizabeth	RPS	07:00	08:00	41.57845	-70.87687	41.62191	-70.91359	7	9	N	<2	B2	0.5-1	Clear	None	5.1	328	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:10	07:00	41.62137	-70.91345	41.61384	-70.89929	5	6	SSE	<2	B1	2-5	Clear	None	0	163	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.61384	-70.89929	41.53662	-70.84836	9	5	SSE	<2	B1	2-5	Clear	None	4	148	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.53662	-70.84836	41.45352	-70.84712	15	10	SSE	<2	B2	0.5-1	Clear	None	5.4	156	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.45352	-70.84712	41.33198	-70.85956	12	12	S	<2	B2	0.5-1	Clear	None	6.2	177	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:26	41.33198	-70.85956	41.29352	-70.80948	23	9	SE	<2	B2	0.5-1	Clear	None	7.8	140	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:26	11:00	41.29352	-70.80948	41.24186	-70.74697	13	7	SE	<2	B2	1-2	Clear	None	6.9	136	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:22	41.24186	-70.74697	41.20559	-70.70462	53	9	SW	<2	B3	>5	Clear	Moderate	8	135	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:22	12:01	41.20559	-70.70462	41.14332	-70.62669	53	6	SW	<2	B3	>5	Clear	Severe	7.8	133	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:01	13:00	41.14332	-70.62669	41.05009	-70.50592	53	6	SSW	<2	B3	>5	Clear	Severe	7.9	133	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:01	41.05009	-70.50592	40.95655	-70.37443	46	7	S	<2	B3	>5	Clear	Severe	8	133	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:01	15:00	40.95655	-70.37443	40.86054	-70.23903	44	9	SW	<2	B3	>5	Clear	Severe	8.3	133	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:22	40.86054	-70.23903	40.82206	-70.18678	41	10	SW	<2	B3	>5	Clear	Moderate	8.7	133	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:22	15:31	40.82206	-70.18678	40.80573	-70.16814	39	10	WSW	<2	B3	>5	Clear	Moderate	8.9	140	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:31	15:43	40.80573	-70.16814	40.78285	-70.14210	39	11	SSW	<2	B3	>5	Clear	Moderate	8.7	140	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:43	16:00	40.78285	-70.14210	40.75206	-70.10772	37	11	WSW	<2	B3	>5	Clear	Moderate	9	140	Transit	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:42	40.75206	-70.10772	40.69021	-70.03556	40	9	WSW	<2	B3	>5	Clear	Severe	9	140	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:42	17:00	40.69021	-70.03556	40.68971	-70.02460	45	6	WSW	<2	B2	>5	Clear	Severe	1.8	136	Deploying/Retrieving	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:35	40.68971	-70.02460	40.67116	-69.98991	46	6	WSW	<2	B2	>5	Clear	Severe	3.1	129	Deploying/Retrieving	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:35	17:45	40.67116	-69.98991	40.66596	-69.98010	48	8	WSW	<2	B2	>5	Clear	Severe	3.2	129	Soft Start	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:45	17:56	40.66596	-69.98010	40.66021	-69.96999	48	9	WSW	<2	B2	>5	Clear	Severe	2.9	129	Soft Start	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:56	18:00	40.66021	-69.96999	40.65752	-69.96563	51	8	WSW	<2	B2	>5	Clear	Severe	3.3	129	Full Power	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:04	40.65752	-69.96563	40.65509	-69.96189	51	6	WSW	<2	B2	>5	Clear	Severe	3.4	128	Full Power	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:04	19:00	40.65509	-69.96189	40.67176	-70.01879	51	6	WSW	<2	B2	>5	Clear	Severe	3.4	128	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:17	40.67176	-70.01879	40.67162	-70.04840	47	14	WSW	<2	B2	>5	Clear	Severe	4.7	272	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:17	20:00	40.67162	-70.04840	40.67089	-70.12762	47	14	WSW	<2	B2	>5	Clear	Severe	4.7	272	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.67089	-70.12762	40.66976	-70.24093	45	12	SW	<2	B2	>5	Clear	Severe	5.1	273	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.66976	-70.24093	40.66861	-70.27319	50	8	SSW	<2	B2	>5	Clear	Severe	5	271	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:40	40.66861	-70.27319	40.66785	-70.34591	51	8	SW	<2	B2	>5	Clear	None	4.9	268	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:40	23:00	40.66785	-70.34591	40.66745	-70.38088	53	10	SSW	<2	B2	2-5	Clear	None	5.1	265	Silent	N/A
2022-10-12	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.66745	-70.38088	40.63492	-70.47107	54	10	S	<2	B2	1-2	Clear	None	5	264	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:59	40.63208	-70.47553	40.61724	-70.42538	60	14	SSW	<2	B2	0.5-1	Clear	None	4.3	88	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:59	02:00	40.61724	-70.42538	40.61842	-70.32795	60	14	SSW	<2	B2	0.5-1	Clear	None	4.4	90	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:57	40.61842	-70.32795	40.61124	-70.34291	58	14	SSW	<2	B2	0.5-1	Clear	None	4.5	95	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	02:57	04:00	40.61124	-70.34291	40.61016	-70.44454	58	14	SE	<2	B3	0.5-1	Clear	None	4.5	254	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	04:00	04:58	40.61016	-70.44454	40.61778	-70.44847	62	13	SW	<2	B3	0.5-1	Clear	None	4.4	255	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:58	05:45	40.61778	-70.44847	40.62129	-70.40062	61	18	SSE	<2	B3	0.5-1	Clear	None	4.6	96	Silent	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:45	06:02	40.62129	-70.40062	40.62500	-70.40275	59	14	SSE	<2	B2	0.5-1	Clear	None	0.9	44	Deploying/Retrieving	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:02	07:00	40.62500	-70.40275	40.72823	-70.42780	59	13	SSE	<2	B2	0.5-1	Clear	None	3.9	337	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	40.72823	-70.42780	40.84795	-70.47930	52	8	SSE	<2	B2	0.5-1	Clear	None	7.7	345	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	40.84795	-70.47930	40.96018	-70.55057	53	11	SSE	<2	B2	0.5-1	Clear	None	7.6	332	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	40.96018	-70.55057	41.07372	-70.62876	51	12	SSE	<2	B2	0.5-1	Clear	None	7.4	331	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:26	41.07372	-70.62876	41.12517	-70.66464	44	14	SSE	<2	B2	0.5-1	Clear	None	7	330	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:26	10:58	41.12517	-70.66464	41.18636	-70.70753	43	14	SE	<2	B2	0.5-1	Clear	None	7	331	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:58	11:59	41.18636	-70.70753	41.29341	-70.80790	30	15	SSE	<2	B4	>5	Cloudy	Moderate	7	331	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:59	13:01	41.29341	-70.80790	41.39262	-70.84468	15	15	SSE	<2	B4	>5	Cloudy	None	8.3	312	Transit	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:01	14:00	41.39262	-70.84468	41.43362	-70.79302	27	19	SE	<2	B5	>5	Cloudy	None	3.7	22	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.43362	-70.79302	41.47243	-70.70636	26	22	SE	<2	B5	>5	Cloudy	None	3.7	77	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.47243	-70.70636	41.48110	-70.68361	23	22	SE	<2	B5	>5	Cloudy	Moderate	4.8	66	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.48110	-70.68361	41.46423	-70.71962	24	23	SSE	<2	B5	>5	Cloudy	Moderate	4.6	225	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.46423	-70.71962	41.43232	-70.78012	20	25	SE	<2	B5	>5	Cloudy	None	3	223	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	41.43232	-70.78012	41.40984	-70.81563	19	30	SE	<2	B5	>5	Cloudy	None	3.8	221	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.40984	-70.81563	41.44160	-70.75868	18	30	SE	<2	B5	2-5	Fog	None	3.3	47	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	41.44160	-70.75868	41.46502	-70.71378	18	30	SE	<2	B5	2-5	Fog	None	3.3	47	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:15	41.46502	-70.71378	41.46901	-70.70579	23	25	SE	<2	B5	1-2	Fog	None	1.8	54	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:15	22:00	41.46901	-70.70579	41.48083	-70.68376	24	19	SSE	<2	B4	1-2	Fog	None	1.8	55	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:33	41.48083	-70.68376	41.48937	-70.66646	23	20	SE	<2	B4	1-2	Fog	None	1.5	61	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:33	23:01	41.48937	-70.66646	41.48369	-70.68193	24	24	SE	<2	B4	1-2	Cloudy	None	1.9	67	Standby	N/A
2022-10-13	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:01	00:00	41.48369	-70.68193	41.43461	-70.77476	22	28	SE	<2	B4	0.5-1	Cloudy	None	5.8	223	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.43278	-70.77795	41.43298	-70.77852	23	27	SE	<2	B3	0.5-1	Precipitation	None	4.2	232	Silent	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.43298	-70.77852	41.44970	-70.74366	23	25	SE	<2	B3	0.3-0.5	Precipitation	None	3.2	59	Silent	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.44970	-70.74366	41.49164	-70.66794	24	27	SE	<2	B3	0.3-0.5	Precipitation	None	3.8	5	Silent	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	02:58	41.49164	-70.66794	41.49394	-70.58675	24	29	SE	<2	B3	0.5-1	Cloudy	None	5.1	60	Silent	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	02:58	04:00	41.49394	-70.58675	41.49803	-70.62575	27	22	SSE	<2	B5	0.5-1	Cloudy	None	2.5	280	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.49803	-70.62575	41.48975	-70.66426	24	20	S	<2	B5	0.5-1	Cloudy	None	1.6	250	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.48975	-70.66426	41.46921	-70.71123	25	18	S	<2	B4	0.5-1	Cloudy	None	2.3	235	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.46921	-70.71123	41.43348	-70.77910	21	19	SSW	<2	B4	0.3-0.5	Precipitation	None	3.1	229	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:01	41.43348	-70.77910	41.41035	-70.83629	22	18	S	<2	B4	0.1-0.3	Precipitation	None	4.2	223	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:01	08:59	41.41035	-70.83629	41.41693	-70.79318	22	28	SE	<2	B4	0.1-0.3	Precipitation	None	2.2	95	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:59	10:00	41.41693	-70.79318	41.43466	-70.76762	14	35	SE	<2	B4	0.1-0.3	Precipitation	None	2.1	61	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:53	41.43466	-70.76762	41.45289	-70.73616	24	29	SE	<2	B4	0.1-0.3	Precipitation	None	1.9	61	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:53	11:00	41.45289	-70.73616	41.45528	-70.73238	23	25	SE	<2	B4	0.1-0.3	Precipitation	None	1.8	65	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:32	41.45528	-70.73238	41.46311	-70.71906	22	28	SE	<2	B5	0.3-0.5	Precipitation	None	1.7	56	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:32	11:57	41.46311	-70.71906	41.46915	-70.70908	21	28	E	<2	B5	0.5-1	Precipitation	None	1.1	58	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:57	12:35	41.46915	-70.70908	41.48001	-70.69041	22	33	ESE	<2	B5	1-2	Precipitation	None	1.2	61	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:35	13:02	41.48001	-70.69041	41.48993	-70.67385	22	31	SE	<2	B6	2-5	Cloudy	None	1.9	73	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:02	13:27	41.48993	-70.67385	41.48019	-70.69105	22	28	SSE	<2	B6	2-5	Cloudy	None	2	220	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:27	13:44	41.48019	-70.69105	41.47287	-70.70152	23	28	SSE	<2	B6	1-2	Precipitation	None	2.3	193	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:44	13:58	41.47287	-70.70152	41.46732	-70.70928	21	35	SSE	<2	B6	0.3-0.5	Precipitation	None	2.1	196	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:58	14:14	41.46732	-70.70928	41.46182	-70.71787	23	31	SSE	<2	B6	0.5-1	Precipitation	None	1.8	196	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:14	14:35	41.46182	-70.71787	41.45634	-70.72883	20	25	SSE	<2	B6	0.3-0.5	Precipitation	None	1.9	216	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:35	14:44	41.45634	-70.72883	41.45364	-70.73361	22	25	S	<2	B6	0.5-1	Precipitation	None	1.9	214	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:44	15:00	41.45364	-70.73361	41.44913	-70.74164	23	24	S	<2	B6	1-2	Precipitation	None	1.8	216	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:01	41.44913	-70.74164	41.42792	-70.77353	27	21	SSE	<2	B5	0.5-1	Fog	None	1.8	216	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:01	17:00	41.42792	-70.77353	41.40651	-70.81046	21	17	S	<2	B4	1-2	Fog	None	1.7	225	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:24	41.40651	-70.81046	41.40445	-70.82032	20	9	S	<2	B3	0.5-1	Fog	None	2.8	225	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:24	18:02	41.40445	-70.82032	41.43273	-70.77816	22	3	S	<2	B2	0.5-1	Fog	None	3.9	23	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:02	18:37	41.43273	-70.77816	41.45562	-70.73342	20	1	S	<2	B2	0.5-1	Fog	None	3.8	54	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:37	19:00	41.45562	-70.73342	41.47057	-70.70585	20	1	S	<2	B2	0.3-0.5	Fog	None	3.8	54	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.47057	-70.70585	41.49578	-70.64238	20	5	SSW	<2	B2	2-5	Fog	None	3.8	54	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	41.49578	-70.64238	41.49550	-70.59124	19	5	SSW	<2	B2	>5	Cloudy	None	2.6	77	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	41.49550	-70.59124	41.48804	-70.56378	30	11	WSW	<2	B3	>5	Cloudy	Moderate	1.6	101	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:35	41.48804	-70.56378	41.48273	-70.54452	24	10	SW	<2	B3	>5	Cloudy	Moderate	1.4	108	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:35	23:00	41.48273	-70.54452	41.47802	-70.52862	22	11	WSW	<2	B3	2-5	Cloudy	None	1.6	105	Standby	N/A
2022-10-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.47802	-70.52862	41.48067	-70.53182	22	7	WSW	<2	B3	1-2	Cloudy	None	2	107	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.48216	-70.53898	41.49380	-70.58252	26	13	W	<2	B2	0.5-1	Clear	None	5	285	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	00:59	41.49380	-70.58252	41.49388	-70.65217	26	15	W	<2	B2	1-2	Clear	None	5	286	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	00:59	02:00	41.49388	-70.65217	41.46391	-70.72171	26	8	W	<2	B2	1-2	Clear	None	4.2	260	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:01	41.46391	-70.72171	41.43649	-70.77343	20	10	NW	<2	B2	1-2	Cloudy	None	3.4	232	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:01	04:00	41.43649	-70.77343	41.42148	-70.80713	24	10	N	<2	B2	1-2	Cloudy	None	2.3	233	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.42148	-70.80713	41.40382	-70.84513	22	10	NNW	<2	B2	1-2	Cloudy	None	1.7	238	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.40382	-70.84513	41.40932	-70.83483	17	4	WNW	<2	B2	1-2	Cloudy	None	2.1	233	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.40932	-70.83483	41.42342	-70.80025	21	0	NNW	<2	B2	1-2	Cloudy	None	4.1	52	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.42342	-70.80025	41.39454	-70.85796	22	8	WNW	<2	B2	1-2	Cloudy	None	2.6	238	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.39454	-70.85796	41.42669	-70.80971	27	2	WNW	<2	B2	0.5-1	Cloudy	None	3	230	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:01	41.42669	-70.80971	41.37200	-70.87463	29	7	NW	<2	B2	0.5-1	Cloudy	None	4	222	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:01	10:20	41.37200	-70.87463	41.34924	-70.87215	21	3	W	<2	B2	0.5-1	Cloudy	None	3.5	204	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:20	10:30	41.34924	-70.87215	41.33216	-70.86001	29	4	S	<2	B2	0.5-1	Cloudy	None	7.6	146	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:30	11:00	41.33216	-70.86001	41.28857	-70.80348	23	5	NE	<2	B2	1-2	Cloudy	None	7.1	130	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:16	41.28857	-70.80348	41.26676	-70.77393	11	5	E	<2	B2	>5	Cloudy	None	6.7	128	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:16	12:00	41.26676	-70.77393	41.33209	-70.85373	12	5	E	<2	B2	>5	Cloudy	None	6.4	128	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:57	41.33209	-70.85373	41.39059	-70.83161	22	14	NW	<2	B2	>5	Cloudy	None	7.9	316	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:57	14:02	41.39059	-70.83161	41.41836	-70.82257	26	5	N	<2	B2	>5	Cloudy	Moderate	3.5	49	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:02	15:02	41.41836	-70.82257	41.41736	-70.81759	26	3	WNW	<2	B2	>5	Cloudy	Moderate	3.7	233	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:02	16:00	41.41736	-70.81759	41.44937	-70.73642	24	5	NW	<2	B2	>5	Cloudy	Moderate	4.2	56	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:45	41.44937	-70.73642	41.41005	-70.82777	23	2	W	<2	B1	>5	Cloudy	Moderate	6.2	234	Standby	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:45	17:00	41.41005	-70.82777	41.38981	-70.85453	20	14	W	<2	B2	>5	Cloudy	Moderate	6.6	228	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:45	41.38981	-70.85453	41.30984	-70.83167	26	14	W	<2	B2	>5	Cloudy	Moderate	6.8	220	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:45	18:00	41.30984	-70.83167	41.28643	-70.79990	17	15	W	<2	B2	>5	Clear	Moderate	8	133	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	41.28643	-70.79990	41.19279	-70.67291	16	16	W	<2	B2	>5	Clear	Moderate	9.3	132	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.19279	-70.67291	41.09815	-70.55459	20	16	W	<2	B2	>5	Clear	Moderate	9.5	132	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	41.09815	-70.55459	40.97140	-70.53797	44	11	WNW	<2	B2	>5	Clear	Moderate	8.2	172	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.97140	-70.53797	40.83959	-70.52831	48	10	WNW	<2	B2	>5	Clear	Moderate	8.3	172	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:37	40.83959	-70.52831	40.75862	-70.52498	48	5	WNW	<2	B2	>5	Clear	None	7.8	178	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:37	23:00	40.75862	-70.52498	40.71025	-70.52226	54	5	WSW	<2	B2	2-5	Clear	None	8	181	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	23:41	40.71025	-70.52226	40.63060	-70.50548	54	5	WSW	<2	B2	1-2	Clear	None	7.7	168	Transit	N/A
2022-10-15	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:41	00:00	40.63060	-70.50548	40.63105	-70.50654	54	5	WSW	<2	B2	1-2	Clear	None	1.9	105	Transit	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:54	40.63045	-70.50466	40.61097	-70.49335	27	0	WSW	<2	B2	0.5-1	Clear	None	2.2	35	Deploying/Retrieving	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:54	01:00	40.61097	-70.49335	40.60626	-70.49991	27	4	WSW	<2	B2	0.5-1	Clear	None	3.1	35	Soft Start	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	01:15	40.60626	-70.49991	40.61318	-70.50026	28	5	WNW	<2	B2	0.5-1	Clear	None	4.7	35	Soft Start	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:15	01:21	40.61318	-70.50026	40.61700	-70.49242	29	5	WNW	<2	B2	0.5-1	Clear	None	4.5	63	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:21	01:30	40.61700	-70.49242	40.61961	-70.47848	29	5	WNW	<2	B2	0.5-1	Clear	None	4.5	60	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:30	02:00	40.61961	-70.47848	40.62011	-70.43305	56	0	WSW	<2	B2	0.5-1	Clear	None	4.3	86	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:30	40.62011	-70.43305	40.62054	-70.38851	58	0	WSW	<2	B2	0.5-1	Clear	None	3.9	91	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:02	40.62054	-70.38851	40.62123	-70.33867	57	5	W	<2	B2	0.5-1	Clear	None	4.2	89	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:02	03:13	40.62123	-70.33867	40.62145	-70.32127	57	7	W	<2	B2	0.5-1	Clear	None	4.2	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:13	03:41	40.62145	-70.32127	40.61759	-70.30510	60	6	W	<2	B2	0.5-1	Clear	None	4.3	88	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:41	04:00	40.61759	-70.30510	40.61719	-70.34013	60	16	W	<2	B3	0.5-1	Clear	None	5	263	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	04:58	40.61719	-70.34013	40.61593	-70.44508	52	14	W	<2	B2	0.5-1	Clear	None	5	260	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	04:58	05:33	40.61593	-70.44508	40.61919	-70.47925	61	15	W	<2	B3	0.5-1	Clear	None	4.6	260	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:33	06:00	40.61919	-70.47925	40.61971	-70.43096	61	6	SW	<2	B2	0.5-1	Clear	None	5.2	96	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.61971	-70.43096	40.62101	-70.32206	61	4	SW	<2	B2	0.5-1	Clear	None	4.4	91	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	07:58	40.62101	-70.32206	40.62203	-70.21750	56	3	SSE	<2	B2	0.5-1	Clear	None	5	89	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:58	09:00	40.62203	-70.21750	40.62338	-70.10547	53	3	SSW	<2	B2	0.5-1	Clear	None	5.1	91	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.62338	-70.10547	40.62413	-70.00008	54	3	SE	<2	B2	0.5-1	Clear	None	4.6	85	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:01	40.62413	-70.00008	40.62413	-69.99975	55	2	SE	<2	B2	0.5-1	Clear	None	3.4	36	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:01	10:22	40.62413	-69.99975	40.64506	-70.00058	55	2	SE	<2	B2	0.5-1	Clear	None	3.5	36	Soft Start	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:22	10:36	40.64506	-70.00058	40.65740	-70.00793	52	2	SE	<2	B2	>5	Clear	None	4	339	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:36	10:42	40.65740	-70.00793	40.65732	-70.01801	50	2	SE	<2	B2	>5	Clear	None	4.5	269	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:42	11:00	40.65732	-70.01801	40.65728	-70.03713	50	10	SW	<2	B2	>5	Clear	None	4.5	270	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	11:50	40.65728	-70.03713	40.65633	-70.13327	50	10	SW	<2	B2	>5	Clear	None	4.5	270	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:50	12:00	40.65633	-70.13327	40.65616	-70.15175	50	10	SW	<2	B2	>5	Clear	None	4.5	270	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:59	40.65616	-70.15175	40.65500	-70.25551	48	4	SW	<2	B2	>5	Clear	Severe	4.8	267	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:59	14:00	40.65500	-70.25551	40.65390	-70.35901	50	5	SW	<2	B2	>5	Clear	Severe	5.1	267	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:38	40.65390	-70.35901	40.65306	-70.42507	54	4	SW	<2	B2	>5	Clear	Severe	4.6	266	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:38	14:41	40.65306	-70.42507	40.65298	-70.43056	56	4	SSE	<2	B2	>5	Clear	Moderate	4.6	266	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:41	14:50	40.65298	-70.43056	40.65873	-70.43229	55	5	SSE	<2	B2	>5	Clear	Moderate	4.5	267	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:50	14:55	40.65873	-70.43229	40.65879	-70.42366	56	5	SSE	<2	B2	>5	Clear	Moderate	4.3	88	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:55	15:00	40.65879	-70.42366	40.65888	-70.41514	56	5	SSE	<2	B2	>5	Clear	Moderate	4.7	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:46	40.65888	-70.41514	40.65995	-70.33444	56	4	SSW	<2	B2	>5	Clear	Moderate	5.2	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:46	16:00	40.65995	-70.33444	40.66022	-70.31154	54	4	SSW	<2	B2	>5	Clear	Moderate	4.8	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:25	40.66022	-70.31154	40.66060	-70.26761	52	3	S	<2	B2	>5	Clear	Moderate	4.7	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:25	17:00	40.66060	-70.26761	40.66122	-70.20660	52	3	S	<2	B2	>5	Clear	Moderate	4.7	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:58	40.66122	-70.20660	40.66228	-70.10613	52	3	S	<2	B2	>5	Clear	Moderate	4.7	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:58	18:50	40.66228	-70.10613	40.66319	-70.01627	46	12	S	<2	B2	>5	Clear	Moderate	4.6	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:50	18:52	40.66319	-70.01627	40.66329	-70.01275	46	12	S	<2	B2	>5	Clear	Moderate	4.6	88	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:52	19:00	40.66329	-70.01275	40.66360	-70.00161	46	12	S	<2	B2	>5	Clear	Moderate	4.6	88	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:50	40.66360	-70.00161	40.65860	-70.00741	46	12	S	<2	B2	>5	Clear	Moderate	3.9	263	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:50	19:57	40.65860	-70.00741	40.65847	-70.01877	48	12	S	<2	B2	>5	Clear	Moderate	4.3	252	Silent	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:57	20:00	40.65847	-70.01877	40.65845	-70.02371	49	14	S	<2	B2	>5	Clear	Moderate	4.2	263	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	40.65845	-70.02371	40.65744	-70.14335	49	14	S	<2	B2	>5	Cloudy	Moderate	4.2	263	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	21:35	40.65744	-70.14335	40.65696	-70.18859	48	13	S	<2	B3	>5	Cloudy	None	4.6	266	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:35	21:43	40.65696	-70.18859	40.65662	-70.20154	48	13	S	<2	B3	>5	Cloudy	Moderate	4.9	264	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:43	22:00	40.65662	-70.20154	40.65648	-70.23187	48	13	S	<2	B3	>5	Precipitation	Moderate	4.8	265	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:12	40.65648	-70.23187	40.65627	-70.25475	49	10	S	<2	B3	>5	Cloudy	None	5.3	266	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:12	22:30	40.65627	-70.25475	40.65590	-70.28468	50	5	S	<2	B2	>5	Precipitation	None	4.7	267	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:30	23:00	40.65590	-70.28468	40.65531	-70.33891	51	9	S	<2	B2	>5	Cloudy	None	5	269	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:50	40.65531	-70.33891	40.65425	-70.42721	54	9	S	<2	B2	>5	Cloudy	None	5	268	Full Power	N/A
2022-10-16	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:50	00:00	40.65425	-70.42721	40.65854	-70.43788	54	9	S	<2	B2	>5	Cloudy	None	5	268	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:02	40.65909	-70.43156	40.65909	-70.43156	57	0	SW	<2	B2	0.5-1	Clear	None	4.1	81	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:02	00:09	40.65909	-70.43156	40.65909	-70.42398	57	0	SW	<2	B2	0.5-1	Clear	None	4.1	81	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:09	01:00	40.65909	-70.42398	40.66018	-70.34275	57	0	SW	<2	B2	0.5-1	Clear	None	4.1	81	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	02:00	40.66018	-70.34275	40.66117	-70.25254	52	0	SSE	<2	B2	0.5-1	Clear	None	4	83	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:30	40.66117	-70.25254	40.66153	-70.20664	50	0	S	<2	B2	0.5-1	Clear	None	4.3	84	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	02:56	40.66153	-70.20664	40.66201	-70.16567	47	0	SSW	<2	B2	0.5-1	Clear	None	4.4	86	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	02:56	04:00	40.66201	-70.16567	40.66290	-70.06996	47	3	SSE	<2	B1	0.5-1	Clear	None	4	90	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	04:58	40.66290	-70.06996	40.65869	-70.02728	48	0	WSW	<2	B1	0.5-1	Clear	None	4.1	90	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	04:58	06:00	40.65869	-70.02728	40.65767	-70.12879	47	12	W	<2	B2	0.5-1	Clear	None	4.8	262	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:01	40.65767	-70.12879	40.65662	-70.23052	48	12	WNW	<2	B2	0.5-1	Clear	None	4.3	261	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:01	07:59	40.65662	-70.23052	40.65560	-70.32604	50	14	W	<2	B2	0.5-1	Clear	None	4.4	260	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:59	08:59	40.65560	-70.32604	40.65449	-70.42495	53	13	W	<2	B3	0.5-1	Cloudy	None	4.7	262	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	08:59	09:00	40.65449	-70.42495	40.65447	-70.42652	58	18	W	<2	B3	0.5-1	Cloudy	None	4.4	261	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	09:01	40.65447	-70.42652	40.65447	-70.42811	58	18	W	<2	B3	0.5-1	Cloudy	None	4.4	261	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:01	09:13	40.65447	-70.42811	40.65938	-70.43193	58	18	W	<2	B3	0.5-1	Cloudy	None	4.4	261	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:13	09:18	40.65938	-70.43193	40.65942	-70.42196	55	7	SW	<2	B2	0.5-1	Cloudy	None	5	86	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:18	10:00	40.65942	-70.42196	40.66035	-70.34852	55	5	SW	<2	B2	0.5-1	Cloudy	None	4.4	87	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:34	40.66035	-70.34852	40.66096	-70.29079	54	7	WSW	<2	B2	0.5-1	Cloudy	None	4.8	83	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:34	11:01	40.66096	-70.29079	40.66163	-70.24547	51	6	SW	<2	B2	>5	Cloudy	None	4.5	85	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:01	12:00	40.66163	-70.24547	40.66251	-70.14449	49	3	SSE	<2	B2	>5	Cloudy	None	4.5	85	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:59	40.66251	-70.14449	40.66336	-70.04633	47	5	SSE	<2	B2	>5	Cloudy	None	4.8	84	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:59	13:17	40.66336	-70.04633	40.66369	-70.01650	48	7	S	<2	B2	>5	Cloudy	Moderate	4.5	82	Full Power	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:17	13:19	40.66369	-70.01650	40.66374	-70.01317	48	5	S	<2	B2	>5	Cloudy	None	4.6	80	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:19	13:28	40.66374	-70.01317	40.66424	-69.99723	48	5	S	<2	B2	>5	Cloudy	None	4.6	80	Silent	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:28	14:00	40.66424	-69.99723	40.66406	-69.97543	48	6	S	<2	B2	>5	Cloudy	None	4.8	80	Deploying/Retrieving	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:12	40.66406	-69.97543	40.66459	-69.97567	48	8	SW	<2	B3	>5	Cloudy	None	0.2	134	Deploying/Retrieving	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:12	15:00	40.66459	-69.97567	40.72057	-70.07295	49	7	SW	<2	B3	>5	Cloudy	None	2.8	305	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.72057	-70.07295	40.80741	-70.18306	42	14	WSW	<2	B3	>5	Cloudy	None	7.2	309	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.80741	-70.18306	40.90442	-70.31196	40	12	WSW	<2	B3	>5	Cloudy	None	8.2	317	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.90442	-70.31196	41.00088	-70.44002	43	15	SSE	<2	B4	>5	Cloudy	Moderate	8.3	44	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	41.00088	-70.44002	41.09539	-70.55968	42	15	SSE	<2	B4	>5	Cloudy	Moderate	7.8	309	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.09539	-70.55968	41.19131	-70.68243	42	15	SSE	<2	B4	>5	Cloudy	Moderate	7.8	309	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:15	41.19131	-70.68243	41.30459	-70.82382	29	16	SSE	<2	B4	>5	Cloudy	Moderate	7.4	310	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:15	22:00	41.30459	-70.82382	41.37875	-70.86637	18	18	S	<2	B4	>5	Cloudy	Moderate	7.3	307	Transit	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:19	41.37875	-70.86637	41.39991	-70.84536	27	15	S	<2	B4	>5	Cloudy	Moderate	5	18	Standby	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:19	22:31	41.39991	-70.84536	41.40703	-70.83262	21	9	S	<2	B3	>5	Cloudy	None	4	53	Standby	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:31	23:01	41.40703	-70.83262	41.42427	-70.80344	19	8	S	<2	B3	2-5	Cloudy	None	3.5	50	Standby	N/A
2022-10-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:01	00:00	41.42427	-70.80344	41.44836	-70.75433	19	8	S	<2	B3	1-2	Cloudy	None	3.5	50	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.44882	-70.75331	41.45878	-70.73259	27	14	SSE	<2	B2	0.5-1	Precipitation	None	2.3	53	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.45878	-70.73259	41.46793	-70.71538	24	14	SE	<2	B2	0.5-1	Cloudy	None	2	53	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.46793	-70.71538	41.48426	-70.68559	21	11	ESE	<2	B2	0.5-1	Cloudy	None	1.8	52	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.48426	-70.68559	41.45983	-70.73198	22	13	ESE	<2	B2	0.5-1	Cloudy	None	1.7	57	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.45983	-70.73198	41.43218	-70.78373	23	16	SSE	<2	B3	0.5-1	Precipitation	None	3.6	224	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.43218	-70.78373	41.40580	-70.82277	23	17	SSW	<2	B3	0.5-1	Precipitation	None	2.7	213	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	05:58	41.40580	-70.82277	41.41382	-70.82284	23	16	SSW	<2	B3	0.5-1	Precipitation	None	2.3	222	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	05:58	07:00	41.41382	-70.82284	41.45282	-70.73955	24	9	SSW	<2	B3	0.5-1	Precipitation	None	4.2	54	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.45282	-70.73955	41.49555	-70.63292	27	9	ESE	<2	B3	0.5-1	Precipitation	None	4.9	55	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.49555	-70.63292	41.47657	-70.52630	26	14	ESE	<2	B3	0.5-1	Precipitation	None	5.5	80	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.47657	-70.52630	41.46270	-70.45820	21	16	SE	<2	B3	0.5-1	Precipitation	None	4.5	80	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:38	41.46270	-70.45820	41.47849	-70.53005	18	13	S	<2	B3	0.5-1	Precipitation	None	4.5	282	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:38	11:00	41.47849	-70.53005	41.48683	-70.56957	19	12	S	<2	B3	0.5-1	Cloudy	None	5.3	282	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:23	41.48683	-70.56957	41.49565	-70.59993	22	13	S	<2	B3	2-5	Cloudy	None	3.7	282	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:23	12:00	41.49565	-70.59993	41.49347	-70.64906	20	12	S	<2	B3	>5	Cloudy	None	3.9	278	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.49347	-70.64906	41.46014	-70.72702	26	17	S	<2	B3	>5	Cloudy	Severe	3.8	239	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.46014	-70.72702	41.42207	-70.80104	22	18	S	<2	B3	>5	Cloudy	Severe	4.2	220	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.42207	-70.80104	41.40534	-70.84233	15	18	SSW	<2	B4	>5	Cloudy	None	3.7	227	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:33	41.40534	-70.84233	41.42585	-70.83218	21	19	SW	<2	B4	>5	Cloudy	None	3	56	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:33	16:00	41.42585	-70.83218	41.48190	-70.84217	21	19	SW	<2	B4	>5	Cloudy	Moderate	7.7	329	Transit	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.48190	-70.84217	41.59656	-70.88838	17	16	SW	<2	B4	>5	Cloudy	Moderate	7.6	356	Transit	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:30	41.59656	-70.88838	41.62237	-70.91342	10	13	SW	<2	B3	>5	Clear	Moderate	7.9	354	Transit	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:51	21:00	41.62203	-70.91354	41.53287	-70.84429	6	4	SW	<2	B2	>5	Clear	Moderate	1	190	Transit	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:02	41.53287	-70.84429	41.46121	-70.93750	16	14	WSW	<2	B3	>5	Clear	Moderate	7	196	Transit	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:02	22:12	41.46121	-70.93750	41.46179	-70.93635	18	11	WSW	<2	B3	>5	Cloudy	None	1.1	200	Deploying/Retrieving	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:12	22:28	41.46179	-70.93635	41.45517	-70.95006	18	13	WSW	<2	B3	>5	Cloudy	None	0.4	204	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:28	23:01	41.45517	-70.95006	41.45300	-70.95487	33	12	WSW	<2	B3	2-5	Cloudy	None	2.7	49	Standby	N/A
2022-10-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:01	00:00	41.45300	-70.95487	41.45734	-70.94394	33	10	WSW	<2	B3	2-5	Cloudy	None	4.8	49	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.45517	-70.94895	41.44904	-70.94412	32	19	SW	<2	B3	1-2	Clear	None	2.1	227	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.44904	-70.94412	41.44990	-70.93932	18	16	WSW	<2	B3	1-2	Clear	None	3.7	272	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.44990	-70.93932	41.45539	-70.94710	16	8	W	<2	B2	1-2	Clear	None	4.2	82	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.45539	-70.94710	41.46188	-70.94930	30	14	WNW	<2	B2	1-2	Clear	None	3.9	330	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.46188	-70.94930	41.46309	-70.94832	18	15	WNW	<2	B3	1-2	Clear	None	2.8	47	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	04:30	41.46309	-70.94832	41.45644	-70.93614	18	8	W	<2	B3	1-2	Clear	None	2.4	170	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:30	05:00	41.45644	-70.93614	41.47586	-70.89458	33	7	NNW	<2	B3	1-2	Clear	None	5.6	42	Transit	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.47586	-70.89458	41.46335	-70.84455	18	5	W	<2	B3	1-2	Clear	None	3.5	60	Transit	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.46335	-70.84455	41.44211	-70.77074	34	14	WSW	<2	B3	1-2	Clear	None	5.4	187	Transit	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.44211	-70.77074	41.48209	-70.68869	24	3	WNW	<2	B3	1-2	Clear	None	1.8	53	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.48209	-70.68869	41.49646	-70.60080	23	8	W	<2	B3	1-2	Clear	None	0.4	57	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.49646	-70.60080	41.49797	-70.61556	20	14	W	<2	B3	1-2	Clear	None	0.5	267	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:29	41.49797	-70.61556	41.49540	-70.64395	24	25	WSW	<2	B3	1-2	Clear	None	1.9	260	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:29	11:00	41.49540	-70.64395	41.48713	-70.66787	27	21	WSW	<2	B3	1-2	Clear	None	3.8	250	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:21	41.48713	-70.66787	41.48248	-70.67823	26	22	WSW	<2	B4	2-5	Cloudy	None	2.2	238	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:21	12:00	41.48248	-70.67823	41.47350	-70.69791	26	17	WSW	<2	B4	>5	Cloudy	Moderate	1.1	236	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.47350	-70.69791	41.45417	-70.73257	25	18	WSW	<2	B4	>5	Clear	Severe	2	233	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.45417	-70.73257	41.42253	-70.82083	23	15	W	<2	B5	>5	Clear	Severe	2.3	236	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.42253	-70.82083	41.44013	-70.76690	28	16	W	<2	B5	>5	Clear	Severe	2.7	66	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.44013	-70.76690	41.46452	-70.71533	23	18	WSW	<2	B5	>5	Clear	Severe	2.8	55	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.46452	-70.71533	41.49443	-70.65455	21	22	SW	<2	B5	>5	Cloudy	Severe	2.5	52	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:01	41.49443	-70.65455	41.48859	-70.55603	26	23	SW	<2	B5	>5	Cloudy	Severe	3.9	75	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:01	19:00	41.48859	-70.55603	41.46967	-70.48087	26	23	SW	<2	B3	>5	Cloudy	Severe	3.9	75	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.46967	-70.48087	41.45339	-70.40526	23	24	SW	<2	B3	>5	Cloudy	Severe	3.4	110	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	41.45339	-70.40526	41.45284	-70.39579	24	20	SW	<2	B3	>5	Cloudy	Severe	3.8	115	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	41.45284	-70.39579	41.46230	-70.44249	20	22	WSW	<2	B4	>5	Clear	Severe	2.5	272	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:29	41.46230	-70.44249	41.46653	-70.47301	18	24	WSW	<2	B4	>5	Clear	None	2.9	273	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-19	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:29	23:00	41.46653	-70.47301	41.47597	-70.50542	17	25	WSW	<2	B4	2-5	Clear	None	3	275	Standby	N/A
2022-10-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.47597	-70.50542	41.47993	-70.53020	17	25	WSW	<2	B4	1-2	Clear	None	2.6	276	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.47850	-70.52465	41.47758	-70.52046	21	10	SW	<2	B3	0.5-1	Cloudy	None	3.6	107	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.47758	-70.52046	41.46348	-70.46211	19	10	SW	<2	B3	0.5-1	Cloudy	None	3.2	108	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.46348	-70.46211	41.45224	-70.39663	17	12	SW	<2	B3	0.5-1	Cloudy	None	3	98	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.45224	-70.39663	41.46455	-70.45697	20	15	WSW	<2	B3	0.5-1	Cloudy	None	3.2	96	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.46455	-70.45697	41.47942	-70.52619	18	20	WSW	<2	B4	0.5-1	Clear	None	3.3	276	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.47942	-70.52619	41.49801	-70.60025	21	22	W	<2	B4	0.5-1	Clear	None	3.5	282	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.49801	-70.60025	41.48524	-70.55723	27	18	N	<2	B4	0.5-1	Clear	None	3.6	282	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.48524	-70.55723	41.46678	-70.47165	21	9	SSW	<2	B4	0.5-1	Clear	None	3.6	107	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.46678	-70.47165	41.45418	-70.38962	17	9	WSW	<2	B3	0.5-1	Clear	None	3.5	101	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.45418	-70.38962	41.45755	-70.40283	21	13	WSW	<2	B3	0.5-1	Clear	None	4.9	122	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.45755	-70.40283	41.46544	-70.44198	20	21	W	<2	B3	0.5-1	Clear	None	4.2	268	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:30	41.46544	-70.44198	41.46491	-70.47148	20	21	W	<2	B3	0.5-1	Clear	None	2.6	260	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:30	11:00	41.46491	-70.47148	41.46846	-70.48504	17	21	WSW	<2	B3	0.5-1	Clear	None	1.7	276	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	12:00	41.46846	-70.48504	41.47592	-70.51681	15	17	WSW	<2	B3	>5	Clear	None	1.4	272	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.47592	-70.51681	41.48460	-70.54994	21	18	WSW	<2	B3	>5	Clear	Severe	1.6	279	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.48460	-70.54994	41.49392	-70.58198	23	22	WSW	<2	B4	>5	Clear	Severe	1.5	276	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.49392	-70.58198	41.47773	-70.52290	30	17	WSW	<2	B4	>5	Clear	Severe	1.6	103	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.47773	-70.52290	41.46490	-70.46725	20	19	WSW	<2	B5	>5	Clear	Severe	2.6	115	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.46490	-70.46725	41.45442	-70.41500	17	18	WSW	<2	B5	>5	Clear	Severe	2.5	107	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.45442	-70.41500	41.46003	-70.43802	20	23	WSW	<2	B5	>5	Clear	Severe	2.5	109	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	41.46003	-70.43802	41.47402	-70.51047	20	30	WSW	<2	B5	>5	Clear	Severe	3.4	269	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.47402	-70.51047	41.47904	-70.51520	20	30	WSW	<2	B5	>5	Clear	Severe	3.4	269	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	41.47904	-70.51520	41.45945	-70.44510	18	25	SW	<2	B5	>5	Clear	Severe	3.4	127	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:15	41.45945	-70.44510	41.45552	-70.42783	18	25	SW	<2	B5	>5	Clear	Severe	3.4	127	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:15	22:00	41.45552	-70.42783	41.44748	-70.37713	20	23	SW	<2	B5	>5	Clear	Severe	3.4	123	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:28	41.44748	-70.37713	41.45200	-70.40341	20	25	SW	<2	B5	>5	Clear	None	2.2	270	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:28	23:00	41.45200	-70.40341	41.45903	-70.43524	21	27	SW	<2	B5	2-5	Clear	None	2.8	268	Standby	N/A
2022-10-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.45903	-70.43524	41.47163	-70.49842	19	25	SW	<2	B5	1-2	Clear	None	2.9	267	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.47252	-70.50168	41.47867	-70.52798	20	25	SW	<2	B4	0.5-1	Clear	None	2.9	279	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.47867	-70.52798	41.47592	-70.51229	22	18	WSW	<2	B4	0.5-1	Clear	None	3.1	283	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	01:59	41.47592	-70.51229	41.46325	-70.45192	20	12	SSW	<2	B4	0.5-1	Clear	None	3.3	106	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	01:59	03:00	41.46325	-70.45192	41.45003	-70.39210	20	19	S	<2	B4	0.5-1	Clear	None	2.9	113	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	03:55	41.45003	-70.39210	41.45940	-70.42836	19	15	SSW	<2	B4	0.5-1	Clear	None	2.7	100	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	03:55	05:00	41.45940	-70.42836	41.47275	-70.50615	21	17	WSW	<2	B4	0.5-1	Clear	None	3.4	271	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	05:56	41.47275	-70.50615	41.49025	-70.58188	20	14	SW	<2	B4	0.5-1	Clear	None	3.8	271	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	05:56	06:58	41.49025	-70.58188	41.49383	-70.64783	22	13	SW	<2	B4	0.5-1	Clear	None	3.8	275	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:58	08:00	41.49383	-70.64783	41.46978	-70.71015	26	15	SSW	<2	B4	0.5-1	Clear	None	3.4	234	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:02	41.46978	-70.71015	41.43698	-70.77933	21	13	W	<2	B3	0.5-1	Clear	None	4.4	238	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:02	09:47	41.43698	-70.77933	41.39869	-70.84957	24	13	W	<2	B3	0.5-1	Clear	None	2.8	237	Standby	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:47	10:00	41.39869	-70.84957	41.38064	-70.86153	28	17	W	<2	B3	0.5-1	Clear	None	4.6	217	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:33	41.38064	-70.86153	41.33125	-70.85822	28	14	W	<2	B3	0.5-1	Clear	None	5.9	205	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:33	11:00	41.33125	-70.85822	41.29459	-70.81474	23	7	WSW	<2	B3	0.5-1	Clear	None	6.1	153	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:14	41.29459	-70.81474	41.27365	-70.78458	13	9	SSW	<2	B3	2-5	Clear	None	7.6	132	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:14	12:00	41.27365	-70.78458	41.19500	-70.72894	15	7	SSW	<2	B3	>5	Clear	Moderate	7.8	125	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.19500	-70.72894	41.09606	-70.59443	30	7	SSW	<2	B3	>5	Clear	Severe	8.7	135	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.09606	-70.59443	41.00132	-70.45107	44	9	S	<2	B3	>5	Clear	Severe	8.7	127	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.00132	-70.45107	40.90804	-70.30674	43	8	SSE	<2	B3	>5	Clear	Severe	8.4	127	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:17	40.90804	-70.30674	40.87723	-70.26730	42	9	SE	<2	B3	>5	Clear	Severe	8	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:17	15:40	40.87723	-70.26730	40.83828	-70.21813	42	7	E	<2	B2	>5	Clear	Severe	8.9	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:40	16:00	40.83828	-70.21813	40.80394	-70.17558	41	5	E	<2	B2	>5	Clear	Severe	8.9	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:36	40.80394	-70.17558	40.74219	-70.09872	39	6	E	<2	B2	>5	Clear	Severe	8.6	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:36	17:00	40.74219	-70.09872	40.70175	-70.04706	40	5	SE	<2	B2	>5	Clear	Severe	8.2	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:27	40.70175	-70.04706	40.66451	-69.99808	45	12	SE	<2	B2	>5	Clear	Severe	8.6	129	Transit	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:27	18:00	40.66451	-69.99808	40.66303	-69.98430	49	5	SSE	<2	B2	>5	Clear	Severe	0.8	76	Deploying/Retrieving	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:11	40.66303	-69.98430	40.66260	-69.97762	48	6	S	<2	B2	>5	Clear	Severe	1.6	91	Deploying/Retrieving	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:11	18:32	40.66260	-69.97762	40.65918	-69.99578	48	6	S	<2	B2	>5	Clear	Severe	3.4	85	Soft Start	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:32	18:37	40.65918	-69.99578	40.65917	-70.00358	48	6	S	<2	B2	>5	Clear	Severe	3.4	262	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:37	18:46	40.65917	-70.00358	40.65905	-70.01953	47	6	S	<2	B2	>5	Clear	Severe	4.7	262	Silent	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:46	19:00	40.65905	-70.01953	40.65882	-70.04289	47	6	S	<2	B2	>5	Clear	Severe	4.7	264	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:02	40.65882	-70.04289	40.65783	-70.14670	47	6	S	<2	B2	>5	Clear	Severe	4.7	264	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:02	21:00	40.65783	-70.14670	40.65684	-70.24181	48	3	SSE	<2	B2	>5	Clear	Severe	4.9	260	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:10	40.65684	-70.24181	40.65666	-70.25668	48	3	SSE	<2	B2	>5	Clear	Severe	4.9	260	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	40.65666	-70.25668	40.65582	-70.33665	50	3	SSE	<2	B2	>5	Clear	Severe	4.2	258	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:29	40.65582	-70.33665	40.65521	-70.38667	54	9	S	<2	B2	>5	Clear	Moderate	4.3	259	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:29	22:53	40.65521	-70.38667	40.65472	-70.42678	56	9	S	<2	B2	2-5	Clear	None	4.7	257	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:53	22:55	40.65472	-70.42678	40.65464	-70.42980	56	9	S	<2	B2	1-2	Clear	None	4.7	257	Silent	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:55	23:00	40.65464	-70.42980	40.65847	-70.43474	56	9	S	<2	B2	1-2	Clear	None	4.7	257	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:02	40.65847	-70.43474	40.66148	-70.43198	56	9	S	<2	B2	1-2	Clear	None	4.7	257	Full Power	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:02	23:08	40.66148	-70.43198	40.66186	-70.42299	56	9	S	<2	B2	1-2	Clear	None	4.7	257	Silent	N/A
2022-10-21	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:08	00:00	40.66186	-70.42299	40.66376	-70.33101	56	9	S	<2	B2	1-2	Clear	None	4.7	257	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:00	40.66324	-70.32297	40.66416	-70.22659	53	6	SSE	<2	B2	0.5-1	Clear	None	5	86	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	01:58	40.66416	-70.22659	40.66526	-70.12447	53	6	SSE	<2	B2	0.5-1	Clear	None	5	86	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	01:58	02:30	40.66526	-70.12447	40.66572	-70.07075	47	6	S	<2	B2	0.5-1	Clear	None	4.8	83	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:00	40.66572	-70.07075	40.66616	-70.02231	47	3	S	<2	B2	0.5-1	Clear	None	4.8	83	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	03:02	40.66616	-70.02231	40.66618	-70.01678	48	5	SE	<2	B1	0.5-1	Clear	None	4.4	81	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:02	03:04	40.66618	-70.01678	40.66621	-70.01344	48	5	SE	<2	B1	0.5-1	Clear	None	4.4	82	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:04	03:15	40.66621	-70.01344	40.66089	-70.00677	48	4	SE	<2	B1	0.5-1	Clear	None	4.4	81	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:15	03:22	40.66089	-70.00677	40.66154	-70.01830	48	7	WSW	<2	B1	0.5-1	Clear	None	4.2	274	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:22	04:00	40.66154	-70.01830	40.66093	-70.08581	48	6	WSW	<2	B1	0.5-1	Clear	None	4.9	267	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.66093	-70.08581	40.65987	-70.19013	48	6	WSW	<2	B1	0.5-1	Clear	None	4.9	268	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.65987	-70.19013	40.65875	-70.29861	48	6	WSW	<2	B1	0.5-1	Clear	None	4.9	267	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.65875	-70.29861	40.65744	-70.40389	52	5	W	<2	B1	0.5-1	Clear	None	4.9	267	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	07:00	07:13	40.65744	-70.40389	40.65703	-70.42727	57	6	SW	<2	B1	0.5-1	Clear	None	4.8	262	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	07:13	07:32	40.65703	-70.42727	40.66149	-70.42377	57	6	SW	<2	B1	0.5-1	Clear	None	4.8	263	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	07:32	08:00	40.66149	-70.42377	40.66073	-70.37331	56	5	ESE	<2	B1	0.5-1	Clear	None	4.3	87	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:58	40.66073	-70.37331	40.66314	-70.28852	55	5	ESE	<2	B1	0.5-1	Clear	None	4.2	90	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	08:58	10:00	40.66314	-70.28852	40.66419	-70.18854	52	8	ENE	<2	B1	0.5-1	Clear	None	4.1	90	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	11:01	40.66419	-70.18854	40.66523	-70.08509	48	12	ENE	<2	B1	>5	Clear	None	4.7	92	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:01	11:41	40.66523	-70.08509	40.66583	-70.01618	47	13	SSE	<2	B1	>5	Clear	None	4.8	92	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:41	11:42	40.66583	-70.01618	40.66581	-70.01454	48	11	ENE	<2	B1	>5	Cloudy	None	4.6	91	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:42	11:53	40.66581	-70.01454	40.66135	-70.00754	48	11	ENE	<2	B1	>5	Cloudy	None	4.6	91	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:53	12:00	40.66135	-70.00754	40.66119	-70.01895	49	4	NNE	<2	B2	>5	Cloudy	None	4.5	253	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.66119	-70.01895	40.66026	-70.11529	49	4	NNE	<2	B2	>5	Cloudy	None	4.5	253	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.66026	-70.11529	40.65925	-70.22116	47	5	NE	<2	B2	>5	Cloudy	None	4.8	261	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.65925	-70.22116	40.65818	-70.32291	49	3	E	<2	B2	>5	Cloudy	Severe	4.7	266	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	15:00	15:50	40.65818	-70.32291	40.65714	-70.41098	52	3	E	<2	B2	>5	Clear	Severe	5.2	267	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:50	15:59	40.65714	-70.41098	40.65695	-70.42597	54	6	E	<2	B2	>5	Clear	Severe	4.8	269	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:59	16:01	40.65695	-70.42597	40.65691	-70.42949	57	7	E	<2	B2	>5	Clear	Severe	4.8	269	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:01	16:14	40.65691	-70.42949	40.66118	-70.43255	57	7	E	<2	B2	>5	Clear	Severe	4.8	268	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:14	16:19	40.66118	-70.43255	40.66131	-70.42423	56	10	E	<2	B3	>5	Cloudy	Severe	4.4	85	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:19	17:00	40.66131	-70.42423	40.66236	-70.35525	55	9	E	<2	B3	>5	Cloudy	Severe	4	85	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:58	40.66236	-70.35525	40.66328	-70.25898	53	6	E	<2	B2	>5	Cloudy	Severe	4.6	84	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:58	19:00	40.66328	-70.25898	40.66431	-70.15864	53	6	E	<2	B2	>5	Cloudy	Severe	4.6	87	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.66431	-70.15864	40.66521	-70.05958	53	10	ENE	<2	B2	>5	Clear	Severe	4	85	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:26	40.66521	-70.05958	40.66562	-70.01670	48	10	ENE	<2	B2	>5	Clear	Severe	4.5	86	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:26	20:28	40.66562	-70.01670	40.66567	-70.01211	48	10	ENE	<2	B2	>5	Clear	Severe	4.5	86	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:28	20:41	40.66567	-70.01211	40.66101	-70.01170	48	10	ENE	<2	B2	>5	Clear	Severe	4.5	86	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:41	20:45	40.66101	-70.01170	40.66099	-70.01879	48	10	ENE	<2	B2	>5	Clear	Severe	4.5	260	Silent	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:45	21:00	40.66099	-70.01879	40.66039	-70.04318	48	10	ENE	<2	B2	>5	Clear	Severe	4.5	261	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:08	40.66039	-70.04318	40.66059	-70.05626	48	9	ENE	<2	B2	>5	Clear	Severe	4.6	263	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:08	22:00	40.66059	-70.05626	40.65976	-70.14275	48	9	ENE	<2	B2	>5	Clear	Severe	4.5	261	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:27	40.65976	-70.14275	40.65929	-70.18788	50	2	NE	<2	B2	>5	Clear	None	4.7	262	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:27	23:00	40.65929	-70.18788	40.65867	-70.24333	47	1	NE	<2	B2	2-5	Clear	None	4.5	262	Full Power	N/A
2022-10-22	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.65867	-70.24333	40.65755	-70.34685	50	9	ENE	<2	B3	1-2	Clear	None	4.5	261	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:45	40.65755	-70.34918	40.65668	-70.42498	55	8	NE	<2	B2	0.5-1	Clear	None	4.9	270	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:45	00:47	40.65668	-70.42498	40.65664	-70.42848	57	8	NE	<2	B2	0.5-1	Clear	None	4.3	270	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:47	01:00	40.65664	-70.42848	40.66101	-70.43045	56	8	NE	<2	B2	0.5-1	Clear	None	4.4	85	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	01:04	40.66101	-70.43045	40.66102	-70.42442	56	18	NE	<2	B2	0.5-1	Clear	None	4.8	85	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:04	01:57	40.66102	-70.42442	40.66220	-70.33078	56	18	NE	<2	B2	0.5-1	Clear	None	4.8	85	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	01:57	02:30	40.66220	-70.33078	40.66281	-70.27277	53	18	ENE	<2	B2	0.5-1	Clear	None	4.6	85	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:00	40.66281	-70.27277	40.66331	-70.22490	50	17	E	<2	B2	0.5-1	Cloudy	None	4.3	86	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.66331	-70.22490	40.66444	-70.12260	49	15	ENE	<2	B4	0.5-1	Cloudy	None	4.9	83	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	04:58	40.66444	-70.12260	40.66531	-70.02966	47	16	ENE	<2	B4	0.5-1	Cloudy	None	4.7	82	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	04:58	05:08	40.66531	-70.02966	40.66542	-70.01449	48	15	E	<2	B4	0.5-1	Cloudy	None	4.4	82	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:08	05:09	40.66542	-70.01449	40.66535	-70.01287	48	16	E	<2	B4	0.5-1	Cloudy	None	4.3	81	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:09	05:20	40.66535	-70.01287	40.66032	-70.00958	48	16	E	<2	B4	0.5-1	Cloudy	None	4.3	81	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:20	05:25	40.66032	-70.00958	40.66062	-70.01841	49	7	ENE	<2	B4	0.5-1	Cloudy	None	4.7	281	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:25	05:58	40.66062	-70.01841	40.66025	-70.07502	49	7	ENE	<2	B4	0.5-1	Cloudy	None	4.7	281	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	05:58	07:00	40.66025	-70.07502	40.65919	-70.18033	48	0	ENE	<2	B4	0.5-1	Cloudy	None	4.6	268	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.65919	-70.18033	40.65883	-70.28064	48	0	ENE	<2	B4	0.5-1	Cloudy	None	4.6	268	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:59	40.65883	-70.28064	40.65698	-70.37306	52	9	NE	<2	B3	0.5-1	Precipitation	None	4.4	260	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	08:59	09:32	40.65698	-70.37306	40.65629	-70.42560	56	11	ENE	<2	B3	0.5-1	Precipitation	None	4.2	260	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:32	09:34	40.65629	-70.42560	40.65624	-70.42875	58	10	ENE	<2	B3	0.5-1	Precipitation	None	4.1	261	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:34	09:47	40.65624	-70.42875	40.66086	-70.43372	58	10	ENE	<2	B3	0.5-1	Precipitation	None	4.1	261	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:47	09:53	40.66086	-70.43372	40.66089	-70.42406	57	21	E	<2	B3	0.5-1	Precipitation	None	5	85	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:53	09:59	40.66089	-70.42406	40.66105	-70.41293	58	21	E	<2	B3	0.5-1	Precipitation	None	4.7	94	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:59	10:28	40.66105	-70.41293	40.66153	-70.37028	58	20	E	<2	B3	0.5-1	Precipitation	None	4.5	89	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:28	11:00	40.66153	-70.37028	40.66206	-70.30774	58	21	E	<2	B4	0.5-1	Precipitation	None	4.6	89	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	12:00	40.66206	-70.30774	40.66313	-70.20717	53	23	E	<2	B4	2-5	Precipitation	None	4.6	92	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.66313	-70.20717	40.66417	-70.10011	49	21	E	<2	B4	2-5	Precipitation	None	4.8	92	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:46	40.66417	-70.10011	40.66503	-70.01687	47	22	ENE	<2	B5	2-5	Precipitation	None	4.9	86	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:46	13:48	40.66503	-70.01687	40.66508	-70.01355	49	24	ENE	<2	B5	>5	Precipitation	None	5.1	83	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:48	13:59	40.66508	-70.01355	40.66044	-70.00841	49	24	ENE	<2	B5	>5	Precipitation	None	4.8	70	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:59	14:00	40.66044	-70.00841	40.66048	-70.01019	49	15	NE	<2	B5	>5	Precipitation	None	4.3	265	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:05	40.66048	-70.01019	40.66041	-70.01783	49	15	NE	<2	B5	>5	Precipitation	None	4.3	265	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:05	15:00	40.66041	-70.01783	40.65968	-70.10584	48	15	NE	<2	B5	>5	Precipitation	None	4.2	268	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:28	40.65968	-70.10584	40.65926	-70.15379	47	14	NE	<2	B4	>5	Cloudy	None	4.4	270	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:28	15:40	40.65926	-70.15379	40.65903	-70.17261	47	15	NE	<2	B4	2-5	Precipitation	None	4.7	271	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:40	16:00	40.65903	-70.17261	40.65879	-70.20685	47	16	NE	<2	B4	1-2	Fog	None	4.6	273	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:20	40.65879	-70.20685	40.65831	-70.24081	48	15	NE	<2	B4	1-2	Fog	None	4.6	275	Full Power	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:20	16:25	40.65831	-70.24081	40.65839	-70.24909	48	15	NE	<2	B4	1-2	Fog	None	4.6	275	Silent	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:25	17:00	40.65839	-70.24909	40.65623	-70.29380	48	15	NE	<2	B4	1-2	Fog	None	4.6	275	Deploying/Retrieving	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:12	40.65623	-70.29380	40.65509	-70.30673	48	20	NE	<2	B4	1-2	Fog	None	3.5	270	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:12	18:00	40.65509	-70.30673	40.64722	-70.38460	52	17	NE	<2	B5	0.5-1	Fog	None	4.4	272	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	18:00	18:31	40.64722	-70.38460	40.64272	-70.41900	56	21	NE	<2	B5	0.5-1	Fog	None	4.5	261	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:31	19:01	40.64272	-70.41900	40.65141	-70.39342	56	21	NE	<2	B5	0.5-1	Fog	None	4.5	261	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:01	20:02	40.65141	-70.39342	40.67491	-70.34389	55	28	NE	<2	B5	0.5-1	Fog	None	4.5	261	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:02	21:00	40.67491	-70.34389	40.69792	-70.29980	55	29	NE	<2	B5	0.5-1	Fog	None	4.5	58	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.69792	-70.29980	40.69773	-70.30431	48	26	NE	2-4	B6	0.5-1	Fog	None	2.5	60	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:16	40.69773	-70.30431	40.68951	-70.32146	49	17	NE	<2	B5	0.5-1	Fog	None	3.7	227	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:16	23:00	40.68951	-70.32146	40.66850	-70.36914	51	15	NE	<2	B5	0.5-1	Fog	None	3.7	227	Standby	N/A
2022-10-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.66850	-70.36914	40.63040	-70.41421	51	15	NE	<2	B5	0.5-1	Fog	None	3.2	227	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.62812	-70.41624	40.60942	-70.43336	60	15	NE	2-4	B5	0.5-1	Precipitation	None	3.1	206	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	40.60942	-70.43336	40.58567	-70.45335	62	13	NNE	2-4	B5	0.5-1	Cloudy	None	3.4	206	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	01:57	40.58567	-70.45335	40.60634	-70.41184	64	13	NNE	2-4	B5	0.5-1	Cloudy	None	3.3	206	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	01:57	03:00	40.60634	-70.41184	40.63862	-70.35984	30	21	NNE	2-4	B5	0.5-1	Cloudy	None	2.2	45	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	03:57	40.63862	-70.35984	40.67607	-70.30298	56	20	NE	2-4	B5	0.5-1	Cloudy	None	3.6	45	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	03:57	05:00	40.67607	-70.30298	40.71645	-70.24319	50	18	ENE	2-4	B5	0.5-1	Cloudy	None	3.6	45	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-24	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	05:58	40.71645	-70.24319	40.70490	-70.26473	50	13	ENE	2-4	B5	0.3-0.5	Fog	None	3.6	45	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	05:58	06:54	40.70490	-70.26473	40.67468	-70.32245	46	6	NE	2-4	B5	0.1-0.3	Fog	None	3.2	229	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:54	07:00	40.67468	-70.32245	40.67151	-70.32830	52	3	E	<2	B4	0.1-0.3	Fog	None	3.7	229	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	07:05	40.67151	-70.32830	40.67016	-70.33179	52	3	E	<2	B4	0.1-0.3	Fog	None	3.7	229	Standby	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:05	08:00	40.67016	-70.33179	40.66384	-70.30493	51	4	E	<2	B3	0.1-0.3	Fog	None	3.6	229	Deploying/Retrieving	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	09:00	40.66384	-70.30493	40.66433	-70.24404	52	10	E	<2	B3	0.1-0.3	Fog	None	2.2	82	Deploying/Retrieving	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.66433	-70.24404	40.66504	-70.18568	52	10	E	<2	B3	0.1-0.3	Fog	None	3	90	Deploying/Retrieving	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:31	40.66504	-70.18568	40.65883	-70.18836	48	16	SE	<2	B3	0.5-1	Cloudy	None	3.7	90	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:31	10:52	40.65883	-70.18836	40.65852	-70.21474	48	16	WSW	<2	B3	0.5-1	Cloudy	None	3.7	90	Soft Start	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:52	11:00	40.65852	-70.21474	40.65838	-70.22893	50	5	WNW	<2	B2	1-2	Cloudy	None	4.5	260	Soft Start	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	11:04	40.65838	-70.22893	40.65834	-70.23411	50	5	WSW	<2	B2	1-2	Cloudy	None	4.4	263	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:04	12:00	40.65834	-70.23411	40.65724	-70.32577	50	7	SW	<2	B2	1-2	Cloudy	None	4.7	260	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.65724	-70.32577	40.65603	-70.42657	54	10	N	<2	B3	>5	Cloudy	Moderate	4.4	262	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:01	40.65603	-70.42657	40.65597	-70.42825	57	5	NNE	<2	B3	>5	Cloudy	None	4.4	264	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:01	13:13	40.65597	-70.42825	40.66038	-70.43267	58	5	NNE	<2	B3	>5	Cloudy	None	4.6	250	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:13	13:18	40.66038	-70.43267	40.66050	-70.42402	57	12	NE	<2	B3	2-5	Cloudy	None	4.7	78	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:18	13:28	40.66050	-70.42402	40.66059	-70.40639	56	12	ENE	<2	B3	0.5-1	Fog	None	4.8	83	Full Power	Heavy Fog
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	13:28	13:48	40.66059	-70.40639	40.66093	-70.37478	56	14	ENE	<2	B3	0.1-0.3	Fog	None	4.8	87	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	13:48	14:00	40.66093	-70.37478	40.66056	-70.35891	55	15	E	<2	B3	0.5-1	Fog	None	4.1	87	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	14:00	14:18	40.66056	-70.35891	40.65539	-70.38051	53	13	ESE	<2	B3	0.5-1	Fog	None	3.7	190	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:18	14:47	40.65539	-70.38051	40.65977	-70.41624	56	6	E	<2	B3	0.5-1	Fog	None	4.1	263	Soft Start	Heavy Fog
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	14:47	14:49	40.65977	-70.41624	40.66053	-70.40921	56	16	E	<2	B3	0.5-1	Fog	None	4.7	87	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	14:49	15:00	40.66053	-70.40921	40.66071	-70.39181	56	16	E	<2	B3	0.3-0.5	Fog	None	4.7	87	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	15:00	15:01	40.66071	-70.39181	40.66075	-70.38900	55	18	E	<2	B3	0.3-0.5	Fog	None	4.8	84	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:01	15:31	40.66075	-70.38900	40.65387	-70.40409	54	17	SE	<2	B3	0.5-1	Fog	None	5	84	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:31	15:47	40.65387	-70.40409	40.66001	-70.42074	57	14	ESE	<2	B3	2-5	Fog	None	4.7	271	Soft Start	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:47	15:52	40.66001	-70.42074	40.66060	-70.41535	55	13	ESE	<2	B3	2-5	Fog	None	3.4	60	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:52	15:55	40.66060	-70.41535	40.66072	-70.41062	56	14	ESE	<2	B3	2-5	Fog	None	4.6	89	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:55	16:00	40.66072	-70.41062	40.66078	-70.40175	56	14	ESE	<2	B3	1-2	Fog	None	4.9	82	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:14	40.66078	-70.40175	40.66119	-70.37716	55	13	ESE	<2	B3	0.5-1	Fog	None	4.7	82	Full Power	Heavy Fog
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	16:14	16:24	40.66119	-70.37716	40.66115	-70.35879	54	13	ESE	<2	B3	0.3-0.5	Fog	None	5	84	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	16:24	16:35	40.66115	-70.35879	40.66096	-70.34244	54	13	ESE	<2	B3	0.1-0.3	Precipitation	Moderate	4.2	82	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	16:35	16:41	40.66096	-70.34244	40.65521	-70.34252	53	12	SE	<2	B3	0.3-0.5	Fog	Moderate	3.7	125	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:41	17:00	40.65521	-70.34252	40.65419	-70.37260	54	5	SE	<2	B3	0.5-1	Fog	None	4.6	264	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:12	40.65419	-70.37260	40.65328	-70.39124	55	7	SSE	<2	B3	1-2	Fog	None	4.2	266	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:12	17:33	40.65328	-70.39124	40.66045	-70.39834	56	5	SE	<2	B3	2-5	Fog	None	4.5	266	Soft Start	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:33	17:38	40.66045	-70.39834	40.66089	-70.39003	55	7	SE	<2	B3	2-5	Fog	Severe	4.4	81	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:38	17:42	40.66089	-70.39003	40.66096	-70.38338	55	7	SE	<2	B3	2-5	Fog	Severe	4.7	84	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:42	18:00	40.66096	-70.38338	40.66138	-70.35209	55	8	SE	<2	B3	2-5	Fog	Severe	4	83	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.66138	-70.35209	40.66247	-70.25605	55	8	SE	<2	B3	2-5	Fog	Severe	4.8	82	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.66247	-70.25605	40.66340	-70.16043	55	8	SE	<2	B3	2-5	Fog	Severe	4.5	82	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	40.66340	-70.16043	40.66447	-70.05017	48	12	SE	<2	B3	2-5	Fog	Moderate	4.3	90	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	21:30	40.66447	-70.05017	40.66470	-70.01785	48	16	SE	<2	B3	2-5	Fog	Severe	4.6	91	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:30	21:32	40.66470	-70.01785	40.66482	-70.01466	48	15	SE	<2	B3	2-5	Fog	Severe	4.5	90	Silent	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:32	21:50	40.66482	-70.01466	40.66012	-70.01856	48	15	SE	<2	B3	2-5	Fog	Severe	4.2	90	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:50	22:00	40.66012	-70.01856	40.65995	-70.03560	48	15	SE	<2	B3	2-5	Fog	Moderate	4.9	256	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:27	40.65995	-70.03560	40.65953	-70.08174	48	13	SE	<2	B3	2-5	Fog	Moderate	4.5	257	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:27	23:00	40.65953	-70.08174	40.65892	-70.13733	47	10	SE	<2	B3	1-2	Fog	None	4.3	257	Full Power	N/A
2022-10-24	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.65892	-70.13733	40.65798	-70.23209	47	10	SE	<2	B3	1-2	Fog	None	5	256	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:07	40.65791	-70.23927	40.65674	-70.34550	51	9	SE	<2	B2	0.5-1	Clear	None	5.2	255	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:07	01:57	40.65674	-70.34550	40.65577	-70.42725	55	9	SE	<2	B2	0.5-1	Clear	None	4.2	255	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:57	02:00	40.65577	-70.42725	40.65576	-70.43003	57	8	S	<2	B2	0.5-1	Clear	None	4.4	259	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:16	40.65576	-70.43003	40.66024	-70.42359	58	8	S	<2	B2	0.5-1	Clear	None	4.5	260	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:16	02:38	40.66024	-70.42359	40.66071	-70.38525	58	8	S	<2	B2	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:38	03:00	40.66071	-70.38525	40.66108	-70.35128	55	16	SE	<2	B2	0.5-1	Clear	None	4.8	93	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.66108	-70.35128	40.66242	-70.24085	54	16	SE	<2	B3	0.5-1	Clear	None	5	89	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.66242	-70.24085	40.66344	-70.14161	49	15	ESE	<2	B3	0.5-1	Clear	None	4.8	85	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.66344	-70.14161	40.66440	-70.04140	49	12	ESE	<2	B3	0.5-1	Clear	None	4.6	82	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	06:16	40.66440	-70.04140	40.66464	-70.01748	48	16	SE	<2	B3	0.5-1	Clear	None	4.2	83	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:16	06:18	40.66464	-70.01748	40.66463	-70.01440	48	12	ESE	<2	B3	0.5-1	Clear	None	4.5	83	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:18	06:35	40.66463	-70.01440	40.65992	-70.01904	48	12	ESE	<2	B3	0.5-1	Clear	None	4.2	83	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:35	07:00	40.65992	-70.01904	40.65954	-70.06284	48	3	S	<2	B2	0.5-1	Clear	None	4.5	273	Full Power	Heavy Fog
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:00	08:00	40.65954	-70.06284	40.66606	-70.03966	47	2	S	<2	B2	0.05-0.1	Fog	None	4.8	271	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:34	40.66606	-70.03966	40.65969	-70.03585	48	9	S	<2	B2	0.05-0.1	Fog	None	3.8	83	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:34	09:00	40.65969	-70.03585	40.65954	-70.07794	48	3	N	<2	B2	0.1-0.3	Fog	None	4.9	265	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.65954	-70.07794	40.66628	-70.03911	48	4	E	<2	B2	0.1-0.3	Fog	None	4.6	266	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:20	40.66628	-70.03911	40.66634	-70.01176	48	17	E	<2	B2	0.1-0.3	Clear	None	4	88	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:20	10:25	40.66634	-70.01176	40.66516	-70.00528	50	1	NNE	<2	B2	0.5-1	Clear	None	5.1	260	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	10:25	10:30	40.66516	-70.00528	40.66053	-70.00758	48	3	E	<2	B2	0.5-1	Fog	Moderate	4.4	265	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:30	10:51	40.66053	-70.00758	40.65935	-70.04302	50	1	NNE	<2	B2	0.5-1	Clear	None	5.1	260	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:51	11:12	40.65935	-70.04302	40.66047	-70.03723	50	3	NNE	<2	B2	2-5	Clear	None	4.2	300	Soft Start	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:12	11:18	40.66047	-70.03723	40.65961	-70.04774	50	4	ESE	<2	B2	>5	Clear	None	5.3	264	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:18	11:23	40.65961	-70.04774	40.65952	-70.05645	50	4	ESE	<2	B2	>5	Clear	None	4.6	262	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:23	12:00	40.65952	-70.05645	40.65883	-70.12071	50	4	ESE	<2	B2	>5	Clear	None	4.6	261	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:17	40.65883	-70.12071	40.65854	-70.14924	48	3	N	<2	B2	>5	Cloudy	Severe	4.6	259	Full Power	Heavy Fog
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Uribe, Amaranta	RPS	12:17	12:55	40.65854	-70.14924	40.66520	-70.16544	48	3	N	<2	B2	0.3-0.5	Fog	Moderate	4.7	262	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	12:55	13:00	40.66520	-70.16544	40.66507	-70.15729	46	12	E	<2	B2	0.5-1	Fog	Slight	4.7	91	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:25	40.66507	-70.15729	40.66574	-70.11470	48	12	E	<2	B2	1-2	Fog	Slight	4.6	91	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:25	13:46	40.66574	-70.11470	40.65883	-70.12748	47	14	ESE	<2	B2	>5	Cloudy	Severe	4.8	88	Soft Start	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:46	13:51	40.65883	-70.12748	40.65879	-70.13577	48	3	ESE	<2	B2	>5	Cloudy	None	4.5	264	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:51	13:56	40.65879	-70.13577	40.65870	-70.14400	48	5	ESE	<2	B2	>5	Cloudy	Moderate	4.5	263	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:56	14:00	40.65870	-70.14400	40.65863	-70.14877	48	5	ESE	<2	B2	>5	Cloudy	Moderate	4.5	265	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:59	40.65863	-70.14877	40.65769	-70.24739	48	5	ESE	<2	B2	>5	Cloudy	Moderate	4.5	265	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:59	15:13	40.65769	-70.24739	40.65741	-70.27092	48	3	E	<2	B2	0.5-1	Fog	Moderate	4.4	265	Full Power	Medium Fog
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Klein, Michelle	RPS	15:13	15:53	40.65741	-70.27092	40.66363	-70.27648	48	3	E	<2	B2	0.3-0.5	Fog	Moderate	4.4	265	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:53	16:00	40.66363	-70.27648	40.66372	-70.26441	50	4	ENE	<2	B2	0.5-1	Fog	Moderate	4.7	83	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:23	40.66372	-70.26441	40.66317	-70.22526	49	14	ENE	<2	B3	1-2	Fog	Slight	4.8	83	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:23	16:44	40.66317	-70.22526	40.65733	-70.24738	48	13	ENE	<2	B3	1-2	Fog	None	4.7	113	Soft Start	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:44	16:54	40.65733	-70.24738	40.65725	-70.26271	49	13	ENE	<2	B3	2-5	Fog	None	4.7	272	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:54	17:00	40.65725	-70.26271	40.65723	-70.27280	51	11	ENE	<2	B3	2-5	Fog	None	4.5	275	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:36	40.65723	-70.27280	40.65674	-70.33481	50	9	ENE	<2	B3	2-5	Fog	None	4.5	268	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:36	18:03	40.65674	-70.33481	40.65619	-70.38229	53	8	ENE	<2	B3	2-5	Precipitation	None	4.8	268	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:03	18:28	40.65619	-70.38229	40.65560	-70.42517	53	8	ENE	<2	B3	2-5	Precipitation	None	4.6	266	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:28	18:30	40.65560	-70.42517	40.65546	-70.42861	57	8	E	<2	B3	2-5	Fog	None	4.5	279	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:30	18:42	40.65546	-70.42861	40.65977	-70.43343	57	8	E	<2	B3	2-5	Fog	None	4.5	279	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:42	18:48	40.65977	-70.43343	40.66000	-70.42334	55	17	E	<2	B3	2-5	Fog	None	4.4	82	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:48	19:00	40.66000	-70.42334	40.66019	-70.40416	56	17	E	<2	B3	2-5	Fog	None	4.7	85	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:02	40.66019	-70.40416	40.66147	-70.29632	56	19	E	<2	B3	2-5	Precipitation	None	4.7	85	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:02	21:00	40.66147	-70.29632	40.66242	-70.20224	56	19	E	<2	B3	2-5	Precipitation	None	4.7	85	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.66242	-70.20224	40.66333	-70.10863	48	19	E	<2	B3	2-5	Fog	None	4.5	88	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:24	40.66333	-70.10863	40.66369	-70.07442	49	18	E	<2	B3	2-5	Fog	None	4.1	91	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:24	23:00	40.66369	-70.07442	40.66414	-70.02149	47	16	E	<2	B3	1-2	Fog	None	4.2	91	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:03	40.66414	-70.02149	40.66417	-70.01708	48	16	E	<2	B3	1-2	Fog	None	3.7	94	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:03	23:05	40.66417	-70.01708	40.66423	-70.01414	48	18	E	<2	B3	1-2	Fog	None	4	93	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:05	23:18	40.66423	-70.01414	40.65967	-70.01089	49	18	E	<2	B3	1-2	Fog	None	4.2	93	Full Power	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:18	23:23	40.65967	-70.01089	40.65953	-70.01913	49	18	E	<2	B3	1-2	Fog	None	4.2	93	Silent	N/A
2022-10-25	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:23	00:00	40.65953	-70.01913	40.65902	-70.07946	49	18	E	<2	B3	1-2	Fog	None	4.2	93	Full Power	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:58	40.65897	-70.08469	40.65716	-70.26056	49	9	ESE	<2	B2	0.5-1	Clear	None	4.4	255	Full Power	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	01:58	02:30	40.65716	-70.26056	40.65660	-70.31145	51	7	E	<2	B2	0.5-1	Clear	None	4.3	262	Full Power	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	02:55	40.65660	-70.31145	40.65616	-70.35059	53	11	ESE	<2	B2	0.5-1	Clear	None	4.2	260	Full Power	Heavy Fog
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:55	03:00	40.65616	-70.35059	40.65605	-70.35908	55	9	E	<2	B2	0.3-0.5	Fog	None	4.5	260	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.65605	-70.35908	40.66302	-70.32660	54	9	E	<2	B2	0.3-0.5	Fog	None	4.5	260	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.66302	-70.32660	40.65610	-70.36229	52	19	E	<2	B2	0.3-0.5	Fog	None	4.9	88	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.65610	-70.36229	40.66275	-70.34758	55	6	E	<2	B2	0.3-0.5	Fog	None	4.1	265	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.66275	-70.34758	40.65558	-70.32170	53	14	E	<2	B2	0.3-0.5	Fog	None	3.6	86	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:00	08:00	40.65558	-70.32170	40.66225	-70.37835	53	8	E	<2	B2	0.3-0.5	Fog	None	4	269	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:58	40.66225	-70.37835	40.66231	-70.30146	52	14	ENE	<2	B2	0.3-0.5	Fog	None	3.9	86	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	08:58	10:00	40.66231	-70.30146	40.65688	-70.38074	52	13	ENE	<2	B2	0.3-0.5	Fog	None	3.7	107	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Uribe, Amaranta	RPS	10:00	10:25	40.65688	-70.38074	40.65532	-70.41656	55	10	ENE	<2	B2	0.3-0.5	Precipitation	None	3.7	288	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:25	11:00	40.65532	-70.41656	40.66227	-70.37753	58	10	ENE	<2	B2	0.5-1	Cloudy	None	3.8	300	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	11:00	11:25	40.66227	-70.37753	40.66286	-70.33477	63	15	ENE	<2	B3	1-2	Precipitation	None	4.7	91	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Uribe, Amaranta	RPS	11:25	11:57	40.66286	-70.33477	40.65604	-70.30545	54	16	E	<2	B3	0.3-0.5	Fog	None	4.4	91	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:57	12:03	40.65604	-70.30545	40.65604	-70.31521	55	9	NNE	<2	B3	0.5-1	Fog	None	4.7	262	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Uribe, Amaranta	RPS	12:03	13:00	40.65604	-70.31521	40.65755	-70.36901	55	9	NNE	<2	B3	0.3-0.5	Fog	None	4.7	262	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	13:00	14:00	40.65755	-70.36901	40.66166	-70.40281	54	5	N	<2	B2	0.3-0.5	Fog	None	4.9	262	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Ramsarran, Celine	RPS	14:00	15:00	40.66166	-70.40281	40.66305	-70.29859	55	11	NE	<2	B2	0.3-0.5	Fog	None	4.5	89	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	15:00	16:00	40.66305	-70.29859	40.66425	-70.19317	50	15	NE	<2	B3	0.1-0.3	Fog	None	4.5	87	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	16:00	17:00	40.66425	-70.19317	40.66476	-70.08742	47	12	NE	<2	B2	0.3-0.5	Fog	None	4.5	88	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	17:00	17:36	40.66476	-70.08742	40.66558	-70.02537	47	14	NNE	<2	B2	0.3-0.5	Fog	Moderate	4.5	81	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Klein, Michelle	RPS	17:36	18:00	40.66558	-70.02537	40.65892	-70.02572	48	3	NNE	<2	B2	1-2	Fog	Moderate	4.9	81	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:24	40.65892	-70.02572	40.65859	-70.06838	48	3	NW	<2	B2	>5	Cloudy	Moderate	4.6	274	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:24	18:26	40.65859	-70.06838	40.65854	-70.07207	48	11	WNW	<2	B2	2-5	Fog	Moderate	4.9	272	Soft Start	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:26	18:48	40.65854	-70.07207	40.65809	-70.11198	48	11	WNW	<2	B2	2-5	Fog	Moderate	4.9	272	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	18:48	19:00	40.65809	-70.11198	40.65789	-70.13419	47	13	WNW	<2	B2	0.3-0.5	Fog	Severe	5	271	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	19:00	20:00	40.65789	-70.13419	40.65675	-70.23884	47	13	WNW	<2	B2	0.3-0.5	Fog	Severe	5	271	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	20:00	21:00	40.65675	-70.23884	40.65598	-70.34367	50	10	W	<2	B2	0.3-0.5	Fog	Severe	5	269	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Mike, Romario	RPS	21:00	22:00	40.65598	-70.34367	40.67474	-70.40783	50	10	W	<2	B2	0.3-0.5	Fog	None	5	269	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:00	22:20	40.67474	-70.40783	40.67499	-70.37560	53	11	W	<2	B2	0.3-0.5	Fog	None	4.5	91	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:20	23:00	40.67499	-70.37560	40.67563	-70.31406	53	13	W	<2	B2	0.3-0.5	Fog	None	4.5	91	Silent	N/A
2022-10-26	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.67563	-70.31406	40.67655	-70.22294	50	14	W	<2	B2	0.3-0.5	Fog	None	4.2	91	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:00	40.67658	-70.21886	40.67745	-70.12948	48	8	SW	<2	B3	0.1-0.3	Fog	None	4	95	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	02:00	40.67745	-70.12948	40.67838	-70.02926	48	8	SW	<2	B3	0.1-0.3	Fog	None	4.3	95	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	03:00	40.67838	-70.02926	40.66998	-70.07056	48	9	SW	<2	B3	0.1-0.3	Fog	None	5	95	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.66998	-70.07056	40.66906	-70.16597	47	22	NE	<2	B3	0.1-0.3	Fog	None	4.2	260	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.66906	-70.16597	40.67194	-70.17752	47	17	WSW	<2	B3	0.1-0.3	Fog	None	4.2	269	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.67194	-70.17752	40.67313	-70.07209	77	10	SW	<2	B3	0.3-0.5	Fog	None	4.8	84	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	06:44	40.67313	-70.07209	40.67812	-70.00522	46	14	WSW	<2	B3	0.3-0.5	Fog	None	4.8	83	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:44	07:00	40.67812	-70.00522	40.67826	-70.03096	47	21	W	<2	B3	0.5-1	Cloudy	None	4.7	290	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.67826	-70.03096	40.67263	-70.13332	46	24	W	<2	B4	0.5-1	Cloudy	None	5.1	271	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:08	40.67263	-70.13332	40.67092	-70.14396	46	21	WSW	<2	B4	0.5-1	Cloudy	None	4.1	259	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:08	09:08	40.67092	-70.14396	40.66147	-70.23428	46	22	WSW	<2	B4	0.5-1	Cloudy	None	4.4	251	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:08	10:00	40.66147	-70.23428	40.65722	-70.31318	50	22	W	<2	B4	0.5-1	Cloudy	None	4.1	251	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:30	40.65722	-70.31318	40.65744	-70.35728	53	20	W	<2	B4	0.5-1	Cloudy	None	4.1	266	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:30	10:40	40.65744	-70.35728	40.65761	-70.37279	55	18	WNW	<2	B4	0.5-1	Clear	None	4	266	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:40	10:57	40.65761	-70.37279	40.65739	-70.39590	55	18	WNW	<2	B4	>5	Clear	None	4	266	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:57	11:01	40.65739	-70.39590	40.65745	-70.40163	55	19	W	<2	B4	>5	Clear	None	3.9	266	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:01	11:15	40.65745	-70.40163	40.66039	-70.41901	55	19	W	<2	B4	>5	Clear	None	3.9	266	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:15	11:45	40.66039	-70.41901	40.66120	-70.37723	57	15	W	<2	B4	>5	Clear	None	4.4	10	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:45	12:00	40.66120	-70.37723	40.65730	-70.39736	56	17	W	<2	B4	>5	Clear	None	3.9	221	Soft Start	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:06	40.65730	-70.39736	40.65701	-70.40638	56	19	W	<2	B4	>5	Clear	Severe	4.5	263	Soft Start	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:06	12:17	40.65701	-70.40638	40.66295	-70.41759	56	19	W	<2	B4	>5	Clear	Severe	4.5	263	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:17	12:22	40.66295	-70.41759	40.66387	-70.40966	55	12	W	<2	B4	>5	Clear	Severe	5.1	92	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:22	13:00	40.66387	-70.40966	40.66458	-70.34674	55	12	W	<2	B4	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.66458	-70.34674	40.66575	-70.24581	53	10	WNW	<2	B4	>5	Clear	Severe	4.7	85	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.66575	-70.24581	40.66690	-70.14407	49	9	WNW	<2	B4	>5	Clear	Severe	4.6	82	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:46	40.66690	-70.14407	40.66766	-70.06476	45	13	WNW	<2	B4	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:46	16:14	40.66766	-70.06476	40.66807	-70.01763	45	13	WNW	<2	B4	>5	Clear	Severe	4.7	82	Full Power	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:14	16:20	40.66807	-70.01763	40.66601	-70.00754	45	13	WNW	<2	B4	>5	Clear	Severe	4.7	82	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:20	17:00	40.66601	-70.00754	40.66165	-70.00842	49	10	WNW	<2	B4	>5	Clear	Severe	4.5	193	Silent	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:40	40.66165	-70.00842	40.66165	-70.00842	47	21	NW	<2	B5	>5	Clear	Severe	4.4	273	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:40	18:15	40.66165	-70.00842	40.66165	-70.00842	47	16	NW	2-4	B5	>5	Clear	Severe	1.2	289	Deploying/Retrieving	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:15	19:57	40.66165	-70.00842	40.77363	-70.34532	47	22	NW	2-4	B5	>5	Clear	Severe	3.8	297	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:57	20:00	40.77363	-70.34532	40.77826	-70.35125	47	20	NW	2-4	B5	>5	Clear	Severe	3.8	301	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.77826	-70.35125	40.87274	-70.47635	47	22	NW	2-4	B5	>5	Clear	Severe	8.2	315	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.87274	-70.47635	40.98857	-70.57538	49	24	N	<2	B5	>5	Clear	Severe	7.9	316	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:20	40.98857	-70.57538	41.03074	-70.59803	48	27	N	<2	B5	>5	Clear	None	8.5	344	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:20	23:00	41.03074	-70.59803	41.11057	-70.65878	45	22	N	<2	B5	2-5	Clear	None	8.6	336	Transit	N/A
2022-10-27	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	23:00	00:00	41.11057	-70.65878	41.23349	-70.74614	44	30	N	<2	B5	1-2	Clear	None	8.3	331	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.24385	-70.75350	41.28161	-70.79396	28	28	N	2-4	B4	0.5-1	Clear	None	8.4	332	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.28161	-70.79396	41.28198	-70.79457	12	24	N	2-4	B4	0.5-1	Clear	None	8.8	312	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.28198	-70.79457	41.47295	-70.84390	29	30	N	2-4	B4	0.5-1	Clear	None	9.2	331	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.47295	-70.84390	41.60525	-70.89343	18	32	N	2-4	B3	0.5-1	Clear	None	8.3	2	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	03:27	41.60525	-70.89343	41.62128	-70.91348	11	19	N	<2	B3	0.5-1	Clear	None	8.7	329	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:18	41.62135	-70.91353	41.63085	-70.91009	6	9	NNE	<2	B2	>5	Clear	None	0.5	162	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:18	23:00	41.63085	-70.91009	41.56387	-70.86758	10	5	NNE	<2	B2	2-5	Clear	None	5.2	143	Transit	N/A
2022-10-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.56387	-70.86758	41.46518	-70.84479	12	10	NNE	<2	B3	1-2	Clear	None	6.5	143	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	41.46145	-70.84558	41.42951	-70.83606	22	12	NE	<2	B3	0.5-1	Clear	None	5.5	185	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.42951	-70.83606	41.43341	-70.78861	16	12	ENE	<2	B3	0.5-1	Clear	None	4	145	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.43341	-70.78861	41.46359	-70.71912	24	19	NE	<2	B3	0.5-1	Clear	None	4.4	72	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.46359	-70.71912	41.48917	-70.66623	21	23	NE	<2	B3	0.5-1	Clear	None	3.8	53	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.48917	-70.66623	41.47264	-70.70226	25	11	ENE	<2	B3	0.5-1	Clear	None	1.8	240	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.47264	-70.70226	41.45178	-70.74515	23	12	NE	<2	B3	0.5-1	Clear	None	2.2	231	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.45178	-70.74515	41.42716	-70.79209	32	14	NE	<2	B3	0.5-1	Clear	None	2.4	230	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.42716	-70.79209	41.40325	-70.85018	27	13	NE	<2	B3	0.5-1	Clear	None	3	232	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.40325	-70.85018	41.41080	-70.83951	14	14	NNE	<2	B3	0.5-1	Cloudy	None	3.3	259	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	41.41080	-70.83951	41.42143	-70.80541	15	17	NE	<2	B3	0.5-1	Cloudy	None	1.9	58	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.42143	-70.80541	41.43278	-70.78401	20	19	NE	<2	B3	0.5-1	Cloudy	None	1	47	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:31	41.43278	-70.78401	41.42892	-70.79242	23	16	NE	<2	B3	0.5-1	Cloudy	None	1.4	47	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:31	10:45	41.42892	-70.79242	41.41776	-70.81484	24	9	NNE	<2	B3	0.5-1	Clear	None	4.5	235	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:45	11:00	41.41776	-70.81484	41.39118	-70.84132	23	7	NNE	<2	B3	0.5-1	Clear	None	5.2	224	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:36	41.39118	-70.84132	41.32018	-70.84245	26	9	NNE	<2	B3	2-5	Clear	None	8.9	213	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:36	12:00	41.32018	-70.84245	41.28568	-70.79850	15	15	ENE	<2	B3	>5	Clear	Severe	7.8	133	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.28568	-70.79850	41.18683	-70.71094	12	14	ENE	<2	B4	>5	Clear	Severe	7.8	128	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.18683	-70.71094	41.08473	-70.62915	31	20	ENE	<2	B5	>5	Clear	Severe	7.6	141	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.08473	-70.62915	40.99798	-70.55014	45	20	ENE	<2	B5	>5	Clear	Severe	7.3	141	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.99798	-70.55014	40.96496	-70.47267	50	21	NE	<2	B6	>5	Clear	Severe	4.5	112	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.96496	-70.47267	40.93893	-70.38899	46	20	NE	<2	B6	>5	Clear	Severe	4.2	111	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:54	40.93893	-70.38899	40.91191	-70.31220	45	22	NE	<2	B6	>5	Clear	Severe	4.4	104	Transit	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:54	19:00	40.91191	-70.31220	40.87475	-70.22404	43	22	NE	<2	B6	>5	Clear	Severe	4.3	104	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.87475	-70.22404	40.83877	-70.15704	43	25	NE	2-4	B6	>5	Clear	Severe	4.3	104	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.83877	-70.15704	40.80795	-70.09982	44	28	NE	2-4	B6	>5	Clear	Severe	4.3	104	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:10	40.80795	-70.09982	40.80409	-70.09074	44	28	NE	2-4	B6	>5	Clear	Severe	4.3	104	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	40.80409	-70.09074	40.78741	-70.07363	31	23	NE	2-4	B6	>5	Clear	Severe	3.3	84	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:18	40.78741	-70.07363	40.77258	-70.09988	31	24	NE	2-4	B6	2-5	Clear	None	5.5	222	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:18	22:58	40.77258	-70.09988	40.73892	-70.15903	40	22	NE	2-4	B6	1-2	Clear	None	4.9	222	Standby	N/A
2022-10-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:58	00:00	40.73892	-70.15903	40.69388	-70.24383	40	22	NE	2-4	B6	1-2	Clear	None	4.9	222	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.69120	-70.24988	40.67585	-70.28683	46	20	NE	2-4	B4	0.5-1	Clear	None	4.4	241	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	40.67585	-70.28683	40.65964	-70.32851	50	12	NE	2-4	B4	0.5-1	Clear	None	4.5	229	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	40.65964	-70.32851	40.63102	-70.40312	53	11	NE	2-4	B4	0.5-1	Clear	None	3.9	229	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	40.63102	-70.40312	40.66073	-70.36754	59	12	NE	2-4	B4	0.5-1	Clear	None	3.7	229	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	40.66073	-70.36754	40.69874	-70.30869	55	19	NE	2-4	B4	0.5-1	Clear	None	3.8	56	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	40.69874	-70.30869	40.71484	-70.27045	49	20	NE	2-4	B4	0.5-1	Clear	None	4.3	56	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	40.71484	-70.27045	40.68464	-70.32772	47	11	NE	2-4	B4	0.5-1	Clear	None	3.4	222	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	40.68464	-70.32772	40.65466	-70.38443	50	11	NE	2-4	B4	0.5-1	Clear	None	3.3	231	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:02	40.65466	-70.38443	40.64854	-70.40373	55	11	NNE	2-4	B4	0.5-1	Clear	None	3.2	229	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:02	09:00	40.64854	-70.40373	40.67702	-70.33833	57	15	ENE	2-4	B4	0.5-1	Clear	None	3.3	56	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	40.67702	-70.33833	40.69943	-70.29642	52	13	NE	2-4	B4	0.5-1	Clear	None	3	44	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:33	40.69943	-70.29642	40.69381	-70.31025	48	14	NE	2-4	B4	0.5-1	Clear	None	2.5	48	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:33	10:49	40.69381	-70.31025	40.69148	-70.33364	48	8	NNE	2-4	B4	2-5	Clear	None	3.7	243	Standby	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:49	11:00	40.69148	-70.33364	40.69043	-70.33679	50	9	NNE	2-4	B4	2-5	Clear	None	2.6	270	Deploying/Retrieving	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	12:00	40.69043	-70.33679	40.68721	-70.37508	51	11	NE	2-4	B4	>5	Clear	None	1.8	310	Deploying/Retrieving	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:41	40.68721	-70.37508	40.68718	-70.41152	49	8	NE	2-4	B3	>5	Clear	Severe	3	269	Deploying/Retrieving	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:41	13:00	40.68718	-70.41152	40.67729	-70.40306	54	5	ENE	2-4	B3	>5	Clear	Severe	1.8	271	Soft Start	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:02	40.67729	-70.40306	40.67671	-70.39989	53	17	ENE	2-4	B4	>5	Clear	Severe	4.1	98	Soft Start	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:02	13:45	40.67671	-70.39989	40.65781	-70.33550	54	17	ENE	2-4	B4	>5	Clear	Severe	4.3	98	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:45	13:50	40.65781	-70.33550	40.65619	-70.34346	54	10	NE	2-4	B4	>5	Clear	Severe	4.4	276	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:50	14:00	40.65619	-70.34346	40.65605	-70.35977	58	10	NE	2-4	B4	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:41	40.65605	-70.35977	40.65525	-70.42634	56	9	NE	2-4	B4	>5	Clear	Severe	4.6	262	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:41	14:42	40.65525	-70.42634	40.65525	-70.42801	59	8	NE	2-4	B4	>5	Clear	Severe	4.2	262	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:42	14:55	40.65525	-70.42801	40.65981	-70.43315	59	8	NE	2-4	B4	>5	Clear	Severe	4.2	250	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:55	15:00	40.65981	-70.43315	40.65969	-70.42491	57	8	NE	2-4	B4	>5	Clear	Severe	4.2	242	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:01	40.65969	-70.42491	40.65977	-70.42329	57	15	NE	<2	B4	>5	Clear	Severe	5.1	87	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:01	16:00	40.65977	-70.42329	40.66085	-70.33095	57	15	NE	<2	B4	>5	Clear	Severe	4.6	87	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	40.66085	-70.33095	40.66191	-70.23281	52	16	NE	<2	B4	>5	Clear	Severe	4.7	89	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.66191	-70.23281	40.66297	-70.13148	48	14	NE	<2	B4	>5	Clear	Severe	4.7	86	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	18:00	19:03	40.66297	-70.13148	40.66390	-70.02700	47	15	NE	<2	B4	>5	Clear	Severe	4.3	86	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:03	19:10	40.66390	-70.02700	40.66396	-70.01687	47	15	NE	<2	B4	>5	Clear	Severe	4.3	86	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:10	19:12	40.66396	-70.01687	40.66391	-70.01359	47	15	NE	<2	B4	>5	Clear	Severe	4.3	86	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:12	19:24	40.66391	-70.01359	40.65939	-70.00924	49	15	NE	<2	B4	>5	Clear	Severe	4.4	68	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:24	19:30	40.65939	-70.00924	40.65930	-70.01839	49	15	NE	<2	B4	>5	Clear	Severe	4.4	266	Silent	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:30	20:00	40.65930	-70.01839	40.65898	-70.06398	49	15	NE	<2	B4	>5	Clear	Severe	4.6	266	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	40.65898	-70.06398	40.65803	-70.15779	48	15	NE	<2	B4	>5	Clear	Severe	4.4	268	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:15	40.65803	-70.15779	40.65785	-70.18139	48	15	NE	<2	B4	>5	Clear	Severe	4.4	276	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:15	22:00	40.65785	-70.18139	40.65699	-70.25760	48	13	NE	<2	B3	>5	Clear	Severe	5.2	265	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:18	40.65699	-70.25760	40.65669	-70.28845	51	10	E	<2	B3	2-5	Clear	None	4.4	274	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:18	23:00	40.65669	-70.28845	40.65592	-70.35963	51	8	E	<2	B3	1-2	Clear	None	4.7	272	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:36	40.65592	-70.35963	40.65513	-70.42529	51	8	E	<2	B3	0.5-1	Clear	None	5.5	272	Full Power	N/A
2022-10-30	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:36	00:00	40.65513	-70.42529	40.65968	-70.42800	57	6	E	<2	B3	0.5-1	Clear	None	5.1	271	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:08	40.65987	-70.42416	40.65970	-70.41567	56	16	E	2-4	B2	0.5-1	Clear	None	3.6	84	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:08	00:19	40.65970	-70.41567	40.65958	-70.40413	56	16	E	2-4	B2	0.5-1	Clear	None	4.2	84	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:19	01:00	40.65958	-70.40413	40.65732	-70.43092	56	15	E	2-4	B2	0.5-1	Clear	None	3.6	80	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	02:00	40.65732	-70.43092	40.67348	-70.37624	56	15	E	2-4	B2	0.5-1	Clear	None	3.6	80	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:30	40.67348	-70.37624	40.67401	-70.32872	53	15	E	2-4	B2	0.5-1	Clear	None	4.5	86	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:00	40.67401	-70.32872	40.67444	-70.28257	52	14	E	2-4	B2	0.5-1	Clear	None	4.6	89	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.67444	-70.28257	40.66743	-70.28797	49	14	ESE	<2	B3	0.5-1	Clear	None	4.3	88	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.66743	-70.28797	40.66628	-70.38154	52	6	SE	<2	B3	0.5-1	Clear	None	4.4	257	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.66628	-70.38154	40.67281	-70.37386	55	7	SSE	<2	B3	0.5-1	Clear	None	4.3	259	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.67281	-70.37386	40.67397	-70.26914	54	12	ESE	<2	B3	0.5-1	Clear	None	4.4	93	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.67397	-70.26914	40.67518	-70.16834	49	12	NE	<2	B3	0.5-1	Clear	None	4.7	91	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	09:00	40.67518	-70.16834	40.67622	-70.06145	45	13	ESE	<2	B3	0.5-1	Clear	None	4.9	88	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.67622	-70.06145	40.66293	-70.03694	46	14	ESE	<2	B3	0.5-1	Clear	None	4.3	88	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:30	40.66293	-70.03694	40.66878	-70.08483	48	5	SE	<2	B3	0.5-1	Clear	None	4.4	266	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:30	10:31	40.66878	-70.08483	40.66928	-70.08640	46	6	ESE	<2	B3	>5	Cloudy	None	4.9	292	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:31	10:50	40.66928	-70.08640	40.67151	-70.11724	46	6	ESE	<2	B2	>5	Cloudy	None	4.9	292	Soft Start	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	10:50	10:52	40.67151	-70.11724	40.67147	-70.12066	52	14	ESE	<2	B3	>5	Clear	Severe	4.8	86	Soft Start	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:52	11:00	40.67147	-70.12066	40.67133	-70.13337	46	6	ESE	<2	B2	>5	Clear	None	4.9	269	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	12:21	40.67133	-70.13337	40.66053	-70.23125	45	8	SE	<2	B2	>5	Clear	None	4.7	270	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:21	12:27	40.66053	-70.23125	40.65851	-70.24071	48	10	WNW	<2	B2	>5	Cloudy	Slight	4.3	269	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:27	13:00	40.65851	-70.24071	40.65787	-70.29567	50	10	WNW	<2	B2	>5	Cloudy	Moderate	4.7	269	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:09	40.65787	-70.29567	40.65769	-70.31235	52	6	NW	<2	B2	>5	Clear	Severe	4.6	267	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:09	13:11	40.65769	-70.31235	40.65765	-70.31579	52	3	NW	<2	B2	>5	Clear	Severe	4.7	268	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:11	13:28	40.65765	-70.31579	40.66133	-70.31284	52	3	NW	<2	B2	>5	Clear	Severe	4.7	268	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:28	13:34	40.66133	-70.31284	40.65975	-70.32194	53	1	NW	<2	B2	>5	Clear	Severe	3.9	260	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:34	13:55	40.65975	-70.32194	40.65941	-70.35687	53	1	NW	<2	B2	>5	Clear	Severe	4.8	265	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:55	13:56	40.65941	-70.35687	40.65937	-70.35848	55	2	NW	<2	B2	>5	Clear	Severe	4.6	265	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:56	14:00	40.65937	-70.35848	40.66125	-70.36385	55	2	NW	<2	B2	>5	Clear	Severe	4.1	311	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:48	40.66125	-70.36385	40.67167	-70.42136	55	2	NW	<2	B2	>5	Clear	Severe	4.5	328	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:48	14:55	40.67167	-70.42136	40.67273	-70.40990	55	7	ESE	<2	B2	>5	Clear	Severe	4.9	87	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:55	15:00	40.67273	-70.40990	40.67287	-70.40153	54	8	E	<2	B2	>5	Clear	Severe	4.6	88	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:17	40.67287	-70.40153	40.67324	-70.37276	54	15	SE	<2	B2	>5	Clear	Severe	4.7	86	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:17	15:19	40.67324	-70.37276	40.67329	-70.36937	52	13	SE	<2	B2	>5	Clear	Severe	4.4	87	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:19	16:00	40.67329	-70.36937	40.67395	-70.39306	62	13	SE	<2	B2	>5	Clear	Severe	4.6	65	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.67395	-70.39306	40.66953	-70.35432	53	12	ESE	<2	B2	>5	Clear	Slight	4.3	273	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:05	40.66953	-70.35432	40.66963	-70.34496	52	14	ESE	<2	B3	>5	Clear	Severe	4.5	86	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:05	18:00	40.66963	-70.34496	40.67075	-70.24936	52	14	ESE	<2	B3	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.67075	-70.24936	40.66829	-70.14523	52	14	ESE	<2	B3	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:56	40.66829	-70.14523	40.67316	-70.11036	52	14	ESE	<2	B3	>5	Clear	Severe	4.8	86	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:56	20:00	40.67316	-70.11036	40.67328	-70.10343	52	14	ESE	<2	B3	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:49	40.67328	-70.10343	40.67401	-70.01786	52	14	ESE	<2	B3	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:49	20:50	40.67401	-70.01786	40.67399	-70.01588	52	14	ESE	<2	B3	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:50	20:51	40.67399	-70.01588	40.67398	-70.01448	52	14	ESE	<2	B3	>5	Cloudy	Severe	4.9	87	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:51	21:00	40.67398	-70.01448	40.66632	-70.00653	52	14	ESE	<2	B3	>5	Cloudy	Severe	4.9	107	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	21:10	40.66632	-70.00653	40.66088	-70.01729	47	17	SSE	<2	B3	>5	Cloudy	Slight	4.7	179	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	21:30	40.66088	-70.01729	40.66067	-70.05109	48	10	SSE	<2	B3	>5	Cloudy	None	4.9	270	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:30	21:58	40.66067	-70.05109	40.66033	-70.09607	48	9	SSE	<2	B3	>5	Cloudy	None	4.5	268	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:58	22:00	40.66033	-70.09607	40.66038	-70.09993	47	11	SSE	<2	B3	>5	Cloudy	None	4.5	277	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:11	40.66038	-70.09993	40.66096	-70.11803	47	12	SSE	<2	B3	2-5	Cloudy	None	4.5	277	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:11	22:14	40.66096	-70.11803	40.66085	-70.12236	47	13	SSE	<2	B3	2-5	Cloudy	None	5.1	268	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:14	22:45	40.66085	-70.12236	40.66034	-70.17610	47	15	SSE	<2	B3	1-2	Cloudy	None	4.6	268	Full Power	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:45	22:48	40.66034	-70.17610	40.66034	-70.18147	28	13	SSE	<2	B3	1-2	Cloudy	None	4.9	269	Silent	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:48	23:00	40.66034	-70.18147	40.66019	-70.20255	48	13	SSE	<2	B3	1-2	Cloudy	None	4.9	269	Deploying/Retrieving	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	23:36	40.66019	-70.20255	40.66024	-70.22787	47	12	SSE	<2	B3	0.5-1	Cloudy	None	1.9	268	Deploying/Retrieving	N/A
2022-10-31	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:36	00:00	40.66024	-70.22787	40.68903	-70.24920	47	12	SSE	<2	B3	0.5-1	Cloudy	None	1.9	3.9	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.69091	-70.25107	40.71176	-70.27034	47	6	S	<2	B3	0.5-1	Cloudy	None	8.4	324	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	00:59	40.71176	-70.27034	40.81028	-70.36152	48	8	SW	<2	B3	0.5-1	Cloudy	None	8.7	325	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	00:59	02:00	40.81028	-70.36152	40.93464	-70.47139	48	10	W	<2	B3	0.5-1	Cloudy	None	9.2	325	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	40.93464	-70.47139	41.05346	-70.57593	47	20	W	<2	B3	0.3-0.5	Fog	None	9	323	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.05346	-70.57593	41.18061	-70.68071	44	17	W	<2	B4	0.5-1	Cloudy	None	8.7	323	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:01	41.18061	-70.68071	41.29774	-70.81228	33	20	W	<2	B4	0.5-1	Cloudy	None	9.2	323	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:01	06:00	41.29774	-70.81228	41.42991	-70.83555	33	20	W	<2	B4	0.5-1	Cloudy	None	9.2	323	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.42991	-70.83555	41.55214	-70.85823	15	14	WSW	<2	B2	0.5-1	Precipitation	None	6.2	328	Transit	N/A
2022-11-01	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	07:59	41.55214	-70.85823	41.62138	-70.91340	15	17	W	<2	B2	0.5-1	Precipitation	None	8.5	330	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:14	00:30	41.62124	-70.91364	41.63082	-70.91380	5	4	N	<2	B2	0.5-1	Clear	None	1.9	165	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:00	41.63082	-70.91380	41.58705	-70.88261	9	3	SSW	<2	B2	0.5-1	Clear	None	3.6	63	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:00	02:00	41.58705	-70.88261	41.48889	-70.84203	10	6	SSW	<2	B2	0.5-1	Clear	None	6.7	142	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	41.48889	-70.84203	41.40770	-70.84659	14	10	WSW	<2	B2	0.5-1	Clear	None	4	184	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	04:00	41.40770	-70.84659	41.30317	-70.82138	17	14	WSW	<2	B2	0.5-1	Clear	None	8	195	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:00	05:00	41.30317	-70.82138	41.21473	-70.72784	17	4	W	<2	B2	0.5-1	Clear	None	6.7	130	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	05:00	06:00	41.21473	-70.72784	41.10911	-70.65005	30	8	W	<2	B2	0.5-1	Clear	None	8	143	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	06:00	07:00	41.10911	-70.65005	41.00096	-70.57603	45	7	WNW	<2	B2	0.5-1	Clear	None	7.3	150	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.00096	-70.57603	40.89010	-70.50274	48	11	NW	<2	B2	0.5-1	Clear	None	7.4	145	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	08:00	09:00	40.89010	-70.50274	40.77884	-70.43761	53	9	NW	<2	B2	0.5-1	Clear	None	7.1	150	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	40.77884	-70.43761	40.67846	-70.41548	52	11	N	<2	B2	0.5-1	Clear	None	7	168	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:33	40.67846	-70.41548	40.65154	-70.38054	54	14	N	<2	B2	0.5-1	Clear	None	6.5	168	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:33	11:00	40.65154	-70.38054	40.64450	-70.34428	56	16	N	<2	B4	2-5	Clear	None	4	129	Transit	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:00	11:29	40.64450	-70.34428	40.60919	-70.32728	55	26	NNE	<2	B5	2-5	Clear	None	4.5	160	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	11:29	12:00	40.60919	-70.32728	40.58490	-70.31063	58	19	NNE	<2	B5	>5	Clear	None	4.8	159	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.58490	-70.31063	40.65138	-70.29372	60	27	N	<2	B5	>5	Clear	None	4.4	2	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.65138	-70.29372	40.67833	-70.29225	52	27	NNE	<2	B6	>5	Clear	None	4.5	5	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.67833	-70.29225	40.59850	-70.32271	50	17	NNE	<2	B6	>5	Clear	None	6.1	182	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.59850	-70.32271	40.66462	-70.31854	59	26	NNE	2-4	B6	>5	Clear	None	3.6	6	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.66462	-70.31854	40.63586	-70.32608	52	28	N	2-4	B6	>5	Clear	Severe	4.5	5	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.63586	-70.32608	40.62621	-70.32177	57	25	N	2-4	B6	>5	Clear	Severe	3.7	179	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.62621	-70.32177	40.67148	-70.28955	57	25	N	2-4	B6	>5	Clear	Severe	3.1	31	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	40.67148	-70.28955	40.66825	-70.28599	57	25	N	2-4	B6	>5	Clear	Severe	3.5	31	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	40.66825	-70.28599	40.63261	-70.29029	56	25	N	2-4	B6	>5	Clear	Severe	3.7	190	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	40.63261	-70.29029	40.66057	-70.25828	55	21	N	2-4	B6	>5	Clear	Severe	2.6	35	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:13	40.66057	-70.25828	40.66782	-70.24933	50	23	NNE	2-4	B6	2-5	Clear	None	2.9	34	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:13	23:00	40.66782	-70.24933	40.67420	-70.24326	50	22	NNE	2-4	B6	1-2	Clear	None	3.2	34	Standby	N/A
2022-11-02	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.67420	-70.24326	40.62402	-70.30745	49	23	NNE	2-4	B4	0.5-1	Clear	None	4.1	223	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	00:30	40.62339	-70.30854	40.60802	-70.33452	58	20	NNE	<2	B3	0.5-1	Clear	None	4.4	222	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:30	01:02	40.60802	-70.33452	40.62780	-70.31562	58	17	NE	<2	B3	0.5-1	Clear	None	3	33	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	01:02	02:00	40.62780	-70.31562	40.66345	-70.28404	56	18	NNE	<2	B3	0.5-1	Clear	None	2.5	33	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:00	40.66345	-70.28404	40.67437	-70.28148	51	16	NE	<2	B3	0.5-1	Clear	None	2.1	35	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:00	03:45	40.67437	-70.28148	40.63419	-70.33688	50	10	NE	<2	B3	0.5-1	Clear	None	4.9	216	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	03:45	04:10	40.63419	-70.33688	40.63215	-70.36312	57	10	NE	<2	B3	0.5-1	Clear	None	4.4	282	Deploying/Retrieving	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:10	04:11	40.63215	-70.36312	40.63179	-70.36368	58	13	NE	<2	B3	0.5-1	Clear	None	1.8	311	Deploying/Retrieving	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	04:11	05:00	40.63179	-70.36368	40.64635	-70.36011	57	10	NE	<2	B3	0.5-1	Clear	None	4.4	282	Standby	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	05:00	05:10	40.64635	-70.36011	40.65261	-70.35645	56	13	NE	<2	B3	0.5-1	Clear	None	2.4	40	Deploying/Retrieving	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:10	05:47	40.65261	-70.35645	40.67751	-70.34120	54	13	NE	<2	B3	0.5-1	Clear	None	2.5	40	Deploying/Retrieving	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:47	06:00	40.67751	-70.34120	40.67090	-70.34080	52	14	ENE	<2	B3	0.5-1	Clear	None	3.1	72	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.67090	-70.34080	40.64956	-70.43171	53	6	NE	<2	B3	0.5-1	Clear	None	4.4	238	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.64956	-70.43171	40.65578	-70.34082	58	12	NE	<2	B3	0.5-1	Clear	None	4.5	340	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	09:00	40.65578	-70.34082	40.65694	-70.23848	55	15	ENE	<2	B3	0.5-1	Clear	None	4.3	89	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.65694	-70.23848	40.65819	-70.13453	51	17	ENE	<2	B3	0.5-1	Clear	None	4.7	88	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:30	40.65819	-70.13453	40.65873	-70.08404	48	14	ENE	<2	B3	0.5-1	Clear	None	4.4	89	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:30	10:35	40.65873	-70.08404	40.65879	-70.07548	48	14	ENE	<2	B2	>5	Clear	None	4.7	88	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:35	11:00	40.65879	-70.07548	40.65928	-70.03292	48	14	ENE	<2	B2	>5	Clear	None	4.7	87	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	11:05	40.65928	-70.03292	40.65938	-70.02437	48	14	ENE	<2	B2	>5	Clear	None	4.7	87	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:05	11:06	40.65938	-70.02437	40.65937	-70.02271	48	12	ENE	<2	B2	>5	Clear	None	4.7	86	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:06	11:27	40.65937	-70.02271	40.65367	-70.02055	48	12	ENE	<2	B2	>5	Clear	None	4.7	86	Soft Start	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:27	12:00	40.65367	-70.02055	40.66207	-70.04300	51	12	ENE	<2	B2	>5	Clear	None	4.4	270	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.66207	-70.04300	40.66537	-70.01596	48	12	E	<2	B3	>5	Clear	Severe	4.6	83	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.66537	-70.01596	40.66552	-70.08816	48	10	E	<2	B3	>5	Clear	Severe	4.2	32	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.66552	-70.08816	40.65968	-70.01732	47	11	E	<2	B3	>5	Clear	Severe	3.7	50	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.65968	-70.01732	40.66409	-70.11461	49	8	E	<2	B3	>5	Clear	Severe	5.1	281	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.66409	-70.11461	40.65596	-70.10289	46	5	E	<2	B2	>5	Clear	Severe	2.9	32	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:16	40.65596	-70.10289	40.66093	-70.12573	48	4	E	<2	B2	>5	Clear	Severe	5.8	267	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:16	17:21	40.66093	-70.12573	40.66103	-70.11735	47	4	E	<2	B2	>5	Clear	Severe	4.2	79	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:21	18:00	40.66103	-70.11735	40.66171	-70.05206	47	5	E	<2	B2	>5	Clear	Severe	4.9	85	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:23	40.66171	-70.05206	40.66198	-70.01641	48	5	E	<2	B2	>5	Clear	Severe	4.7	87	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:23	18:25	40.66198	-70.01641	40.66196	-70.01328	48	5	E	<2	B2	>5	Clear	Severe	4.7	87	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:25	18:37	40.66196	-70.01328	40.65724	-70.01059	48	5	E	<2	B2	>5	Clear	Severe	4.7	87	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:37	18:42	40.65724	-70.01059	40.65712	-70.01930	49	2	E	<2	B2	>5	Clear	Severe	4.7	256	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:42	19:00	40.65712	-70.01930	40.65684	-70.04820	49	2	E	<2	B2	>5	Clear	Severe	4.7	256	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	21:00	40.65684	-70.04820	40.65490	-70.24223	49	2	E	<2	B2	>5	Clear	Severe	4.7	256	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.65490	-70.24223	40.65378	-70.34210	50	5	ESE	<2	B2	>5	Clear	Severe	4.5	260	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:15	40.65378	-70.34210	40.65348	-70.36705	54	2	ESE	<2	B2	2-5	Clear	None	4.7	263	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:15	22:51	40.65348	-70.36705	40.65279	-70.42635	55	3	SE	<2	B2	1-2	Clear	None	4.5	263	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:51	22:53	40.65279	-70.42635	40.65275	-70.42965	57	3	SE	<2	B2	1-2	Clear	None	4.5	265	Silent	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:53	23:00	40.65275	-70.42965	40.65887	-70.43322	57	3	SE	<2	B2	1-2	Clear	None	4.4	265	Full Power	N/A
2022-11-03	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.65887	-70.43322	40.66177	-70.33208	57	3	SE	<2	B2	1-2	Clear	None	4.4	29	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:00	40.66188	-70.32792	40.65864	-70.23215	52	1	SE	<2	B2	0.5-1	Clear	None	4.4	82	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	02:00	40.65864	-70.23215	40.66394	-70.16558	52	1	SE	<2	B2	0.5-1	Clear	None	4.7	82	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:30	40.66394	-70.16558	40.65664	-70.13441	47	7	SE	<2	B2	0.5-1	Clear	None	4.5	74	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:00	40.65664	-70.13441	40.66329	-70.10493	48	8	SSW	<2	B2	0.5-1	Clear	None	5.2	267	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	03:59	40.66329	-70.10493	40.66372	-70.07975	47	9	ESE	<2	B3	0.5-1	Clear	None	4.4	81	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	03:59	05:00	40.66372	-70.07975	40.66629	-70.01746	48	10	ESE	<2	B3	0.5-1	Clear	None	4.3	83	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.66629	-70.01746	40.66387	-70.09209	48	5	E	<2	B2	0.5-1	Clear	None	4.7	20	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.66387	-70.09209	40.66059	-70.19211	48	0	SSW	<2	B2	0.5-1	Clear	None	4.5	262	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.66059	-70.19211	40.65172	-70.20618	48	0	SSW	<2	B2	0.5-1	Clear	None	4.5	258	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	09:00	40.65172	-70.20618	40.66026	-70.16714	50	8	SW	<2	B2	0.5-1	Clear	None	5.1	285	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	09:01	40.66026	-70.16714	40.66042	-70.16785	48	10	SW	<2	B2	0.5-1	Clear	None	5	268	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:01	09:05	40.66042	-70.16785	40.66031	-70.17493	48	10	SW	<2	B2	0.5-1	Clear	None	5	268	Silent	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:05	10:00	40.66031	-70.17493	40.65928	-70.26867	49	10	SW	<2	B2	0.5-1	Clear	None	4.8	256	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:33	40.65928	-70.26867	40.65865	-70.32803	49	10	SW	<2	B2	0.5-1	Clear	None	4.9	259	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:33	11:00	40.65865	-70.32803	40.65809	-70.37466	54	9	SW	<2	B2	>5	Clear	None	4.6	295	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	11:30	40.65809	-70.37466	40.65747	-70.42559	55	10	SW	<2	B2	>5	Clear	None	4.7	261	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:30	12:00	40.65747	-70.42559	40.66441	-70.39481	55	10	SW	<2	B2	>5	Clear	Moderate	4.6	263	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.66441	-70.39481	40.66609	-70.28654	55	7	SSE	<2	B2	>5	Clear	Severe	5.1	85	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.66609	-70.28654	40.66737	-70.17557	50	5	SSE	<2	B2	>5	Clear	Severe	4.9	86	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.66737	-70.17557	40.66843	-70.06653	48	5	SSE	<2	B2	>5	Clear	Severe	5.2	84	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:48	40.66843	-70.06653	40.67047	-70.01023	47	8	SSW	<2	B2	>5	Clear	Severe	4.9	79	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:48	15:53	40.67047	-70.01023	40.66973	-70.01884	47	10	SW	<2	B2	>5	Clear	Severe	5	275	Silent	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:53	16:00	40.66973	-70.01884	40.66955	-70.03102	48	11	SW	<2	B2	>5	Clear	Severe	4.6	269	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:51	40.66955	-70.03102	40.66878	-70.11974	47	12	SW	<2	B2	>5	Clear	Severe	4.7	272	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:51	17:00	40.66878	-70.11974	40.66858	-70.13551	46	11	SW	<2	B2	>5	Clear	Severe	4.9	269	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	40.66858	-70.13551	40.66740	-70.23842	45	10	S	<2	B2	>5	Clear	Severe	5	267	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:28	40.66740	-70.23842	40.66683	-70.28533	48	10	S	<2	B2	>5	Clear	Severe	4.6	266	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:28	18:30	40.66683	-70.28533	40.66675	-70.28956	48	10	S	<2	B2	>5	Clear	Severe	4.6	266	Silent	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:30	19:00	40.66675	-70.28956	40.67543	-70.32894	48	10	S	<2	B2	>5	Clear	Severe	4.6	262	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:01	40.67543	-70.32894	40.67539	-70.32818	50	10	S	<2	B2	>5	Clear	Severe	4	89	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:01	19:08	40.67539	-70.32818	40.67550	-70.31866	50	10	S	<2	B2	>5	Clear	Severe	4	89	Silent	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:08	20:00	40.67550	-70.31866	40.67631	-70.23051	50	10	S	<2	B2	>5	Clear	Severe	4	89	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:10	40.67631	-70.23051	40.67759	-70.10696	46	12	S	<2	B2	>5	Clear	Severe	4.8	88	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:10	22:00	40.67759	-70.10696	40.67835	-70.01944	45	10	S	<2	B2	>5	Clear	Severe	4.8	92	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	22:02	40.67835	-70.01944	40.67839	-70.01583	49	12	S	<2	B2	2-5	Clear	None	5	94	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:02	22:03	40.67839	-70.01583	40.67841	-70.01403	47	11	S	<2	B2	2-5	Clear	None	5.1	94	Silent	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:03	22:10	40.67841	-70.01403	40.67498	-70.00544	46	12	S	<2	B2	2-5	Clear	None	4.8	45.9	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:10	23:00	40.67498	-70.00544	40.66460	-70.07953	47	14	S	<2	B2	1-2	Clear	None	4	197	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:28	40.66460	-70.07953	40.66159	-70.12318	47	17	S	<2	B2	1-2	Clear	None	4.3	251	Full Power	N/A
2022-11-04	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:28	00:00	40.66159	-70.12318	40.66107	-70.17268	47	12	S	<2	B2	1-2	Clear	None	4.2	262	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	01:00	40.66104	-70.17713	40.66014	-70.27046	48	14	SW	<2	B2	0.5-1	Clear	None	4.3	265	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:00	01:35	40.66014	-70.27046	40.65947	-70.32906	50	14	SW	<2	B2	0.5-1	Clear	None	4.3	265	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	01:35	02:00	40.65947	-70.32906	40.66537	-70.31542	50	14	SW	<2	B2	0.5-1	Clear	None	4.3	265	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	02:00	02:30	40.66537	-70.31542	40.66452	-70.26344	52	14	SW	<2	B2	0.5-1	Clear	None	4.3	84	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	02:30	03:00	40.66452	-70.26344	40.65747	-70.29007	50	12	S	<2	B2	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	04:00	40.65747	-70.29007	40.65627	-70.39372	52	14	SSW	<2	B3	0.5-1	Clear	None	4.5	266	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:00	05:00	40.65627	-70.39372	40.65659	-70.38589	56	13	SSW	<2	B3	0.5-1	Clear	None	4.9	266	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.65659	-70.38589	40.65777	-70.28532	55	12	SSE	<2	B3	0.5-1	Clear	None	4.5	85	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.65777	-70.28532	40.63336	-70.29828	52	11	SSE	<2	B3	0.5-1	Clear	None	4.7	87	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	07:00	08:00	40.63336	-70.29828	40.59921	-70.38885	55	17	S	<2	B3	0.5-1	Clear	None	4.5	231	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:14	40.59921	-70.38885	40.60445	-70.38789	61	17	SSW	<2	B3	0.5-1	Clear	None	4.6	256	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:14	09:00	40.60445	-70.38789	40.60544	-70.30832	60	11	S	<2	B3	0.5-1	Clear	None	4.5	93	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	09:05	40.60544	-70.30832	40.60558	-70.29855	58	10	SSE	<2	B3	0.5-1	Clear	None	4.9	92	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:05	10:00	40.60558	-70.29855	40.60064	-70.37586	58	10	SSE	<2	B3	0.5-1	Clear	None	4.9	92	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	10:30	40.60064	-70.37586	40.60142	-70.42809	61	15	SW	<2	B3	0.5-1	Clear	None	4.8	261	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:30	10:58	40.60142	-70.42809	40.60828	-70.45447	61	12	SW	<2	B3	2-5	Clear	None	5	263	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	10:58	11:00	40.60828	-70.45447	40.60838	-70.44995	62	11	S	<2	B3	>5	Clear	None	4.3	89	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	11:11	40.60838	-70.44995	40.60860	-70.43173	62	11	S	<2	B3	>5	Clear	None	4.3	87	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:11	11:46	40.60860	-70.43173	40.60037	-70.46756	62	10	S	<2	B3	>5	Clear	None	4.8	88	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:46	11:51	40.60037	-70.46756	40.60021	-70.47714	63	14	SSW	<2	B3	>5	Clear	None	4.5	261	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:51	12:00	40.60021	-70.47714	40.60652	-70.48212	63	15	SW	<2	B3	>5	Clear	None	4.9	262	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:05	40.60652	-70.48212	40.60733	-70.47325	62	8	SSW	<2	B3	>5	Clear	Severe	5	81	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:05	12:28	40.60733	-70.47325	40.60769	-70.43497	62	10	S	<2	B3	>5	Clear	Severe	4.5	87	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:28	12:52	40.60769	-70.43497	40.59930	-70.45223	61	9	S	<2	B3	>5	Clear	Severe	4.4	86	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:52	13:00	40.59930	-70.45223	40.59917	-70.46377	62	14	SSW	<2	B3	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:20	40.59917	-70.46377	40.59880	-70.49506	62	14	SSW	<2	B3	>5	Clear	Severe	4.6	265	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:20	13:37	40.59880	-70.49506	40.60529	-70.49373	63	14	SSW	<2	B3	>5	Clear	Severe	3.6	264	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:37	14:00	40.60529	-70.49373	40.60578	-70.45649	63	12	S	<2	B3	>5	Clear	Severe	4.6	95	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:03	40.60578	-70.45649	40.60588	-70.44920	61	13	S	<2	B3	>5	Clear	Severe	4.8	88	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:03	14:55	40.60588	-70.44920	40.60621	-70.49422	62	13	S	<2	B3	>5	Clear	Severe	4.6	86	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:55	15:00	40.60621	-70.49422	40.60635	-70.48596	62	11	S	<2	B3	>5	Clear	Severe	4.8	83	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.60635	-70.48596	40.60765	-70.38569	62	12	SSW	<2	B3	>5	Clear	Severe	4.7	84	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	16:53	40.60765	-70.38569	40.60858	-70.29833	60	13	S	<2	B3	>5	Clear	Severe	5	81	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:53	17:00	40.60858	-70.29833	40.60644	-70.28816	57	12	S	<2	B3	>5	Clear	Severe	4.8	84	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:10	40.60644	-70.28816	40.60149	-70.30096	58	12	S	<2	B3	>5	Clear	Severe	4.5	221	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:10	18:00	40.60149	-70.30096	40.60038	-70.38911	58	13	SSW	<2	B3	>5	Clear	Severe	4.8	269	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.60038	-70.38911	40.59901	-70.49425	61	14	SSW	<2	B3	>5	Clear	Severe	4.8	264	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	19:02	40.59901	-70.49425	40.59898	-70.49642	61	14	SSW	<2	B3	>5	Clear	Severe	4.8	264	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:02	19:40	40.59898	-70.49642	40.60878	-70.45925	61	14	SSW	<2	B3	>5	Clear	Severe	4.8	264	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:40	20:00	40.60878	-70.45925	40.60918	-70.42538	62	13	S	<2	B3	>5	Clear	Severe	4.3	89	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	20:12	40.60918	-70.42538	40.60930	-70.40604	60	12	S	<2	B3	>5	Clear	Severe	4.7	91	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:12	20:51	40.60930	-70.40604	40.60221	-70.44992	60	12	S	<2	B3	>5	Clear	Severe	4.7	91	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:51	21:00	40.60221	-70.44992	40.60203	-70.46327	62	14	S	<2	B3	>5	Clear	Severe	4.5	259	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	21:09	40.60203	-70.46327	40.60262	-70.47739	62	12	S	<2	B3	>5	Clear	Severe	4.7	259	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:09	21:17	40.60262	-70.47739	40.60248	-70.49142	62	13	S	<2	B3	>5	Clear	Severe	4.9	259	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:17	21:46	40.60248	-70.49142	40.60810	-70.49472	63	13	S	<2	B3	>5	Clear	Severe	4.7	260	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:46	21:59	40.60810	-70.49472	40.60835	-70.47045	62	13	S	<2	B3	>5	Clear	Severe	4.7	93	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:59	22:10	40.60835	-70.47045	40.60858	-70.45318	62	14	S	<2	B3	2-5	Clear	None	4.7	91	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:10	22:14	40.60858	-70.45318	40.60866	-70.44661	62	14	S	<2	B3	2-5	Clear	None	4.7	91	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:14	23:00	40.60866	-70.44661	40.60950	-70.36954	62	14	S	<2	B3	1-2	Clear	None	4.8	92	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	23:42	40.60950	-70.36954	40.61051	-70.29943	59	12	S	<2	B3	1-2	Clear	None	4.6	92	Full Power	N/A
2022-11-05	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:42	00:00	40.61051	-70.29943	40.61038	-70.28484	60	16	S	<2	B3	1-2	Clear	None	4.2	91	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:00	00:06	40.60566	-70.29178	40.60542	-70.30224	58	14	S	<2	B4	0.5-1	Clear	None	4.6	262	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:06	00:59	40.60542	-70.30224	40.60440	-70.39018	58	14	S	<2	B4	0.5-1	Clear	None	4.6	262	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Mike, Romario	RPS	00:59	02:00	40.60440	-70.39018	40.60328	-70.47405	58	10	S	<2	B4	0.5-1	Clear	None	4.6	264	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	02:00	03:02	40.60328	-70.47405	40.60750	-70.48562	62	9	S	<2	B4	0.5-1	Clear	None	4.7	351	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	03:02	04:00	40.60750	-70.48562	40.60873	-70.38312	62	13	SSE	<2	B4	0.5-1	Clear	None	5	87	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	04:00	04:59	40.60873	-70.38312	40.60204	-70.29377	60	13	SSE	<2	B4	0.5-1	Clear	None	4.8	85	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	04:59	05:00	40.60204	-70.29377	40.60168	-70.29534	57	12	S	<2	B4	0.5-1	Clear	None	4.9	265	Silent	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	05:00	05:03	40.60168	-70.29534	40.60166	-70.30075	57	12	S	<2	B4	0.5-1	Clear	None	4.9	265	Silent	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	05:03	06:00	40.60166	-70.30075	40.60048	-70.39673	58	12	S	<2	B4	0.5-1	Clear	None	4.8	264	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	06:00	07:00	40.60048	-70.39673	40.59908	-70.49506	61	12	S	<2	B4	0.5-1	Clear	None	4.7	263	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:00	07:13	40.59908	-70.49506	40.60534	-70.50149	63	12	SSW	<2	B4	0.5-1	Clear	None	4.5	262	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:13	07:18	40.60534	-70.50149	40.60479	-70.49388	63	13	SSE	<2	B4	0.5-1	Clear	None	4	105	Silent	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:18	07:39	40.60479	-70.49388	40.60515	-70.45952	62	14	SSE	<2	B4	0.5-1	Clear	None	4.5	87	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	07:39	08:00	40.60515	-70.45952	40.59963	-70.47852	62	14	SSE	<2	B4	0.5-1	Clear	None	4.4	89	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	08:19	40.59963	-70.47852	40.60469	-70.48941	64	16	SSW	<2	B4	0.5-1	Clear	None	5.1	260	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:19	08:37	40.60469	-70.48941	40.60502	-70.45773	63	12	SSE	<2	B4	0.5-1	Clear	None	4.6	90	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:37	09:00	40.60502	-70.45773	40.59602	-70.47256	62	12	SSE	<2	B4	0.5-1	Clear	None	4.6	89	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	09:00	10:00	40.59602	-70.47256	40.59936	-70.43667	64	15	SSW	<2	B4	0.5-1	Clear	None	5	246	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	10:00	11:00	40.59936	-70.43667	40.60030	-70.33515	62	16	SSE	<2	B4	0.5-1	Clear	None	4.4	94	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	11:00	12:00	40.60030	-70.33515	40.61933	-70.32447	62	16	SSE	<2	B4	>5	Clear	None	4.5	90	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	40.61933	-70.32447	40.61819	-70.42181	58	12	S	<2	B4	>5	Clear	Severe	4.4	262	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.61819	-70.42181	40.61816	-70.48515	60	14	SSW	<2	B4	>5	Clear	Severe	4.5	263	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:18	40.61816	-70.48515	40.61220	-70.46208	61	15	S	<2	B4	>5	Cloudy	Slight	4.4	78	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:18	15:00	40.61220	-70.46208	40.61131	-70.44493	61	22	SSW	<2	B5	>5	Precipitation	None	4.4	239	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	40.61131	-70.44493	40.62033	-70.39337	61	15	SSW	<2	B5	>5	Cloudy	Moderate	4.7	267	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	40.62033	-70.39337	40.60982	-70.45619	59	14	SSW	<2	B4	>5	Cloudy	Severe	4.5	86	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	17:24	40.60982	-70.45619	40.61497	-70.49166	59	16	SSW	<2	B4	>5	Cloudy	Severe	4.9	270	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:24	18:00	40.61497	-70.49166	40.61118	-70.46915	62	16	SSW	<2	B4	>5	Cloudy	Severe	4.6	66	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.61118	-70.46915	40.61920	-70.42123	61	20	SSW	<2	B4	>5	Cloudy	Severe	5.2	272	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	19:00	19:32	40.61920	-70.42123	40.61979	-70.37091	59	15	SW	<2	B4	>5	Cloudy	Severe	4.4	86	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:32	20:01	40.61979	-70.37091	40.62021	-70.32695	59	15	SW	<2	B4	>5	Cloudy	Severe	4.4	86	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:01	20:47	40.62021	-70.32695	40.60023	-70.30232	59	15	SW	<2	B4	>5	Cloudy	Severe	4.4	89	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:47	21:00	40.60023	-70.30232	40.59992	-70.32474	58	15	S	<2	B4	>5	Cloudy	Severe	4.9	259	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	40.59992	-70.32474	40.59877	-70.42924	58	18	S	<2	B4	>5	Cloudy	None	4.7	259	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:00	22:38	40.59877	-70.42924	40.59793	-70.49548	62	19	S	<2	B4	2-5	Cloudy	None	4.7	260	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	22:38	23:00	40.59793	-70.49548	40.61192	-70.48735	62	19	S	<2	B4	1-2	Cloudy	None	4.7	261	Full Power	N/A
2022-11-06	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	23:00	00:00	40.61192	-70.48735	40.61240	-70.40580	62	17	S	<2	B4	1-2	Cloudy	None	4.6	91	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	00:00	00:43	40.61240	-70.40580	40.62024	-70.30923	58	14	S	<2	B4	1-2	Cloudy	None	4.9	92	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle; Ramsarran, Celine	RPS	00:43	00:58	40.62024	-70.30923	40.61578	-70.28865	56	19	S	<2	B4	1-2	Precipitation	None	4.8	93	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	00:58	02:00	40.61578	-70.28865	40.61938	-70.37876	58	19	S	<2	B4	1-2	Precipitation	None	4.3	202	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	02:00	03:00	40.61938	-70.37876	40.61413	-70.47376	59	19	S	<2	B4	1-2	Precipitation	None	4.5	283	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:00	03:22	40.61413	-70.47376	40.61906	-70.47993	62	16	SSW	<2	B4	0.5-1	Cloudy	None	4.7	266	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Uribe, Amaranta	RPS	03:22	04:01	40.61906	-70.47993	40.61983	-70.41627	61	10	SSE	<2	B4	0.5-1	Cloudy	None	4.5	80	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario; Uribe, Amaranta	RPS	04:01	05:00	40.61983	-70.41627	40.62098	-70.32262	60	12	S	<2	B4	0.5-1	Cloudy	None	4.1	83	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	05:11	40.62098	-70.32262	40.62122	-70.30206	57	14	S	<2	B4	0.5-1	Clear	None	4.5	85	Full Power	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:11	06:00	40.62122	-70.30206	40.61143	-70.28589	56	16	S	<2	B4	0.5-1	Clear	None	4.6	85	Silent	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:00	06:04	40.61143	-70.28589	40.61189	-70.28579	57	13	SSW	<2	B4	0.5-1	Clear	None	0.3	129	Deploying/Retrieving	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:04	07:00	40.61189	-70.28579	40.69418	-70.34628	56	13	SSW	<2	B4	0.5-1	Clear	None	0.8	131	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	40.69418	-70.34628	40.80562	-70.43466	51	12	SW	<2	B4	0.5-1	Clear	None	7.6	328	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	08:00	09:00	40.80562	-70.43466	40.91719	-70.51561	53	11	WSW	<2	B4	0.5-1	Clear	None	7.2	328	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	40.91719	-70.51561	41.02973	-70.59153	51	11	SW	<2	B4	0.5-1	Clear	None	7.9	328	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	10:40	41.02973	-70.59153	41.10514	-70.64444	45	12	SW	<2	B4	0.5-1	Clear	None	7.8	328	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:40	11:00	41.10514	-70.64444	41.13879	-70.67422	45	16	WSW	<2	B4	2-5	Clear	None	7.4	320	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	12:00	41.13879	-70.67422	41.24413	-70.75131	45	15	WSW	<2	B4	>5	Clear	None	7.3	320	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.24413	-70.75131	41.32633	-70.85138	28	16	SW	<2	B4	>5	Cloudy	None	7.6	318	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.32633	-70.85138	41.41262	-70.80668	21	16	SW	<2	B4	>5	Cloudy	None	7.2	325	Transit	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.41262	-70.80668	41.46569	-70.70636	21	13	SSW	<2	B4	>5	Cloudy	None	5.3	45	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	16:00	41.46569	-70.70636	41.44453	-70.74724	24	20	SW	<2	B4	2-5	Fog	Slight	4.9	51	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	16:00	17:00	41.44453	-70.74724	41.43424	-70.75859	25	22	SW	<2	B4	2-5	Fog	Severe	4.1	227	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	17:00	18:00	41.43424	-70.75859	41.43733	-70.77055	18	15	SW	<2	B4	2-5	Fog	Severe	0.9	133	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	41.43733	-70.77055	41.42034	-70.78064	23	16	SSW	<2	B4	2-5	Fog	Severe	1.3	61	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:00	20:00	41.42034	-70.78064	41.43504	-70.75388	23	16	SSW	<2	B4	2-5	Fog	Severe	1.3	61	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:00	21:00	41.43504	-70.75388	41.43829	-70.75181	20	17	SSW	<2	B4	2-5	Fog	Severe	1.2	131	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	21:00	22:00	41.43829	-70.75181	41.46349	-70.70965	21	15	WSW	<2	B4	2-5	Fog	Severe	0.1	67	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	22:00	23:00	41.46349	-70.70965	41.49006	-70.65899	21	9	WSW	<2	B3	1-2	Fog	None	3.2	51	Standby	N/A
2022-11-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.49006	-70.65899	41.49133	-70.65331	24	9	WSW	<2	B3	1-2	Fog	None	0.8	240	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:00	01:00	41.49133	-70.65331	41.47860	-70.68578	26	12	W	<2	B3	0.5-1	Clear	None	1.2	240	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	01:00	02:00	41.47860	-70.68578	41.46246	-70.71272	26	18	NW	<2	B3	0.5-1	Clear	None	1.4	240	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	02:00	03:01	41.46246	-70.71272	41.43559	-70.74934	20	19	NW	<2	B3	0.5-1	Clear	None	2.2	232	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:01	04:00	41.43559	-70.74934	41.44791	-70.71512	18	17	NNW	<2	B3	0.5-1	Clear	None	1.7	232	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.44791	-70.71512	41.46990	-70.69755	15	24	NW	<2	B4	0.5-1	Clear	None	2.2	30	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	05:00	06:01	41.46990	-70.69755	41.42155	-70.78978	23	23	NW	<2	B4	0.5-1	Clear	None	4.4	269	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:01	07:00	41.42155	-70.78978	41.43307	-70.76538	16	22	NW	<2	B4	0.5-1	Clear	None	4.9	248	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	07:00	08:00	41.43307	-70.76538	41.45838	-70.72137	21	20	NNW	<2	B4	0.5-1	Clear	None	2	40	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	08:00	09:00	41.45838	-70.72137	41.48574	-70.67550	18	20	NNW	<2	B4	0.5-1	Clear	None	2.5	40	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.48574	-70.67550	41.43590	-70.75539	25	25	NNW	<2	B4	0.5-1	Clear	None	3.2	48	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:00	41.43590	-70.75539	41.45537	-70.72872	20	20	NW	<2	B4	0.5-1	Clear	None	4.4	233	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	12:00	41.45537	-70.72872	41.45879	-70.71711	21	25	N	<2	B4	0.5-1	Clear	None	5.5	50	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.45879	-70.71711	41.43400	-70.79670	20	20	NW	<2	B5	>5	Clear	Severe	2.4	233	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	13:11	41.43400	-70.79670	41.42960	-70.82180	30	26	NNW	<2	B5	>5	Clear	Severe	5.9	255	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:11	14:00	41.42960	-70.82180	41.49743	-70.83811	16	28	NNW	<2	B5	>5	Clear	Severe	5.5	280	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.49743	-70.83811	41.59482	-70.88697	17	33	NNW	<2	B6	>5	Clear	Severe	7	5	Standby	N/A
2022-11-08	*GO Pursuit*	HRG	Visual	Klein, Michelle	RPS	15:00	15:05	41.59482	-70.88697	41.62125	-70.91359	10	29	WSW	<2	B5	>5	Clear	Severe	4.2	336	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:22	18:00	41.62138	-70.91353	41.6018	-70.89127	12	12	SSE	<2	B2	>5	Clear	None	0.4	162	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	41.6018	-70.89127	41.5118	-70.84337	10.6	6	ESE	<2	B2	>5	Clear	None	7	204	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	20:00	41.5118	-70.84337	41.41646	-70.84203	18.2	13	WNW	<2	B2	>5	Clear	Moderate	4.2	204	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	21:00	41.41646	-70.84203	41.29992	-70.82137	14	8	WNW	<2	B2	>5	Clear	Moderate	7.2	202	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:56	41.29992	-70.82137	41.2068	-70.69708	17.6	4	WNW	<2	B2	>5	Clear	Moderate	8.7	126	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:56	22:00	41.2068	-70.69708	41.20038	-70.6897	19	6	W	<2	B2	2-5	Clear	None	8.3	135	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	22:59	41.20038	-70.6897	41.0939	-70.57412	19	6	W	<2	B2	1-2	Clear	None	8.3	135	Transit	N/A
2022-11-14	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	22:59	00:00	41.0939	-70.57412	40.98414	-70.46351	41.4	1	NNE	<2	B2	0.5-1	Clear	None	8.2	135	Transit	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	01:02	40.9683	-70.44726	40.8733	-70.34967	43.8	0	N	<2	B2	0.5-1	Clear	None	8.2	135	Transit	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:02	02:00	40.8733	-70.34967	40.77415	-70.2412	46	7	NE	2-4	B4	0.5-1	Clear	None	8.1	135	Transit	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:00	40.77415	-70.2412	40.67802	-70.12943	44.5	4	ENE	2-4	B4	0.5-1	Clear	None	8	133	Transit	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:00	04:00	40.67802	-70.12943	40.64851	-70.05567	45.7	6	NE	2-4	B4	0.5-1	Clear	None	7.2	126	Transit	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario; Toxtle, Miguel	RPS	04:00	05:00	40.64851	-70.05567	40.65029	-70.07389	48.7	9	N	2-4	B4	0.5-1	Clear	None	0.6	215	Deploying/Retrieving	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	05:00	06:00	40.65029	-70.07389	40.62746	-70.00946	48.7	7	NNW	<2	B3	0.5-1	Cloudy	None	3	233	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Toxtle, Miguel	RPS	06:00	07:00	40.62746	-70.00946	40.62347	-70.10451	24.6	7	NW	<2	B3	0.5-1	Clear	None	4.1	215	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Toxtle, Miguel	RPS	07:00	08:00	40.62347	-70.10451	40.62031	-70.20318	53	7	WNW	<2	B3	0.5-1	Clear	None	4.2	263	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis; Mike, Romario	RPS	08:00	09:00	40.62031	-70.20318	40.61522	-70.30571	54.2	6	WSW	<2	B3	0.5-1	Clear	None	4.7	262	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario; Toxtle, Miguel	RPS	09:00	10:00	40.61522	-70.30571	40.61224	-70.41057	57.3	3	NNW	<2	B3	0.5-1	Cloudy	None	4.9	264	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario; Toxtle, Miguel	RPS	10:00	10:11	40.61224	-70.41057	40.61206	-70.42995	60.6	3	NNW	<2	B3	0.5-1	Cloudy	None	4.9	268	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario; Toxtle, Miguel	RPS	10:11	11:11	40.61206	-70.42995	40.61702	-70.45565	60	3	NNW	<2	B3	0.5-1	Cloudy	None	4.8	268	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Mike, Romario; Toxtle, Miguel	RPS	11:11	11:32	40.61702	-70.45565	40.61743	-70.41968	60	6	NNW	<2	B3	1-2	Cloudy	None	4	268	Soft Start	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	11:32	12:00	40.61743	-70.41968	40.61797	-70.37456	60	6	NNW	<2	B3	2-5	Cloudy	None	4	310	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	12:01	40.61797	-70.37456	40.61798	-70.3697	58.7	10	NE	<2	B3	>5	Cloudy	None	4.4	82	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:01	12:44	40.61798	-70.3697	40.61892	-70.29876	60	7	NNW	<2	B3	>5	Cloudy	None	4	310	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:44	13:00	40.61892	-70.29876	40.61231	-70.3005	56	10	NE	<2	B3	>5	Cloudy	None	4.5	80	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	40.61231	-70.3005	40.61119	-70.39629	57	9	NW	<2	B3	>5	Cloudy	None	4.6	271	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	40.61119	-70.39629	40.61008	-70.50606	60	7	NNW	<2	B3	>5	Cloudy	Slight	4.8	265	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:00	40.61008	-70.50606	40.61825	-70.4273	62.2	12	NNW	<2	B3	>5	Cloudy	Moderate	4.2	315	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	40.61825	-70.4273	40.61975	-70.32454	59.8	15	ENE	<2	B3	>5	Cloudy	Severe	4.5	84	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:33	40.61975	-70.32454	40.61457	-70.29429	58.7	14	NE	<2	B3	>5	Cloudy	Slight	4.5	83	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:33	17:38	40.61457	-70.29429	40.61453	-70.30261	58.7	14	NE	<2	B3	>5	Cloudy	Slight	4.7	264	Silent	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:38	18:00	40.61453	-70.30261	40.61399	-70.33848	56.7	7	ENE	<2	B3	>5	Cloudy	Slight	4.9	264	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	40.61399	-70.33848	40.6128	-70.44328	58.5	7	NNE	<2	B3	>5	Cloudy	Slight	4.7	266	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	19:22	40.6128	-70.44328	40.61222	-70.4815	61.5	8	NE	<2	B3	>5	Cloudy	Slight	4.9	270	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:22	19:24	40.61222	-70.4815	40.61207	-70.48484	62.7	10	NE	<2	B3	>5	Cloudy	Slight	4.6	268	Silent	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:24	20:00	40.61207	-70.48484	40.62054	-70.49712	62.7	10	NE	<2	B3	>5	Cloudy	Slight	4.8	267	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	20:04	40.62054	-70.49712	40.61428	-70.48973	62.4	16	ENE	<2	B3	>5	Cloudy	Slight	4.2	149	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:04	20:10	40.61428	-70.48973	40.61423	-70.48045	62.4	19	ENE	<2	B3	>5	Cloudy	Slight	4.1	85	Silent	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:10	21:00	40.61423	-70.48045	40.61529	-70.40244	62.1	19	ENE	<2	B3	>5	Cloudy	Slight	4.3	79	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:47	40.61529	-70.40244	40.61618	-70.32534	59.8	19	NE	<2	B3	>5	Cloudy	Slight	4.4	80	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	21:47	22:00	40.61618	-70.32534	40.6166	-70.30589	57.7	23	NE	<2	B3	2-5	Cloudy	None	4	78	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	22:00	22:05	40.6166	-70.30589	40.61679	-70.29882	57.7	25	ENE	<2	B3	1-2	Cloudy	None	4	78	Full power	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Uribe, Amaranta	RPS	22:05	23:00	40.61679	-70.29882	40.61151	-70.30768	56.9	20	ENE	<2	B3	0.5-1	Cloudy	None	3.8	76	Standby	N/A
2022-11-15	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	40.61151	-70.30768	40.61577	-70.28996	56.9	25	ENE	<2	B3	0.5-1	Cloudy	None	3.8	81	Deploying/Retrieving	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	00:16	40.62020	-70.28839	40.64118	-70.29709	55	24	ENE	<2	B4	0.5-1	Clear	None	5.4	6	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	00:16	01:00	40.64118	-70.29709	40.72696	-70.36439	26	23	SW	<2	B4	2-5	Cloudy	None	2.1	238	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:00	02:00	40.72696	-70.36439	40.84575	-70.45880	50	17	ENE	2-4	B4	0.5-1	Cloudy	None	8.4	333	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:00	40.84575	-70.45880	40.96819	-70.55342	53	23	NE	2-4	B4	0.5-1	Cloudy	None	8.2	333	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:00	04:00	40.96819	-70.55342	41.08489	-70.63996	51	23	NE	2-4	B4	0.5-1	Cloudy	None	8.2	333	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.08489	-70.63996	41.20835	-70.73063	45	22	NE	2-4	B5	0.5-1	Precipitation	None	8.4	333	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	05:00	06:00	41.20835	-70.73063	41.30918	-70.83342	30	24	NE	2-4	B5	0.5-1	Precipitation	None	8	335	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:00	07:00	41.30918	-70.83342	41.38980	-70.84086	21	14	NNE	2-4	B5	0.5-1	Precipitation	None	8	312	Transit	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	07:00	08:00	41.38980	-70.84086	41.42666	-70.78204	27	32	ENE	2-4	B5	0.5-1	Precipitation	None	3.4	47	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	08:00	09:00	41.42666	-70.78204	41.46549	-70.71921	21	27	ENE	2-4	B5	0.5-1	Precipitation	None	3.5	51	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.46549	-70.71921	41.44583	-70.75074	21	26	E	2-4	B5	0.5-1	Precipitation	None	3.5	65	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:00	41.44583	-70.75074	41.42498	-70.78655	21	27	E	2-4	B5	0.5-1	Fog	None	2.4	68	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	12:00	41.42498	-70.78655	41.44665	-70.74198	21	27	E	<2	B5	0.5-1	Fog	None	2.5	68	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.44665	-70.74198	41.46634	-70.70547	26	20	SE	<2	B5	1-2	Fog	None	2.5	68	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.46634	-70.70547	41.45939	-70.72126	22	25	SE	<2	B6	0.5-1	Precipitation	None	2	61	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:56	41.45939	-70.72126	41.41343	-70.80786	20	26	SE	<2	B6	1-2	Precipitation	None	5.7	222	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:56	15:00	41.41343	-70.80786	41.41031	-70.81390	20	30	SE	<2	B4	1-2	Precipitation	None	5.7	222	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:40	41.41031	-70.81390	41.46504	-70.70618	20	30	SE	<2	B4	1-2	Precipitation	None	5.7	222	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:40	18:00	41.46504	-70.70618	41.47333	-70.70073	20	35	NE	<2	B4	0.5-1	Fog	None	5	222	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	41.47333	-70.70073	41.45506	-70.72301	23	28	NE	<2	B4	2-5	Cloudy	None	0.9	230	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	20:00	41.45506	-70.72301	41.43454	-70.76140	21	25	WSW	<2	B4	2-5	Cloudy	None	2	230	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	21:00	41.43454	-70.76140	41.41501	-70.79282	24	29	W	<2	B4	2-5	Cloudy	None	2	230	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:55	41.41501	-70.79282	41.43593	-70.74690	23	27	W	<2	B4	2-5	Cloudy	None	2.2	52	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:55	22:00	41.43593	-70.74690	41.43974	-70.73964	23	29	W	<2	B4	0.5-1	Cloudy	None	2.2	46	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.43974	-70.73964	41.47224	-70.69266	23	29	W	<2	B4	0.5-1	Cloudy	None	2.2	46	Standby	N/A
2022-11-16	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	23:00	00:00	41.47224	-70.69266	41.47541	-70.68944	22	20	WNW	<2	B4	0.5-1	Cloudy	None	2.6	30	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	00:00	41.47541	-70.68944	41.47541	-70.68944	20	23	WNW	<2	B4	0.5-1	Cloudy	None	4.1	260	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	01:00	41.47410	-70.69464	41.43708	-70.76608	24	25	WNW	<2	B4	0.5-1	Cloudy	None	4.4	240	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:00	02:00	41.43708	-70.76608	41.44400	-70.74133	22	24	WNW	2-4	B4	0.5-1	Cloudy	None	3.9	246	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:00	41.44400	-70.74133	41.47712	-70.68530	16	20	WNW	2-4	B4	0.5-1	Cloudy	None	3.1	45	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:00	04:00	41.47712	-70.68530	41.47039	-70.70048	24	16	W	2-4	B4	0.5-1	Cloudy	None	3.1	40	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.47039	-70.70048	41.44518	-70.74664	23	20	W	<2	B5	0.5-1	Clear	None	2.8	235	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	05:00	06:01	41.44518	-70.74664	41.46624	-70.71638	26	21	N	2-4	B5	0.5-1	Clear	None	2.7	240	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:01	07:00	41.46624	-70.71638	41.47903	-70.68332	22	11	NW	2-4	B5	0.5-1	Cloudy	None	5.7	45	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	07:00	08:00	41.47903	-70.68332	41.45361	-70.73466	24	15	WNW	<2	B4	0.5-1	Cloudy	None	2.6	236	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	08:00	09:00	41.45361	-70.73466	41.43582	-70.76297	27	14	NNE	<2	B4	0.5-1	Cloudy	None	3.1	230	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.43582	-70.76297	41.48474	-70.67637	25	10	NNW	<2	B4	0.5-1	Cloudy	None	6.6	45	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:00	41.48474	-70.67637	41.45670	-70.72769	26	14	NNW	<2	B4	0.5-1	Cloudy	None	3.8	234	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	11:06	41.45670	-70.72769	41.45317	-70.73341	21	12	W	<2	B4	0.5-1	Cloudy	None	3.5	230	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:06	12:00	41.45317	-70.73341	41.42081	-70.78446	21	16	W	<2	B4	0.5-1	Cloudy	None	3.8	230	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.42081	-70.78446	41.45850	-70.71845	16	13	WNW	<2	B4	>5	Cloudy	None	3.7	42	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.45850	-70.71845	41.47089	-70.69202	19	10	WNW	<2	B3	>5	Cloudy	Moderate	3.6	48	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	15:00	41.47089	-70.69202	41.42669	-70.77155	21	22	W	<2	B4	>5	Cloudy	None	5	222	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:00	41.42669	-70.77155	41.44314	-70.74469	21	22	W	<2	B4	>5	Cloudy	None	3.7	45	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	18:00	41.44314	-70.74469	41.49544	-70.63988	21	22	W	<2	B4	>5	Cloudy	None	3.7	45	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	41.49544	-70.63988	41.48704	-70.67622	27	21	W	<2	B4	>5	Cloudy	None	2.3	248	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	20:00	41.48704	-70.67622	41.47274	-70.70800	24	24	W	<2	B4	>5	Clear	Slight	2	240	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	21:00	41.47274	-70.70800	41.45261	-70.74541	21	22	W	<2	B4	>5	Clear	Slight	1.9	239	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:52	41.45261	-70.74541	41.43282	-70.78056	21	25	WNW	<2	B4	>5	Clear	Slight	1.8	237	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:52	22:00	41.43282	-70.78056	41.42983	-70.78539	21	25	WNW	<2	B4	2-5	Clear	None	1.8	237	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.42983	-70.78539	41.41589	-70.81155	21	25	W	<2	B4	1-2	Clear	None	1.8	237	Standby	N/A
2022-11-17	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	23:00	00:00	41.41589	-70.81155	41.45280	-70.74611	22	22	W	<2	B4	0.5-1	Clear	None	4.2	42	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	00:00	41.45280	-70.74611	41.45280	-70.74611	22	22	W	<2	B4	0.5-1	Clear	None	3.4	46	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	01:00	41.45388	-70.74386	41.47900	-70.68756	27	20	W	<2	B4	0.5-1	Clear	None	3.2	48	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:00	02:00	41.47900	-70.68756	41.46505	-70.71096	27	27	WNW	<2	B4	0.5-1	Clear	None	2.2	51	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:00	41.46505	-70.71096	41.43245	-70.77970	21	30	W	<2	B4	0.5-1	Clear	None	4.4	250	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:00	04:00	41.43245	-70.77970	41.45998	-70.72612	21	20	WNW	<2	B4	0.5-1	Clear	None	2	45	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.45998	-70.72612	41.48138	-70.68282	20	16	WNW	<2	B4	0.5-1	Clear	None	3.2	45	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	05:00	06:00	41.48138	-70.68282	41.45943	-70.72594	26	28	W	<2	B4	0.5-1	Clear	None	2.7	239	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:00	07:00	41.45943	-70.72594	41.44036	-70.76212	22	28	W	<2	B4	0.5-1	Clear	None	2.4	240	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	07:00	08:00	41.44036	-70.76212	41.46460	-70.71806	25	23	W	<2	B4	0.5-1	Clear	None	1.7	240	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	08:00	09:00	41.46460	-70.71806	41.48771	-70.66636	21	27	WNW	<2	B4	0.5-1	Clear	None	6.1	50	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.48771	-70.66636	41.47180	-70.69943	26	27	W	<2	B4	0.5-1	Clear	None	1.4	244	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:00	41.47180	-70.69943	41.44843	-70.74433	24	18	W	<2	B4	0.5-1	Clear	None	2.3	235	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	11:05	41.44843	-70.74433	41.44654	-70.74890	27	18	W	<2	B4	0.5-1	Clear	None	2.9	241	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:05	12:00	41.44654	-70.74890	41.42099	-70.78640	26	16	W	<2	B4	0.5-1	Clear	None	3	241	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.42099	-70.78640	41.46193	-70.71372	18	17	WNW	<2	B4	>5	Clear	None	4.2	42	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.46193	-70.71372	41.45652	-70.71042	20	18	WNW	<2	B4	>5	Clear	Severe	3.9	50	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:58	41.45652	-70.71042	41.42086	-70.78534	17	16	S	<2	B4	>5	Cloudy	None	4.4	237	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:58	15:59	41.42086	-70.78534	41.43676	-70.75399	17	16	S	<2	B4	>5	Cloudy	None	4.4	237	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:59	17:00	41.43676	-70.75399	41.47185	-70.69278	16	20	S	<2	B4	>5	Cloudy	None	3.6	48	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.47185	-70.69278	41.49302	-70.66016	22	20	S	<2	B4	>5	Cloudy	None	3.7	48	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	41.49302	-70.66016	41.48074	-70.69262	26	25	WSW	2-4	B4	>5	Cloudy	None	2.2	241	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	20:00	41.48074	-70.69262	41.46469	-70.71388	21	28	WSW	2-4	B4	>5	Cloudy	None	1.3	226	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	21:01	41.46469	-70.71388	41.45030	-70.74087	21	25	W	2-4	B4	>5	Cloudy	Moderate	2.1	232	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:01	21:50	41.45030	-70.74087	41.44548	-70.74998	23	25	W	2-4	B4	>5	Cloudy	Moderate	1.6	230	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:50	23:00	41.44548	-70.74998	41.48315	-70.68349	22	30	WSW	2-4	B4	2-5	Cloudy	Moderate	5.1	50	Standby	N/A
2022-11-18	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	23:00	00:00	41.48315	-70.68349	41.46742	-70.73189	23	22	W	2-4	B4	0.5-1	Cloudy	None	2.1	249	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	00:00	41.46742	-70.73189	41.46742	-70.73189	23	20	W	2-4	B4	0.5-1	Cloudy	None	3	242	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	01:00	41.46657	-70.73412	41.45013	-70.75340	23	24	W	<2	B4	0.5-1	Cloudy	None	2.4	236	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:00	02:00	41.45013	-70.75340	41.47507	-70.69165	28	24	W	<2	B4	0.5-1	Cloudy	None	3.4	55	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:00	41.47507	-70.69165	41.48677	-70.66744	25	23	W	<2	B4	0.5-1	Cloudy	None	2.3	51	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:00	04:00	41.48677	-70.66744	41.49258	-70.65794	25	31	W	<2	B4	0.5-1	Cloudy	None	4	244	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.49258	-70.65794	41.49030	-70.57968	24	15	W	<2	B4	0.5-1	Clear	None	4	76	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	05:00	06:00	41.49030	-70.57968	41.46765	-70.48847	22	19	W	<2	B4	0.5-1	Clear	None	4.2	105	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:00	07:00	41.46765	-70.48847	41.47033	-70.49127	16	19	W	<2	B4	0.5-1	Clear	None	4.7	104	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	07:00	08:00	41.47033	-70.49127	41.48231	-70.55095	18	20	W	<2	B4	0.5-1	Clear	None	3	278	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	08:00	09:00	41.48231	-70.55095	41.49297	-70.58844	24	28	W	<2	B4	0.5-1	Clear	None	2.2	287	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.49297	-70.58844	41.46021	-70.45626	23	12	W	<2	B4	0.5-1	Clear	None	7.2	108	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:02	41.46021	-70.45626	41.46550	-70.48025	21	12	W	<2	B4	0.5-1	Clear	None	5.6	102	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:02	11:14	41.46550	-70.48025	41.46835	-70.49259	14	17	W	<2	B4	0.5-1	Clear	None	3	282	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:14	12:00	41.46835	-70.49259	41.48102	-70.54222	17	17	W	<2	B4	2-5	Clear	None	2.9	285	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.48102	-70.54222	41.49643	-70.61764	27	13	WNW	<2	B4	>5	Cloudy	None	3.6	287	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.49643	-70.61764	41.47091	-70.72148	23	13	WNW	<2	B4	>5	Clear	Moderate	4.4	256	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:53	41.47091	-70.72148	41.45892	-70.74922	22	11	W	<2	B3	>5	Clear	Severe	5	230	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:53	16:00	41.45892	-70.74922	41.48716	-70.69919	21	11	W	<2	B3	>5	Clear	Severe	2.9	50	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:01	41.48716	-70.69919	41.48253	-70.70663	19	10	W	<2	B3	>5	Clear	Severe	2.4	55	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:01	18:00	41.48253	-70.70663	41.49529	-70.67340	19	20	WSW	<2	B3	>5	Clear	Severe	2.6	61	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	18:00	19:00	41.49529	-70.67340	41.45774	-70.75113	26	24	WSW	<2	B3	>5	Clear	Moderate	4.7	233	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	19:00	20:00	41.45774	-70.75113	41.48877	-70.67105	32	26	WSW	<2	B3	>5	Clear	Moderate	3.2	228	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	20:00	21:01	41.48877	-70.67105	41.48549	-70.55196	25	18	SW	<2	B3	>5	Cloudy	None	5.4	65	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:01	21:46	41.48549	-70.55196	41.46303	-70.48288	25	20	SW	<2	B3	>5	Cloudy	None	4.6	65	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:46	22:02	41.46303	-70.48288	41.45697	-70.45219	25	20	SW	<2	B3	2-5	Cloudy	None	4.6	107	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:02	23:00	41.45697	-70.45219	41.47325	-70.50105	24	22	SW	<2	B3	1-2	Cloudy	None	3.6	148	Standby	N/A
2022-11-19	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	23:00	00:00	41.47325	-70.50105	41.48588	-70.54611	24	28	WSW	<2	B3	0.5-1	Cloudy	None	3.6	277	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	00:00	41.48588	-70.54611	41.48588	-70.54611	24	32	WSW	<2	B3	0.5-1	Cloudy	None	2	283	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Uribe, Amaranta	RPS	00:00	01:00	41.48684	-70.54826	41.45877	-70.45104	21	27	WSW	<2	B3	0.5-1	Cloudy	None	5	140	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	01:00	02:00	41.45877	-70.45104	41.47303	-70.50466	20	22	W	<2	B3	0.5-1	Clear	None	5	100	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	02:00	03:02	41.47303	-70.50466	41.49119	-70.59031	21	25	W	<2	B3	0.5-1	Clear	None	3.8	276	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	03:02	04:00	41.49119	-70.59031	41.48965	-70.57300	22	24	W	<2	B3	0.5-1	Clear	None	4.4	285	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	04:00	05:00	41.48965	-70.57300	41.46844	-70.50408	23	13	WNW	<2	B3	0.5-1	Clear	None	3.2	101	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	05:00	06:02	41.46844	-70.50408	41.46366	-70.47185	18	11	W	<2	B3	0.5-1	Clear	None	3.9	102	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	06:02	07:00	41.46366	-70.47185	41.48600	-70.55990	17	19	W	<2	B3	0.5-1	Clear	None	4.2	285	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	07:00	08:00	41.48600	-70.55990	41.48183	-70.54751	24	9	W	<2	B3	0.5-1	Clear	None	4.5	282	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	08:00	09:00	41.48183	-70.54751	41.45654	-70.43605	27	5	SSE	<2	B2	0.5-1	Clear	None	5.2	103	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	09:00	10:00	41.45654	-70.43605	41.46580	-70.47383	27	3	S	<2	B2	0.5-1	Clear	None	5.2	105	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	10:00	11:00	41.46580	-70.47383	41.47833	-70.52968	17	19	W	<2	B2	0.5-1	Clear	None	3.1	278	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:00	11:22	41.47833	-70.52968	41.48385	-70.55469	24	20	WNW	<2	B2	0.5-1	Precipitation	None	3.1	285	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	11:22	12:00	41.48385	-70.55469	41.49321	-70.58412	22	23	WNW	<2	B2	0.5-1	Cloudy	None	3.3	285	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	12:00	13:00	41.49321	-70.58412	41.46596	-70.48412	25	28	W	<2	B5	>5	Cloudy	None	1.7	280	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	13:00	14:00	41.46596	-70.48412	41.47273	-70.49598	16	26	W	<2	B5	>5	Cloudy	Slight	6.1	105	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Dalton, Tavis	RPS	14:00	14:49	41.47273	-70.49598	41.48659	-70.55456	18	32	WNW	<2	B5	>5	Clear	Severe	4.3	285	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:49	15:00	41.48659	-70.55456	41.49931	-70.60612	18	45	WNW	<2	B5	>5	Clear	Severe	5.6	286	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:50	41.49931	-70.60612	41.48470	-70.70971	18	45	WNW	<2	B5	>5	Clear	Severe	5.6	286	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:50	15:52	41.48470	-70.70971	41.48222	-70.71444	18	47	WNW	2-4	B5	>5	Clear	Severe	8.2	235	Transit	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:52	17:00	41.48222	-70.71444	41.46210	-70.84549	18	45	WNW	<2	B5	>5	Clear	Severe	5.6	286	Standby	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.46210	-70.84549	41.57865	-70.87762	18	46	WNW	2-4	B5	>5	Clear	Severe	8.2	3	Transit	N/A
2022-11-20	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:40	41.57865	-70.87762	41.62149	-70.91339	11	30	WNW	<2	B5	>5	Clear	Severe	7.4	329	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:48	19:00	41.62167	-70.91373	41.62951	-70.91536	10	7	S	<2	B1	>5	Clear	Severe	0.8	24	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.62951	-70.91536	41.53070	-70.84377	10	7	S	<2	B1	>5	Clear	Severe	0.8	24	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.53070	-70.84377	41.42520	-70.83737	18	18	N	<2	B3	>5	Clear	Severe	7	168	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:50	41.42520	-70.83737	41.34771	-70.87107	19	25	SW	<2	B3	>5	Clear	Severe	6.2	183	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:50	22:00	41.34771	-70.87107	41.33407	-70.86086	30	25	SW	<2	B3	2-5	Clear	None	5.6	160	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.33407	-70.86086	41.25172	-70.75570	30	25	SW	<2	B3	1-2	Clear	None	5.6	160	Transit	N/A
2022-11-22	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	00:00	41.25172	-70.75570	41.15961	-70.65823	27	20	SW	<2	B3	0.5-1	Clear	None	7.2	141	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:00	41.15961	-70.65823	41.15954	-70.65814	27	20	SW	<2	B3	0.5-1	Clear	None	7.2	141	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.15411	-70.65203	41.06553	-70.56022	42	20	SW	2-4	B4	0.3-0.5	Clear	None	6.7	140	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.06553	-70.56022	40.96751	-70.46419	46	20	SW	2-4	B4	0.3-0.5	Clear	None	7.3	144	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	40.96751	-70.46419	40.88712	-70.43116	45	23	SW	2-4	B4	0.3-0.5	Clear	None	7.7	144	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	40.88712	-70.43116	40.81413	-70.35073	49	17	WSW	2-4	B4	0.3-0.5	Clear	None	5.6	135	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	40.81413	-70.35073	40.74854	-70.33404	48	22	W	2-4	B4	0.3-0.5	Clear	None	5.1	223	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	40.74854	-70.33404	40.67900	-70.24629	49	14	WSW	2-4	B5	0.3-0.5	Clear	None	6	132	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	40.67900	-70.24629	40.64469	-70.31347	48	17	W	2-4	B4	0.3-0.5	Clear	None	5.7	130	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	07:46	40.64469	-70.31347	40.64888	-70.38772	55	22	W	2-4	B4	0.3-0.5	Clear	None	5	270	Transit	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:46	08:00	40.64888	-70.38772	40.65048	-70.40829	57	21	W	2-4	B4	0.3-0.5	Clear	None	5	271	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	40.65048	-70.40829	40.64500	-70.36798	58	22	W	2-4	B4	0.3-0.5	Clear	None	4.6	270	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	40.64500	-70.36798	40.64582	-70.25906	57	13	W	2-4	B4	0.3-0.5	Clear	None	5.5	90	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	10:45	40.64582	-70.25906	40.64726	-70.17779	52	14	W	2-4	B4	0.5-1	Clear	None	4.8	90	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:45	11:01	40.64726	-70.17779	40.64441	-70.17288	52	22	W	2-4	B4	1-2	Clear	None	4.9	90	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:01	11:12	40.64441	-70.17288	40.64384	-70.18767	51	24	W	2-4	B4	1-2	Clear	None	4	269	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:12	12:00	40.64384	-70.18767	40.63727	-70.25008	52	22	WNW	2-4	B4	>5	Clear	Slight	3.8	251	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.63727	-70.25008	40.62707	-70.33064	54	23	WNW	2-4	B4	>5	Clear	Severe	3.9	258	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	13:12	40.62707	-70.33064	40.62521	-70.34167	58	19	WNW	2-4	B4	>5	Clear	Severe	2.9	258	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:12	13:30	40.62521	-70.34167	40.62244	-70.33840	58	13	WNW	2-4	B4	>5	Clear	Severe	2	239	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:30	13:56	40.62244	-70.33840	40.62079	-70.35867	58	15	WNW	2-4	B4	>5	Clear	Severe	1.9	255	Deploying/Retrieving	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:56	14:57	40.62079	-70.35867	40.61391	-70.32227	59	16	W	2-4	B4	>5	Clear	Severe	2.6	270	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:57	16:00	40.61391	-70.32227	40.61095	-70.33996	59	16	W	2-4	B4	>5	Clear	Severe	4.6	270	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	40.61095	-70.33996	40.62437	-70.42880	59	20	WNW	<2	B4	>5	Clear	Severe	5.4	278	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	40.62437	-70.42880	40.61329	-70.45122	60	15	WNW	<2	B4	>5	Clear	Severe	4.4	281	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	40.61329	-70.45122	40.59864	-70.47392	62	19	NW	<2	B4	>5	Clear	Severe	4.9	272	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	19:36	40.59864	-70.47392	40.59588	-70.51521	63	19	W	<2	B4	>5	Clear	Severe	5.3	174	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:36	20:00	40.59588	-70.51521	40.59988	-70.53175	64	19	WNW	<2	B4	>5	Clear	Severe	2.7	291	Deploying/Retrieving	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	40.59988	-70.53175	40.62082	-70.47230	64	19	NW	<2	B4	>5	Clear	Severe	2	292	Deploying/Retrieving	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:45	40.62082	-70.47230	40.62651	-70.40501	64	19	NW	<2	B4	>5	Clear	Severe	2	292	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	21:45	22:00	40.62651	-70.40501	40.62879	-70.41523	61	16	NW	<2	B4	2-5	Clear	None	4.6	241	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:00	22:37	40.62879	-70.41523	40.62317	-70.36423	58	19	N	<2	B4	1-2	Clear	None	4.5	88	Standby	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:37	22:58	40.62317	-70.36423	40.62723	-70.36631	59	17	N	<2	B4	1-2	Clear	None	4.4	242	Soft Start	N/A
2022-11-23	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:58	00:00	40.62723	-70.36631	40.62737	-70.33361	59	15	N	<2	B4	0.5-1	Clear	None	4.4	95	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:00	00:00	40.62737	-70.33361	40.62737	-70.33361	58	15	N	<2	B4	0.5-1	Clear	None	4.4	95	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:00	01:00	40.62725	-70.34220	40.62499	-70.40136	56	19	NE	<2	B3	0.5-1	Clear	None	4.8	43	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:00	01:53	40.62499	-70.40136	40.62662	-70.46483	60	15	N	<2	B3	0.5-1	Clear	None	4.6	260	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:53	02:00	40.62662	-70.46483	40.62687	-70.45277	60	15	N	<2	B3	0.5-1	Clear	None	4.6	260	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:00	03:01	40.62687	-70.45277	40.62828	-70.34535	61	16	NE	<2	B3	0.5-1	Clear	None	4.9	84	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:01	03:10	40.62828	-70.34535	40.62851	-70.33060	56	19	NNE	<2	B3	0.5-1	Clear	None	5	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:10	03:34	40.62851	-70.33060	40.63206	-70.28908	56	19	NNE	<2	B3	0.5-1	Clear	None	5	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:34	03:54	40.63206	-70.28908	40.62623	-70.31470	56	21	N	<2	B4	0.5-1	Clear	None	4	306	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	03:54	04:45	40.62623	-70.31470	40.62686	-70.27799	56	21	N	<2	B4	0.5-1	Clear	None	3.9	306	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	04:45	05:00	40.62686	-70.27799	40.62657	-70.30222	55	18	N	<2	B4	0.5-1	Clear	None	4.5	274	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	05:00	05:53	40.62657	-70.30222	40.62558	-70.39092	56	18	N	<2	B4	0.5-1	Clear	None	4.5	274	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	05:53	06:00	40.62558	-70.39092	40.62546	-70.40343	59	14	N	<2	B4	0.5-1	Clear	None	4.9	275	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:00	06:37	40.62546	-70.40343	40.62452	-70.46733	59	16	N	<2	B4	0.5-1	Clear	None	4.7	276	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:37	07:00	40.62452	-70.46733	40.63016	-70.48297	61	15	N	<2	B4	0.5-1	Clear	None	4.7	275	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	07:00	07:22	40.63016	-70.48297	40.62598	-70.44727	61	18	NE	<2	B4	0.5-1	Clear	None	4.9	99	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	07:22	08:00	40.62598	-70.44727	40.62628	-70.38573	60	20	NNE	<2	B4	0.5-1	Clear	None	4.8	80	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:00	09:00	40.62628	-70.38573	40.62309	-70.44907	58	22	NE	<2	B4	0.5-1	Clear	None	4.6	77	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:00	10:00	40.62309	-70.44907	40.62612	-70.44276	61	7	N	<2	B4	0.5-1	Clear	None	4.7	269	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	10:00	10:47	40.62612	-70.44276	40.62309	-70.42829	61	15	NE	<2	B4	0.5-1	Clear	None	4.5	86	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	10:47	11:02	40.62309	-70.42829	40.62278	-70.45353	62	8	N	<2	B3	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:02	11:48	40.62278	-70.45353	40.62397	-70.41741	62	16	NNE	<2	B3	2-5	Clear	None	4.5	243	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:48	11:52	40.62397	-70.41741	40.62405	-70.42274	62	16	NNE	<2	B3	>5	Clear	None	4.5	243	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:52	12:00	40.62405	-70.42274	40.62379	-70.43594	61	10	N	<2	B3	>5	Clear	None	4.5	243	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:04	40.62379	-70.43594	40.62373	-70.44263	61	6	N	<2	B3	>5	Clear	None	4.5	243	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:04	12:06	40.62373	-70.44263	40.62375	-70.44609	61	6	N	<2	B3	>5	Clear	None	4.5	243	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:06	12:19	40.62375	-70.44609	40.63025	-70.45915	60	14	W	<2	B3	>5	Clear	None	4	240	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:19	12:24	40.63025	-70.45915	40.63097	-70.45178	61	14	W	<2	B3	>5	Clear	None	4.7	86	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:24	13:00	40.63097	-70.45178	40.63176	-70.39086	61	12	ENE	<2	B3	>5	Clear	None	4.5	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	40.63176	-70.39086	40.63303	-70.28462	59	9	NE	<2	B3	>5	Clear	None	4.9	86	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	40.63303	-70.28462	40.63416	-70.17762	55	10	E	<2	B3	>5	Clear	Severe	4.9	87	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:58	40.63416	-70.17762	40.63511	-70.07621	55	10	ESE	<2	B3	>5	Clear	Severe	4.9	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:58	16:35	40.63511	-70.07621	40.63571	-70.01637	55	10	ESE	<2	B3	>5	Clear	Severe	4.9	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:35	16:39	40.63571	-70.01637	40.63577	-70.00991	55	10	ESE	<2	B3	>5	Clear	Severe	4.9	76	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:39	17:00	40.63577	-70.00991	40.62785	-70.00701	55	10	ESE	<2	B3	>5	Clear	Severe	4.9	76	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:05	40.62785	-70.00701	40.62708	-70.01283	54	19	ESE	<2	B3	>5	Clear	Severe	4.6	76	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:05	17:09	40.62708	-70.01283	40.62699	-70.01817	55	10	NW	<2	B3	>5	Clear	Severe	4.9	76	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:09	17:16	40.62699	-70.01817	40.62693	-70.03035	53	10	NW	<2	B3	>5	Clear	Severe	4.1	274	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:16	17:57	40.62693	-70.03035	40.62984	-70.01002	53	10	NW	<2	B3	>5	Clear	Severe	4.1	274	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:57	18:00	40.62984	-70.01002	40.62940	-70.01391	53	10	NW	<2	B3	>5	Clear	Severe	4.1	274	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	40.62940	-70.01391	40.62849	-70.11863	53	11	NW	<2	B3	>5	Clear	Severe	4.9	275	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	19:35	40.62849	-70.11863	40.62784	-70.18011	52	9	W	<2	B2	>5	Clear	Severe	4.7	274	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:35	19:37	40.62784	-70.18011	40.62780	-70.18363	52	8	W	<2	B2	>5	Clear	Severe	4.8	271	Silent	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:37	20:00	40.62780	-70.18363	40.63403	-70.17031	52	8	W	<2	B2	>5	Clear	Severe	4	340	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	40.63403	-70.17031	40.63419	-70.08177	52	6	SW	<2	B2	>5	Clear	Severe	4.4	81	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:15	40.63419	-70.08177	40.62780	-70.08079	51	2	SW	<2	B2	>5	Clear	Severe	3.6	83	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:15	21:32	40.62780	-70.08079	40.62743	-70.11064	51	10	SSW	<2	B2	>5	Clear	None	5	266	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:32	21:45	40.62743	-70.11064	40.62649	-70.13187	51	10	SSW	<2	B2	>5	Clear	None	5	266	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:45	21:48	40.62649	-70.13187	40.62640	-70.13725	52	10	SSW	<2	B2	>5	Clear	None	5	263	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:48	21:50	40.62640	-70.13725	40.62636	-70.14078	51	8	SSW	<2	B2	>5	Clear	None	4.7	263	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	21:50	22:00	40.62636	-70.14078	40.63015	-70.15581	51	8	SSW	<2	B2	2-5	Clear	None	5	287	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:00	22:41	40.63015	-70.15581	40.62400	-70.12683	52	5	S	<2	B2	1-2	Clear	None	2.7	97	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:41	23:00	40.62400	-70.12683	40.62353	-70.16138	52	10	WNW	<2	B2	0.5-1	Clear	None	5.1	261	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	23:00	23:06	40.62353	-70.16138	40.62359	-70.17155	52	10	WNW	<2	B2	0.5-1	Clear	None	5.1	261	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	23:06	23:41	40.62359	-70.17155	40.62288	-70.23237	52	10	WNW	<2	B2	0.5-1	Clear	None	5.1	261	Full Power	N/A
2022-11-24	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	23:41	00:00	40.62288	-70.23237	40.63051	-70.23116	52	14	WSW	<2	B2	0.5-1	Clear	None	4.2	255	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:00	00:00	40.63051	-70.23116	40.63051	-70.23116	52	14	WSW	<2	B2	0.5-1	Clear	None	4.8	91	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:00	00:38	40.63136	-70.22174	40.62704	-70.19214	52	14	WSW	<2	B2	0.5-1	Clear	None	4.7	87	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:38	00:59	40.62704	-70.19214	40.62659	-70.22853	52	13	WSW	<2	B2	0.5-1	Clear	None	4.7	251	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	00:59	01:19	40.62659	-70.22853	40.62627	-70.26088	53	12	SW	<2	B2	0.5-1	Clear	None	4.7	255	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:19	02:00	40.62627	-70.26088	40.62633	-70.23516	54	12	SW	<2	B2	0.5-1	Clear	None	4.7	255	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:00	02:35	40.62633	-70.23516	40.62588	-70.24201	52	13	SW	<2	B2	0.5-1	Clear	None	4.9	258	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:35	02:48	40.62588	-70.24201	40.62560	-70.26459	54	14	SW	<2	B2	0.5-1	Clear	None	4.7	256	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:48	03:00	40.62560	-70.26459	40.63235	-70.27004	54	14	SW	<2	B2	0.5-1	Clear	None	4.7	256	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:00	03:14	40.63235	-70.27004	40.62462	-70.27762	54	8	S	<2	B3	0.5-1	Clear	None	5.2	76	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:14	04:00	40.62462	-70.27762	40.62366	-70.35689	56	14	SW	<2	B3	0.5-1	Clear	None	4.7	258	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	04:00	05:00	40.62366	-70.35689	40.62233	-70.46128	57	14	SW	<2	B3	0.5-1	Clear	None	4.7	260	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	05:00	05:04	40.62233	-70.46128	40.62229	-70.46834	61	14	SW	<2	B3	0.5-1	Clear	None	4.8	263	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	05:04	05:59	40.62229	-70.46834	40.62339	-70.42599	61	15	SW	<2	B3	0.5-1	Clear	None	4.9	263	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	05:59	06:00	40.62339	-70.42599	40.62343	-70.42772	59	15	SW	<2	B3	0.5-1	Clear	None	4.8	265	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:00	06:24	40.62343	-70.42772	40.62293	-70.46962	59	15	SW	<2	B3	0.5-1	Clear	None	4.8	265	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:24	06:55	40.62293	-70.46962	40.62706	-70.46603	61	11	SW	<2	B3	0.5-1	Clear	None	4.8	264	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:55	07:00	40.62706	-70.46603	40.62723	-70.45753	61	9	S	<2	B3	0.5-1	Clear	None	4.7	86	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	07:00	07:23	40.62723	-70.45753	40.62751	-70.41952	60	14	S	<2	B3	0.5-1	Clear	None	5	90	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	07:23	08:00	40.62751	-70.41952	40.62834	-70.35891	59	15	S	<2	B3	0.5-1	Clear	None	4.5	87	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:00	08:13	40.62834	-70.35891	40.62866	-70.33770	57	14	S	<2	B3	0.5-1	Cloudy	None	4.7	89	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:13	08:58	40.62866	-70.33770	40.62722	-70.45874	57	16	S	<2	B3	0.5-1	Cloudy	None	4.7	88	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	08:58	09:00	40.62722	-70.45874	40.62933	-70.26027	61	11	SSE	<2	B3	0.5-1	Clear	None	4.5	87	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:00	09:32	40.62933	-70.26027	40.62998	-70.20757	54	16	S	<2	B3	0.5-1	Cloudy	None	4.5	91	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:32	09:41	40.62998	-70.20757	40.63014	-70.19255	51	16	S	<2	B4	0.5-1	Cloudy	None	4.5	90	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:41	09:58	40.63014	-70.19255	40.62983	-70.16259	51	16	S	<2	B4	0.5-1	Cloudy	None	4.5	90	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:58	10:00	40.62983	-70.16259	40.62986	-70.16045	51	18	S	<2	B4	0.5-1	Cloudy	None	4.5	90	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	10:00	10:15	40.62986	-70.16045	40.62452	-70.15876	51	18	S	<2	B4	0.5-1	Cloudy	None	4.5	90	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	10:15	11:00	40.62452	-70.15876	40.62369	-70.23527	53	14	S	<2	B4	0.5-1	Cloudy	None	4.7	263	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	11:00	11:10	40.62369	-70.23527	40.62335	-70.25246	53	14	S	<2	B3	1-2	Cloudy	None	4.7	263	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:10	12:00	40.62335	-70.25246	40.62257	-70.33687	54	14	S	<2	B3	2-5	Cloudy	None	4.7	258	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.62257	-70.33687	40.62141	-70.43008	78	15	S	<2	B3	>5	Cloudy	None	4.5	184	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	13:23	40.62141	-70.43008	40.62096	-70.46753	63	20	SSW	<2	B3	>5	Cloudy	None	4	257	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:23	13:25	40.62096	-70.46753	40.62092	-70.47094	63	19	NW	<2	B3	>5	Cloudy	None	4.8	260	Silent	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:25	14:00	40.62092	-70.47094	40.62816	-70.42997	63	19	NW	<2	B3	>5	Cloudy	None	4.6	260	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	14:16	40.62816	-70.42997	40.62283	-70.41215	61	13	SW	<2	B3	>5	Cloudy	None	4.7	92	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:16	14:21	40.62283	-70.41215	40.62228	-70.42013	61	22	WSW	<2	B3	>5	Cloudy	None	4	250	Silent	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:21	14:43	40.62228	-70.42013	40.62186	-70.45580	62	23	SW	<2	B3	>5	Cloudy	None	4.7	264	Full Power	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:43	14:49	40.62186	-70.45580	40.62335	-70.46586	61	20	SW	<2	B3	>5	Cloudy	None	4.4	258	Deploying/Retrieving	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:49	15:01	40.62335	-70.46586	40.63217	-70.46152	61	20	SW	<2	B3	>5	Cloudy	None	4.1	353	Deploying/Retrieving	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:01	15:10	40.63217	-70.46152	40.63880	-70.45788	61	20	SW	<2	B3	>5	Cloudy	None	4.1	353	Deploying/Retrieving	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:10	16:00	40.63880	-70.45788	40.68553	-70.44683	61	20	SW	<2	B3	>5	Cloudy	None	2.8	359	Standby	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	40.68553	-70.44683	40.79314	-70.49041	58	25	W	<2	B4	>5	Precipitation	None	6.3	334	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	40.79314	-70.49041	40.89695	-70.54849	58	27	W	<2	B4	1-2	Precipitation	None	6.8	330	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	40.89695	-70.54849	40.97995	-70.63508	52	22	W	<2	B4	1-2	Precipitation	None	6.7	327	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	40.97995	-70.63508	41.07806	-70.70714	48	23	SW	2-4	B4	1-2	Precipitation	None	6.9	331	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	20:53	41.07806	-70.70714	41.20074	-70.71484	43	22	SW	2-4	B4	1-2	Cloudy	None	8.3	351	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:53	21:00	41.20074	-70.71484	41.21380	-70.72584	30	35	W	2-4	B5	2-5	Cloudy	None	7.8	324	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:47	41.21380	-70.72584	41.29835	-70.82724	30	35	W	2-4	B5	2-5	Cloudy	None	7.8	324	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:47	22:00	41.29835	-70.82724	41.30202	-70.85466	32	41	W	2-4	B5	1-2	Cloudy	None	8.6	282	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.30202	-70.85466	41.31684	-70.91620	32	41	W	2-4	B5	1-2	Cloudy	None	8.6	282	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:30	41.31684	-70.91620	41.34784	-70.89120	35	20	W	2-4	B4	0.5-1	Cloudy	None	3.8	17	Transit	N/A
2022-11-25	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:30	00:00	41.34784	-70.89120	41.37856	-70.86551	35	35	NNW	<2	B3	0.5-1	Cloudy	None	4.2	20	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:00	41.37856	-70.86551	41.37856	-70.86551	35	35	NNW	<2	B3	0.5-1	Cloudy	None	4.2	20	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.37971	-70.86425	41.42863	-70.79072	26	22	NW	2-4	B3	0.5-1	Clear	None	4.1	22	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.42863	-70.79072	41.47534	-70.69819	23	17	NW	2-4	B3	0.5-1	Clear	None	4.4	43	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.47534	-70.69819	41.49463	-70.64581	23	20	NW	2-4	B3	0.5-1	Clear	None	5.6	47	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.49463	-70.64581	41.48386	-70.68208	27	30	WNW	<2	B4	0.5-1	Clear	None	2.2	257	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.48386	-70.68208	41.46610	-70.71517	23	30	WNW	<2	B4	0.5-1	Clear	None	1.5	245	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.46610	-70.71517	41.43789	-70.76699	22	23	WNW	<2	B4	0.5-1	Clear	None	2.7	243	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.43789	-70.76699	41.44645	-70.74515	26	30	WNW	<2	B4	0.5-1	Clear	None	3.4	245	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.44645	-70.74515	41.46862	-70.70392	25	18	NW	<2	B4	0.5-1	Clear	None	3	45	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.46862	-70.70392	41.48877	-70.66145	23	22	NW	<2	B4	0.5-1	Clear	None	2	48	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.48877	-70.66145	41.46374	-70.71203	25	16	NW	<2	B4	0.5-1	Clear	None	2.4	55	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.46374	-70.71203	41.42879	-70.78338	20	27	WNW	<2	B4	0.5-1	Clear	None	3.8	247	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:15	41.42879	-70.78338	41.42214	-70.79776	22	29	WNW	<2	B4	1-2	Clear	None	3.3	245	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:15	12:00	41.42214	-70.79776	41.44505	-70.75307	22	25	WNW	<2	B4	>5	Clear	Moderate	3.2	46	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.44505	-70.75307	41.48630	-70.67084	25	20	WNW	<2	B4	>5	Clear	Moderate	4	44	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.48630	-70.67084	41.48246	-70.67828	27	19	W	<2	B4	>5	Clear	Moderate	0.6	233	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	14:53	41.48246	-70.67828	41.47787	-70.69370	26	21	WNW	<2	B2	>5	Clear	Moderate	0.6	233	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:53	16:00	41.47787	-70.69370	41.45225	-70.73501	26	21	WNW	<2	B2	>5	Clear	Moderate	2	239	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	41.45225	-70.73501	41.48653	-70.68602	20	23	WNW	<2	B2	>5	Clear	Severe	1.7	231	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.48653	-70.68602	41.46249	-70.73115	20	15	W	<2	B2	>5	Clear	Severe	4	234	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	41.46249	-70.73115	41.43093	-70.78749	26	17	N	<2	B2	>5	Clear	Severe	4	233	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.43093	-70.78749	41.44455	-70.75255	25	11	W	<2	B2	>5	Clear	Severe	2.2	56	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.44455	-70.75255	41.45564	-70.73114	23	13	W	<2	B2	>5	Clear	Severe	1.1	41	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:50	41.45564	-70.73114	41.46828	-70.71271	17	14	W	<2	B2	>5	Clear	Severe	1.1	43	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:50	22:00	41.46828	-70.71271	41.47104	-70.70861	17	9	W	<2	B2	2-5	Clear	None	1.6	47	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.47104	-70.70861	41.48846	-70.66624	22	9	W	<2	B2	1-2	Clear	None	2.1	55	Standby	N/A
2022-11-26	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	00:00	41.48846	-70.66624	41.48164	-70.68482	24	11	W	<2	B2	0.5-1	Clear	None	2.9	233	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:00	41.48164	-70.68482	41.48164	-70.68482	24	18	W	<2	B2	0.5-1	Clear	None	3	233	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.48105	-70.68613	41.46324	-70.72328	24	16	W	<2	B2	0.5-1	Clear	None	2.8	233	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.46324	-70.72328	41.45038	-70.74580	22	19	WSW	<2	B2	0.5-1	Clear	None	1.5	229	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.45038	-70.74580	41.44167	-70.76394	26	27	W	<2	B2	0.5-1	Clear	None	1.3	235	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.44167	-70.76394	41.48499	-70.67519	27	21	W	<2	B4	0.5-1	Clear	None	1.1	234	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.48499	-70.67519	41.49581	-70.63907	27	13	WSW	<2	B3	0.5-1	Clear	None	5.8	58	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.49581	-70.63907	41.48490	-70.67412	27	21	W	<2	B3	0.5-1	Clear	None	1.3	252	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.48490	-70.67412	41.46189	-70.72272	26	23	WSW	<2	B3	0.5-1	Clear	None	2.3	236	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.46189	-70.72272	41.42945	-70.79135	20	26	WSW	<2	B3	0.5-1	Clear	None	3.3	232	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.42945	-70.79135	41.45112	-70.74456	24	16	W	<2	B3	0.5-1	Clear	None	2.4	315	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.45112	-70.74456	41.46900	-70.70699	29	12	WSW	<2	B3	0.5-1	Clear	None	2.6	46	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.46900	-70.70699	41.48417	-70.67378	27	14	WSW	<2	B3	0.5-1	Clear	None	1.9	52	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	12:00	41.48417	-70.67378	41.46657	-70.70867	26	14	WSW	<2	B3	0.5-1	Clear	Slight	2.2	60	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.46657	-70.70867	41.43779	-70.76092	22	19	SW	2-4	B3	>5	Clear	Slight	3.4	230	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.43779	-70.76092	41.44662	-70.74893	24	17	WSW	2-4	B3	>5	Clear	Severe	2.3	233	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:03	41.44662	-70.74893	41.49288	-70.66696	21	12	SW	<2	B3	>5	Cloudy	None	6	47	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:03	16:00	41.49288	-70.66696	41.48576	-70.69114	21	12	SW	<2	B3	>5	Cloudy	None	6	47	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	41.48576	-70.69114	41.46925	-70.72227	22	20	SW	<2	B3	>5	Cloudy	None	1.5	236	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.46925	-70.72227	41.44290	-70.76756	21	21	SW	<2	B3	>5	Cloudy	None	2.8	224	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	41.44290	-70.76756	41.42934	-70.79097	24	22	SW	<2	B3	>5	Cloudy	None	2.9	224	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.42934	-70.79097	41.44252	-70.76970	25	17	SW	<2	B3	>5	Cloudy	None	2.7	50	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.44252	-70.76970	41.45734	-70.73418	25	12	NW	<2	B3	>5	Cloudy	None	1.5	55	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:31	41.45734	-70.73418	41.45743	-70.73328	23	17	SSW	<2	B3	>5	Cloudy	None	0.2	49	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:31	21:39	41.45743	-70.73328	41.45743	-70.73328	23	22	SSW	<2	B4	1-2	Cloudy	None	0.2	49	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:39	22:00	41.45743	-70.73328	41.45743	-70.73328	23	24	SSW	<2	B4	1-2	Cloudy	None	0.2	49	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.45743	-70.73328	41.48602	-70.68216	23	24	SSW	<2	B4	1-2	Cloudy	None	1.2	49	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:40	41.48602	-70.68216	41.48281	-70.69978	22	19	S	<2	B4	0.5-1	Cloudy	None	1.9	49	Standby	N/A
2022-11-27	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:40	00:00	41.48281	-70.69978	41.47085	-70.72662	22	28	N	<2	B4	0.5-1	Precipitation	None	3.9	220	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:00	41.47085	-70.72662	41.47085	-70.72662	24	26	S	<2	B4	0.5-1	Precipitation	Slight	4	218	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.46896	-70.73048	41.43545	-70.77808	22	26	N	<2	B4	0.5-1	Precipitation	None	4.3	215	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	01:45	41.43545	-70.77808	41.45510	-70.73972	24	22	S	<2	B4	0.5-1	Precipitation	None	2.6	68	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:45	02:00	41.45510	-70.73972	41.46374	-70.72650	24	27	SSE	<2	B4	0.5-1	Precipitation	None	3.4	67	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	02:39	41.46374	-70.72650	41.48625	-70.68011	22	26	SSE	<2	B4	0.1-0.3	Precipitation	None	3.3	69	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:39	03:00	41.48625	-70.68011	41.49765	-70.64940	22	23	SSE	<2	B4	0.1-0.3	Precipitation	None	4.1	86	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	03:33	41.49765	-70.64940	41.49392	-70.58331	28	30	SSE	<2	B4	0.1-0.3	Precipitation	None	5.1	102	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:33	03:50	41.49392	-70.58331	41.48349	-70.54828	27	25	SSE	<2	B4	0.1-0.3	Precipitation	None	6.6	118	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:50	04:00	41.48349	-70.54828	41.47758	-70.52832	27	25	SSE	<2	B4	0.1-0.3	Precipitation	None	5.9	106	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	04:19	41.47758	-70.52832	41.47044	-70.49538	21	33	SSW	<2	B4	0.1-0.3	Precipitation	None	5.7	109	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:19	04:48	41.47044	-70.49538	41.47540	-70.51738	21	48	SSW	<2	B4	0.1-0.3	Precipitation	None	5.7	109	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:48	05:00	41.47540	-70.51738	41.47669	-70.52328	21	43	WSW	<2	B4	0.1-0.3	Cloudy	None	1.7	275	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.47669	-70.52328	41.48731	-70.57013	21	39	WSW	<2	B4	0.5-1	Clear	None	1.7	276	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.48731	-70.57013	41.48021	-70.53960	23	33	WSW	<2	B4	0.5-1	Clear	None	2.5	280	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.48021	-70.53960	41.45375	-70.42918	23	18	WSW	<2	B4	0.5-1	Clear	None	5.7	110	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.45375	-70.42918	41.46877	-70.48374	20	33	W	<2	B4	0.5-1	Clear	None	2.4	280	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.46877	-70.48374	41.48994	-70.56145	21	25	W	<2	B4	0.5-1	Clear	None	3.3	278	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.48994	-70.56145	41.49077	-70.57322	23	32	WSW	<2	B4	0.5-1	Clear	None	4.2	278	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:13	41.49077	-70.57322	41.48700	-70.55698	25	26	WSW	<2	B4	1-2	Clear	None	3.5	104	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:13	12:06	41.48700	-70.55698	41.46975	-70.48234	25	26	WSW	<2	B4	2-5	Clear	Slight	3.6	105	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:06	13:00	41.46975	-70.48234	41.45713	-70.42918	18	18	W	<2	B4	>5	Clear	Severe	4.5	105	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.45713	-70.42918	41.47457	-70.50305	18	20	W	2-4	B4	>5	Clear	Severe	3.5	280	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	14:58	41.47457	-70.50305	41.48848	-70.55786	23	23	W	<2	B4	>5	Clear	Severe	2.9	280	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:58	16:00	41.48848	-70.55786	41.49637	-70.58007	23	25	W	<2	B4	>5	Clear	Severe	2	288	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	41.49637	-70.58007	41.49864	-70.60370	23	25	W	<2	B4	>5	Clear	Severe	0.5	280	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.49864	-70.60370	41.49564	-70.64214	22	25	NW	<2	B3	>5	Clear	Severe	1.9	269	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	41.49564	-70.64214	41.47773	-70.69622	24	16	WNW	<2	B3	>5	Clear	Severe	2	248	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.47773	-70.69622	41.45540	-70.74000	22	14	NW	<2	B3	>5	Clear	Severe	3.6	236	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.45540	-70.74000	41.46834	-70.70327	24	15	NW	<2	B3	>5	Clear	Severe	2.4	40	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:51	41.46834	-70.70327	41.48476	-70.68168	23	19	NW	<2	B3	>5	Clear	Severe	1.8	40	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:51	22:00	41.48476	-70.68168	41.48696	-70.67702	23	20	NW	<2	B3	2-5	Clear	None	1.7	53	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.48696	-70.67702	41.49142	-70.66602	25	9	NW	<2	B3	1-2	Clear	Slight	1.5	52	Standby	N/A
2022-11-28	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	00:00	41.49142	-70.66602	41.44525	-70.76134	22	17	N	<2	B3	0.5-1	Clear	None	5.6	248	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:00	41.44525	-70.76134	41.44525	-70.76134	22	17	N	<2	B3	0.5-1	Clear	None	5.6	248	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.44362	-70.76418	41.40912	-70.83145	24	17	N	2-4	B3	0.5-1	Clear	None	4.6	237	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.40912	-70.83145	41.43735	-70.77393	20	19	N	2-4	B3	0.5-1	Clear	None	2.8	47	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.43735	-70.77393	41.47026	-70.70200	22	17	N	<2	B2	0.5-1	Clear	None	3.4	48	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.47026	-70.70200	41.44306	-70.76167	26	20	N	<2	B3	0.5-1	Clear	None	4.5	49	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	04:30	41.44306	-70.76167	41.41582	-70.81451	23	11	NNW	<2	B3	0.5-1	Clear	None	5.8	233	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:30	05:00	41.41582	-70.81451	41.38098	-70.86367	23	14	NNW	<2	B3	0.5-1	Clear	None	5.7	230	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.38098	-70.86367	41.28098	-70.79397	27	10	N	<2	B3	0.5-1	Clear	None	6.6	217	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.28098	-70.79397	41.23512	-70.74513	12	10	N	<2	B3	0.5-1	Clear	None	8.8	130	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.23512	-70.74513	41.04308	-70.63494	37	10	N	<2	B3	0.5-1	Clear	None	8	150	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.04308	-70.63494	40.91917	-70.57389	46	10	N	<2	B3	0.5-1	Clear	None	7.4	155	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	40.91917	-70.57389	40.80201	-70.52351	53	7	N	<2	B3	0.5-1	Clear	None	8.2	155	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	40.80201	-70.52351	40.68570	-70.48304	54	7	NW	<2	B3	0.5-1	Clear	None	7.4	158	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:08	40.68570	-70.48304	40.66888	-70.47723	57	10	NW	<2	B3	1-2	Clear	Slight	7.1	159	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:08	11:41	40.66888	-70.47723	40.64258	-70.47160	57	3	NW	<2	B3	2-5	Clear	Slight	7.2	159	Transit	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:41	12:00	40.64258	-70.47160	40.62562	-70.47248	57	7	NW	<2	B3	>5	Cloudy	Slight	7.5	172	Standby	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:26	40.62562	-70.47248	40.60523	-70.47403	62	6	NNE	2-4	B3	>5	Cloudy	Slight	3.1	175	Deploying/Retrieving	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:26	12:47	40.60523	-70.47403	40.59961	-70.48105	56	7	N	2-4	B3	>5	Cloudy	Severe	2.7	174	Soft Start	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:47	13:00	40.59961	-70.48105	40.60793	-70.46998	56	12	NNE	2-4	B3	>5	Cloudy	Severe	3.3	26	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	13:12	40.60793	-70.46998	40.60829	-70.45091	63	7	NNE	<2	B3	>5	Cloudy	Severe	3.8	78	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:12	13:19	40.60829	-70.45091	40.60841	-70.43981	63	11	NNE	<2	B3	>5	Cloudy	Severe	4.5	79	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:19	13:44	40.60841	-70.43981	40.60835	-70.44831	62	8	ENE	<2	B3	>5	Cloudy	Severe	4.7	79	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:44	13:49	40.60835	-70.44831	40.60905	-70.44021	62	8	NE	<2	B3	>5	Cloudy	Severe	4.4	74	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:49	14:00	40.60905	-70.44021	40.60933	-70.42249	61	7	NE	<2	B3	>5	Cloudy	Severe	4.5	82	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	14:05	40.60933	-70.42249	40.60940	-70.41438	61	7	NE	<2	B3	>5	Cloudy	Moderate	4.5	82	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:05	14:07	40.60940	-70.41438	40.60951	-70.41105	62	6	NE	<2	B3	>5	Cloudy	Moderate	4.7	82	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:07	14:59	40.60951	-70.41105	40.61135	-70.32246	62	4	N	<2	B3	>5	Cloudy	Slight	4.8	77	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	14:59	15:02	40.61135	-70.32246	40.61172	-70.31777	57	10	NNE	<2	B3	>5	Cloudy	Slight	4.5	89	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:02	16:00	40.61172	-70.31777	40.61896	-70.37361	57	10	NNE	<2	B3	>5	Cloudy	Slight	4.5	89	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	40.61896	-70.37361	40.62681	-70.40912	58	10	NNE	<2	B3	>5	Cloudy	Slight	4.9	264	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:04	40.62681	-70.40912	40.62283	-70.41029	58	15	SW	<2	B3	>5	Cloudy	Slight	4.6	171	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:04	17:10	40.62283	-70.41029	40.62244	-70.42064	58	15	SW	<2	B3	>5	Cloudy	Slight	4.8	255	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:10	17:30	40.62244	-70.42064	40.62201	-70.45450	58	15	SW	<2	B3	>5	Cloudy	Slight	4.8	255	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:30	17:31	40.62201	-70.45450	40.62190	-70.45746	58	15	SW	<2	B3	>5	Cloudy	Slight	4.8	263	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:31	17:59	40.62190	-70.45746	40.62886	-70.42871	58	15	SW	<2	B3	>5	Cloudy	Slight	4.8	263	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	17:59	18:03	40.62886	-70.42871	40.62893	-70.42303	60	16	NW	<2	B3	>5	Cloudy	Slight	4.9	85	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:03	18:15	40.62893	-70.42303	40.62922	-70.40211	60	13	W	<2	B3	>5	Cloudy	Slight	4.9	86	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:15	18:17	40.62922	-70.40211	40.62929	-70.39859	58	11	NW	<2	B3	>5	Cloudy	Slight	4.8	110	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:17	18:38	40.62929	-70.39859	40.62193	-70.41133	59	8	NW	<2	B3	>5	Cloudy	Moderate	4.8	147	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:38	18:43	40.62193	-70.41133	40.62186	-70.41785	59	4	NW	<2	B3	>5	Cloudy	Moderate	4.6	264	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:43	19:00	40.62186	-70.41785	40.62155	-70.44529	61	4	NW	<2	B3	>5	Cloudy	Moderate	4.5	265	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	19:07	40.62155	-70.44529	40.62140	-70.45669	60	5	NW	<2	B3	>5	Cloudy	Moderate	4.1	266	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:07	19:09	40.62140	-70.45669	40.62137	-70.46137	59	7	NW	<2	B3	>5	Cloudy	Moderate	4.5	268	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:09	19:52	40.62137	-70.46137	40.62522	-70.41696	60	7	NW	<2	B3	>5	Cloudy	Moderate	4.5	266	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:52	19:57	40.62522	-70.41696	40.62483	-70.42473	61	5	W	<2	B2	>5	Cloudy	Slight	4.4	270	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:57	20:00	40.62483	-70.42473	40.62475	-70.42966	60	4	W	<2	B2	>5	Cloudy	Slight	4.5	270	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	20:23	40.62475	-70.42966	40.62434	-70.46796	59	5	W	<2	B2	>5	Cloudy	Slight	4.6	270	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:23	20:25	40.62434	-70.46796	40.62431	-70.47130	60	4	NW	<2	B2	>5	Cloudy	Slight	4.5	251	Silent	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:25	20:45	40.62431	-70.47130	40.62754	-70.46621	60	4	NW	<2	B2	>5	Cloudy	Slight	4.6	265	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:45	21:00	40.62754	-70.46621	40.62790	-70.43951	61	3	NE	<2	B2	>5	Cloudy	Slight	4.3	83	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:50	40.62790	-70.43951	40.62915	-70.35656	59	5	N	<2	B2	>5	Clear	Slight	4.9	80	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	21:50	22:00	40.62915	-70.35656	40.62912	-70.34068	59	5	N	<2	B2	2-5	Clear	None	4.9	80	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:00	22:40	40.62912	-70.34068	40.62955	-70.32358	57	7	NW	<2	B2	1-2	Clear	None	4.5	80	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:40	22:45	40.62955	-70.32358	40.62955	-70.32358	57	7	NW	<2	B2	0.5-1	Clear	None	4.5	83	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	22:45	23:00	40.62955	-70.32358	40.63023	-70.24493	57	7	NW	<2	B2	0.5-1	Clear	None	4.5	83	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	23:00	23:13	40.63023	-70.24493	40.62394	-70.24681	54	11	WNW	<2	B2	0.5-1	Clear	None	4.7	275	Full Power	N/A
2022-11-29	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	23:13	00:00	40.62394	-70.24681	40.62336	-70.32897	54	11	WNW	<2	B2	0.5-1	Clear	None	4.7	275	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:00	00:53	40.62332	-70.33304	40.62207	-70.42334	57	8	N	<2	B2	0.5-1	Clear	None	4.9	269	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica; Ramsarran, Celine	RPS	00:53	01:00	40.62207	-70.42334	40.62429	-70.43489	57	6	N	<2	B2	0.5-1	Clear	None	5	266	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:00	01:28	40.62429	-70.43489	40.62382	-70.42274	60	10	NNE	<2	B2	0.5-1	Clear	None	3.8	20	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:28	01:45	40.62382	-70.42274	40.62351	-70.45093	60	5	N	<2	B1	0.5-1	Clear	None	4.9	265	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:45	02:00	40.62351	-70.45093	40.62983	-70.45573	61	5	NW	<2	B1	0.5-1	Clear	None	4.9	265	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	02:00	02:00	40.62983	-70.45573	40.62982	-70.45528	60	12	E	<2	B2	0.5-1	Clear	None	5	91	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:00	02:43	40.62982	-70.45528	40.62278	-70.41077	61	6	E	<2	B1	0.5-1	Clear	None	4.3	89	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:43	03:00	40.62278	-70.41077	40.62243	-70.44031	59	4	WNW	<2	B1	0.5-1	Cloudy	None	4.5	264	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:00	03:11	40.62243	-70.44031	40.62220	-70.45919	61	3	WNW	<2	B2	0.5-1	Cloudy	None	4.6	258	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	03:11	04:00	40.62220	-70.45919	40.62632	-70.42653	62	1	S	<2	B2	0.5-1	Cloudy	None	4.7	259	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	04:00	06:00	40.62632	-70.42653	40.62868	-70.21991	60	11	E	<2	B2	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	06:00	07:00	40.62868	-70.21991	40.63003	-70.11480	54	11	ENE	<2	B2	0.5-1	Clear	None	4.7	91	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Toxtle, Miguel	RPS	07:00	08:00	40.63003	-70.11480	40.62951	-70.00802	52	14	E	<2	B3	0.5-1	Clear	None	4.7	89	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:00	08:10	40.62951	-70.00802	40.62612	-70.01985	54	13	E	<2	B4	0.5-1	Clear	None	4.4	194	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:10	08:16	40.62612	-70.01985	40.62641	-70.02833	54	12	E	<2	B4	0.5-1	Clear	None	4.8	268	Silent	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:16	08:20	40.62641	-70.02833	40.62635	-70.03448	54	12	E	<2	B4	0.5-1	Clear	None	4.1	264	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:20	08:46	40.62635	-70.03448	40.63025	-70.04809	54	13	E	<2	B4	0.5-1	Clear	None	4.3	261	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	08:46	09:00	40.63025	-70.04809	40.63009	-70.07030	53	13	E	<2	B4	0.5-1	Clear	None	4.4	264	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:00	09:09	40.63009	-70.07030	40.62990	-70.08491	52	13	E	<2	B4	0.5-1	Cloudy	None	4.3	265	Full Power	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:09	09:17	40.62990	-70.08491	40.62983	-70.09696	51	13	E	<2	B4	0.5-1	Cloudy	None	4.4	265	Silent	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	09:17	10:00	40.62983	-70.09696	40.62953	-70.13965	52	17	E	<2	B4	0.5-1	Cloudy	None	2.8	265	Deploying/Retrieving	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	10:00	10:12	40.62953	-70.13965	40.63036	-70.14216	52	23	E	<2	B4	0.5-1	Cloudy	None	0.6	277	Deploying/Retrieving	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:12	11:00	40.63036	-70.14216	40.69128	-70.19935	55	20	E	<2	B4	0.5-1	Cloudy	None	5.2	320	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	12:00	40.69128	-70.19935	40.78161	-70.31634	55	15	E	<2	B4	1-2	Cloudy	None	7.3	321	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.78161	-70.31634	40.87296	-70.44455	48	6	ESE	<2	B4	>5	Cloudy	None	7.8	310	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	40.87296	-70.44455	40.98120	-70.54823	51	11	S	<2	B4	>5	Cloudy	None	8.3	309	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	40.98120	-70.54823	41.09197	-70.64733	47	13	SSE	<2	B4	>5	Cloudy	None	8.3	321	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:00	41.09197	-70.64733	41.20995	-70.74350	47	20	SSE	<2	B4	>5	Cloudy	None	8	322	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:00	17:00	41.20995	-70.74350	41.31990	-70.85037	30	20	SSE	<2	B4	>5	Cloudy	None	8.2	339	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	41.31990	-70.85037	41.41161	-70.81181	30	18	SE	<2	B4	>5	Cloudy	None	8.7	343	Transit	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:00	19:00	41.41161	-70.81181	41.45630	-70.74791	21	31	SE	<2	B4	>5	Cloudy	None	4.9	46	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.45630	-70.74791	41.48715	-70.68026	24	29	SE	<2	B4	>5	Cloudy	None	2.9	82	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	20:47	41.48715	-70.68026	41.49529	-70.61350	27	35	SE	<2	B4	>5	Cloudy	None	4	107	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:47	21:00	41.49529	-70.61350	41.49673	-70.59708	23	27	SE	<2	B4	2-5	Fog	None	4	91	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:40	41.49673	-70.59708	41.50029	-70.60020	29	28	SE	<2	B4	2-5	Precipitation	None	3.5	93	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:40	22:00	41.50029	-70.60020	41.50249	-70.61991	28	27	SE	<2	B4	1-2	Precipitation	None	3.5	252	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	22:00	23:00	41.50249	-70.61991	41.48757	-70.67283	28	32	SE	<2	B4	0.5-1	Precipitation	None	3.5	252	Standby	N/A
2022-11-30	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	00:00	41.48757	-70.67283	41.44898	-70.74787	25	35	S	<2	B4	0.5-1	Precipitation	None	4.2	208	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.44646	-70.75813	41.44895	-70.75319	23	42	S	2-4	B4	0.3-0.5	Precipitation	None	2.9	55	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.44895	-70.75319	41.47358	-70.70766	27	26	S	2-4	B4	0.1-0.3	Precipitation	None	2.7	48	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.47358	-70.70766	41.49020	-70.67000	22	19	SW	<2	B4	0.3-0.5	Precipitation	None	1.8	53	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.49020	-70.67000	41.49405	-70.65262	27	12	W	<2	B4	0.5-1	Precipitation	None	2.3	58	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.49405	-70.65262	41.47774	-70.70004	25	20	W	<2	B4	0.5-1	Precipitation	None	3.8	263	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.47774	-70.70004	41.46069	-70.73219	23	30	WNW	<2	B4	0.5-1	Cloudy	None	1.2	247	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.46069	-70.73219	41.44347	-70.76158	24	21	WNW	<2	B4	0.3-0.5	Clear	None	2.5	240	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.44347	-70.76158	41.47009	-70.70919	24	28	WNW	<2	B4	0.3-0.5	Clear	None	5.8	45	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.47009	-70.70919	41.44444	-70.75843	23	23	W	<2	B4	0.3-0.5	Clear	None	2.6	236	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	09:50	41.44444	-70.75843	41.43254	-70.83586	25	25	WNW	<2	B4	0.3-0.5	Cloudy	None	2.1	234	Standby	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:50	10:00	41.43254	-70.83586	41.44688	-70.84752	13	36	NW	<2	B4	0.5-1	Cloudy	None	5.5	308	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.44688	-70.84752	41.52968	-70.84377	20	23	NW	<2	B4	0.5-1	Cloudy	None	7.2	0	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	12:00	41.52968	-70.84377	41.61593	-70.89993	50	29	WNW	<2	B4	0.5-1	Clear	None	3.7	322	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:27	41.61593	-70.89993	41.62353	-70.91391	10	21	W	<2	B2	>5	Clear	None	5.2	316	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	22:35	23:00	41.62352	-70.91424	41.62823	-70.90874	11	23	W	<2	B1	0.5-1	Clear	None	0.5	150	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:51	41.62823	-70.90874	41.54472	-70.85331	10	12	W	<2	B1	0.5-1	Clear	None	7	151	Transit	N/A
2022-12-01	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:51	00:00	41.54472	-70.85331	41.53422	-70.84679	13	19	W	<2	B2	0.5-1	Clear	Slight	4.4	150	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.53057	-70.84501	41.43412	-70.84012	16	11	W	<2	B3	0.5-1	Clear	None	6.4	159	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.43412	-70.84012	41.43302	-70.77791	13	15	WNW	<2	B3	0.5-1	Clear	None	4.5	127	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.43302	-70.77791	41.45510	-70.73096	22	18	W	<2	B3	0.5-1	Clear	None	2.9	55	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.45510	-70.73096	41.47763	-70.69123	20	22	W	<2	B4	0.5-1	Clear	None	2.3	43	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.47763	-70.69123	41.50014	-70.62287	23	14	WNW	<2	B4	0.5-1	Clear	None	2.8	52	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.50014	-70.62287	41.47313	-70.51872	25	13	W	<2	B3	0.5-1	Clear	None	4.4	85	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.47313	-70.51872	41.45886	-70.45425	19	16	WNW	<2	B3	0.5-1	Clear	None	5.3	103	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	07:07	41.45886	-70.45425	41.46071	-70.46080	17	22	WNW	<2	B3	0.5-1	Clear	None	2.7	282	Standby	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:07	08:00	41.46071	-70.46080	41.38216	-70.42402	17	7	WNW	<2	B3	0.5-1	Clear	None	2.4	108	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:01	41.38216	-70.42402	41.27806	-70.42724	10	11	SW	<2	B3	0.5-1	Clear	None	6.3	168	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:01	10:00	41.27806	-70.42724	41.15507	-70.41446	11	16	W	2-4	B3	0.5-1	Clear	None	7.4	165	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	10:58	41.15507	-70.41446	41.02722	-70.41611	39	7	WNW	2-4	B3	0.5-1	Clear	None	7.7	181	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:58	11:11	41.02722	-70.41611	40.99879	-70.40993	42	5	WNW	2-4	B3	1-2	Clear	None	7.7	182	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:11	12:00	40.99879	-70.40993	40.89590	-70.35177	43	2	WNW	2-4	B3	2-5	Clear	None	8.7	161	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	12:38	40.89590	-70.35177	40.83469	-70.41898	37	6	W	2-4	B4	>5	Clear	None	7.5	221	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:38	12:43	40.83469	-70.41898	40.83419	-70.41790	52	2	NNW	2-4	B4	>5	Clear	None	0.5	224	Transit	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:43	13:00	40.83419	-70.41790	40.83119	-70.41508	52	4	N	2-4	B4	>5	Clear	None	0.8	182	Deploying/Retrieving	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	13:07	40.83119	-70.41508	40.82564	-70.41488	52	4	WSW	2-4	B4	>5	Clear	None	3.2	182	Deploying/Retrieving	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:07	13:37	40.82564	-70.41488	40.79949	-70.41170	58	4	S	2-4	B3	>5	Clear	None	4.3	130	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:37	13:58	40.79949	-70.41170	40.77724	-70.39148	58	4	S	2-4	B3	>5	Clear	None	4.3	131	Soft Start	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:58	14:00	40.77724	-70.39148	40.77489	-70.38935	52	5	WSW	2-4	B3	>5	Clear	None	5.2	138	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	14:42	40.77489	-70.38935	40.72407	-70.34519	54	6	S	2-4	B3	>5	Clear	None	5	136	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:42	14:47	40.72407	-70.34519	40.72127	-70.34518	54	5	SW	2-4	B3	>5	Clear	None	5	178	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:47	15:00	40.72127	-70.34518	40.70348	-70.34467	54	5	SW	2-4	B3	>5	Clear	Severe	4.8	178	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	40.70348	-70.34467	40.62846	-70.34315	50	5	SW	<2	B3	>5	Clear	Severe	4.6	179	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:30	40.62846	-70.34315	40.59283	-70.34247	60	9	SW	<2	B3	>5	Clear	Severe	4.4	169	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:30	16:37	40.59283	-70.34247	40.58406	-70.34220	57	7	SW	<2	B3	>5	Clear	Severe	4.4	171	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:37	16:40	40.58406	-70.34220	40.58141	-70.34215	60	7	SW	<2	B3	>5	Clear	Severe	4	171	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:40	17:00	40.58141	-70.34215	40.58796	-70.34237	60	10	SW	<2	B3	>5	Clear	Severe	3.7	187	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:00	18:00	40.58796	-70.34237	40.61757	-70.25790	60	10	NW	<2	B3	>5	Clear	Severe	4.3	38	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:00	18:30	40.61757	-70.25790	40.62591	-70.22347	57	4	WSW	<2	B3	>5	Clear	Severe	4.7	68	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	40.62591	-70.22347	40.62500	-70.27530	55	15	W	<2	B3	>5	Clear	Severe	4.7	259	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	40.62500	-70.27530	40.62384	-70.37848	55	14	W	<2	B3	>5	Clear	Severe	4.8	258	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	20:41	40.62384	-70.37848	40.62177	-70.44622	60	13	W	<2	B3	>5	Clear	Severe	4.8	259	Full Power	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:41	21:00	40.62177	-70.44622	40.62129	-70.47702	62	19	SW	<2	B3	>5	Clear	Moderate	4.5	261	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:45	40.62129	-70.47702	40.62860	-70.47050	62	17	SW	<2	B3	>5	Clear	Slight	3.4	256	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:45	22:00	40.62860	-70.47050	40.62877	-70.44349	60	10	SW	<2	B3	0.5-1	Clear	None	4.7	88	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:00	23:00	40.62877	-70.44349	40.62741	-70.43569	60	17	SW	<2	B4	0.3-0.5	Cloudy	None	3.8	165	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:50	40.62741	-70.43569	40.62944	-70.43403	61	18	SW	<2	B3	0.3-0.5	Cloudy	None	4.8	256	Silent	N/A
2022-12-02	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:50	00:00	40.62944	-70.43403	40.62965	-70.41734	60	12	S	<2	B3	0.3-0.5	Cloudy	None	4.8	87	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	40.62971	-70.41246	40.62881	-70.31374	59	12	SSW	<2	B3	0.5-1	Cloudy	None	4.9	85	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	40.62881	-70.31374	40.62890	-70.25550	56	9	SSW	<2	B3	0.5-1	Clear	None	4.7	84	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	40.62890	-70.25550	40.63037	-70.19722	55	16	SSW	<2	B3	0.5-1	Clear	None	5	236	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	40.63037	-70.19722	40.62680	-70.19215	52	17	S	<2	B3	0.5-1	Cloudy	None	4.4	88	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	40.62680	-70.19215	40.61781	-70.22529	53	19	SW	2-4	B4	0.5-1	Cloudy	None	4.7	256	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:03	40.61781	-70.22529	40.57904	-70.33835	55	23	SSW	<2	B4	0.5-1	Clear	None	4.5	228	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:03	07:00	40.57904	-70.33835	40.66995	-70.34435	60	24	SSW	2-4	B4	0.5-1	Clear	None	6	287	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	40.66995	-70.34435	40.71975	-70.37642	53	17	WSW	2-4	B4	0.5-1	Clear	None	6	357	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	08:15	40.71975	-70.37642	40.72475	-70.37373	51	18	SSW	2-4	B4	0.5-1	Clear	None	1.7	238	Silent	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:15	09:00	40.72475	-70.37373	40.81857	-70.41963	51	18	SSW	2-4	B4	0.5-1	Clear	None	7.7	329	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:02	40.81857	-70.41963	40.94563	-70.48959	51	23	SSW	2-4	B4	0.5-1	Clear	None	8.1	329	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:02	11:00	40.94563	-70.48959	41.05804	-70.56190	48	26	SSW	2-4	B4	0.5-1	Clear	None	7.8	325	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:15	41.05804	-70.56190	41.08587	-70.58092	43	24	SSW	2-4	B4	0.5-1	Cloudy	None	7.7	324	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:15	12:00	41.08587	-70.58092	41.16110	-70.65535	45	22	SSW	2-4	B4	2-5	Cloudy	None	7.8	315	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.16110	-70.65535	41.25424	-70.76091	45	18	SSW	2-4	B4	2-5	Cloudy	None	7.6	309	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.25424	-70.76091	41.33926	-70.86891	13	18	SSW	2-4	B4	2-5	Cloudy	None	6.8	306	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	41.33926	-70.86891	41.40923	-70.81811	28	18	S	2-4	B4	2-5	Cloudy	None	7.3	15	Transit	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	41.40923	-70.81811	41.44698	-70.74648	22	26	S	2-4	B5	2-5	Cloudy	None	4.2	54	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:34	41.44698	-70.74648	41.46444	-70.71001	26	25	S	2-4	B5	2-5	Cloudy	None	3.5	54	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:34	17:00	41.46444	-70.71001	41.47976	-70.68666	23	19	SSW	2-4	B5	2-5	Cloudy	None	3.3	45	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:00	18:00	41.47976	-70.68666	41.50108	-70.61113	23	19	S	2-4	B5	2-5	Cloudy	None	3.1	57	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:00	18:30	41.50108	-70.61113	41.49369	-70.58012	26	25	S	2-4	B5	2-5	Cloudy	None	3.1	108	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	41.49369	-70.58012	41.48319	-70.54678	28	24	S	2-4	B5	2-5	Cloudy	None	3.3	120	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.48319	-70.54678	41.48421	-70.54875	23	23	S	2-4	B5	2-5	Cloudy	None	3.5	115	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.48421	-70.54875	41.49402	-70.58994	22	32	SSW	2-4	B5	2-5	Precipitation	None	2.5	268	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:35	41.49402	-70.58994	41.49896	-70.60213	28	26	S	2-4	B5	2-5	Precipitation	None	1.5	273	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:35	22:05	41.49896	-70.60213	41.49166	-70.56336	28	28	SW	2-4	B6	0.5-1	Precipitation	None	1	256	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:05	22:59	41.49166	-70.56336	41.46638	-70.48661	25	34	SW	2-4	B6	0.3-0.5	Precipitation	None	5.9	131	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	22:59	23:50	41.46638	-70.48661	41.47468	-70.50860	18	29	SW	2-4	B6	0.3-0.5	Precipitation	None	3	147	Standby	N/A
2022-12-03	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:50	00:00	41.47468	-70.50860	41.47667	-70.51696	21	30	SW	2-4	B6	0.3-0.5	Precipitation	None	2.4	271	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.47695	-70.51804	41.49177	-70.56507	21	32	SW	2-4	B5	0.3-0.5	Cloudy	None	2.4	270	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.49177	-70.56507	41.47107	-70.49761	24	22	WSW	2-4	B4	0.3-0.5	Cloudy	None	3	129	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	02:12	41.47107	-70.49761	41.46740	-70.48343	17	17	WSW	2-4	B5	0.3-0.5	Cloudy	None	3.5	106	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:12	03:00	41.46740	-70.48343	41.48149	-70.54384	14	28	WSW	2-4	B5	0.3-0.5	Precipitation	None	1	253	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.48149	-70.54384	41.48418	-70.55960	23	40	SW	2-4	B5	0.3-0.5	Cloudy	None	4.6	282	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.48418	-70.55960	41.47275	-70.50544	22	26	SW	2-4	B5	0.3-0.5	Cloudy	None	2.1	97	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.47275	-70.50544	41.45929	-70.45251	19	22	NW	2-4	B5	0.3-0.5	Cloudy	None	2.4	97	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	06:00	07:00	41.45929	-70.45251	41.46297	-70.46688	21	20	NW	2-4	B5	0.3-0.5	Clear	None	2.7	97	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.46297	-70.46688	41.46959	-70.49283	17	30	WNW	2-4	B5	0.3-0.5	Clear	None	1.7	290	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.46959	-70.49283	41.48099	-70.53640	18	30	NW	2-4	B5	0.3-0.5	Clear	None	2.5	293	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.48099	-70.53640	41.48782	-70.56953	22	31	WNW	2-4	B5	0.3-0.5	Clear	None	1.8	286	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.48782	-70.56953	41.49781	-70.59392	22	25	WNW	<2	B4	0.5-1	Clear	None	1.3	288	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:14	41.49781	-70.59392	41.49518	-70.57719	25	30	WNW	<2	B3	1-2	Clear	None	1.8	280	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:14	12:00	41.49518	-70.57719	41.46598	-70.48807	25	22	WNW	<2	B3	2-5	Clear	None	6.5	110	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.46598	-70.48807	41.46796	-70.49216	23	20	NW	<2	B3	>5	Clear	Severe	5.1	97	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.46796	-70.49216	41.48136	-70.53808	14	25	SSW	<2	B3	>5	Clear	Severe	4.3	290	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	41.48136	-70.53808	41.47219	-70.50100	23	14	NNW	<2	B3	>5	Clear	Severe	4.1	100	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	41.47219	-70.50100	41.48106	-70.53540	18	17	NW	<2	B3	>5	Clear	Severe	3.9	102	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:46	41.48106	-70.53540	41.48442	-70.67146	21	18	W	<2	B3	>5	Clear	Severe	5.9	287	Standby	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:46	18:00	41.48442	-70.67146	41.37429	-70.86873	24	16	W	<2	B3	>5	Clear	Severe	9.5	233	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:00	18:30	41.37429	-70.86873	41.32011	-70.84082	28	5	W	<2	B3	>5	Clear	Severe	8.5	184	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	41.32011	-70.84082	41.27566	-70.78706	16	4	NE	<2	B3	>5	Clear	Severe	7.4	136	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.27566	-70.78706	41.17746	-70.67401	26	4	NE	<2	B3	>5	Clear	Severe	7.7	125	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.17746	-70.67401	41.07851	-70.55928	36	4	S	<2	B3	>5	Clear	Moderate	7.7	134	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:40	41.07851	-70.55928	41.00718	-70.49467	42	1	SSE	<2	B3	>5	Cloudy	None	7.7	134	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:40	23:00	41.00718	-70.49467	40.84789	-70.38801	46	1	SE	<2	B3	0.5-1	Clear	None	7.9	148	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:56	40.84789	-70.38801	40.73244	-70.31349	49	5	N	<2	B3	0.3-0.5	Clear	None	8.2	149	Transit	N/A
2022-12-04	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:56	00:00	40.73244	-70.31349	40.72472	-70.30865	48	2	W	<2	B3	0.3-0.5	Clear	None	7.9	151	Transit	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	00:50	40.71959	-70.30544	40.64253	-70.25503	49	3	W	<2	B3	0.5-1	Clear	None	8.3	151	Transit	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:50	01:00	40.64253	-70.25503	40.64293	-70.25133	52	9	NNE	<2	B2	0.5-1	Cloudy	None	1.2	177	Deploying/Retrieving	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Hernandez, Valeria	RPS	01:00	02:00	40.64293	-70.25133	40.62822	-70.23847	52	9	NNE	<2	B2	0.5-1	Cloudy	None	0.9	177	Deploying/Retrieving	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica; Hernandez, Valeria	RPS	02:00	03:00	40.62822	-70.23847	40.62672	-70.34965	54	6	N	<2	B2	0.5-1	Cloudy	None	4.9	264	Deploying/Retrieving	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	40.62672	-70.34965	40.63062	-70.42183	57	4	WNW	<2	B2	0.5-1	Clear	None	5.2	268	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	40.63062	-70.42183	40.63581	-70.38963	59	9	W	<2	B2	0.5-1	Clear	None	5.2	5	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-05	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	40.63581	-70.38963	40.62321	-70.38465	59	6	NW	<2	B2	0.5-1	Cloudy	None	5.1	285	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	40.62321	-70.38465	40.62581	-70.47884	59	6	WNW	<2	B1	0.5-1	Cloudy	None	4.7	280	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	40.62581	-70.47884	40.63112	-70.37732	62	4	E	<2	B1	0.5-1	Clear	None	4.1	70	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	40.63112	-70.37732	40.62077	-70.34500	59	5	ENE	<2	B1	0.5-1	Cloudy	None	4.5	100	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	40.62077	-70.34500	40.63039	-70.30664	58	10	ENE	<2	B1	0.5-1	Cloudy	None	4.4	60	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	40.63039	-70.30664	40.63171	-70.31951	55	14	ESE	<2	B1	0.5-1	Cloudy	None	4.6	100	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:11	40.63171	-70.31951	40.63191	-70.29821	56	16	E	<2	B2	1-2	Clear	None	4.8	79	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:11	12:00	40.63191	-70.29821	40.63050	-70.26384	54	17	E	<2	B2	2-5	Clear	None	4.4	91	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.63050	-70.26384	40.63167	-70.15553	53	13	ESE	<2	B2	>5	Clear	Severe	4.9	89	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	40.63167	-70.15553	40.63274	-70.04643	52	10	E	<2	B2	>5	Clear	Severe	5.1	85	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	40.63274	-70.04643	40.62813	-70.06085	53	13	ESE	<2	B2	>5	Clear	Severe	4.8	84	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	40.62813	-70.06085	40.62721	-70.17398	53	3	S	<2	B2	>5	Clear	Severe	4.9	268	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:37	40.62721	-70.17398	40.62578	-70.16295	52	10	S	<2	B2	>5	Clear	Severe	5.3	267	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:37	17:02	40.62578	-70.16295	40.62541	-70.20668	53	6	S	<2	B2	>5	Clear	Severe	5.1	270	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:02	18:00	40.62541	-70.20668	40.63322	-70.13152	53	1	SE	<2	B2	>5	Clear	Severe	4.6	305	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:00	18:30	40.63322	-70.13152	40.63372	-70.08447	51	7	SE	<2	B2	>5	Clear	Severe	3.8	83	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	40.63372	-70.08447	40.63417	-70.03788	52	9	E	<2	B2	>5	Clear	Severe	4.4	82	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	40.63417	-70.03788	40.62645	-70.06734	53	11	SE	<2	B2	>5	Clear	Severe	4	82	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	40.62645	-70.06734	40.63286	-70.16335	53	5	S	<2	B2	>5	Clear	Severe	4.9	262	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:35	40.63286	-70.16335	40.63303	-70.18112	52	7	SE	<2	B3	>5	Clear	Severe	4	99	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:35	22:00	40.63303	-70.18112	40.62633	-70.14678	52	16	SE	<2	B3	0.5-1	Clear	None	4.4	103	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:00	23:00	40.62633	-70.14678	40.63045	-70.17079	53	10	SE	<2	B3	0.5-1	Clear	None	5.2	233	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:54	40.63045	-70.17079	40.62947	-70.13514	52	16	E	<2	B3	0.5-1	Clear	None	4.9	95	Silent	N/A
2022-12-05	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:54	00:00	40.62947	-70.13514	40.62939	-70.14563	52	4	S	<2	B3	0.5-1	Clear	None	5.3	259	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	40.63011	-70.15278	40.63323	-70.11730	51	12	E	<2	B3	0.5-1	Clear	None	5.3	56	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	40.63323	-70.11730	40.62921	-70.09646	51	16	E	<2	B3	0.5-1	Clear	None	5.2	91	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	40.62921	-70.09646	40.62798	-70.21014	52	7	ESE	<2	B3	0.5-1	Clear	None	4.9	263	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	40.62798	-70.21014	40.62683	-70.32948	52	11	SE	<2	B3	0.5-1	Clear	None	5.2	264	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	40.62683	-70.32948	40.62503	-70.27526	52	11	SE	<2	B3	0.5-1	Clear	None	4.9	359	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	40.62503	-70.27526	40.62467	-70.22878	55	10	ESE	<2	B3	0.5-1	Clear	None	4.9	272	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	40.62467	-70.22878	40.62639	-70.28591	54	10	ESE	<2	B3	0.5-1	Clear	None	5	264	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	40.62639	-70.28591	40.62879	-70.25276	50	10	ESE	<2	B3	0.5-1	Clear	None	5.1	260	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	40.62879	-70.25276	40.63032	-70.15430	54	19	E	<2	B3	0.5-1	Clear	None	5	85	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	40.63032	-70.15430	40.63127	-70.05323	51	22	ESE	<2	B3	0.5-1	Clear	None	4.7	87	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	40.63127	-70.05323	40.62906	-70.04428	52	22	E	<2	B4	0.5-1	Clear	None	4.5	89	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:14	40.62906	-70.04428	40.62884	-70.06788	52	20	ESE	<2	B4	2-5	Clear	None	4.5	259	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:14	11:25	40.62884	-70.06788	40.62858	-70.08701	52	20	ESE	<2	B4	1-2	Clear	None	4.8	262	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:25	12:00	40.62858	-70.08701	40.62818	-70.13978	52	19	ESE	<2	B4	2-5	Clear	None	4.6	259	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.62818	-70.13978	40.63463	-70.10633	53	12	ESE	<2	B4	>5	Clear	Severe	4.2	259	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	40.63463	-70.10633	40.63512	-70.06462	52	20	ESE	<2	B4	>5	Clear	Severe	6.1	86	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	40.63512	-70.06462	40.63652	-70.03011	53	20	ESE	<2	B4	>5	Clear	Severe	4.7	85	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	40.63652	-70.03011	40.63995	-70.03195	54	18	SE	<2	B4	>5	Cloudy	Severe	4.6	75	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:37	40.63995	-70.03195	40.63551	-70.04526	52	23	ESE	2-4	B5	>5	Cloudy	Severe	4.9	76	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:37	17:08	40.63551	-70.04526	40.63503	-70.10090	52	19	SE	<2	B4	>5	Cloudy	Severe	5.1	272	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:08	18:04	40.63503	-70.10090	40.63366	-70.20761	51	19	SE	<2	B4	>5	Cloudy	Severe	5.3	274	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:04	18:30	40.63366	-70.20761	40.63330	-70.25740	52	18	SE	<2	B4	>5	Cloudy	Severe	5.2	264	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	40.63330	-70.25740	40.63278	-70.31557	54	20	SE	<2	B4	>5	Cloudy	Severe	5.8	263	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	40.63278	-70.31557	40.63132	-70.43469	56	22	SE	<2	B4	>5	Cloudy	Severe	5.6	264	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	40.63132	-70.43469	40.62303	-70.46189	60	23	SE	<2	B4	>5	Cloudy	Moderate	5.3	161	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:40	40.62303	-70.46189	40.62505	-70.43080	62	23	ESE	2-4	B4	>5	Cloudy	None	3.9	91	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:40	22:01	40.62505	-70.43080	40.62267	-70.42759	62	22	E	2-4	B5	1-2	Clear	None	4.5	91	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:01	23:00	40.62267	-70.42759	40.63486	-70.49389	61	22	E	2-4	B4	0.5-1	Clear	None	3.7	270	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:47	40.63486	-70.49389	40.63624	-70.45028	62	21	S	2-4	B4	0.5-1	Clear	None	2.6	95	Silent	N/A
2022-12-06	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:47	00:00	40.63624	-70.45028	40.63274	-70.43215	61	23	E	2-4	B4	0.5-1	Clear	None	2.8	102	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	40.63164	-70.42580	40.62419	-70.46502	61	26	ESE	2-4	B5	0.5-1	Clear	None	4.9	106	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	40.62419	-70.46502	40.62663	-70.39932	62	25	ESE	2-4	B5	0.5-1	Cloudy	None	3.3	93	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	40.62663	-70.39932	40.62595	-70.33602	60	23	ESE	2-4	B5	0.5-1	Cloudy	None	3.3	102	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	40.62595	-70.33602	40.62562	-70.27166	58	26	ESE	2-4	B5	0.5-1	Cloudy	None	2.7	99	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	04:55	40.62562	-70.27166	40.62663	-70.21630	55	20	SE	2-4	B5	0.5-1	Cloudy	None	3.1	93	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:55	05:00	40.62663	-70.21630	40.62652	-70.21793	54	20	ESE	2-4	B5	0.5-1	Cloudy	None	2.1	14	Deploying/Retrieving	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	05:15	40.62652	-70.21793	40.62887	-70.23374	54	17	ESE	2-4	B5	0.5-1	Cloudy	None	2.9	24	Deploying/Retrieving	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:15	06:00	40.62887	-70.23374	40.63246	-70.30974	54	17	ESE	2-4	B5	0.5-1	Cloudy	None	2.9	24	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	40.63246	-70.30974	40.63349	-70.36041	56	20	ESE	2-4	B5	0.5-1	Cloudy	None	4.9	265	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	40.63349	-70.36041	40.63032	-70.29597	58	20	ESE	2-4	B5	0.5-1	Cloudy	None	3.1	100	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	40.63032	-70.29597	40.62993	-70.22889	55	21	ESE	2-4	B5	0.5-1	Cloudy	None	3.3	90	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	40.62993	-70.22889	40.63199	-70.16279	56	26	ESE	2-4	B5	0.5-1	Cloudy	None	3.4	90	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	40.63199	-70.16279	40.63378	-70.08758	55	22	ESE	2-4	B5	0.5-1	Cloudy	None	3	91	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:20	40.63378	-70.08758	40.63458	-70.11547	56	29	SE	2-4	B5	0.5-1	Cloudy	None	3.3	96	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:20	12:00	40.63458	-70.11547	40.63147	-70.20537	52	19	SE	2-4	B4	1-2	Precipitation	None	3.8	256	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	40.63147	-70.20537	40.62656	-70.36919	54	9	SSE	2-4	B4	2-5	Precipitation	None	7.4	254	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	13:41	40.62656	-70.36919	40.63491	-70.42274	60	13	ESE	2-4	B4	2-5	Precipitation	None	0.9	10	Standby	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:41	13:42	40.63491	-70.42274	40.63501	-70.42388	59	10	SE	2-4	B4	2-5	Precipitation	None	3.8	265	Deploying/Retrieving	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:42	14:00	40.63501	-70.42388	40.63599	-70.45189	61	9	S	2-4	B4	2-5	Precipitation	None	4.7	261	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	40.63599	-70.45189	40.63039	-70.40305	61	9	ESE	2-4	B4	2-5	Precipitation	None	5	264	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	40.63039	-70.40305	40.66523	-70.32201	59	15	ESE	2-4	B4	2-5	Precipitation	Slight	4.6	86	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:37	40.66523	-70.32201	40.65610	-70.38617	52	17	SE	2-4	B4	2-5	Cloudy	None	4.9	252	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:37	17:00	40.65610	-70.38617	40.64930	-70.41569	57	12	SE	2-4	B4	>5	Cloudy	Slight	5.1	265	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:00	18:00	40.64930	-70.41569	40.65961	-70.31893	58	20	SE	2-4	B4	>5	Cloudy	Slight	4.9	116	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:00	18:37	40.65961	-70.31893	40.66038	-70.26189	52	17	SE	2-4	B4	>5	Cloudy	None	4.5	86	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:37	19:00	40.66038	-70.26189	40.66079	-70.22963	50	20	SE	2-4	B4	>5	Cloudy	None	4.1	83	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	40.66079	-70.22963	40.66613	-70.14327	58	16	SE	2-4	B4	>5	Cloudy	None	4	82	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:01	40.66613	-70.14327	40.66278	-70.06577	48	16	SE	2-4	B4	>5	Cloudy	None	4.2	84	Silent	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:01	21:27	40.66278	-70.06577	40.66944	-70.08734	48	12	S	2-4	B4	2-5	Cloudy	None	3.6	269	Deploying/Retrieving	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:27	21:32	40.66944	-70.08734	40.67490	-70.09068	46	14	S	2-4	B4	0.5-1	Precipitation	None	4.7	347	Deploying/Retrieving	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:32	22:02	40.67490	-70.09068	40.73057	-70.15212	46	11	S	2-4	B4	0.5-1	Precipitation	None	9.3	318	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-07	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:02	23:00	40.73057	-70.15212	40.83889	-70.27259	43	13	SSW	2-4	B4	0.5-1	Precipitation	None	9	315	Transit	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:45	40.83889	-70.27259	40.91838	-70.36751	45	14	S	2-4	B4	0.5-1	Precipitation	None	9.1	309	Transit	N/A
2022-12-07	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:45	00:00	40.91838	-70.36751	40.94252	-70.39671	44	18	SE	2-4	B4	0.5-1	Precipitation	None	8.5	308	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	40.94679	-70.40189	41.04342	-70.51078	44	19	S	2-4	B4	0.5-1	Cloudy	None	7.6	309	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.04342	-70.51078	41.13855	-70.62597	47	17	SW	2-4	B4	0.3-0.5	Precipitation	None	7.7	308	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.13855	-70.62597	41.23396	-70.73323	41	22	WSW	2-4	B4	0.1-0.3	Precipitation	None	7.5	308	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	03:24	41.23396	-70.73323	41.27082	-70.77731	30	27	W	2-4	B4	0.05-0.1	Fog	None	7.6	311	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:24	03:34	41.27082	-70.77731	41.28318	-70.79470	15	25	W	2-4	B4	0.3-0.5	Fog	None	6	306	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:34	03:52	41.28318	-70.79470	41.30622	-70.82739	11	27	W	2-4	B4	0.5-1	Fog	None	6.5	305	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:52	04:00	41.30622	-70.82739	41.31683	-70.84165	17	27	W	2-4	B4	0.3-0.5	Fog	None	7	305	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	04:47	41.31683	-70.84165	41.39266	-70.85499	23	23	SW	2-4	B4	0.3-0.5	Fog	None	8	309	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:47	05:00	41.39266	-70.85499	41.40261	-70.84205	26	14	W	<2	B3	0.05-0.1	Fog	None	4.3	41	Transit	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.40261	-70.84205	41.43272	-70.78385	17	12	W	<2	B3	0.05-0.1	Fog	None	4.4	45	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	06:15	41.43272	-70.78385	41.43704	-70.76333	23	4	W	<2	B2	0.5-1	Fog	None	3.3	65	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:15	07:00	41.43704	-70.76333	41.45779	-70.72396	24	11	W	<2	B2	0.05-0.1	Fog	None	3.3	65	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	07:21	41.45779	-70.72396	41.46680	-70.70948	19	4	WSW	<2	B2	0.05-0.1	Fog	None	2.5	50	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:21	08:00	41.46680	-70.70948	41.48032	-70.68218	22	2	W	<2	B2	0.3-0.5	Fog	None	2.4	45	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.48032	-70.68218	41.47175	-70.70692	23	8	NW	<2	B2	0.5-1	Clear	None	2.3	55	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.47175	-70.70692	41.43252	-70.77829	21	20	WNW	<2	B2	0.5-1	Clear	None	4.6	234	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.43252	-70.77829	41.46576	-70.71050	23	13	WNW	<2	B2	0.5-1	Cloudy	None	3.1	229	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:16	41.46576	-70.71050	41.47476	-70.69118	24	12	NW	<2	B2	1-2	Clear	None	3.7	51	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:16	11:35	41.47476	-70.69118	41.48281	-70.67215	22	13	WNW	<2	B2	2-5	Clear	None	4.3	50	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:35	12:00	41.48281	-70.67215	41.47410	-70.69346	24	15	NNW	<2	B2	>5	Clear	None	3.9	50	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.47410	-70.69346	41.45161	-70.74395	25	14	NW	<2	B2	>5	Clear	Moderate	2.6	233	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.45161	-70.74395	41.42414	-70.78941	24	10	NW	<2	B2	>5	Clear	Severe	2.7	230	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:02	41.42414	-70.78941	41.46325	-70.71040	22	18	NW	<2	B2	>5	Clear	Severe	4.5	45	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:02	16:00	41.46325	-70.71040	41.46689	-70.70465	21	16	NW	<2	B3	>5	Clear	Severe	4.1	45	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:34	41.46689	-70.70465	41.45004	-70.73925	22	17	NW	<2	B3	>5	Clear	Severe	2.9	237	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:34	17:00	41.45004	-70.73925	41.43513	-70.76959	26	13	NW	<2	B3	>5	Clear	Severe	3.4	237	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:00	18:01	41.43513	-70.76959	41.41886	-70.80799	23	13	NW	<2	B3	>5	Clear	Severe	4	237	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	18:01	18:30	41.41886	-70.80799	41.42743	-70.79515	23	17	NNW	<2	B3	>5	Clear	Severe	2	37	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	18:30	19:00	41.42743	-70.79515	41.43328	-70.78184	24	15	NW	<2	B3	>5	Clear	Severe	1.4	50	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	19:00	20:00	41.43328	-70.78184	41.44175	-70.75411	24	19	N	<2	B3	>5	Clear	Severe	1.3	43	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	20:00	21:00	41.44175	-70.75411	41.46050	-70.72008	23	17	N	<2	B3	>5	Clear	Severe	2.1	38	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:00	21:40	41.46050	-70.72008	41.47596	-70.69769	20	10	NW	<2	B3	>5	Clear	Slight	1.5	40	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	21:40	22:01	41.47596	-70.69769	41.45839	-70.72762	23	11	NW	<2	B3	1-2	Clear	None	5.3	226	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	22:01	23:00	41.45839	-70.72762	41.42247	-70.79088	22	12	NNW	<2	B3	0.5-1	Clear	None	4.4	229	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:00	23:57	41.42247	-70.79088	41.43137	-70.78355	23	13	NW	<2	B3	0.5-1	Cloudy	None	3.2	231	Standby	N/A
2022-12-08	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	23:57	00:00	41.43137	-70.78355	41.43280	-70.78075	23	20	NNE	<2	B3	0.5-1	Clear	None	3.8	39	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	00:00	01:00	41.43434	-70.77759	41.47237	-70.70053	24	19	NNE	<2	B3	0.5-1	Clear	None	4.1	40	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	01:00	02:00	41.47237	-70.70053	41.47562	-70.69057	24	22	N	<2	B3	0.5-1	Cloudy	None	4.7	46	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	02:00	03:00	41.47562	-70.69057	41.45467	-70.73932	26	20	N	<2	B3	0.5-1	Clear	None	2.1	235	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	03:00	04:00	41.45467	-70.73932	41.43509	-70.77693	30	18	N	<2	B3	0.5-1	Clear	None	3.1	233	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	04:00	05:00	41.43509	-70.77693	41.47727	-70.69346	24	20	N	<2	B3	0.5-1	Clear	None	4.7	44	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	05:00	06:00	41.47727	-70.69346	41.47077	-70.70305	24	21	N	<2	B3	0.5-1	Clear	None	4.3	46	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	06:00	07:00	41.47077	-70.70305	41.42330	-70.79997	22	14	N	<2	B3	0.5-1	Clear	None	5	240	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	41.42330	-70.79997	41.44374	-70.75307	18	22	N	<2	B3	0.5-1	Clear	None	2	45	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	08:00	09:00	41.44374	-70.75307	41.46843	-70.71089	24	18	N	<2	B3	0.5-1	Clear	None	2.4	40	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	09:00	10:00	41.46843	-70.71089	41.48821	-70.66388	24	21	N	<2	B4	0.5-1	Clear	None	2.6	48	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	10:00	11:00	41.48821	-70.66388	41.45066	-70.74241	26	18	N	<2	B4	0.5-1	Clear	None	2.6	58	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:00	11:22	41.45066	-70.74241	41.43691	-70.77047	27	16	NNW	<2	B3	0.5-1	Clear	None	4.2	237	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	11:22	12:00	41.43691	-70.77047	41.42299	-70.80364	25	14	NNW	<2	B3	1-2	Clear	None	3.7	237	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	12:00	13:00	41.42299	-70.80364	41.46572	-70.71107	23	21	NE	<2	B3	>5	Clear	Severe	4.8	46	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	13:00	14:00	41.46572	-70.71107	41.46663	-70.71396	27	26	N	<2	B3	>5	Clear	Severe	5.2	46	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	14:00	15:00	41.46663	-70.71396	41.43771	-70.77730	21	19	N	<2	B3	>5	Clear	Severe	2.3	237	Standby	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	15:00	16:00	41.43771	-70.77730	41.49272	-70.83800	27	19	NNW	<2	B3	>5	Clear	Severe	7.2	250	Transit	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Danielski, Monica	RPS	16:00	16:35	41.49272	-70.83800	41.54405	-70.85438	17	25	N	<2	B3	>5	Clear	Severe	5.3	6	Transit	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	16:35	17:11	41.54405	-70.85438	41.60450	-70.89302	11	26	N	<2	B3	>5	Clear	Severe	6.6	336	Transit	N/A
2022-12-09	*GO Pursuit*	HRG	Visual	Ramsaran, Keishan	RPS	17:11	17:50	41.60450	-70.89302	41.62137	-70.91358	10	19	N	<2	B3	>5	Clear	Severe	4.5	333	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:35	04:00	41.62141	-70.91346	41.61960	-70.90287	6	11	W	<2	B1	0.5-1	Clear	None	0.3	160	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	05:00	41.61960	-70.90287	41.52819	-70.84195	9	15	W	<2	B1	0.5-1	Clear	None	6.1	158	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	41.52819	-70.84195	41.46450	-70.84421	12	17	W	<2	B1	0.5-1	Clear	None	8	155	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	41.46450	-70.84421	41.39498	-70.84589	28	20	WNW	<2	B3	0.5-1	Clear	None	5.3	188	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	41.39498	-70.84589	41.35409	-70.87127	28	21	NW	<2	B3	0.5-1	Clear	None	3.3	218	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	41.35409	-70.87127	41.29882	-70.81884	29	22	NW	<2	B4	0.5-1	Clear	None	3.4	190	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	41.29882	-70.81884	41.23923	-70.74061	32	22	NW	<2	B4	0.5-1	Clear	None	5	190	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	41.23923	-70.74061	41.18230	-70.66369	30	19	NW	<2	B4	0.5-1	Clear	None	5.1	135	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:37	41.18230	-70.66369	41.14599	-70.61672	35	20	N	<2	B4	0.5-1	Clear	None	4.8	104	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:37	12:00	41.14599	-70.61672	41.12758	-70.59311	42	18	NW	<2	B4	2-5	Clear	None	4.9	137	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	41.12758	-70.59311	41.05005	-70.49990	43	22	NW	<2	B4	2-5	Clear	None	4.8	138	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	41.05005	-70.49990	40.93139	-70.38161	45	20	NW	<2	B4	>5	Clear	Severe	9.1	139	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.93139	-70.38161	40.81120	-70.27690	45	15	SE	<2	B4	>5	Clear	Severe	9	138	Transit	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:17	40.81120	-70.27690	40.79175	-70.26509	45	15	SE	<2	B4	>5	Cloudy	Moderate	4.9	126	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:17	16:00	40.79175	-70.26509	40.75300	-70.26448	45	15	SE	2-4	B4	>5	Cloudy	Severe	4.9	148	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	17:00	40.75300	-70.26448	40.74168	-70.29588	47	17	N	2-4	B4	>5	Cloudy	Severe	3.9	307	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.74168	-70.29588	40.73789	-70.27585	48	15	NNE	2-4	B4	>5	Cloudy	Severe	5	137	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	19:00	40.73789	-70.27585	40.78703	-70.27366	51	20	N	2-4	B4	>5	Clear	Severe	4.2	358	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	20:00	40.78703	-70.27366	40.77574	-70.28332	46	5	N	2-4	B4	>5	Clear	Severe	6.6	175	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	40.77574	-70.28332	40.78564	-70.27073	50	18	N	2-4	B4	>5	Clear	Severe	4.1	6	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:31	40.78564	-70.27073	40.80139	-70.26485	47	10	NNW	<2	B4	>5	Clear	Slight	3.8	169	Standby	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:31	21:52	40.80139	-70.26485	40.80161	-70.26411	46	8	NNW	<2	B3	>5	Clear	None	0.6	219	Deploying/Retrieving	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	21:52	22:00	40.80161	-70.26411	40.80161	-70.26411	46	6	WNW	<2	B3	1-2	Clear	None	2.5	46	Deploying/Retrieving	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	22:24	40.80161	-70.26411	40.81275	-70.23842	46	6	WNW	<2	B3	0.5-1	Clear	None	2.5	46	Deploying/Retrieving	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:24	22:45	40.81275	-70.23842	40.79914	-70.25033	42	8	WNW	<2	B3	0.5-1	Cloudy	None	3.5	179	Soft Start	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:45	22:55	40.79914	-70.25033	40.79351	-70.25827	48	8	NW	<2	B3	0.5-1	Cloudy	None	3.3	226	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:55	23:00	40.79351	-70.25827	40.79074	-70.26214	45	8	NW	<2	B3	0.5-1	Clear	None	3.4	226	Silent	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:35	40.79074	-70.26214	40.77265	-70.28360	45	8	NW	<2	B3	0.5-1	Clear	None	3.4	226	Deploying/Retrieving	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:35	23:43	40.77265	-70.28360	40.76945	-70.28720	46	7	N	<2	B3	0.5-1	Clear	None	2.3	223	Deploying/Retrieving	N/A
2022-12-20	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:43	00:00	40.76945	-70.28720	40.77716	-70.28783	47	8	N	<2	B3	0.5-1	Clear	None	1.8	223	Soft Start	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	00:04	40.78072	-70.28260	40.78072	-70.28260	47	13	N	<2	B3	0.5-1	Clear	None	4.7	35	Soft Start	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:04	00:22	40.78072	-70.28260	40.79334	-70.25911	47	13	N	<2	B3	0.5-1	Clear	None	4.7	35	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:22	00:27	40.79334	-70.25911	40.78675	-70.25854	45	10	N	<2	B3	0.5-1	Clear	None	4.7	180	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:27	01:00	40.78675	-70.25854	40.74510	-70.25781	45	10	N	<2	B3	0.5-1	Clear	None	4.7	180	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	02:00	40.74510	-70.25781	40.66371	-70.25616	48	6	NNW	<2	B3	0.5-1	Clear	None	4.8	178	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:00	02:38	40.66371	-70.25616	40.61249	-70.25563	48	9	N	<2	B3	0.5-1	Clear	None	4.7	179	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:38	03:00	40.61249	-70.25563	40.61676	-70.25454	57	7	N	<2	B3	0.5-1	Clear	None	4.3	210	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:00	04:00	40.61676	-70.25454	40.61603	-70.16784	56	14	NNW	<2	B3	0.5-1	Clear	None	4.6	76	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	04:04	40.61603	-70.16784	40.62087	-70.16793	56	9	NNW	<2	B3	0.5-1	Clear	None	5.1	237	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:04	05:00	40.62087	-70.16793	40.68743	-70.16911	53	13	N	<2	B3	0.5-1	Clear	None	4.5	358	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	05:47	40.68743	-70.16911	40.75612	-70.17038	46	13	N	<2	B3	0.5-1	Clear	None	4.5	358	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:47	05:49	40.75612	-70.17038	40.75866	-70.17043	43	18	N	<2	B3	0.5-1	Clear	None	5.6	2	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	05:49	06:36	40.75866	-70.17043	40.76318	-70.12926	42	14	NNW	<2	B3	0.5-1	Clear	None	5.1	3	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:36	06:38	40.76318	-70.12926	40.76114	-70.12720	41	3	NNW	<2	B3	0.5-1	Cloudy	None	3	152	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:38	07:00	40.76114	-70.12720	40.73291	-70.12595	41	3	NNW	<2	B3	0.5-1	Cloudy	None	3	152	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:27	40.73291	-70.12595	40.61917	-70.12404	43	3	NNW	<2	B3	0.5-1	Cloudy	None	5	167	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:27	09:00	40.61917	-70.12404	40.61821	-70.10066	55	2	N	<2	B3	0.5-1	Cloudy	None	4.9	82	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	09:24	40.61821	-70.10066	40.61607	-70.08100	55	11	NNE	<2	B3	0.5-1	Clear	None	4.9	82	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:24	09:29	40.61607	-70.08100	40.62119	-70.08032	56	12	N	<2	B3	0.5-1	Cloudy	None	3.8	1	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:29	10:00	40.62119	-70.08032	40.65977	-70.08100	56	12	N	<2	B3	0.5-1	Cloudy	None	4	349	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	40.65977	-70.08100	40.73882	-70.08228	49	14	N	<2	B3	0.5-1	Cloudy	None	4	352	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:14	40.73882	-70.08228	40.75676	-70.08258	40	16	N	<2	B3	0.5-1	Cloudy	None	4.7	349	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:14	11:16	40.75676	-70.08258	40.75932	-70.08262	41	14	N	<2	B3	0.5-1	Cloudy	None	4.5	357	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:16	11:40	40.75932	-70.08262	40.74455	-70.06057	41	14	N	<2	B3	0.5-1	Cloudy	None	4.5	357	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:40	12:00	40.74455	-70.06057	40.72098	-70.04308	44	14	N	<2	B3	2-5	Cloudy	None	5.8	155	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	12:51	40.72098	-70.04308	40.66875	-70.01946	44	14	N	<2	B3	2-5	Cloudy	None	5.8	155	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:51	13:00	40.66875	-70.01946	40.66855	-70.03181	49	10	NNW	<2	B3	2-5	Cloudy	None	4.1	261	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.66855	-70.03181	40.66775	-70.12320	49	9	NNW	<2	B3	2-5	Cloudy	None	4.2	263	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:15	40.66775	-70.12320	40.66750	-70.15204	47	7	NNE	<2	B3	>5	Cloudy	None	4.3	270	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:15	14:18	40.66750	-70.15204	40.66730	-70.15721	47	7	NNE	<2	B3	>5	Cloudy	None	4.3	270	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:18	14:53	40.66730	-70.15721	40.66016	-70.20531	47	7	NNE	<2	B3	>5	Cloudy	None	4.5	216	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:53	14:57	40.66016	-70.20531	40.66089	-70.19856	46	7	NNE	<2	B3	>5	Cloudy	Severe	4.5	216	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:57	15:00	40.66089	-70.19856	40.66101	-70.19337	46	7	NNE	<2	B3	>5	Cloudy	Severe	4.5	216	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:15	40.66101	-70.19337	40.66131	-70.16791	47	11	NE	<2	B3	>5	Cloudy	Severe	4.6	216	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:15	15:17	40.66131	-70.16791	40.66132	-70.16404	47	11	NE	<2	B2	>5	Cloudy	Severe	4.6	216	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:17	16:00	40.66132	-70.16404	40.65413	-70.20012	47	11	NE	<2	B2	>5	Cloudy	Severe	5.3	216	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	16:01	40.65413	-70.20012	40.65504	-70.19905	47	11	NE	<2	B2	>5	Cloudy	Severe	5.3	74	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:01	16:05	40.65504	-70.19905	40.65571	-70.19243	47	11	NE	<2	B2	>5	Cloudy	Severe	5.3	75	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:05	16:20	40.65571	-70.19243	40.65608	-70.16710	47	9	N	<2	B2	>5	Cloudy	Severe	4.7	76	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:20	17:00	40.65608	-70.16710	40.65701	-70.21079	48	5	NW	<2	B2	>5	Cloudy	Severe	5	74	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	17:42	40.65701	-70.21079	40.66757	-70.29166	49	8	W	<2	B2	>5	Cloudy	Moderate	4.8	285	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:42	17:44	40.66757	-70.29166	40.66753	-70.29547	50	5	WNW	<2	B2	>5	Cloudy	Slight	5.2	266	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:44	18:18	40.66753	-70.29547	40.66724	-70.35625	50	5	WNW	<2	B2	>5	Cloudy	Slight	5.2	266	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:18	18:48	40.66724	-70.35625	40.66738	-70.34609	52	8	WNW	<2	B2	>5	Cloudy	Slight	5.1	269	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:48	18:51	40.66738	-70.34609	40.66694	-70.35161	52	6	WNW	<2	B2	>5	Cloudy	Slight	5.2	255	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:51	19:00	40.66694	-70.35161	40.66666	-70.36746	52	6	WNW	<2	B2	>5	Cloudy	Slight	5.2	255	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	19:19	40.66666	-70.36746	40.66645	-70.40089	55	3	WSW	<2	B2	>5	Cloudy	Moderate	4.8	266	Full Power	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:19	19:43	40.66645	-70.40089	40.66042	-70.40679	55	3	WSW	<2	B2	>5	Cloudy	Moderate	4.8	266	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:43	20:00	40.66042	-70.40679	40.66090	-70.43484	55	3	WSW	<2	B2	>5	Cloudy	Moderate	4.8	266	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	20:16	40.66090	-70.43484	40.65759	-70.43125	57	6	WSW	<2	B2	>5	Cloudy	Slight	4.9	319	Silent	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:16	20:45	40.65759	-70.43125	40.63357	-70.44263	56	5	W	<2	B2	>5	Cloudy	Moderate	4.2	184	Deploying/Retrieving	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:45	21:00	40.63357	-70.44263	40.61690	-70.45143	56	5	W	<2	B2	>5	Cloudy	Moderate	4.2	184	Deploying/Retrieving	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:55	40.61690	-70.45143	40.60571	-70.45431	60	5	W	<2	B2	>5	Cloudy	Severe	4.5	254	Standby	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria, Toxtle, Miguel	RPS	21:55	22:00	40.60571	-70.45431	40.60713	-70.44688	57	3	NNW	<2	B2	1-2	Cloudy	None	4.6	80	Standby	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria, Toxtle, Miguel	RPS	22:00	23:00	40.60713	-70.44688	40.62314	-70.34264	57	5	E	<2	B2	0.5-1	Cloudy	None	5	80	Standby	N/A
2022-12-21	*GO Pursuit*	HRG	Visual	Hernandez, Valeria, Toxtle, Miguel	RPS	23:00	00:00	40.62314	-70.34264	40.62850	-70.27179	57	8	ENE	<2	B1	0.5-1	Clear	None	5.2	93	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria, Toxtle, Miguel	RPS	00:00	01:00	40.62687	-70.28230	40.61079	-70.32305	55	5	E	<2	B1	0.5-1	Clear	None	4.6	242	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	02:00	40.61079	-70.32305	40.60043	-70.30814	59	6	ESE	<2	B1	0.5-1	Clear	None	5.1	151	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:00	03:00	40.60043	-70.30814	40.64524	-70.29981	60	9	ESE	<2	B1	0.5-1	Clear	None	5	87	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:00	04:00	40.64524	-70.29981	40.66078	-70.28088	54	8	NNE	<2	B1	0.5-1	Clear	None	4.8	353	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	05:00	40.66078	-70.28088	40.65976	-70.21348	52	1	N	<2	B1	0.5-1	Clear	None	5.1	262	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.65976	-70.21348	40.65699	-70.11462	50	1	N	<2	B1	0.5-1	Clear	None	4.6	74	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	40.65699	-70.11462	40.64898	-70.21114	49	5	SSW	<2	B1	0.5-1	Clear	None	5	220	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.64898	-70.21114	40.62487	-70.14828	50	3	WNW	<2	B1	0.5-1	Clear	None	4.9	195	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.62487	-70.14828	40.65752	-70.07247	53	12	E	<2	B1	0.5-1	Clear	None	5.4	87	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	40.65752	-70.07247	40.66982	-70.12481	49	8	ENE	<2	B1	0.5-1	Clear	None	5	8	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	10:41	40.66982	-70.12481	40.68896	-70.07176	47	16	E	<2	B1	0.5-1	Clear	None	4.8	59	Standby	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:41	10:59	40.68896	-70.07176	40.69721	-70.05344	47	16	E	<2	B2	0.5-1	Clear	None	2.7	64	Deploying/Retrieving	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:59	11:00	40.69721	-70.05344	40.69814	-70.05228	46	15	E	<2	B2	0.5-1	Clear	None	4.8	40	Soft Start	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:20	40.69814	-70.05228	40.71590	-70.02696	46	15	E	<2	B2	0.5-1	Clear	None	4.8	40	Soft Start	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:20	11:41	40.71590	-70.02696	40.71724	-70.01118	45	15	E	<2	B2	0.5-1	Clear	None	4.5	42	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:41	11:44	40.71724	-70.01118	40.71642	-70.01555	45	9	E	<2	B2	0.5-1	Clear	None	3.3	249	Silent	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:44	11:48	40.71642	-70.01555	40.71638	-70.02081	45	9	E	<2	B2	0.5-1	Clear	None	3.3	249	Silent	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:48	12:00	40.71638	-70.02081	40.71623	-70.03664	44	9	E	<2	B2	2-5	Clear	Moderate	3.3	264	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.71623	-70.03664	40.71556	-70.11595	45	15	E	<2	B3	>5	Clear	Moderate	3.6	264	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.71556	-70.11595	40.71470	-70.20550	46	15	E	<2	B3	>5	Clear	Moderate	3.6	264	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.71470	-70.20550	40.71368	-70.30118	46	14	E	<2	B3	>5	Clear	Severe	4.6	268	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:33	40.71368	-70.30118	40.71299	-70.35634	48	22	E	<2	B4	>5	Cloudy	Moderate	4.5	264	Full Power	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:33	15:50	40.71299	-70.35634	40.71712	-70.36542	50	18	E	<2	B4	>5	Cloudy	Moderate	4.6	264	Silent	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:50	16:00	40.71712	-70.36542	40.71763	-70.36073	50	25	E	<2	B4	>5	Cloudy	Slight	1.2	90	Deploying/Retrieving	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	16:16	40.71763	-70.36073	40.71815	-70.34866	50	23	E	<2	B4	>5	Cloudy	Slight	1.5	86	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:16	16:30	40.71815	-70.34866	40.71878	-70.35100	50	23	E	<2	B4	>5	Cloudy	Slight	1.5	86	Deploying/Retrieving	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:30	17:00	40.71878	-70.35100	40.76425	-70.39521	50	13	NE	<2	B4	>5	Cloudy	Slight	7	323	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.76425	-70.39521	40.89362	-70.50388	52	21	E	<2	B4	>5	Cloudy	Slight	8.5	327	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	18:27	40.89362	-70.50388	40.95703	-70.54867	51	18	E	<2	B4	>5	Cloudy	Slight	9.3	333	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:27	18:59	40.95703	-70.54867	41.03290	-70.60034	51	18	E	<2	B4	>5	Precipitation	Slight	9.3	333	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	18:59	20:00	41.03290	-70.60034	41.17537	-70.70048	45	16	NE	<2	B4	>5	Cloudy	None	5	326	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	41.17537	-70.70048	41.30967	-70.83235	32	23	NE	<2	B4	>5	Cloudy	None	5	332	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:52	41.30967	-70.83235	41.44518	-70.84734	26	16	NE	<2	B4	>5	Cloudy	None	5	320	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	21:52	22:00	41.44518	-70.84734	41.46697	-70.84443	13	28	NE	<2	B3	1-2	Cloudy	None	10	2	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	23:00	41.46697	-70.84443	41.62236	-70.90461	12	28	NE	<2	B3	0.5-1	Cloudy	None	10	3	Transit	N/A
2022-12-22	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:30	41.62236	-70.90461	41.62138	-70.91348	11	21	NNE	<2	B2	0.5-1	Cloudy	None	10	330	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:30	16:00	41.62153	-70.91331	41.62225	-70.90458	6	8	S	<2	B1	>5	Cloudy	Moderate	0	161	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	17:00	41.62225	-70.90458	41.47719	-70.84196	7	8	NNE	<2	B1	>5	Cloudy	Moderate	8.1	149	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	41.47719	-70.84196	41.33523	-70.86007	26	25	W	<2	B4	>5	Cloudy	Severe	9.8	187	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	19:00	41.33523	-70.86007	41.22864	-70.71766	23	15	W	<2	B4	>5	Clear	Severe	9.3	138	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	20:00	41.22864	-70.71766	41.18674	-70.66231	30	8	W	2-4	B4	>5	Clear	Severe	8.4	133	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	41.18674	-70.66231	41.02588	-70.48506	44	8	WSW	2-4	B4	>5	Clear	Severe	8.2	133	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	22:00	41.02588	-70.48506	40.91212	-70.39161	43	22	WSW	2-4	B4	>5	Clear	Moderate	8.1	138	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	22:00	23:00	40.91212	-70.39161	40.79960	-70.36428	46	18	WSW	2-4	B4	1-2	Clear	None	8	142	Transit	N/A
2022-12-27	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	23:00	00:00	40.79960	-70.36428	40.68981	-70.45024	49	19	NNE	2-4	B4	1-2	Clear	None	7.6	209	Transit	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Hernandez, Valeria	RPS	00:00	00:33	40.68178	-70.45606	40.65677	-70.45819	56	20	W	2-4	B4	0.5-1	Clear	None	3.5	202	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel; Hernandez, Valeria	RPS	00:33	01:00	40.65677	-70.45819	40.65461	-70.45532	58	16	W	<2	B4	0.5-1	Clear	None	2.4	168	Deploying/Retrieving	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	01:12	40.65461	-70.45532	40.64986	-70.44505	58	12	NW	<2	B4	0.5-1	Clear	None	1.3	168	Deploying/Retrieving	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:12	02:00	40.64986	-70.44505	40.66211	-70.40187	59	14	WNW	<2	B4	0.5-1	Clear	None	3.7	168	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	02:00	03:00	40.66211	-70.40187	40.62058	-70.38448	58	14	NW	<2	B4	0.5-1	Clear	None	4.7	88	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	03:00	04:00	40.62058	-70.38448	40.61733	-70.36647	60	13	NW	<2	B4	0.5-1	Clear	None	4.7	200	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	04:00	05:00	40.61733	-70.36647	40.66393	-70.28979	60	15	NNW	<2	B4	0.5-1	Clear	None	5	316	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	05:00	06:00	40.66393	-70.28979	40.65881	-70.18009	52	14	NNE	<2	B4	0.5-1	Clear	None	5.3	89	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	06:00	06:26	40.65881	-70.18009	40.66300	-70.13452	48	8	ENE	<2	B4	0.5-1	Clear	None	4.8	69	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:26	06:56	40.66300	-70.13452	40.66273	-70.08111	47	8	ENE	<2	B3	0.5-1	Clear	None	4.8	84	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:56	07:00	40.66273	-70.08111	40.66284	-70.07366	49	8	ENE	<2	B3	0.5-1	Clear	None	4.9	84	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:38	40.66284	-70.07366	40.69156	-70.03449	49	8	ENE	<2	B3	0.5-1	Clear	None	4.9	84	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:38	08:00	40.69156	-70.03449	40.70479	-70.02213	46	7	ENE	<2	B3	0.5-1	Clear	None	2.4	4	Deploying/Retrieving	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	08:04	40.70479	-70.02213	40.70704	-70.01976	44	9	N	<2	B3	0.5-1	Clear	None	2.4	14	Deploying/Retrieving	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:04	08:18	40.70704	-70.01976	40.71646	-70.01022	45	9	N	<2	B3	0.5-1	Clear	None	2.4	14	Standby	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:18	08:39	40.71646	-70.01022	40.71622	-70.01709	45	9	N	<2	B3	0.5-1	Clear	None	2.4	14	Soft Start	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:39	08:51	40.71622	-70.01709	40.71774	-70.00962	43	8	NE	<2	B2	0.5-1	Clear	None	5.5	70	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:51	08:58	40.71774	-70.00962	40.71609	-70.01861	44	8	NE	<2	B2	0.5-1	Clear	None	4.9	260	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:58	09:00	40.71609	-70.01861	40.71609	-70.02286	44	8	NE	<2	B2	0.5-1	Clear	None	4.5	265	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	40.71609	-70.02286	40.71524	-70.12078	43	5	NNW	<2	B2	0.5-1	Clear	None	4.4	272	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	40.71524	-70.12078	40.71416	-70.22725	44	10	WNW	<2	B2	0.5-1	Clear	None	4.8	270	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:44	40.71416	-70.22725	40.71330	-70.30420	46	8	W	<2	B2	0.5-1	Clear	None	4.6	268	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:44	12:00	40.71330	-70.30420	40.71307	-70.32896	48	9	W	<2	B2	2-5	Clear	None	5	269	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	12:13	40.71307	-70.32896	40.71269	-70.35621	48	4	W	<2	B1	2-5	Clear	None	4.9	269	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:13	12:15	40.71269	-70.35621	40.71262	-70.35978	49	4	W	<2	B1	>5	Clear	None	4.9	269	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:15	12:24	40.71262	-70.35978	40.71836	-70.36258	48	4	W	<2	B1	>5	Clear	Severe	4.9	269	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:24	12:29	40.71836	-70.36258	40.71842	-70.35426	49	5	SE	<2	B1	>5	Clear	Severe	4.7	84	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:29	13:00	40.71842	-70.35426	40.71906	-70.30195	49	5	SE	<2	B1	>5	Clear	Severe	4.7	84	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.71906	-70.30195	40.72013	-70.20166	49	4	SE	<2	B1	>5	Clear	Severe	4.7	85	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.72013	-70.20166	40.72094	-70.11082	46	10	SSE	<2	B2	>5	Clear	Severe	4.6	88	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:47	40.72094	-70.11082	40.72181	-70.01846	43	13	SSE	<2	B2	>5	Clear	Severe	4.6	88	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:47	15:49	40.72181	-70.01846	40.72184	-70.01496	42	15	SSE	<2	B3	>5	Clear	Severe	4.9	94	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:49	15:59	40.72184	-70.01496	40.71621	-70.01151	42	15	SSE	<2	B3	>5	Clear	Severe	4.9	94	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	15:59	16:04	40.71621	-70.01151	40.71587	-70.01961	45	15	S	<2	B3	>5	Clear	Severe	4.7	250	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:04	17:00	40.71587	-70.01961	40.71501	-70.11261	45	15	S	<2	B3	>5	Clear	Severe	4.7	250	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.71501	-70.11261	40.71408	-70.20745	43	22	SW	<2	B3	>5	Clear	Severe	4.4	258	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	19:00	40.71408	-70.20745	40.71304	-70.30171	45	23	WSW	<2	B4	>5	Cloudy	Severe	4.4	257	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	19:34	40.71304	-70.30171	40.71263	-70.35637	49	23	SW	<2	B4	>5	Cloudy	Moderate	4.6	258	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:34	19:37	40.71263	-70.35637	40.71262	-70.36134	50	27	SW	<2	B4	>5	Cloudy	Severe	4.6	263	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:37	19:45	40.71262	-70.36134	40.71880	-70.36246	50	24	WSW	<2	B4	>5	Cloudy	Severe	4.9	276	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:45	19:50	40.71880	-70.36246	40.71806	-70.35358	50	15	SW	<2	B4	>5	Cloudy	Slight	5.1	103	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:50	20:00	40.71806	-70.35358	40.71887	-70.33664	50	16	SSW	<2	B4	>5	Cloudy	Severe	4.4	83	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	40.71887	-70.33664	40.71955	-70.23355	50	15	SSW	<2	B4	>5	Cloudy	Slight	4.4	84	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:49	40.71955	-70.23355	40.72044	-70.14832	46	14	SW	<2	B4	>5	Cloudy	Slight	4.4	80	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:49	22:00	40.72044	-70.14832	40.72061	-70.13122	43	14	SW	<2	B4	2-5	Cloudy	None	4.4	80	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	22:16	40.72061	-70.13122	40.72091	-70.10227	43	25	SW	<2	B4	1-2	Cloudy	None	4.6	75	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:16	23:00	40.72091	-70.10227	40.72158	-70.02919	43	25	SW	<2	B4	0.5-1	Cloudy	None	4.6	75	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:07	40.72158	-70.02919	40.72171	-70.01803	43	12	W	<2	B4	0.5-1	Clear	None	4.4	71	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:07	23:09	40.72171	-70.01803	40.72168	-70.01508	42	15	W	<2	B4	0.5-1	Clear	None	4.1	76	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:09	23:16	40.72168	-70.01508	40.71701	-70.00838	42	15	W	<2	B4	0.5-1	Clear	None	4.1	76	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:16	23:17	40.71701	-70.00838	40.71588	-70.00911	43	24	W	<2	B4	0.5-1	Clear	None	4.9	222	Silent	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:17	23:41	40.71588	-70.00911	40.71536	-70.05034	43	24	W	<2	B4	0.5-1	Clear	None	4.9	289	Full Power	N/A
2022-12-28	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:41	00:00	40.71536	-70.05034	40.71444	-70.08272	41	25	W	2-4	B4	0.5-1	Clear	None	5.8	272	Standby	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	01:00	40.71365	-70.09826	40.71234	-70.18137	44	24	W	2-4	B4	0.5-1	Clear	None	2.7	264	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	02:00	40.71234	-70.18137	40.71136	-70.26070	45	24	WSW	2-4	B5	0.5-1	Clear	None	4.3	260	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	02:00	03:00	40.71136	-70.26070	40.71057	-70.32579	48	25	WSW	2-4	B5	0.5-1	Clear	None	2.6	260	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	03:00	04:00	40.71057	-70.32579	40.71649	-70.30133	49	22	WSW	2-4	B5	0.5-1	Clear	None	3	253	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	04:00	05:00	40.71649	-70.30133	40.71639	-70.21071	49	14	WSW	2-4	B5	0.5-1	Clear	None	4	96	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	05:00	06:00	40.71639	-70.21071	40.71665	-70.25222	47	15	WSW	2-4	B5	0.5-1	Clear	None	4.2	97	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	06:00	07:00	40.71665	-70.25222	40.71606	-70.29939	49	20	WSW	2-4	B5	0.5-1	Clear	None	2.7	251	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	07:00	08:00	40.71606	-70.29939	40.71550	-70.34551	49	20	WSW	2-4	B5	0.5-1	Clear	None	2.7	251	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	08:00	09:00	40.71550	-70.34551	40.71510	-70.28134	50	18	WSW	2-4	B5	0.5-1	Clear	None	1.7	260	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	09:00	10:00	40.71510	-70.28134	40.71221	-70.30583	46	12	W	2-4	B5	0.5-1	Clear	None	4.4	85	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	10:33	40.71221	-70.30583	40.71186	-70.35295	49	20	W	2-4	B5	0.5-1	Clear	None	4.1	260	Silent	Rough sea
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:33	10:54	40.71186	-70.35295	40.71580	-70.37999	51	18	W	2-4	B5	0.5-1	Clear	None	4.5	267	Soft Start	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:54	10:58	40.71580	-70.37999	40.71799	-70.37564	51	8	WSW	2-4	B5	0.5-1	Clear	None	4.1	50	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:58	11:00	40.71799	-70.37564	40.71767	-70.37249	50	9	WSW	2-4	B5	0.5-1	Clear	None	4.4	90	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:30	40.71767	-70.37249	40.71355	-70.33351	50	9	WSW	2-4	B5	0.5-1	Clear	None	4.4	90	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:30	11:44	40.71355	-70.33351	40.71215	-70.32134	49	11	WSW	2-4	B4	0.5-1	Clear	None	2	89	Deploying/Retrieving	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:44	11:51	40.71215	-70.32134	40.71136	-70.31398	49	10	WSW	2-4	B4	2-5	Clear	None	2.9	90	Standby	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	11:51	12:10	40.71136	-70.31398	40.70919	-70.29451	49	10	WSW	2-4	B4	2-5	Clear	None	3.2	90	Standby	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:10	12:50	40.70919	-70.29451	40.70593	-70.31866	48	10	WSW	2-4	B4	2-5	Clear	None	2.6	90	Deploying/Retrieving	Rough sea
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:50	13:00	40.70593	-70.31866	40.70674	-70.32561	48	18	WSW	2-4	B4	>5	Clear	None	4.9	275	Soft Start	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:11	40.70674	-70.32561	40.71113	-70.35602	49	18	WSW	2-4	B4	>5	Clear	None	4.9	275	Soft Start	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:11	13:18	40.71113	-70.35602	40.71677	-70.36219	48	16	WSW	2-4	B4	>5	Clear	None	4.9	274	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:18	13:23	40.71677	-70.36219	40.71787	-70.35415	48	16	WSW	2-4	B4	>5	Clear	None	4.9	274	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:23	14:00	40.71787	-70.35415	40.71863	-70.29183	48	16	WSW	2-4	B4	>5	Clear	None	4.6	274	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.71863	-70.29183	40.71960	-70.19223	48	7	WSW	<2	B3	>5	Clear	None	4.6	274	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	16:00	40.71960	-70.19223	40.72068	-70.08878	44	9	W	<2	B4	>5	Cloudy	Severe	4.5	87	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	16:44	40.72068	-70.08878	40.72130	-70.01801	44	6	W	<2	B4	>5	Cloudy	Severe	4.6	84	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:44	16:45	40.72130	-70.01801	40.72132	-70.01636	44	5	SW	<2	B4	>5	Cloudy	Severe	4.5	90	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:45	16:57	40.72132	-70.01636	40.71540	-70.01225	43	5	SW	<2	B4	>5	Cloudy	Severe	4.5	90	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:57	17:01	40.71540	-70.01225	40.71561	-70.01909	44	14	WSW	<2	B4	>5	Cloudy	Severe	4.1	254	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:01	18:00	40.71561	-70.01909	40.71470	-70.11671	43	16	WSW	<2	B4	>5	Cloudy	Severe	4.1	254	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	19:00	40.71470	-70.11671	40.71377	-70.21215	43	20	WSW	<2	B4	>5	Cloudy	Severe	3.8	256	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	20:00	40.71377	-70.21215	40.71273	-70.30383	46	15	WSW	<2	B4	>5	Cloudy	Severe	4	253	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	20:35	40.71273	-70.30383	40.71196	-70.35586	47	20	W	<2	B4	>5	Cloudy	Severe	4.4	254	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:35	20:37	40.71196	-70.35586	40.71126	-70.35806	51	19	ENE	<2	B4	>5	Cloudy	Severe	4.8	260	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:37	20:46	40.71126	-70.35806	40.70879	-70.34903	51	18	ENE	<2	B4	>5	Cloudy	Severe	4.5	249	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:46	20:50	40.70879	-70.34903	40.71762	-70.35446	50	11	SW	<2	B4	>5	Cloudy	Severe	4.9	82	Silent	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:50	21:00	40.71762	-70.35446	40.71779	-70.33664	50	10	SSW	<2	B4	>5	Cloudy	Severe	4.9	81	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:51	40.71779	-70.33664	40.71884	-70.24499	48	14	SSW	<2	B4	>5	Cloudy	Severe	5	84	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:51	22:00	40.71884	-70.24499	40.71900	-70.23060	46	10	SSW	<2	B4	2-5	Clear	Slight	4.7	77	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	23:00	40.71900	-70.23060	40.72004	-70.12929	45	10	SSW	<2	B4	1-2	Clear	None	5	78	Full Power	N/A
2022-12-29	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	00:00	40.72004	-70.12929	40.72096	-70.03512	42	10	SSW	<2	B4	0.5-1	Clear	None	4.4	78	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	00:12	40.72104	-70.02600	40.72116	-70.01813	42	14	SSW	<2	B4	0.5-1	Clear	None	3.7	77	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:12	00:14	40.72116	-70.01813	40.72109	-70.01542	42	14	SSW	<2	B4	0.5-1	Clear	None	3.7	77	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:14	00:28	40.72109	-70.01542	40.71530	-70.01110	42	14	SSW	<2	B4	0.5-1	Clear	None	3.7	77	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:28	00:31	40.71530	-70.01110	40.71540	-70.01662	43	20	SW	<2	B4	0.5-1	Clear	None	4.7	270	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:31	01:00	40.71540	-70.01662	40.71489	-70.06600	43	20	SW	<2	B4	0.5-1	Clear	None	5	270	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	01:56	40.71489	-70.06600	40.71400	-70.15644	43	20	WSW	<2	B4	0.5-1	Clear	None	4.9	268	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:56	02:00	40.71400	-70.15644	40.71364	-70.16380	45	20	WSW	2-4	B4	0.5-1	Clear	None	5.1	253	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:00	03:00	40.71364	-70.16380	40.71188	-70.25768	45	23	WSW	2-4	B4	0.5-1	Clear	None	5.3	262	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:00	04:00	40.71188	-70.25768	40.71098	-70.36074	45	23	WSW	2-4	B4	0.5-1	Clear	None	4.5	255	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	04:04	40.71098	-70.36074	40.71557	-70.36577	49	20	W	2-4	B4	0.5-1	Clear	None	4.5	260	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:04	04:05	40.71557	-70.36577	40.71670	-70.36470	52	18	W	2-4	B4	0.5-1	Clear	None	5.7	348	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:05	04:12	40.71670	-70.36470	40.71735	-70.35372	49	12	W	2-4	B4	0.5-1	Clear	None	4.6	93	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:12	05:00	40.71735	-70.35372	40.71838	-70.27305	49	12	W	2-4	B4	0.5-1	Clear	None	4.4	94	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.71838	-70.27305	40.71950	-70.18494	50	11	WSW	2-4	B4	0.5-1	Clear	None	4.6	95	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	40.71950	-70.18494	40.72033	-70.06992	45	12	WSW	2-4	B4	0.5-1	Clear	None	4.8	92	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:27	40.72033	-70.06992	40.72077	-70.01870	44	10	SW	2-4	B3	0.5-1	Clear	None	4.7	97	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:27	07:29	40.72077	-70.01870	40.72077	-70.01491	44	11	WSW	<2	B3	0.5-1	Clear	None	4.9	96	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:29	07:52	40.72077	-70.01491	40.71512	-70.01406	44	11	WSW	<2	B3	0.5-1	Clear	None	4.9	96	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:52	07:53	40.71512	-70.01406	40.71504	-70.01546	44	11	WSW	<2	B3	0.5-1	Clear	None	4.3	260	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:53	08:00	40.71504	-70.01546	40.71534	-70.02517	44	11	WSW	<2	B3	0.5-1	Clear	None	4.3	260	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.71534	-70.02517	40.71417	-70.11542	44	19	W	<2	B3	0.5-1	Clear	None	5.7	260	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	40.71417	-70.11542	40.71295	-70.20461	45	16	W	<2	B4	0.5-1	Clear	None	4.1	265	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	40.71295	-70.20461	40.71146	-70.29915	43	18	W	2-4	B4	0.5-1	Clear	None	4.9	260	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:49	40.71146	-70.29915	40.71684	-70.36419	48	18	WSW	<2	B4	0.5-1	Clear	None	4.4	261	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:49	11:55	40.71684	-70.36419	40.71704	-70.35367	50	9	SW	<2	B3	1-2	Clear	None	5.1	84	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:55	12:00	40.71704	-70.35367	40.71708	-70.34570	50	9	SW	<2	B3	2-5	Clear	None	5.1	84	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.71708	-70.34570	40.71829	-70.24690	51	9	SW	<2	B3	2-5	Clear	Moderate	5.1	84	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.71829	-70.24690	40.71933	-70.15119	46	10	SW	<2	B2	>5	Clear	Severe	4.8	82	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.71933	-70.15119	40.72015	-70.06152	44	8	SSW	<2	B2	>5	Clear	Severe	4.4	78	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:26	40.72015	-70.06152	40.72053	-70.01926	43	11	SSW	<2	B3	>5	Fog	Severe	4.1	84	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:26	15:28	40.72053	-70.01926	40.72059	-70.01604	43	11	SSW	<2	B3	>5	Fog	Severe	4.2	84	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:28	15:41	40.72059	-70.01604	40.71522	-70.01067	43	11	SSW	<2	B3	>5	Fog	Severe	4.2	84	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:41	15:46	40.71522	-70.01067	40.71510	-70.01958	43	20	SW	<2	B4	>5	Fog	Severe	5.4	260	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:46	16:00	40.71510	-70.01958	40.71490	-70.04382	43	20	SW	<2	B4	>5	Fog	Severe	5.4	262	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	17:00	40.71490	-70.04382	40.71391	-70.13840	43	19	SW	<2	B4	>5	Clear	Severe	5.4	258	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.71391	-70.13840	40.71289	-70.23568	44	20	SW	<2	B4	>5	Clear	Severe	5.4	258	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	19:00	40.71289	-70.23568	40.71188	-70.33311	46	20	SW	<2	B3	>5	Clear	Severe	3.5	253	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	19:14	40.71188	-70.33311	40.71166	-70.35557	50	15	SSW	<2	B3	>5	Clear	Severe	4.6	254	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:14	19:16	40.71166	-70.35557	40.71152	-70.35881	50	17	SSW	<2	B3	>5	Clear	Severe	4.6	255	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:16	19:26	40.71152	-70.35881	40.71671	-70.36454	51	16	SSW	<2	B3	>5	Clear	Severe	4.2	242	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:26	19:32	40.71671	-70.36454	40.71672	-70.35367	51	10	S	<2	B3	>5	Clear	Severe	5.1	96	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:32	20:00	40.71672	-70.35367	40.71711	-70.30389	54	10	S	<2	B3	>5	Clear	Severe	5	87	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	40.71711	-70.30389	40.71855	-70.19874	54	9	S	<2	B3	>5	Clear	Severe	4.7	89	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:53	40.71855	-70.19874	40.71949	-70.10550	45	9	S	<2	B2	>5	Clear	Moderate	4.7	86	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:53	22:00	40.71949	-70.10550	40.71956	-70.09441	45	9	S	<2	B2	1-2	Clear	None	4.7	86	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	22:46	40.71956	-70.09441	40.72028	-70.01800	45	9	S	<2	B2	0.5-1	Clear	None	4.5	83	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:46	22:47	40.72028	-70.01800	40.72029	-70.01633	43	9	S	<2	B3	0.5-1	Clear	None	4.5	83	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:47	23:00	40.72029	-70.01633	40.71494	-70.00979	43	9	S	<2	B3	0.5-1	Clear	None	4.5	83	Full Power	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:06	40.71494	-70.00979	40.71485	-70.01990	43	15	SW	<2	B3	0.5-1	Clear	None	4.4	275	Silent	N/A
2022-12-30	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:06	00:00	40.71485	-70.01990	40.71394	-70.11255	43	15	SW	<2	B3	0.5-1	Clear	None	4.4	275	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	01:00	40.71376	-70.13319	40.71287	-70.21726	44	16	SSW	<2	B4	0.5-1	Clear	None	5	265	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	02:00	40.71287	-70.21726	40.71169	-70.32754	50	17	SW	<2	B4	0.5-1	Clear	None	4.9	266	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:00	02:16	40.71169	-70.32754	40.71132	-70.35674	49	18	SW	<2	B4	0.5-1	Clear	None	5	263	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:16	02:17	40.71132	-70.35674	40.71137	-70.35855	48	16	SW	<2	B4	0.5-1	Clear	None	4.8	263	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:17	02:30	40.71137	-70.35855	40.71699	-70.36587	48	14	SW	<2	B4	0.5-1	Clear	None	4.8	262	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-31	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:30	02:37	40.71699	-70.36587	40.71651	-70.35454	48	13	S	<2	B4	0.5-1	Clear	None	4.5	100	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:37	03:00	40.71651	-70.35454	40.71689	-70.32205	48	13	S	<2	B4	0.5-1	Clear	None	4.5	85	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:00	04:00	40.71689	-70.32205	40.71795	-70.22549	49	12	S	<2	B3	0.5-1	Clear	None	4.2	85	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	05:00	40.71795	-70.22549	40.71892	-70.13375	49	12	S	<2	B3	0.5-1	Clear	None	4.3	92	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.71892	-70.13375	40.71973	-70.04216	49	10	S	<2	B3	0.5-1	Clear	None	4.4	89	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	06:16	40.71973	-70.04216	40.71996	-70.01792	44	14	S	<2	B3	0.5-1	Clear	None	4.2	94	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:16	06:18	40.71996	-70.01792	40.71999	-70.01482	44	14	S	<2	B3	0.5-1	Clear	None	4.2	94	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:18	06:31	40.71999	-70.01482	40.71472	-70.00982	44	14	S	<2	B3	0.5-1	Clear	None	4.2	94	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:31	06:37	40.71472	-70.00982	40.71451	-70.02025	44	18	SW	<2	B3	0.5-1	Clear	None	4.5	250	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:37	07:00	40.71451	-70.02025	40.71419	-70.05590	45	18	SW	<2	B3	0.5-1	Clear	None	4.1	250	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.71419	-70.05590	40.71340	-70.14097	44	20	SW	<2	B3	0.5-1	Clear	None	4	252	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.71340	-70.14097	40.71233	-70.24046	46	19	SSW	<2	B3	0.5-1	Clear	None	4	254	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	40.71233	-70.24046	40.71135	-70.33089	48	17	SSW	<2	B3	0.5-1	Clear	None	4.4	259	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	10:16	40.71135	-70.33089	40.71111	-70.35556	50	14	SSW	<2	B3	0.5-1	Clear	None	4.2	261	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:16	10:18	40.71111	-70.35556	40.71102	-70.35866	48	19	SSW	<2	B3	0.5-1	Clear	None	4.3	260	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:18	10:30	40.71102	-70.35866	40.71632	-70.36489	48	18	SSW	<2	B3	0.5-1	Clear	None	4.1	259	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:30	10:36	40.71632	-70.36489	40.71621	-70.35452	51	13	SSE	<2	B3	0.5-1	Clear	None	5	88	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:36	11:00	40.71621	-70.35452	40.71670	-70.31267	50	13	SSE	<2	B3	0.5-1	Clear	None	4.7	89	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:48	40.71670	-70.31267	40.71771	-70.22700	48	14	S	<2	B3	0.5-1	Clear	None	4.8	87	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:48	12:00	40.71771	-70.22700	40.71790	-70.20623	45	14	S	<2	B2	2-5	Cloudy	None	4.8	81	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.71790	-70.20623	40.71894	-70.10726	45	14	S	<2	B2	>5	Cloudy	None	4.8	81	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:51	40.71894	-70.10726	40.71981	-70.01914	48	13	S	<2	B3	>5	Clear	None	4.5	77	Full Power	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:51	13:56	40.71981	-70.01914	40.71983	-70.01045	47	13	S	<2	B3	>5	Clear	None	4.5	77	Silent	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:56	14:03	40.71983	-70.01045	40.71983	-69.99793	47	15	S	<2	B3	>5	Cloudy	None	4.4	77	Deploying/Retrieving	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:03	14:39	40.71983	-69.99793	40.71688	-69.97355	48	15	S	<2	B3	>5	Cloudy	None	4.4	77	Deploying/Retrieving	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:39	15:00	40.71688	-69.97355	40.71629	-69.97351	45	20	S	<2	B3	>5	Cloudy	None	1.4	145	Standby	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:34	40.71629	-69.97351	40.77288	-70.05982	45	20	S	<2	B3	>5	Cloudy	None	3.4	310	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:34	16:00	40.77288	-70.05982	40.81739	-70.12545	33	20	S	<2	B3	1-2	Precipitation	None	9.1	310	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	17:00	40.81739	-70.12545	40.92077	-70.28096	36	18	W	<2	B3	1-2	Precipitation	None	9.8	310	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.92077	-70.28096	41.01620	-70.42684	34	20	W	<2	B3	2-5	Precipitation	None	9.8	302	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	18:36	41.01620	-70.42684	41.07722	-70.51991	43	23	W	<2	B3	2-5	Precipitation	None	9.8	302	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:36	19:00	41.07722	-70.51991	41.11787	-70.58071	43	23	SW	<2	B4	1-2	Fog	None	9	304	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	20:00	41.11787	-70.58071	41.21512	-70.71623	43	15	SW	<2	B4	1-2	Fog	None	9.5	303	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	41.21512	-70.71623	41.33813	-70.86146	31	13	WSW	<2	B4	1-2	Fog	None	9.1	314	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:39	41.33813	-70.86146	41.43397	-70.83914	24	13	WSW	<2	B3	1-2	Precipitation	None	9.1	325	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	21:39	21:55	41.43397	-70.83914	41.46451	-70.84471	14	8	WSW	<2	B2	0.3-0.5	Fog	None	9.1	325	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	21:55	22:00	41.46451	-70.84471	41.47637	-70.84266	32	0	WSW	<2	B2	0.1-0.3	Fog	None	9.1	2	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	23:00	41.47637	-70.84266	41.62255	-70.90464	32	0	WSW	<2	B2	0.1-0.3	Fog	None	9.1	2	Transit	N/A
2022-12-31	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:23	41.62255	-70.90464	41.62144	-70.91351	10	15	SSW	<2	B1	0.5-1	Precipitation	None	5.9	160	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:30	06:00	41.62348	-70.91390	41.62378	-70.90526	5.5	9	W	<2	B1	0.5-1	Clear	None	0	161	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	41.62378	-70.90526	41.51559	-70.83923	10.9	2	S	<2	B1	0.5-1	Clear	None	4.5	147	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	41.51559	-70.83923	41.40346	-70.84906	17.9	12	SSW	<2	B1	0.5-1	Clear	None	8	170	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	41.40346	-70.84906	41.29674	-70.81404	16.7	16	WSW	<2	B1	0.5-1	Clear	None	6.8	200	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	41.29674	-70.81404	41.20026	-70.68734	15.2	8	SW	<2	B1	0.5-1	Clear	None	7.5	133	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	41.20026	-70.68734	41.09409	-70.55235	31	7	SSW	<2	B1	0.5-1	Clear	None	7.5	133	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	12:00	41.09409	-70.55235	40.99560	-70.42523	44.1	5	SSW	<2	B1	0.5-1	Clear	None	9.3	132	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.99560	-70.42523	40.87409	-70.26268	43.2	7	SSW	<2	B1	2-5	Clear	None	9	133	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.87409	-70.26268	40.76023	-70.12117	42.6	5	SSW	<2	B1	>5	Clear	Moderate	9.2	131	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:15	40.76023	-70.12117	40.72595	-70.09426	40.8	7	SSE	<2	B2	>5	Clear	Moderate	9.3	142	Transit	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:15	14:32	40.72595	-70.09426	40.71578	-70.07806	41.7	7	SSE	<2	B2	>5	Cloudy	Moderate	4.5	252	Standby	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:32	15:00	40.71578	-70.07806	40.70672	-70.07801	41.7	11	SSE	<2	B2	>5	Cloudy	Moderate	1	142	Deploying/Retrieving	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:14	40.70672	-70.07801	40.69361	-70.08677	42.8	15	SSE	<2	B3	>5	Cloudy	Severe	1	216	Deploying/Retrieving	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:14	15:35	40.69361	-70.08677	40.68751	-70.07349	42.8	15	W	<2	B3	>5	Cloudy	Severe	4.1	216	Soft Start	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:35	16:00	40.68751	-70.07349	40.70710	-70.04020	45.2	15	NW	<2	B3	>5	Cloudy	Slight	4.5	40	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	16:28	40.70710	-70.04020	40.71398	-70.00969	44.1	8	SSW	<2	B3	>5	Cloudy	Slight	4.5	40	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:28	16:34	40.71398	-70.00969	40.71417	-70.02018	44.1	8	SSW	<2	B3	>5	Cloudy	Slight	4.5	40	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:34	17:00	40.71417	-70.02018	40.71384	-70.06468	44.1	17	WNW	<2	B3	>5	Cloudy	Moderate	4.5	40	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	17:03	40.71384	-70.06468	40.71379	-70.06982	44.1	17	WNW	<2	B3	>5	Cloudy	Moderate	4.7	264	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:03	17:42	40.71379	-70.06982	40.71316	-70.13614	44.8	13	WNW	<2	B3	>5	Cloudy	Moderate	3	265	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:42	18:03	40.71316	-70.13614	40.71286	-70.17164	44.8	13	WNW	<2	B3	>5	Cloudy	Moderate	4.5	264	Soft Start	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:03	19:00	40.71286	-70.17164	40.71177	-70.27163	45.4	14	NW	<2	B3	>5	Cloudy	Severe	4.7	269	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	19:47	40.71177	-70.27163	40.71081	-70.35488	45.4	12	WNW	<2	B3	>5	Cloudy	Moderate	4.6	262	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:47	19:50	40.71081	-70.35488	40.71094	-70.36000	51.2	9	WSW	<2	B3	>5	Cloudy	Moderate	4.8	264	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:50	20:01	40.71094	-70.36000	40.71565	-70.36464	51.2	9	WSW	<2	B3	>5	Cloudy	Moderate	4.8	255	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:01	20:08	40.71565	-70.36464	40.71598	-70.35381	51.2	2	W	<2	B3	>5	Cloudy	Severe	4.2	84	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:08	21:00	40.71598	-70.35381	40.71688	-70.27345	51.2	2	W	<2	B3	>5	Cloudy	Severe	4.2	86	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	21:50	40.71688	-70.27345	40.71780	-70.18478	51	2	ESE	<2	B2	>5	Cloudy	Slight	4.6	86	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:50	22:00	40.71780	-70.18478	40.71799	-70.16785	43.7	0	ESE	<2	B2	1-2	Cloudy	None	4.9	93	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	23:00	40.71799	-70.16785	40.71903	-70.06250	45.4	2	NNE	<2	B2	0.5-1	Cloudy	None	4.7	91	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	23:25	40.71903	-70.06250	40.71940	-70.01735	42.6	3	E	<2	B1	0.5-1	Cloudy	None	5	89	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:25	23:27	40.71940	-70.01735	40.71946	-70.01372	42.6	3	E	<2	B1	0.5-1	Cloudy	None	5	89	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:27	23:38	40.71946	-70.01372	40.71411	-70.00886	42.6	3	E	<2	B1	0.5-1	Cloudy	None	5	89	Full Power	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:38	23:45	40.71411	-70.00886	40.71398	-70.02068	42.6	5	W	<2	B2	0.5-1	Cloudy	None	4.5	256	Silent	N/A
2023-01-02	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:45	00:00	40.71398	-70.02068	40.71375	-70.04595	42.6	5	W	<2	B2	0.5-1	Cloudy	None	4.5	256	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	01:00	40.71368	-70.05222	40.71278	-70.14763	41.8	7	W	<2	B2	0.5-1	Clear	None	4.7	258	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	01:00	02:00	40.71278	-70.14763	40.71177	-70.24461	45.1	16	W	<2	B2	0.5-1	Clear	None	4.5	260	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Ruz, Daniel; Toxtle, Miguel	RPS	02:00	03:00	40.71177	-70.24461	40.71080	-70.33835	45.1	14	ESE	<2	B2	0.5-1	Clear	None	4.6	264	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:00	03:05	40.71080	-70.33835	40.71054	-70.35625	46.2	18	ESE	<2	B2	0.5-1	Clear	None	4.8	265	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	03:05	04:00	40.71054	-70.35625	40.71584	-70.38423	46.6	18	ESE	<2	B2	0.5-1	Clear	None	4.8	265	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:00	04:09	40.71584	-70.38423	40.71565	-70.36581	51.5	2	NE	<2	B2	0.5-1	Clear	None	4.2	82	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:09	04:30	40.71565	-70.36581	40.71526	-70.37463	50.5	4	S	<2	B1	0.5-1	Clear	None	4.6	150	Soft Start	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	04:30	05:00	40.71526	-70.37463	40.71599	-70.33152	50.5	4	S	<2	B1	0.5-1	Clear	None	4.6	150	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.71599	-70.33152	40.71714	-70.22607	50.2	8	E	<2	B1	0.5-1	Clear	None	4.7	83	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	40.71714	-70.22607	40.71815	-70.12814	46.6	9	E	<2	B1	0.5-1	Clear	None	4.5	82	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.71815	-70.12814	40.71903	-70.03373	43.8	8	E	<2	B1	0.5-1	Clear	None	4.5	84	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	08:11	40.71903	-70.03373	40.71913	-70.01656	42.6	12	SSW	<2	B1	0.5-1	Clear	None	4.1	87	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:11	08:12	40.71913	-70.01656	40.71919	-70.01508	44	12	SSW	<2	B1	0.5-1	Clear	None	4.2	87	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:12	08:24	40.71919	-70.01508	40.71394	-70.01052	44.5	12	SSE	<2	B1	0.5-1	Clear	None	4.5	190	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:24	08:30	40.71394	-70.01052	40.71364	-70.01997	44.5	12	SSE	<2	B1	0.5-1	Clear	None	4.5	190	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:30	09:00	40.71364	-70.01997	40.71323	-70.07254	43.2	4	SSE	<2	B1	0.5-1	Clear	None	4.9	258	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	09:00	10:00	40.71323	-70.07254	40.71227	-70.17223	44.1	6	S	<2	B1	0.5-1	Cloudy	None	4.7	255	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	10:00	11:00	40.71227	-70.17223	40.71122	-70.26500	46.3	6	S	<2	B1	0.5-1	Cloudy	None	4.5	260	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:00	11:12	40.71122	-70.26500	40.71100	-70.28297	44.1	10	S	<2	B3	0.5-1	Cloudy	None	4.3	259	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana; Ruz, Daniel	RPS	11:12	11:53	40.71100	-70.28297	40.71012	-70.34666	48.4	9	S	<2	B3	0.5-1	Precipitation	None	4.3	259	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Cardenas, Ana	RPS	11:53	12:00	40.71012	-70.34666	40.71010	-70.35573	44.5	11	S	<2	B3	2-5	Cloudy	None	4.1	259	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	12:02	40.71010	-70.35573	40.71019	-70.35857	44.5	11	S	<2	B3	2-5	Cloudy	None	4.1	259	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:02	12:13	40.71019	-70.35857	40.71542	-70.36338	44.5	15	S	<2	B3	2-5	Cloudy	None	4.1	259	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:13	12:18	40.71542	-70.36338	40.71572	-70.35450	45.7	15	S	<2	B3	>5	Cloudy	None	4.7	92	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:18	13:00	40.71572	-70.35450	40.71627	-70.28239	45.9	15	S	<2	B3	>5	Cloudy	None	4.7	92	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.71627	-70.28239	40.71747	-70.17847	48.4	19	SE	<2	B3	>5	Cloudy	None	4.7	90	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.71747	-70.17847	40.71832	-70.08263	47.8	18	SE	<2	B3	>5	Cloudy	None	4.6	85	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:00	15:36	40.71832	-70.08263	40.71890	-70.01808	42	21	SE	<2	B3	>5	Cloudy	Slight	4.5	82	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:36	15:38	40.71890	-70.01808	40.71895	-70.01494	42.3	23	SE	<2	B4	>5	Cloudy	Slight	4.4	80	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:38	15:45	40.71895	-70.01494	40.71847	-70.00381	42.3	24	SE	<2	B4	>5	Cloudy	Slight	4.3	79	Full Power	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	15:45	16:00	40.71847	-70.00381	40.72468	-70.00572	42.3	24	SE	<2	B4	>5	Cloudy	Slight	4.3	90	Silent	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:00	16:45	40.72468	-70.00572	40.73794	-70.03082	42.3	24	SE	<2	B4	>5	Cloudy	Slight	3.1	305	Deploying/Retrieving	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	16:45	17:00	40.73794	-70.03082	40.76188	-70.06472	38.1	12	SE	<2	B4	>5	Cloudy	Slight	5.5	312	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	17:00	18:00	40.76188	-70.06472	40.87176	-70.21716	37.7	19	S	<2	B4	>5	Cloudy	Slight	9.5	313	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:00	18:28	40.87176	-70.21716	40.92586	-70.28787	40.5	18	S	<2	B4	>5	Cloudy	Slight	9.5	313	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	18:28	19:00	40.92586	-70.28787	40.98818	-70.36594	40.5	18	S	<2	B4	>5	Precipitation	Slight	9.5	313	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	19:00	20:00	40.98818	-70.36594	41.09668	-70.52553	39.9	12	S	<2	B4	>5	Precipitation	Slight	9.5	314	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Toxtle, Miguel	RPS	20:00	21:00	41.09668	-70.52553	41.20389	-70.68190	44.5	17	SSW	<2	B4	2-5	Fog	None	9.7	305	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria	RPS	21:00	22:00	41.20389	-70.68190	41.30957	-70.83248	29.5	38	WSW	<2	B4	2-5	Fog	None	9.4	305	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	22:00	23:00	41.30957	-70.83248	41.44454	-70.84658	21	20	W	<2	B3	1-2	Fog	None	9.8	321	Transit	N/A
2023-01-03	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	23:00	00:00	41.44454	-70.84658	41.59107	-70.88484	21	9	WNW	<2	B2	0.5-1	Fog	None	9.8	4	Transit	N/A
2023-01-04	*GO Pursuit*	HRG	Visual	Hernandez, Valeria; Toxtle, Miguel	RPS	00:00	00:42	41.59881	-70.88941	41.62194	-70.91373	20.7	12	W	<2	B2	0.5-1	Cloudy	None	8.7	313	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:56	02:00	41.62213	-70.91375	41.62380	-70.91368	9	5	NW	<2	B3	0.5-1	Cloudy	None	1.8	183	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:00	03:00	41.62380	-70.91368	41.53262	-70.84641	9	6	NW	<2	B3	0.5-1	Cloudy	None	3.2	341	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	04:00	41.53262	-70.84641	41.38041	-70.86370	9	5	WNW	<2	B3	0.5-1	Cloudy	None	9.4	147	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	05:00	41.38041	-70.86370	41.27074	-70.78007	8.3	7	WNW	<2	B3	0.5-1	Cloudy	None	8.1	205	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	41.27074	-70.78007	41.12800	-70.69415	9.4	8	WNW	<2	B3	0.5-1	Cloudy	None	9.2	125	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	07:00	41.12800	-70.69415	40.99718	-70.62084	10	6	NW	<2	B3	0.5-1	Cloudy	None	9	152	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	08:00	40.99718	-70.62084	40.87293	-70.55079	47	5	W	<2	B3	0.5-1	Cloudy	None	8.5	150	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.87293	-70.55079	40.74077	-70.47740	54.8	5	W	<2	B3	0.5-1	Cloudy	None	8.5	135	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:00	10:00	40.74077	-70.47740	40.70515	-70.44977	55.4	8	W	<2	B3	0.5-1	Cloudy	None	8.1	135	Transit	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	11:00	40.70515	-70.44977	40.70773	-70.35957	51	8	WNW	<2	B3	0.5-1	Cloudy	None	1	212	Deploying/Retrieving	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:00	11:02	40.70773	-70.35957	40.70782	-70.35483	51	8	WNW	<2	B3	0.5-1	Cloudy	None	1	86	Deploying/Retrieving	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:02	11:44	40.70782	-70.35483	40.70829	-70.28624	48	6	WNW	<2	B3	0.5-1	Cloudy	None	4.4	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean	RPS	11:44	12:00	40.70829	-70.28624	40.70856	-70.26511	46	11	N	<2	B3	2-5	Cloudy	None	4.7	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.70856	-70.26511	40.71976	-70.21602	46.3	11	N	<2	B3	>5	Cloudy	None	4.5	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:35	40.71976	-70.21602	40.72037	-70.15477	46.1	10	NNE	<2	B3	>5	Cloudy	None	4.8	87	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:35	14:00	40.72037	-70.15477	40.72088	-70.11015	46.2	10	NNE	<2	B3	>5	Cloudy	None	4.8	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:05	40.72088	-70.11015	40.72096	-70.10380	46.2	10	NNE	<2	B3	>5	Cloudy	None	4.8	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:05	14:44	40.72096	-70.10380	40.72167	-70.02926	46.2	10	NNE	<2	B3	>5	Cloudy	None	4.8	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:44	15:00	40.72167	-70.02926	40.72182	-70.00203	46.2	10	NNE	<2	B3	>5	Cloudy	None	4.8	86	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:40	40.72182	-70.00203	40.71223	-69.98198	45	5	NNE	<2	B3	>5	Cloudy	None	4.8	83	Deploying/Retrieving	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:40	16:03	40.71223	-69.98198	40.71341	-70.00777	43.6	8	NNE	<2	B3	>5	Cloudy	None	3	275	Soft Start	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:03	16:06	40.71341	-70.00777	40.71352	-70.01158	43.6	8	WNW	<2	B3	>5	Cloudy	None	4.6	275	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:06	16:11	40.71352	-70.01158	40.71341	-70.02022	43.5	12	WNW	<2	B3	>5	Cloudy	None	4.4	269	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:11	16:56	40.71341	-70.02022	40.71279	-70.09603	43.5	10	WNW	<2	B3	>5	Cloudy	None	4.7	268	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	16:56	18:01	40.71279	-70.09603	40.71173	-70.20518	44.2	10	WNW	<2	B3	>5	Cloudy	None	4.7	268	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:01	19:00	40.71173	-70.20518	40.71056	-70.30872	45.2	16	NW	<2	B3	>5	Cloudy	None	4.4	270	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	19:26	40.71056	-70.30872	40.71006	-70.35715	48.7	15	WNW	<2	B3	>5	Cloudy	None	5.1	273	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:26	19:28	40.71006	-70.35715	40.71012	-70.36100	50.5	17	WNW	<2	B3	>5	Cloudy	None	5.5	271	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:28	19:41	40.71012	-70.36100	40.71512	-70.36184	50.5	18	WNW	<2	B3	>5	Cloudy	None	5.1	264	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:41	19:47	40.71512	-70.36184	40.71518	-70.35390	50.5	11	NW	<2	B3	>5	Cloudy	None	4.1	81	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:47	20:00	40.71518	-70.35390	40.71543	-70.33324	45.7	12	NW	<2	B3	>5	Cloudy	None	4.1	82	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:00	21:00	40.71543	-70.33324	40.71645	-70.24289	45.7	14	NNW	<2	B3	>5	Cloudy	None	4	84	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:58	40.71645	-70.24289	40.71739	-70.15507	45.7	18	NNW	<2	B3	>5	Cloudy	None	4.4	83	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	21:58	22:00	40.71739	-70.15507	40.71740	-70.15188	43.6	20	NW	<2	B3	2-5	Cloudy	None	4.3	82	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:00	22:59	40.71740	-70.15188	40.71820	-70.06490	43.6	20	NW	<2	B3	1-2	Cloudy	None	4.3	82	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:59	23:28	40.71820	-70.06490	40.71854	-70.02230	42.1	21	WNW	<2	B3	0.5-1	Cloudy	None	4	90	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:28	23:31	40.71854	-70.02230	40.71858	-70.01849	42.1	10	NW	<2	B3	0.5-1	Precipitation	None	4	90	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:31	23:33	40.71858	-70.01849	40.71858	-70.01533	42.1	10	NW	<2	B3	0.5-1	Precipitation	None	4	90	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:33	23:44	40.71858	-70.01533	40.71370	-70.00756	42.7	11	NW	<2	B3	0.5-1	Precipitation	None	3.8	88	Full Power	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:44	23:51	40.71370	-70.00756	40.71320	-70.02075	42.5	17	WNW	<2	B3	0.5-1	Precipitation	None	5.5	262	Silent	N/A
2023-01-07	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:51	00:00	40.71320	-70.02075	40.71304	-70.03631	42.1	18	WNW	<2	B3	0.5-1	Precipitation	None	5.2	259	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	00:00	00:00	40.71304	-70.03631	40.71304	-70.03631	42.1	18	WNW	<2	B3	0.5-1	Precipitation	None	5.2	259	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	00:00	01:00	40.71297	-70.04102	40.71201	-70.13780	42.2	20	NW	<2	B4	0.5-1	Cloudy	None	4.3	262	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:00	02:00	40.71201	-70.13780	40.71110	-70.23228	45.7	23	NW	<2	B4	0.5-1	Cloudy	None	4.4	266	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:00	03:00	40.71110	-70.23228	40.71008	-70.32479	47.8	28	NW	<2	B4	0.5-1	Cloudy	None	3.9	267	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	03:19	40.71008	-70.32479	40.70976	-70.35467	48.1	24	W	<2	B4	0.5-1	Cloudy	None	4.3	267	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:19	03:20	40.70976	-70.35467	40.70973	-70.35602	48.1	24	W	<2	B4	0.5-1	Cloudy	None	4.5	267	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:20	03:23	40.70973	-70.35602	40.70998	-70.36111	48.1	24	W	<2	B4	0.5-1	Cloudy	None	4.5	267	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:23	03:32	40.70998	-70.36111	40.71453	-70.36713	48.1	24	W	<2	B4	0.5-1	Cloudy	None	4.5	267	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:32	03:40	40.71453	-70.36713	40.71490	-70.35318	49	24	W	<2	B4	0.5-1	Cloudy	None	4.5	84	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:40	04:00	40.71490	-70.35318	40.71538	-70.31810	49	18	WNW	<2	B4	0.5-1	Cloudy	None	4.5	85	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	05:00	40.71538	-70.31810	40.71641	-70.23202	48.7	18	NW	<2	B4	0.5-1	Cloudy	None	4.8	85	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.71641	-70.23202	40.71730	-70.14767	45.7	21	NW	<2	B4	0.5-1	Cloudy	None	4	84	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	07:00	40.71730	-70.14767	40.71820	-70.04657	46	19	NW	<2	B4	0.5-1	Cloudy	None	4.3	74	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	07:18	40.71820	-70.04657	40.71846	-70.01740	46	20	N	<2	B4	0.5-1	Cloudy	None	4	72	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:18	07:43	40.71846	-70.01740	40.71631	-70.02182	46	20	N	<2	B4	0.5-1	Cloudy	None	4	72	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:43	08:00	40.71631	-70.02182	40.71623	-70.04315	46.3	22	N	<2	B4	0.5-1	Cloudy	None	4.5	277	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.71623	-70.04315	40.71532	-70.13793	42.6	25	NW	<2	B4	0.5-1	Cloudy	None	4.9	277	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:00	10:00	40.71532	-70.13793	40.71343	-70.22647	44	26	NW	2-4	B4	0.5-1	Cloudy	None	4.7	279	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	11:00	40.71343	-70.22647	40.71513	-70.31913	45	25	NW	2-4	B4	0.5-1	Cloudy	None	4.3	280	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:00	11:44	40.71513	-70.31913	40.71588	-70.39078	48	27	NW	2-4	B4	0.5-1	Cloudy	None	4.7	269	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:44	12:00	40.71588	-70.39078	40.71837	-70.37775	50	24	NW	2-4	B4	2-5	Cloudy	None	5.4	269	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.71837	-70.37775	40.71373	-70.28278	50.2	24	NW	2-4	B4	>5	Cloudy	None	4.5	88	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	14:00	40.71373	-70.28278	40.71485	-70.29878	49	20	NNW	2-4	B4	>5	Cloudy	None	4.3	82	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.71485	-70.29878	40.71684	-70.27362	48.4	20	NNW	2-4	B4	>5	Cloudy	None	4.9	255	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:00	40.71684	-70.27362	40.71475	-70.20020	46.6	20	NNW	2-4	B4	>5	Cloudy	Slight	5.2	82	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:00	17:00	40.71475	-70.20020	40.71679	-70.21727	46	14	NE	<2	B4	>5	Cloudy	Slight	4.9	77	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	40.71679	-70.21727	40.71835	-70.11017	44.7	11	NE	<2	B4	>5	Cloudy	Slight	5.4	79	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:17	40.71835	-70.11017	40.71783	-70.08143	42.2	10	NE	<2	B4	>5	Cloudy	Slight	4.7	75	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:17	18:38	40.71783	-70.08143	40.71880	-70.04517	42.5	7	NE	<2	B4	>5	Cloudy	Slight	4.6	76	Soft Start	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:38	19:00	40.71880	-70.04517	40.71858	-70.00999	42.5	7	NE	<2	B4	>5	Cloudy	Slight	4.6	76	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	19:07	40.71858	-70.00999	40.71271	-70.01241	42.5	7	WNW	<2	B3	>5	Cloudy	Slight	4.6	76	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:07	19:07	40.71271	-70.01241	40.71279	-70.01337	43.5	5	WNW	<2	B2	>5	Cloudy	Slight	5.3	271	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	19:07	19:12	40.71279	-70.01337	40.71285	-70.02093	42.5	7	NE	<2	B4	>5	Cloudy	Slight	4.6	76	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:12	20:00	40.71285	-70.02093	40.71224	-70.10380	43.5	5	WNW	<2	B2	>5	Cloudy	Slight	4.6	274	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:00	21:00	40.71224	-70.10380	40.71117	-70.20374	43.5	6	WNW	<2	B2	>5	Cloudy	Slight	4.7	271	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:53	40.71117	-70.20374	40.71020	-70.29677	45	5	W	<2	B2	>5	Cloudy	None	4.7	268	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	21:53	22:00	40.71020	-70.29677	40.71006	-70.30723	45	5	W	<2	B2	2-5	Cloudy	None	4.7	268	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:00	22:29	40.71006	-70.30723	40.70953	-70.35578	45	5	W	<2	B2	1-2	Cloudy	None	4.7	268	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:29	22:30	40.70953	-70.35578	40.70951	-70.35743	49.2	10	SW	<2	B2	0.5-1	Cloudy	None	4.5	258	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:30	22:43	40.70951	-70.35743	40.71464	-70.36537	49.2	10	SW	<2	B2	0.5-1	Cloudy	None	4.5	258	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:43	22:50	40.71464	-70.36537	40.71463	-70.35360	49.7	2	SW	<2	B2	0.5-1	Cloudy	None	4.4	86	Silent	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	22:50	23:00	40.71463	-70.35360	40.71480	-70.33778	49.7	0	E	<2	B2	0.5-1	Cloudy	None	4.5	86	Full Power	N/A
2023-01-08	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	23:00	00:00	40.71480	-70.33778	40.71579	-70.24096	49.7	7	E	<2	B2	0.5-1	Cloudy	None	4.5	86	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	00:00	00:00	40.71579	-70.24096	40.71579	-70.24096	46.1	7	E	<2	B2	0.5-1	Cloudy	None	4.5	86	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine; Mike, Romario	RPS	00:00	01:00	40.71585	-70.23708	40.71682	-70.14323	45.5	6	SE	<2	B3	0.5-1	Cloudy	None	4.3	90	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:00	02:00	40.71682	-70.14323	40.71782	-70.04067	44	8	SE	<2	B3	0.5-1	Cloudy	None	4.5	94	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:00	02:12	40.71782	-70.04067	40.71804	-70.01931	43.8	10	SW	<2	B3	0.5-1	Cloudy	None	4.9	93	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:12	02:13	40.71804	-70.01931	40.71803	-70.01746	43.5	10	S	<2	B3	0.5-1	Cloudy	None	5.1	78	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:13	02:14	40.71803	-70.01746	40.71800	-70.01559	43.5	10	S	<2	B3	0.5-1	Cloudy	None	5.1	78	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:14	02:26	40.71800	-70.01559	40.71280	-70.00928	43.5	10	S	<2	B3	0.5-1	Cloudy	None	5.1	78	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:26	02:32	40.71280	-70.00928	40.71254	-70.01956	43.6	10	S	<2	B3	0.5-1	Cloudy	None	5.1	78	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:32	03:00	40.71254	-70.01956	40.71216	-70.06750	44	10	S	<2	B3	0.5-1	Cloudy	None	4.8	255	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	04:00	40.71216	-70.06750	40.71124	-70.16667	45.4	13	WSW	<2	B3	0.5-1	Cloudy	None	4.4	255	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	05:00	40.71124	-70.16667	40.71020	-70.26207	45.7	18	WSW	<2	B3	0.5-1	Cloudy	None	4.5	255	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	05:53	40.71020	-70.26207	40.70916	-70.35469	46.3	15	WSW	<2	B3	0.5-1	Cloudy	None	4.6	258	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:53	05:54	40.70916	-70.35469	40.70914	-70.35638	45.7	12	SW	<2	B3	0.5-1	Cloudy	None	4.7	310	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:54	05:55	40.70914	-70.35638	40.70911	-70.35816	45	12	SW	<2	B3	0.5-1	Cloudy	None	4.7	310	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:55	06:00	40.70911	-70.35816	40.71216	-70.36499	45.7	12	SW	<2	B3	0.5-1	Cloudy	None	4.7	310	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	06:04	40.71216	-70.36499	40.71684	-70.36284	45.7	12	SW	<2	B3	0.5-1	Cloudy	None	4.7	310	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:04	06:09	40.71684	-70.36284	40.71750	-70.35435	49	13	SW	<2	B3	0.5-1	Cloudy	None	5.1	80	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:09	07:00	40.71750	-70.35435	40.71839	-70.26544	49	12	SW	<2	B3	0.5-1	Cloudy	None	4.8	85	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	08:00	40.71839	-70.26544	40.71928	-70.17265	47	7	SW	<2	B3	0.5-1	Cloudy	None	4.7	82	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:03	40.71928	-70.17265	40.72033	-70.05995	42.6	5	SE	<2	B3	0.5-1	Cloudy	None	4.6	82	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	09:03	09:09	40.72033	-70.05995	40.72041	-70.05022	44	6	SE	<2	B3	0.5-1	Cloudy	None	4.7	86	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:09	09:12	40.72041	-70.05022	40.72041	-70.04528	42.6	4	E	<2	B3	0.5-1	Cloudy	None	4.5	70	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:12	09:30	40.72041	-70.04528	40.71668	-70.02811	42.6	4	E	<2	B3	0.5-1	Cloudy	None	4.5	70	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:30	09:35	40.71668	-70.02811	40.71652	-70.03787	44.1	4	E	<2	B3	0.5-1	Cloudy	None	4.6	265	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:35	10:00	40.71652	-70.03787	40.71614	-70.07921	44.1	4	E	<2	B3	0.5-1	Cloudy	None	4.6	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	10:03	40.71614	-70.07921	40.71616	-70.08514	42	6	E	<2	B3	0.5-1	Cloudy	None	4.6	268	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:03	10:15	40.71616	-70.08514	40.71169	-70.10368	41	6	SW	<2	B3	0.5-1	Cloudy	None	4.5	260	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:15	10:21	40.71169	-70.10368	40.71128	-70.11381	43	8	SW	<2	B3	0.5-1	Cloudy	None	4.7	264	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:21	10:51	40.71128	-70.11381	40.71073	-70.16515	45	8	SW	<2	B3	0.5-1	Cloudy	None	4.7	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:51	10:58	40.71073	-70.16515	40.71059	-70.17723	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.7	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:58	10:59	40.71059	-70.17723	40.71062	-70.17939	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.7	265	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:59	11:18	40.71062	-70.17939	40.71538	-70.16757	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.8	20	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:18	11:24	40.71538	-70.16757	40.71557	-70.15743	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.8	20	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:24	11:37	40.71557	-70.15743	40.71545	-70.13541	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.8	20	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:37	11:39	40.71545	-70.13541	40.71556	-70.13193	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.8	20	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:39	11:42	40.71556	-70.13193	40.71358	-70.12709	45	8	SW	<2	B3	0.5-1	Precipitation	None	4.8	20	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:42	12:00	40.71358	-70.12709	40.71225	-70.15307	44.1	9	SW	<2	B3	2-5	Precipitation	None	4.4	181	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	12:16	40.71225	-70.15307	40.71508	-70.18036	44.5	12	WSW	<2	B3	2-5	Precipitation	None	4.9	272	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:16	12:21	40.71508	-70.18036	40.71502	-70.18855	44.5	12	WSW	<2	B3	>5	Precipitation	None	4.8	268	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:21	13:00	40.71502	-70.18855	40.71445	-70.25106	44.5	12	WSW	<2	B3	>5	Precipitation	None	4.8	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:09	40.71445	-70.25106	40.71414	-70.26756	44.8	10	WSW	<2	B3	>5	Precipitation	None	4.5	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:09	13:11	40.71414	-70.26756	40.71413	-70.27082	45.1	10	WSW	<2	B3	>5	Precipitation	None	4.5	265	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:11	13:34	40.71413	-70.27082	40.69910	-70.30745	45.2	10	WSW	<2	B3	>5	Precipitation	None	4.5	265	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:34	13:40	40.69910	-70.30745	40.69828	-70.31762	45.4	10	WSW	<2	B3	>5	Precipitation	None	4.7	264	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:40	14:00	40.69828	-70.31762	40.69785	-70.35141	45.4	10	WSW	<2	B3	>5	Precipitation	None	4.7	264	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:10	40.69785	-70.35141	40.69764	-70.36840	45.4	10	W	<2	B3	>5	Precipitation	None	4.7	264	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:10	14:12	40.69764	-70.36840	40.69770	-70.37191	45.7	11	W	<2	B3	>5	Precipitation	None	4.5	270	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:12	14:29	40.69770	-70.37191	40.71215	-70.36218	45.7	11	W	<2	B3	>5	Precipitation	None	4.5	270	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:29	14:34	40.71215	-70.36218	40.71231	-70.35373	50.9	10	NW	<2	B3	>5	Precipitation	None	4.4	87	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:34	15:00	40.71231	-70.35373	40.71279	-70.31156	50.9	10	NW	<2	B3	>5	Precipitation	None	4.4	87	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:28	40.71279	-70.31156	40.71330	-70.26185	47.3	8	WNW	<2	B3	>5	Precipitation	None	4.5	84	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:28	15:30	40.71330	-70.26185	40.71334	-70.25846	47.3	8	WNW	<2	B3	>5	Cloudy	None	4.5	81	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:30	15:48	40.71334	-70.25846	40.71245	-70.22688	46.3	10	NE	<2	B3	>5	Cloudy	None	4.7	97	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:48	15:53	40.71245	-70.22688	40.71250	-70.21974	45.7	7	NE	<2	B3	>5	Cloudy	None	4.6	78	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:53	16:00	40.71250	-70.21974	40.71270	-70.20711	44	7	NE	<2	B3	>5	Cloudy	None	4.5	80	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:00	17:00	40.71270	-70.20711	40.71374	-70.10509	46.6	7	NE	<2	B3	>5	Cloudy	None	4.5	76	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:49	40.71374	-70.10509	40.71464	-70.01667	46.6	7	NE	<2	B3	>5	Cloudy	None	4.5	76	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:49	17:50	40.71464	-70.01667	40.71462	-70.01625	42.8	15	N	<2	B3	>5	Precipitation	None	4.7	76	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:50	18:00	40.71462	-70.01625	40.71360	-70.00020	42.6	15	N	<2	B3	>5	Precipitation	None	4.9	87	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:12	40.71360	-70.00020	40.72003	-70.01074	42.7	12	N	<2	B3	>5	Cloudy	None	3.9	270	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:12	18:18	40.72003	-70.01074	40.71991	-70.02026	42.3	12	N	<2	B3	>5	Cloudy	None	4.4	273	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:18	19:00	40.71991	-70.02026	40.71925	-70.09046	42.3	12	N	<2	B3	>5	Cloudy	None	4.4	273	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	20:00	40.71925	-70.09046	40.71811	-70.19943	43.2	16	NNW	<2	B3	>5	Cloudy	None	4.9	275	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:00	20:39	40.71811	-70.19943	40.71742	-70.26804	44.7	16	NW	<2	B3	>5	Cloudy	None	5.1	276	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:39	20:41	40.71742	-70.26804	40.71741	-70.27160	47	15	NW	<2	B3	>5	Cloudy	None	3.9	313	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:41	20:58	40.71741	-70.27160	40.71887	-70.25988	47	15	NW	<2	B3	>5	Cloudy	None	4	313	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	20:58	21:00	40.71887	-70.25988	40.71893	-70.25655	56.1	15	N	<2	B3	>5	Cloudy	None	4.8	74	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:04	40.71893	-70.25655	40.71915	-70.24868	56.1	15	N	<2	B3	>5	Cloudy	None	4.8	74	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:04	21:54	40.71915	-70.24868	40.71999	-70.16616	56.1	15	N	<2	B3	>5	Cloudy	None	4.8	74	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	21:54	22:00	40.71999	-70.16616	40.72006	-70.15687	43.6	9	N	<2	B3	2-5	Cloudy	None	4.5	77	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	22:00	23:00	40.72006	-70.15687	40.72084	-70.06001	43.6	9	N	<2	B3	1-2	Cloudy	None	4.5	77	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:00	23:28	40.72084	-70.06001	40.72123	-70.01807	43.6	18	N	<2	B3	1-2	Cloudy	None	4.5	77	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:28	23:29	40.72123	-70.01807	40.72127	-70.01555	43.6	17	N	<2	B3	1-2	Cloudy	None	4.5	77	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:29	23:41	40.72127	-70.01555	40.71476	-70.01285	43.6	16	WNW	<2	B3	0.5-1	Cloudy	None	4.5	131	Full Power	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:41	23:45	40.71476	-70.01285	40.71486	-70.02125	42	24	WNW	<2	B3	0.5-1	Cloudy	None	5.1	275	Silent	N/A
2023-01-09	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:45	00:00	40.71486	-70.02125	40.71470	-70.04748	42	25	WNW	<2	B4	0.5-1	Cloudy	None	5.3	270	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:00	00:00	40.71470	-70.04748	40.71470	-70.04748	42	25	WNW	<2	B4	0.5-1	Cloudy	None	5.3	270	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:00	01:00	40.71462	-70.05163	40.71367	-70.14192	42.2	21	NNW	<2	B4	0.5-1	Cloudy	None	4.8	263	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:00	02:00	40.71367	-70.14192	40.71290	-70.22504	45.4	25	NW	<2	B4	0.5-1	Clear	None	4.3	269	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:00	03:00	40.71290	-70.22504	40.71198	-70.31413	45.7	25	WNW	<2	B4	0.5-1	Clear	None	4.2	269	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	03:30	40.71198	-70.31413	40.71153	-70.35573	46.6	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	267	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:30	03:31	40.71153	-70.35573	40.71174	-70.35702	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	282	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:31	03:50	40.71174	-70.35702	40.71407	-70.36837	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:50	03:59	40.71407	-70.36837	40.71436	-70.35303	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:59	04:00	40.71436	-70.35303	40.71432	-70.35131	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	04:07	40.71432	-70.35131	40.71457	-70.33916	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:07	04:09	40.71457	-70.33916	40.71464	-70.33573	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:09	04:52	40.71464	-70.33573	40.71250	-70.36240	46.7	24	WNW	2-4	B5	0.5-1	Clear	None	4.4	280	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:52	04:57	40.71250	-70.36240	40.71196	-70.35346	51.8	21	NW	2-4	B5	0.5-1	Clear	None	5.5	80	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:57	05:00	40.71196	-70.35346	40.71201	-70.34904	51.8	21	NW	2-4	B5	0.5-1	Clear	None	5.5	80	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	05:52	40.71201	-70.34904	40.71308	-70.26267	51.8	21	NW	2-4	B5	0.5-1	Clear	None	5.5	80	Full Power	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:52	06:00	40.71308	-70.26267	40.71324	-70.24885	51.8	21	NW	2-4	B5	0.5-1	Clear	None	5.5	80	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	07:00	40.71324	-70.24885	40.71511	-70.15144	52	24	NW	2-4	B5	0.5-1	Clear	None	5.3	75	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	08:00	40.71511	-70.15144	40.71609	-70.05588	43	26	NW	2-4	B5	0.5-1	Clear	None	4.5	72	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.71609	-70.05588	40.71572	-70.04071	42.6	21	WNW	2-4	B5	0.5-1	Clear	None	4.3	71	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:00	10:00	40.71572	-70.04071	40.71453	-70.12385	42	31	NW	2-4	B5	0.5-1	Clear	None	3.8	280	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	11:00	40.71453	-70.12385	40.71865	-70.21340	42	32	NW	2-4	B5	0.5-1	Clear	None	3.8	280	Silent	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:00	11:45	40.71865	-70.21340	40.71041	-70.15362	45.7	26	WNW	2-4	B5	0.5-1	Clear	None	4.2	276	Deploying/Retrieving	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Ruz, Daniel	RPS	11:45	12:00	40.71041	-70.15362	40.71151	-70.13033	45.7	18	NNW	2-4	B4	2-5	Cloudy	None	4.3	77	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.71151	-70.13033	40.71668	-70.02420	46	22	NNW	2-4	B4	>5	Cloudy	None	4.5	75	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:30	40.71668	-70.02420	40.69438	-70.00009	44.5	22	NNW	2-4	B5	>5	Cloudy	Moderate	4.3	78	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:30	13:38	40.69438	-70.00009	40.68967	-69.98810	45.4	20	WNW	2-4	B5	>5	Cloudy	None	4	145	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:38	14:00	40.68967	-69.98810	40.68080	-70.00756	45.4	20	W	2-4	B5	>5	Cloudy	None	4	145	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	15:00	40.68080	-70.00756	40.65640	-70.10414	46.6	20	W	2-4	B5	>5	Cloudy	None	4	248	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	16:00	40.65640	-70.10414	40.66277	-70.07128	47.2	25	W	2-4	B5	>5	Cloudy	None	3.8	264	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:00	17:00	40.66277	-70.07128	40.65573	-70.02435	46.7	18	W	2-4	B5	>5	Cloudy	None	5	75	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	40.65573	-70.02435	40.65776	-70.11387	46.7	18	W	2-4	B5	>5	Cloudy	None	4.6	276	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.65776	-70.11387	40.65773	-70.10855	46.3	20	NW	2-4	B5	>5	Cloudy	None	5.2	79	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	20:00	40.65773	-70.10855	40.65675	-70.09693	46.6	20	NW	2-4	B5	>5	Cloudy	None	3.5	276	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:00	21:00	40.65675	-70.09693	40.66233	-70.08791	46.6	21	NW	2-4	B5	>5	Cloudy	None	4.3	277	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:55	40.66233	-70.08791	40.65686	-70.14430	47.2	22	NNW	2-4	B5	>5	Cloudy	None	4.4	75	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	21:55	22:00	40.65686	-70.14430	40.65680	-70.15304	47.5	20	NNW	<2	B4	2-5	Cloudy	None	5.2	270	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	22:00	23:00	40.65680	-70.15304	40.65534	-70.26143	47.5	20	NNW	<2	B4	1-2	Cloudy	None	5.2	270	Standby	N/A
2023-01-10	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:00	00:00	40.65534	-70.26143	40.64357	-70.24852	50.3	19	WNW	<2	B4	0.5-1	Cloudy	None	5.4	268	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:00	00:00	40.64357	-70.24852	40.64357	-70.24852	51.2	16	N	<2	B4	0.5-1	Cloudy	None	4.4	86	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:00	01:00	40.64358	-70.24475	40.64439	-70.15792	51	16	N	<2	B3	0.5-1	Cloudy	None	4.4	86	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:00	02:00	40.64439	-70.15792	40.63990	-70.08874	54	12	N	<2	B3	0.5-1	Cloudy	None	4.2	86	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ruz, Daniel	RPS	02:00	03:00	40.63990	-70.08874	40.63970	-70.17544	45.7	11	NW	<2	B3	0.5-1	Cloudy	None	5.1	291	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	04:00	40.63970	-70.17544	40.63341	-70.08620	51.8	8	NNW	<2	B3	0.5-1	Cloudy	None	4.4	150	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	05:00	40.63341	-70.08620	40.62552	-70.08827	50	9	NNW	<2	B3	0.5-1	Cloudy	None	4.7	90	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.62552	-70.08827	40.62442	-70.19338	54.2	10	NNW	<2	B3	0.5-1	Cloudy	None	4.6	259	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	06:44	40.62442	-70.19338	40.62394	-70.26411	52	10	NNW	<2	B3	0.5-1	Cloudy	None	4.6	262	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:44	06:57	40.62394	-70.26411	40.62315	-70.27581	56.9	13	NNW	<2	B3	0.5-1	Cloudy	None	2.5	265	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:57	07:00	40.62315	-70.27581	40.62287	-70.27848	54	11	NNW	<2	B3	0.5-1	Cloudy	None	2.7	265	Deploying/Retrieving	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	07:08	40.62287	-70.27848	40.62294	-70.28631	53.6	11	NNW	<2	B3	0.5-1	Cloudy	None	2.7	267	Deploying/Retrieving	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:08	07:15	40.62294	-70.28631	40.62486	-70.29389	53.5	12	NNW	<2	B3	0.5-1	Cloudy	None	2.7	267	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:15	07:16	40.62486	-70.29389	40.62599	-70.29418	53.3	12	NNW	<2	B3	0.5-1	Cloudy	None	4.5	268	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:16	07:37	40.62599	-70.29418	40.61636	-70.28671	53.4	12	NNW	<2	B3	0.5-1	Cloudy	None	4.5	250	Soft Start	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:37	07:47	40.61636	-70.28671	40.61099	-70.29522	54	11	NNW	<2	B3	0.5-1	Cloudy	None	4.5	235	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:47	07:47	40.61099	-70.29522	40.61103	-70.29585	56	16	NNW	<2	B3	0.5-1	Cloudy	None	3.7	272	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	07:47	07:52	40.61103	-70.29585	40.61091	-70.30240	56	14	NNW	<2	B3	0.5-1	Cloudy	None	3.7	272	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:52	08:00	40.61091	-70.30240	40.61088	-70.31055	56	17	NNW	<2	B3	0.5-1	Cloudy	None	3.3	272	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.61088	-70.31055	40.61016	-70.37732	56	14	NNE	<2	B3	0.5-1	Cloudy	None	3.3	273	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:00	10:00	40.61016	-70.37732	40.60912	-70.46009	58	17	N	<2	B3	0.5-1	Cloudy	None	3.4	269	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	10:14	40.60912	-70.46009	40.60885	-70.48099	61	9	NE	<2	B3	0.5-1	Cloudy	None	3.8	271	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:14	10:15	40.60885	-70.48099	40.60881	-70.48233	62	11	N	<2	B3	0.5-1	Cloudy	None	4	269	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:15	10:51	40.60881	-70.48233	40.62731	-70.45809	62	7	N	<2	B3	0.5-1	Cloudy	None	3.8	269	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:51	11:00	40.62731	-70.45809	40.62734	-70.44670	45.7	19	NNE	<2	B3	0.5-1	Cloudy	None	4.2	30	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:00	11:40	40.62734	-70.44670	40.62678	-70.38078	45.7	19	NNE	<2	B3	0.5-1	Cloudy	None	4.2	30	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:40	11:45	40.62678	-70.38078	40.62624	-70.37613	58	17	NE	<2	B3	0.5-1	Cloudy	None	2.7	82	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-01-11	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean	RPS	11:45	11:59	40.62624	-70.37613	40.62465	-70.36513	58	18	NE	<2	B3	2-5	Cloudy	None	2.7	82	Deploying/Retrieving	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	11:59	12:00	40.62465	-70.36513	40.62454	-70.36452	58.2	19	NE	<2	B3	>5	Cloudy	None	2.7	82	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	13:00	40.62454	-70.36452	40.69965	-70.36312	58.5	19	NE	<2	B3	>5	Cloudy	None	3	78	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:15	40.69965	-70.36312	40.71003	-70.35043	51.5	20	NE	<2	B3	>5	Cloudy	None	4.8	356	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:15	14:00	40.71003	-70.35043	40.71087	-70.27485	50.5	20	NE	<2	B3	>5	Cloudy	None	4.6	86	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:27	40.71087	-70.27485	40.71136	-70.23479	50.5	18	NE	<2	B3	>5	Cloudy	None	4.6	86	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:27	14:54	40.71136	-70.23479	40.71166	-70.20593	48.7	18	NE	<2	B3	>5	Cloudy	None	3	87	Standby	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:54	15:00	40.71166	-70.20593	40.71174	-70.19951	49	16	NE	<2	B3	>5	Cloudy	None	3	69	Deploying/Retrieving	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:28	40.71174	-70.19951	40.71201	-70.16599	45.2	17	NE	<2	B3	>5	Cloudy	None	3.1	82	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:28	15:49	40.71201	-70.16599	40.71240	-70.12960	43.6	20	ENE	<2	B3	>5	Cloudy	None	4.7	82	Soft Start	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:49	16:00	40.71240	-70.12960	40.71259	-70.11076	43.6	20	ENE	<2	B3	>5	Cloudy	None	4.7	82	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:00	17:00	40.71259	-70.11076	40.70906	-70.01065	41	17	NE	<2	B3	>5	Cloudy	None	5	81	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	17:38	40.70906	-70.01065	40.66867	-70.05245	44.3	6	NE	<2	B3	>5	Cloudy	None	4.8	214	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:38	17:44	40.66867	-70.05245	40.66855	-70.06097	46.7	6	NE	<2	B3	>5	Cloudy	None	4.1	269	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:44	18:00	40.66855	-70.06097	40.66834	-70.08614	46.7	11	NE	<2	B3	>5	Cloudy	None	4.5	267	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	18:20	40.66834	-70.08614	40.66808	-70.11729	45.7	13	NNE	<2	B3	>5	Cloudy	None	4.3	266	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:20	18:22	40.66808	-70.11729	40.66812	-70.12117	45.7	14	NNE	<2	B3	>5	Cloudy	None	4.6	273	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:22	19:00	40.66812	-70.12117	40.67615	-70.18472	45.7	14	NNE	<2	B3	>5	Cloudy	None	4.6	273	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	20:00	40.67615	-70.18472	40.68206	-70.28651	45.7	10	NNE	<2	B3	>5	Cloudy	None	4.9	280	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:00	21:00	40.68206	-70.28651	40.68080	-70.39398	48	10	NNE	<2	B3	>5	Cloudy	None	5.3	273	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:00	21:16	40.68080	-70.39398	40.68294	-70.41142	52.7	13	NE	<2	B3	>5	Cloudy	None	5	271	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:16	21:25	40.68294	-70.41142	40.68345	-70.39653	52.7	13	NE	<2	B3	>5	Cloudy	None	5	81	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:25	21:49	40.68345	-70.39653	40.68391	-70.36083	52.7	22	NE	<2	B3	>5	Cloudy	None	4.6	82	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:49	21:50	40.68391	-70.36083	40.68392	-70.35936	51	20	NE	<2	B3	>5	Cloudy	None	4.6	82	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:50	22:00	40.68392	-70.35936	40.67576	-70.34752	51.2	20	NE	<2	B3	>5	Cloudy	None	4.6	101	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	22:00	22:59	40.67576	-70.34752	40.61229	-70.28866	51.2	20	NE	<2	B3	2-5	Cloudy	None	4.6	125	Full Power	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	22:59	23:00	40.61229	-70.28866	40.61088	-70.29082	58.2	14	NNE	<2	B3	2-5	Cloudy	None	5	285	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:00	23:06	40.61088	-70.29082	40.61097	-70.30185	58.2	14	NNE	<2	B3	2-5	Cloudy	None	5	285	Silent	N/A
2023-01-11	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:06	00:00	40.61097	-70.30185	40.60994	-70.39072	58.2	10	NNE	<2	B3	2-5	Cloudy	None	4.9	277	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:00	00:54	40.60987	-70.39861	40.60873	-70.48049	60.2	19	NE	<2	B3	0.5-1	Cloudy	None	4.4	265	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:54	00:55	40.60873	-70.48049	40.60862	-70.48307	60.2	19	NE	<2	B3	0.5-1	Cloudy	None	4.4	265	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:55	00:56	40.60862	-70.48307	40.60858	-70.48375	60.2	8	NE	<2	B3	0.5-1	Cloudy	None	4.4	265	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	00:56	01:00	40.60858	-70.48375	40.60724	-70.48995	60.2	6	NE	<2	B3	0.5-1	Cloudy	None	4.5	244	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:00	01:23	40.60724	-70.48995	40.60790	-70.49343	62	17	NE	<2	B3	0.5-1	Cloudy	None	4.7	218	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:23	01:38	40.60790	-70.49343	40.60814	-70.47014	61.5	16	NE	<2	B3	0.5-1	Cloudy	None	4.1	80	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	01:38	02:00	40.60814	-70.47014	40.62747	-70.44605	61.5	15	NE	<2	B3	0.5-1	Cloudy	None	4.1	80	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	02:00	03:00	40.62747	-70.44605	40.69047	-70.38486	58.8	15	E	<2	B3	0.5-1	Cloudy	None	4.9	39	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:00	03:15	40.69047	-70.38486	40.71244	-70.36290	53.9	15	E	<2	B3	0.5-1	Cloudy	None	5.2	37	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:15	03:21	40.71244	-70.36290	40.71248	-70.35337	51	17	ENE	<2	B3	0.5-1	Cloudy	None	4.3	90	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	03:21	04:00	40.71248	-70.35337	40.71312	-70.28997	50	17	ENE	<2	B3	0.5-1	Cloudy	None	4.5	92	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:00	04:16	40.71312	-70.28997	40.71350	-70.26157	46	15	NE	<2	B3	0.5-1	Cloudy	None	4.7	90	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:16	04:18	40.71350	-70.26157	40.71347	-70.25826	46	16	NNE	<2	B3	0.5-1	Cloudy	None	4.5	102	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	04:18	05:00	40.71347	-70.25826	40.71106	-70.20105	46	17	NNE	<2	B3	0.5-1	Cloudy	None	4.5	102	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	05:00	06:00	40.71106	-70.20105	40.71226	-70.08681	46.6	17	NNE	<2	B3	0.5-1	Cloudy	None	4.4	87	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:00	06:57	40.71226	-70.08681	40.71602	-70.00902	42	15	ENE	<2	B3	0.5-1	Cloudy	None	4.7	86	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	06:57	07:00	40.71602	-70.00902	40.71537	-70.01374	42	10	ENE	<2	B3	0.5-1	Cloudy	None	4.5	264	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:00	07:04	40.71537	-70.01374	40.71535	-70.02003	42	12	ENE	<2	B3	0.5-1	Cloudy	None	4.3	266	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; O'Sullivan, Sean	RPS	07:04	08:00	40.71535	-70.02003	40.71456	-70.10244	42	11	ENE	<2	B3	0.5-1	Cloudy	None	4.3	266	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey; Ruz, Daniel	RPS	08:00	09:00	40.71456	-70.10244	40.71362	-70.20030	42	4	ENE	<2	B3	0.5-1	Cloudy	None	4.4	266	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	09:00	10:00	40.71362	-70.20030	40.71242	-70.30342	45	6	ENE	<2	B3	0.5-1	Clear	None	4.8	268	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:00	10:30	40.71242	-70.30342	40.71187	-70.35513	47	9	ENE	<2	B3	0.5-1	Clear	None	4.7	265	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:30	10:32	40.71187	-70.35513	40.71176	-70.35851	47	5	ENE	<2	B3	0.5-1	Clear	None	4.8	265	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	10:32	11:00	40.71176	-70.35851	40.70279	-70.33501	47	5	ENE	<2	B3	0.5-1	Clear	None	4.8	265	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean; Ruz, Daniel	RPS	11:00	11:44	40.70279	-70.33501	40.70382	-70.25057	47.5	15	E	<2	B3	0.5-1	Clear	None	5.2	85	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	O'Sullivan, Sean	RPS	11:44	12:00	40.70382	-70.25057	40.70389	-70.23776	46	16	E	<2	B3	2-5	Clear	None	4.8	83	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:00	12:44	40.70389	-70.23776	40.71336	-70.15172	45.7	16	E	<2	B3	>5	Clear	None	4.8	83	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:44	12:49	40.71336	-70.15172	40.71347	-70.14370	44.1	22	E	<2	B4	>5	Cloudy	None	4.1	85	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	12:49	13:00	40.71347	-70.14370	40.71360	-70.13337	44.3	22	E	<2	B4	>5	Cloudy	None	4.1	85	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:00	13:38	40.71360	-70.13337	40.71425	-70.06597	44.3	22	E	<2	B4	>5	Cloudy	None	4.1	85	Full Power	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:38	13:40	40.71425	-70.06597	40.71425	-70.06286	44.3	22	E	<2	B4	>5	Cloudy	None	4.1	85	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	13:40	14:00	40.71425	-70.06286	40.71468	-70.04164	44.3	22	E	2-4	B4	>5	Cloudy	None	4.1	85	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:00	14:04	40.71468	-70.04164	40.71219	-70.05657	43.8	20	E	2-4	B4	>5	Cloudy	None	5	263	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:04	14:38	40.71219	-70.05657	40.71162	-70.11651	44	18	E	2-4	B4	>5	Cloudy	None	5.1	264	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Dyachkov, Sergey	RPS	14:38	15:00	40.71162	-70.11651	40.70860	-70.15309	45.1	21	SE	2-4	B4	>5	Cloudy	None	5	261	Silent	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:00	15:22	40.70860	-70.15309	40.70213	-70.18886	44.2	13	SE	<2	B4	>5	Cloudy	None	5.1	246	Deploying/Retrieving	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	15:22	16:00	40.70213	-70.18886	40.70513	-70.24117	44.2	13	SE	<2	B4	>5	Cloudy	None	5.1	246	Standby	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	16:00	17:00	40.70513	-70.24117	40.77214	-70.29579	44.2	13	SE	<2	B4	>5	Cloudy	None	5	246	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	17:00	18:00	40.77214	-70.29579	40.89945	-70.41601	44.2	13	SE	<2	B4	>5	Cloudy	None	9	246	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	18:00	19:00	40.89945	-70.41601	41.02520	-70.54055	48.4	10	SSE	<2	B4	>5	Cloudy	None	9.6	318	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	19:00	20:03	41.02520	-70.54055	41.16091	-70.67177	48.4	9	E	<2	B4	>5	Cloudy	None	9.6	318	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario	RPS	20:03	21:06	41.16091	-70.67177	41.29131	-70.80378	35	9	E	<2	B4	>5	Cloudy	None	9.6	320	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Ramsarran, Celine	RPS	21:06	21:55	41.29131	-70.80378	41.39936	-70.85626	14.6	13	ESE	<2	B4	>5	Cloudy	None	9.8	312	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	21:55	22:00	41.39936	-70.85626	41.41091	-70.84991	16	21	E	<2	B4	2-5	Cloudy	None	8.9	29	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	22:00	23:00	41.41091	-70.84991	41.54878	-70.85547	16	21	E	<2	B4	1-2	Cloudy	None	8.9	29	Transit	N/A
2023-01-12	*GO Pursuit*	HRG	Visual	Mike, Romario; Ramsarran, Celine	RPS	23:00	23:55	41.54878	-70.85547	41.62143	-70.91354	13.1	21	E	<2	B4	0.5-1	Cloudy	None	8.9	29	Transit	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:30	18:00	41.69580	-71.18033	41.69574	-71.18036	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Standby	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	18:00	18:05	41.69574	-71.18036	41.69573	-71.18038	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Deploying/Retrieving	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	18:05	18:08	41.69573	-71.18038	41.69574	-71.18036	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Standby	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	18:08	18:30	41.69574	-71.18036	41.69573	-71.18038	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Soft Start	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	18:30	18:30	41.69573	-71.18038	41.69573	-71.18038	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Full Power	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	18:30	19:00	41.69573	-71.18038	41.69573	-71.18038	5	4.6	W	<2	B1	1-2	Fog	None	0	52	Testing	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	19:00	20:00	41.69573	-71.18038	41.69574	-71.18038	5	4.6	W	<2	B1	2-5	Cloudy	None	0	52	Testing	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	20:51	41.69574	-71.18038	41.69586	-71.18047	5	2	W	<2	B1	>5	Cloudy	None	0	52	Testing	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:51	20:53	41.69586	-71.18047	41.69585	-71.18047	5	2.6	W	<2	B1	>5	Cloudy	None	0	52	Silent	N/A
2022-11-01	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:53	21:00	41.69585	-71.18047	41.69573	-71.18038	5	2.6	W	<2	B1	>5	Cloudy	None	0	52	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-05	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:30	05:00	41.69572	-71.18034	41.66925	-71.22184	5	3	SW	<2	B1	0.5-1	Clear	None	1	52	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.66925	-71.22184	41.54347	-71.32665	12	2.6	SW	<2	B1	0.5-1	Clear	None	8.8	229	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	07:00	41.54347	-71.32665	41.43315	-71.39553	30	19	SW	<2	B2	0.5-1	Clear	None	8.8	204	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	08:00	41.43315	-71.39553	41.33359	-71.49224	26	13	SW	<2	B2	0.5-1	Clear	None	7.5	220	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.33359	-71.49224	41.29140	-71.65956	18	9	SW	<2	B2	0.5-1	Clear	None	7.9	220	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.29140	-71.65956	41.24429	-71.82854	32	8	NNE	<2	B2	0.5-1	Clear	None	8	255	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:49	41.24429	-71.82854	41.22578	-71.95753	31	8	SW	<2	B2	0.5-1	Clear	None	8.4	268	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:49	11:00	41.22578	-71.95753	41.22061	-71.98592	38	8	SW	<2	B2	1-2	Cloudy	None	7	269	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:03	41.22061	-71.98592	41.21879	-71.99505	38	10	SW	<2	B2	1-2	Cloudy	None	7	269	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:03	11:08	41.21879	-71.99505	41.21686	-72.00602	38	10	SW	<2	B2	2-5	Cloudy	None	7	269	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:08	11:24	41.21686	-72.00602	41.21752	-72.03831	38	10	SW	<2	B2	2-5	Cloudy	None	5.8	273	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:24	11:33	41.21752	-72.03831	41.22348	-72.05450	38	4.3	SW	<2	B2	>5	Fog	None	5.9	273	Transit	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:33	11:54	41.22348	-72.05450	41.21152	-72.05486	38	4.3	SW	<2	B2	>5	Cloudy	Slight	0.7	254	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	11:54	12:14	41.21152	-72.05486	41.21133	-72.05809	30	5.4	WSW	<2	B2	>5	Cloudy	Slight	3.5	176	Deploying/Retrieving	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	12:14	13:00	41.21133	-72.05809	41.21467	-72.05257	30	5.4	WSW	<2	B2	>5	Cloudy	Slight	3.5	176	Deploying/Retrieving	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.21467	-72.05257	41.22151	-72.05507	30	5	SSW	<2	B2	>5	Cloudy	Slight	3	173	Deploying/Retrieving	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	14:00	15:00	41.22151	-72.05507	41.22257	-72.05581	30	4.8	WSW	<2	B2	>5	Cloudy	Slight	3.3	346	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	15:56	41.22257	-72.05581	41.22031	-72.05100	40	7.7	SW	<2	B2	2-5	Fog	Severe	3.6	341	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	15:56	16:58	41.22031	-72.05100	41.22523	-72.07825	28	4	S	<2	B2	2-5	Fog	Severe	1.5	349	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	16:58	17:12	41.22523	-72.07825	41.23807	-72.09458	28	3.4	W	<2	B2	2-5	Fog	Severe	5.5	349	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:12	18:00	41.23807	-72.09458	41.25318	-72.11674	28	3.4	W	<2	B2	2-5	Fog	Severe	5.5	349	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.25318	-72.11674	41.25382	-72.11587	30	5.3	W	<2	B2	>5	Fog	Severe	2	70	Deploying/Retrieving	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.25382	-72.11587	41.25315	-72.10694	30	5.2	W	<2	B2	>5	Fog	Severe	3.9	223	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	21:00	41.25315	-72.10694	41.25247	-72.11328	30	3.9	SW	<2	B2	>5	Fog	Moderate	1.5	223	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	22:00	41.25247	-72.11328	41.25247	-72.11821	41	4	W	<2	B2	>5	Fog	Severe	4	242	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:10	41.25247	-72.11821	41.25226	-72.12057	40	1.9	SW	<2	B2	2-5	Cloudy	None	0.6	119	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:10	22:20	41.25226	-72.12057	41.25242	-72.11691	40	1.9	SW	<2	B2	1-2	Cloudy	None	4.2	119	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:20	23:00	41.25242	-72.11691	41.24991	-72.12032	40	8.6	SW	<2	B2	0.5-1	Cloudy	None	1.1	307	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:00	23:59	41.24991	-72.12032	41.23481	-72.10153	48	8.6	SW	<2	B2	0.5-1	Cloudy	None	6.4	339	Standby	N/A
2022-11-05	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.23481	-72.10153	41.23481	-72.10153	48	8.7	SW	<2	B2	0.5-1	Cloudy	None	6.4	339	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	01:00	41.23621	-72.10136	41.23526	-72.10187	34	2.6	WNW	<2	B2	0.5-1	Cloudy	None	4.4	257	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.23526	-72.10187	41.25329	-72.11379	40	1	WNW	<2	B2	0.5-1	Cloudy	None	4.2	98	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:00	03:00	41.25329	-72.11379	41.23211	-72.06446	40	5	SW	<2	B2	0.5-1	Cloudy	None	0.6	134	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:00	04:00	41.23211	-72.06446	41.21486	-72.04871	33	10	S	<2	B3	0.5-1	Cloudy	None	5	124	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.21486	-72.04871	41.21690	-72.04685	30	12	SW	<2	B3	0.5-1	Cloudy	None	4.6	47	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.21690	-72.04685	41.21677	-72.04728	35	10	SW	<2	B3	0.5-1	Cloudy	None	4.2	23	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	07:00	41.21677	-72.04728	41.19594	-71.97993	35	8.9	SW	<2	B3	0.5-1	Cloudy	None	4.4	20	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	07:16	41.19594	-71.97993	41.19004	-71.98546	34	12	SW	<2	B3	0.5-1	Cloudy	None	3.5	192	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:16	07:49	41.19004	-71.98546	41.19515	-72.00268	34	3.4	W	<2	B2	0.5-1	Cloudy	None	1.5	291	Deploying/Retrieving	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:49	08:00	41.19515	-72.00268	41.19673	-72.00834	34	3.4	W	<2	B2	0.5-1	Cloudy	None	1.7	307	Deploying/Retrieving	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	08:06	41.19673	-72.00834	41.19824	-72.01336	27	3.4	SSE	<2	B2	0.5-1	Cloudy	None	1.9	295	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:06	08:34	41.19824	-72.01336	41.20557	-72.02837	27	3.4	SSE	<2	B2	0.5-1	Cloudy	None	1.9	295	Soft Start	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:34	09:00	41.20557	-72.02837	41.20112	-72.05209	28	3.4	SSE	<2	B2	0.5-1	Cloudy	None	2.1	286	Full Power	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	09:11	41.20112	-72.05209	41.21028	-72.04992	30	3.4	SSE	<2	B2	0.5-1	Cloudy	None	3.7	14	Full Power	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:11	10:00	41.21028	-72.04992	41.22174	-72.04832	30	3.4	SSE	<2	B2	0.5-1	Cloudy	None	3.7	14	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:47	41.22174	-72.04832	41.23154	-72.03906	28	3.4	SE	<2	B2	0.5-1	Cloudy	None	2.3	98	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:47	10:54	41.23154	-72.03906	41.22522	-72.03879	28	2.4	SE	<2	B2	1-2	Cloudy	None	3.3	167	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:54	11:00	41.22522	-72.03879	41.22056	-72.03841	28	2.4	SE	<2	B2	2-5	Cloudy	None	3.3	167	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:25	41.22056	-72.03841	41.20286	-72.03569	55	12.1	SW	<2	B2	2-5	Cloudy	None	3.2	155	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:25	12:00	41.20286	-72.03569	41.21064	-72.03564	55	11.2	SW	<2	B3	>5	Cloudy	None	1.6	91	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	13:00	41.21064	-72.03564	41.21255	-72.05655	23	9	SW	<2	B3	>5	Cloudy	Moderate	3.7	164	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:51	41.21255	-72.05655	41.21335	-72.03267	30	4	SW	<2	B3	>5	Cloudy	Severe	3	258	Testing	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:51	13:54	41.21335	-72.03267	41.21323	-72.02924	30	4	SW	<2	B3	>5	Cloudy	Severe	3.3	110	Reduced Power	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:54	14:00	41.21323	-72.02924	41.21242	-72.02193	30	4	SW	<2	B3	>5	Cloudy	Severe	3.3	110	Silent	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.21242	-72.02193	41.21089	-72.01827	22	5	SSW	<2	B3	>5	Cloudy	Severe	3.3	110	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	16:00	41.21089	-72.01827	41.20251	-72.00452	26	8.9	SSW	<2	B3	>5	Fog	Severe	1.2	240	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.20251	-72.00452	41.21489	-71.97942	28	7	SSW	<2	B3	>5	Fog	Severe	3.7	107	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.21489	-71.97942	41.21004	-72.02144	41	7	SSW	<2	B3	>5	Fog	Moderate	1.6	271	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21004	-72.02144	41.19754	-72.06256	41	7	SSW	<2	B3	>5	Fog	Moderate	2.2	275	Deploying/Retrieving	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.19754	-72.06256	41.19442	-72.03227	40	5	SSW	<2	B3	>5	Fog	Moderate	3.5	251	Deploying/Retrieving	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	21:00	41.19442	-72.03227	41.20730	-72.04905	40	7.3	WSW	<2	B3	>5	Fog	Moderate	4.1	48	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	22:00	41.20730	-72.04905	41.22763	-72.04088	30	3	WNW	<2	B3	>5	Fog	Slight	3.4	259	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	22:00	22:00	41.22763	-72.04088	41.22763	-72.04088	28	8	NW	<2	B3	0.5-1	Clear	None	4.2	246	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:10	41.22763	-72.04088	41.21814	-72.04608	79	11.6	SSW	<2	B3	2-5	Fog	None	3.4	184	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:10	22:16	41.21814	-72.04608	41.21360	-72.04795	79	11.6	SSW	<2	B3	1-2	Fog	None	3.4	184	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:16	23:59	41.21360	-72.04795	41.22922	-72.04716	28	11.6	SSW	<2	B3	0.5-1	Cloudy	None	2.6	158	Standby	N/A
2022-11-06	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.22922	-72.04716	41.22922	-72.04716	28	12.6	SSW	<2	B3	0.5-1	Cloudy	None	3	120	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	01:00	41.22882	-72.04529	41.22482	-72.05178	82	5	S	<2	B3	0.5-1	Cloudy	None	4.1	120	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	01:59	41.22482	-72.05178	41.21555	-72.04380	80	7	E	<2	B3	0.5-1	Cloudy	None	3	120	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	01:59	03:00	41.21555	-72.04380	41.20544	-72.05567	27	11	SE	<2	B3	0.5-1	Clear	None	3.6	16	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:00	04:00	41.20544	-72.05567	41.22739	-72.02315	33	17.3	SW	<2	B3	0.5-1	Clear	None	3.7	202	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.22739	-72.02315	41.21023	-72.03188	32	12	SW	<2	B3	0.5-1	Clear	None	3.7	172	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.21023	-72.03188	41.19036	-72.00064	35	11	SW	<2	B3	0.5-1	Clear	None	2.5	215	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	06:15	41.19036	-72.00064	41.19710	-71.97507	31	13	NW	<2	B3	0.5-1	Cloudy	None	3.7	50	Deploying/Retrieving	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:15	06:42	41.19710	-71.97507	41.21010	-71.92435	31	6	NW	<2	B3	0.5-1	Cloudy	None	5.6	68	Standby	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:42	07:00	41.21010	-71.92435	41.22315	-71.90972	35	8	NW	<2	B3	0.5-1	Cloudy	None	8.6	56	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	08:00	41.22315	-71.90972	41.23212	-71.86214	34	8	NW	<2	B3	0.5-1	Cloudy	None	8.2	180	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.23212	-71.86214	41.26413	-71.76400	58	10.8	S	<2	B3	0.5-1	Cloudy	None	5	80	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.26413	-71.76400	41.28961	-71.69992	37	15	NW	<2	B3	0.5-1	Cloudy	None	5.4	75	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:54	41.28961	-71.69992	41.30382	-71.61103	33	15	NW	<2	B3	0.5-1	Cloudy	None	3.4	82	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:54	11:00	41.30382	-71.61103	41.30671	-71.60005	21	12	NW	2-4	B4	1-2	Cloudy	None	5.6	78	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:24	41.30671	-71.60005	41.31833	-71.55447	27	10.6	SW	2-4	B4	2-5	Cloudy	None	5.5	78	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:24	12:00	41.31833	-71.55447	41.33716	-71.48278	27	10.6	SW	2-4	B4	>5	Cloudy	None	5.9	80	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	13:00	41.33716	-71.48278	41.41885	-71.40920	20	12	W	2-4	B4	>5	Cloudy	None	5.6	81	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.41885	-71.40920	41.34329	-71.38539	20	12	W	2-4	B4	>5	Cloudy	None	6.3	39	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.34329	-71.38539	41.33958	-71.37851	30	9	WSW	2-4	B4	>5	Cloudy	Moderate	5.5	194	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	16:00	41.33958	-71.37851	41.43854	-71.37787	33	9.1	W	<2	B3	>5	Fog	Severe	7.4	3	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.43854	-71.37787	41.53729	-71.32950	26	8	W	<2	B3	>5	Fog	Severe	4.3	4	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.53729	-71.32950	41.65266	-71.24369	27	2.5	N	<2	B3	>5	Clear	Severe	8	22	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:36	41.65266	-71.24369	41.69578	-71.18043	25	1.5	N	<2	B2	>5	Clear	Severe	9	57	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:36	21:20	41.69578	-71.18043	41.69583	-71.18047	5	8	N	<2	B2	>5	Clear	Severe	0	55	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:20	22:00	41.69583	-71.18047	41.63694	-71.26147	5	9.5	W	<2	B2	>5	Clear	Severe	0	55	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:15	41.63694	-71.26147	41.60762	-71.29744	21	8.5	W	<2	B2	2-5	Clear	None	8.6	231	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:15	22:21	41.60762	-71.29744	41.59499	-71.30358	27	7.4	W	<2	B2	1-2	Clear	None	8.6	205	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:21	23:00	41.59499	-71.30358	41.51123	-71.34632	27	7.4	W	<2	B2	0.5-1	Clear	None	8.5	206	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:00	23:59	41.51123	-71.34632	41.41027	-71.40376	25	3	SSW	<2	B2	0.5-1	Clear	None	6	205	Transit	N/A
2022-11-07	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.41027	-71.40376	41.41027	-71.40376	25	3	SSW	<2	B2	0.5-1	Clear	None	8.9	209	Transit	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	01:00	41.40721	-71.40659	41.29365	-71.52747	32	3.4	W	<2	B2	1-2	Clear	None	9.2	211	Transit	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.29365	-71.52747	41.26036	-71.73856	40	13	W	<2	B4	0.5-1	Clear	None	9.5	259	Transit	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:00	03:00	41.26036	-71.73856	41.22427	-71.95072	37	18	SW	<2	B4	0.5-1	Clear	None	9.9	266	Transit	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:00	03:30	41.22427	-71.95072	41.21407	-72.04816	36	22.5	NW	<2	B5	0.5-1	Clear	None	9.6	267	Transit	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:30	04:00	41.21407	-72.04816	41.20732	-72.02031	32	24	SSW	<2	B5	0.5-1	Clear	None	5	115	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.20732	-72.02031	41.21056	-72.03360	28	14	E	<2	B5	0.5-1	Clear	None	2.8	270	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.21056	-72.03360	41.20636	-71.99906	35	16.9	E	<2	B5	0.5-1	Clear	None	7.7	105	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	07:00	41.20636	-71.99906	41.20065	-71.94811	35	14	W	<2	B4	0.5-1	Clear	None	4	290	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	08:00	41.20065	-71.94811	41.21490	-72.04788	35	13	NNW	<2	B4	0.5-1	Clear	None	4.4	289	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.21490	-72.04788	41.19879	-71.97587	25	16.9	WNW	<2	B4	0.5-1	Clear	None	4.2	242	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.19879	-71.97587	41.19889	-72.00331	25	15	W	<2	B4	0.5-1	Clear	None	5.6	290	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:50	41.19889	-72.00331	41.19477	-71.98586	25	19	NW	<2	B4	0.5-1	Clear	None	5.5	102	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:50	11:00	41.19477	-71.98586	41.19803	-72.01201	38	17	WNW	<2	B4	1-2	Clear	None	7.2	294	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:10	41.19803	-72.01201	41.20181	-72.03749	38	17.3	NW	<2	B4	1-2	Clear	None	7.1	294	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:10	11:20	41.20181	-72.03749	41.20496	-72.05426	38	17.3	NW	<2	B4	2-5	Clear	None	7.1	294	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:20	11:26	41.20496	-72.05426	41.20468	-72.04437	38	17.3	NW	<2	B4	>5	Clear	None	7.1	294	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:26	12:00	41.20468	-72.04437	41.20619	-71.99808	38	17.3	NW	<2	B4	>5	Clear	None	7.1	294	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	12:56	41.20619	-71.99808	41.20704	-72.00664	38	18	NNW	<2	B4	>5	Clear	Severe	4.5	66	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:56	13:00	41.20704	-72.00664	41.20572	-72.01252	27	17.7	W	<2	B4	>5	Clear	Severe	5.1	271	Deploying/Retrieving	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20572	-72.01252	41.20832	-72.01986	27	17.7	W	<2	B4	>5	Clear	Severe	5.1	271	Deploying/Retrieving	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.20832	-72.01986	41.20769	-72.02100	26	12	WNW	<2	B4	>5	Clear	Severe	4.4	250	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	16:00	41.20769	-72.02100	41.20790	-72.02020	25	5.2	WNW	<2	B4	>5	Clear	Severe	1.2	83	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.20790	-72.02020	41.20845	-72.01760	25	5	W	<2	B4	>5	Clear	Severe	2.2	106	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.20845	-72.01760	41.20690	-72.01095	17	13	N	<2	B4	>5	Clear	Severe	1.9	351	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.20690	-72.01095	41.20739	-72.01918	17	11	N	<2	B3	>5	Clear	Severe	4.8	170	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.20739	-72.01918	41.20855	-72.01957	25	9	N	<2	B3	>5	Clear	Severe	2.9	304	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	21:00	41.20855	-72.01957	41.20770	-72.01959	17	10.4	N	<2	B3	>5	Clear	Severe	1.9	311	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	22:00	41.20770	-72.01959	41.22882	-72.05100	26	5.4	NNW	<2	B2	>5	Clear	Severe	0.3	300	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:08	41.22882	-72.05100	41.23312	-72.04948	82	15.9	N	<2	B2	2-5	Clear	None	2.8	312	Deploying/Retrieving	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:08	22:16	41.23312	-72.04948	41.22645	-72.03972	81	15.9	N	<2	B2	1-2	Clear	None	4.7	153	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:16	23:00	41.22645	-72.03972	41.20042	-72.05943	81	15.9	N	<2	B2	0.5-1	Clear	None	4.7	153	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:00	23:59	41.20042	-72.05943	41.20756	-72.05335	71	15	NE	<2	B3	0.5-1	Clear	None	3.6	15	Standby	N/A
2022-11-08	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.20756	-72.05335	41.20756	-72.05335	71	15	NE	<2	B3	0.5-1	Clear	None	3.6	15	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	01:00	41.20575	-72.05439	41.22307	-72.04901	35	11.4	N	<2	B3	0.5-1	Clear	None	3.4	176	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.22307	-72.04901	41.19606	-72.06072	26	7.5	N	<2	B3	0.5-1	Clear	None	3.4	163	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:00	02:53	41.19606	-72.06072	41.22126	-72.02424	98	13	SSE	<2	B3	0.5-1	Clear	None	3.7	219	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:53	03:00	41.22126	-72.02424	41.21921	-72.01958	65	8	NNW	<2	B3	0.5-1	Clear	None	2.7	113	Deploying/Retrieving	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:00	04:00	41.21921	-72.01958	41.21612	-72.06246	61	13.3	SSE	<2	B3	0.5-1	Clear	None	2.2	108	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	04:43	41.21612	-72.06246	41.21367	-72.02147	61	15	NE	<2	B4	0.5-1	Clear	None	3.1	39	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:43	04:45	41.21367	-72.02147	41.21253	-72.01944	61	15	NE	<2	B4	0.5-1	Clear	None	3.1	39	Deploying/Retrieving	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:45	05:00	41.21253	-72.01944	41.20473	-72.02549	61	15	NE	<2	B4	0.5-1	Clear	None	3.1	39	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.20473	-72.02549	41.20679	-72.03766	50	15	NNW	<2	B4	0.5-1	Clear	None	2.5	283	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	07:00	41.20679	-72.03766	41.22914	-72.04204	36	8	ESE	<2	B4	0.5-1	Clear	None	4.1	134	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	08:00	41.22914	-72.04204	41.19445	-72.06016	36	13	NE	<2	B4	0.5-1	Clear	None	5	37	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.19445	-72.06016	41.20916	-72.05323	90	9.9	NE	<2	B4	0.5-1	Clear	None	3.1	72	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.20916	-72.05323	41.18948	-72.04095	32	14	SE	<2	B4	0.5-1	Clear	None	3.5	249	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:55	41.18948	-72.04095	41.20063	-72.05947	24	12	NE	<2	B4	0.5-1	Clear	None	3.5	63	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:55	11:00	41.20063	-72.05947	41.20386	-72.05668	35	13	N	<2	B4	1-2	Clear	None	2.7	37	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:09	41.20386	-72.05668	41.21192	-72.05077	35	17.3	N	<2	B4	1-2	Clear	None	3.3	22	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:09	11:17	41.21192	-72.05077	41.21751	-72.04657	31	17.3	N	<2	B4	2-5	Clear	None	3.3	40	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:17	12:00	41.21751	-72.04657	41.21947	-72.04111	31	17.3	N	<2	B4	>5	Clear	None	3.3	40	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	13:00	41.21947	-72.04111	41.20897	-72.05334	31	16	NNE	<2	B4	>5	Clear	Severe	2.6	70	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20897	-72.05334	41.22050	-72.01241	30	13	NNE	<2	B3	>5	Clear	Severe	2.6	63	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.22050	-72.01241	41.22343	-72.00201	37	8	N	<2	B3	>5	Clear	Severe	5.9	272	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	16:00	41.22343	-72.00201	41.23256	-72.07047	82	9.8	N	<2	B3	>5	Clear	Severe	2.8	99	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.23256	-72.07047	41.19909	-72.03309	34	4	E	<2	B3	>5	Clear	Severe	4.1	198	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.19909	-72.03309	41.19819	-72.05228	41	5.9	SE	<2	B3	>5	Clear	Severe	3.9	95	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.19819	-72.05228	41.20291	-72.01683	75	4	SE	<2	B2	>5	Clear	Severe	3.3	266	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.20291	-72.01683	41.19622	-72.05307	28	4.8	E	<2	B2	>5	Clear	Severe	5	95	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	20:03	41.19622	-72.05307	41.19449	-72.05833	85	2.2	SSE	<2	B2	>5	Clear	Severe	3.3	275	Deploying/Retrieving	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:03	21:00	41.19449	-72.05833	41.21774	-72.05654	85	2.2	SSE	<2	B2	>5	Clear	Severe	3.3	275	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:35	41.21774	-72.05654	41.20314	-72.03248	28	1.1	W	<2	B2	>5	Clear	Severe	3.9	304	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:35	22:00	41.20314	-72.03248	41.19794	-72.05001	35	3.8	W	<2	B2	>5	Clear	Severe	5.5	18	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:10	41.19794	-72.05001	41.20525	-72.05536	35	3.8	W	<2	B2	2-5	Clear	None	5.5	18	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:10	22:15	41.20525	-72.05536	41.21038	-72.05223	35	3.8	W	<2	B2	1-2	Clear	None	5.5	18	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:15	23:00	41.21038	-72.05223	41.20683	-72.03863	35	3.8	W	<2	B2	0.5-1	Clear	None	5.5	18	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:00	23:59	41.20683	-72.03863	41.22409	-72.04116	36	7	SW	<2	B2	0.5-1	Clear	None	3.8	218	Standby	N/A
2022-11-09	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.22409	-72.04116	41.22409	-72.04116	36	7	SW	<2	B2	0.5-1	Clear	None	3.8	218	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	01:00	41.22137	-72.04314	41.22601	-72.04373	69	12.4	SSW	<2	B2	0.5-1	Clear	None	4.4	190	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.22601	-72.04373	41.23008	-72.04047	70	9	SSW	<2	B2	0.5-1	Clear	None	3.6	180	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:00	03:00	41.23008	-72.04047	41.21628	-72.05311	88	10	W	<2	B3	0.5-1	Clear	None	5.2	298	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	03:00	04:00	41.21628	-72.05311	41.21959	-72.05557	29	2.9	NE	<2	B2	0.5-1	Clear	None	5.2	321	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.21959	-72.05557	41.21918	-72.04509	27	6	W	<2	B2	0.5-1	Clear	None	5	260	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	05:59	41.21918	-72.04509	41.20503	-72.03294	30	17	SW	<2	B2	0.5-1	Clear	None	5	213	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	05:59	06:34	41.20503	-72.03294	41.20506	-71.98803	31	11	NNW	<2	B3	0.5-1	Clear	None	3.2	96	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:34	07:00	41.20506	-71.98803	41.20225	-71.97568	42	11	NNW	<2	B3	0.5-1	Clear	None	3.6	101	Deploying/Retrieving	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	07:16	41.20225	-71.97568	41.19984	-71.98533	44	6	WSW	<2	B3	0.5-1	Clear	None	1.9	265	Deploying/Retrieving	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:16	07:24	41.19984	-71.98533	41.19839	-71.99002	44	6	WSW	<2	B3	0.5-1	Clear	None	1.9	265	Standby	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:24	07:44	41.19839	-71.99002	41.19312	-72.01380	31	6	WSW	<2	B3	0.5-1	Clear	None	2.2	262	Soft Start	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:44	08:00	41.19312	-72.01380	41.19030	-72.03098	31	6	WSW	<2	B3	0.5-1	Clear	None	3.3	268	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	08:38	41.19030	-72.03098	41.20065	-72.04940	26	9.7	SW	<2	B3	0.5-1	Clear	None	2.8	275	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:38	08:59	41.20065	-72.04940	41.22057	-72.05039	33	5	WSW	<2	B3	0.5-1	Clear	None	3.2	338	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:59	09:00	41.22057	-72.05039	41.22149	-72.05037	31	11	E	<2	B3	0.5-1	Clear	None	3.2	1	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.22149	-72.05037	41.19296	-72.04969	31	11	E	<2	B3	0.5-1	Clear	None	3.2	1	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:55	41.19296	-72.04969	41.21397	-72.03967	79	9	NW	<2	B3	0.5-1	Clear	None	4.1	317	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:55	11:00	41.21397	-72.03967	41.21400	-72.03456	28	13	SW	<2	B3	1-2	Clear	None	2.9	91	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:06	41.21400	-72.03456	41.21449	-72.02681	28	13	SW	<2	B3	1-2	Clear	None	2.9	91	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:06	11:15	41.21449	-72.02681	41.21652	-72.01382	79	10.3	W	<2	B3	2-5	Clear	None	4	94	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:15	11:29	41.21652	-72.01382	41.22706	-72.02358	79	10.3	W	<2	B3	>5	Clear	None	3.8	43	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:29	12:00	41.22706	-72.02358	41.21309	-72.03733	79	10.3	W	<2	B3	>5	Clear	None	3.8	43	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	13:00	41.21309	-72.03733	41.20461	-72.04712	29	8.1	W	<2	B4	>5	Clear	Severe	3.4	175	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20461	-72.04712	41.20542	-72.02431	34	12	SW	<2	B4	>5	Clear	Severe	3.3	235	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.20542	-72.02431	41.20849	-72.04925	27	8	SW	<2	B4	>5	Clear	Severe	4.4	338	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	16:00	41.20849	-72.04925	41.22408	-72.03263	30	11.6	SSW	<2	B4	>5	Clear	Severe	3.2	29	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.22408	-72.03263	41.21055	-72.01047	73	15	WSW	<2	B4	>5	Clear	Severe	3.3	125	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.21055	-72.01047	41.22316	-72.06251	37	22	SW	<2	B4	>5	Clear	Severe	3.9	270	Testing	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.22316	-72.06251	41.21444	-72.05141	40	8	W	<2	B3	>5	Clear	Severe	3	313	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.21444	-72.05141	41.23624	-72.07104	40	10	WNW	<2	B3	>5	Clear	Severe	3.8	294	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	20:00	21:00	41.23624	-72.07104	41.24270	-72.12742	88	10.8	W	<2	B3	>5	Clear	Severe	4.5	270	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:34	41.24270	-72.12742	41.22838	-72.07617	79	10.6	W	<2	B3	>5	Clear	Severe	3.6	273	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:34	22:00	41.22838	-72.07617	41.23405	-72.08092	79	10.6	W	<2	B3	>5	Clear	None	3.6	273	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:00	22:05	41.23405	-72.08092	41.23899	-72.08929	63	7.3	SW	<2	B3	2-5	Clear	None	3.6	296	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:05	22:12	41.23899	-72.08929	41.24261	-72.09388	63	7.3	SW	<2	B3	1-2	Clear	None	3.6	296	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:12	22:25	41.24261	-72.09388	41.24610	-72.10347	63	7.3	SW	<2	B3	0.5-1	Clear	None	3.6	296	Full Power	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; DeLeon, Grace	RPS	22:25	23:00	41.24610	-72.10347	41.23253	-72.08549	56	11.1	SW	<2	B3	0.5-1	Clear	None	3.1	272	Silent	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:00	23:59	41.23253	-72.08549	41.22818	-72.08168	53	9	SSW	<2	B3	0.5-1	Clear	None	4.6	36	Silent	N/A
2022-11-10	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Simancas, Jorge	RPS	23:59	00:00	41.22818	-72.08168	41.22818	-72.08168	53	9	SSW	<2	B3	0.5-1	Clear	None	4.6	36	Silent	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:00	00:06	41.22866	-72.07850	41.23271	-72.07392	68	7.3	SW	<2	B2	0.5-1	Clear	None	3	359	Silent	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:06	00:29	41.23271	-72.07392	41.22669	-72.07351	68	7.3	SW	<2	B2	0.5-1	Clear	None	3	359	Soft Start	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:29	00:32	41.22669	-72.07351	41.22858	-72.07653	24	11	WNW	<2	B3	0.5-1	Clear	None	3.6	291	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	00:32	01:00	41.22858	-72.07653	41.23834	-72.10982	24	11	WNW	<2	B3	0.5-1	Clear	None	3.6	291	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.23834	-72.10982	41.22783	-72.07460	25	13	SW	<2	B3	0.5-1	Clear	None	3.6	285	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	02:00	03:00	41.22783	-72.07460	41.23951	-72.11536	27	3	SSW	<2	B2	0.5-1	Clear	None	3	114	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	03:00	04:00	41.23951	-72.11536	41.24103	-72.08977	75	7	SSW	<2	B2	0.5-1	Clear	None	3.5	294	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	04:29	41.24103	-72.08977	41.23907	-72.13122	84	5	WSW	<2	B2	0.5-1	Clear	None	5.1	300	Full Power	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:29	05:00	41.23907	-72.13122	41.23334	-72.09604	81	5	WSW	<2	B2	0.5-1	Clear	None	3.4	150	Silent	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	05:39	41.23334	-72.09604	41.23564	-72.10025	80	4.5	WSW	<2	B2	0.5-1	Clear	None	3.8	30	Silent	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:39	05:45	41.23564	-72.10025	41.23635	-72.10726	80	4.5	WSW	<2	B2	0.5-1	Clear	None	3.8	30	Deploying/Retrieving	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:45	06:00	41.23635	-72.10726	41.23722	-72.12096	80	4.5	WSW	<2	B2	0.5-1	Clear	None	3.8	30	Standby	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	06:00	07:00	41.23722	-72.12096	41.23373	-72.09813	78	6	WSW	<2	B2	0.5-1	Clear	None	2.3	270	Standby	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	07:00	08:00	41.23373	-72.09813	41.23640	-72.09219	82	2	W	<2	B2	0.5-1	Clear	None	3.7	282	Standby	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.23640	-72.09219	41.23172	-72.08996	56	6.4	WNW	<2	B2	0.5-1	Clear	None	4.1	290	Standby	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Simancas, Jorge	RPS	09:00	10:00	41.23172	-72.08996	41.21575	-72.07905	65	2	NW	<2	B1	0.5-1	Cloudy	None	4	332	Standby	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:00	10:56	41.21575	-72.07905	41.23730	-71.90723	27	2	SE	<2	B1	0.5-1	Cloudy	None	9.7	77	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	10:56	11:00	41.23730	-71.90723	41.23932	-71.89686	38	7	SE	<2	B1	1-2	Cloudy	None	7.5	80	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:00	11:10	41.23932	-71.89686	41.24448	-71.87039	37	7	SE	<2	B1	1-2	Cloudy	None	7.4	80	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:10	11:22	41.24448	-71.87039	41.25037	-71.83509	37	7	SE	<2	B1	2-5	Cloudy	None	7.4	80	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace; Pena, Valeria	RPS	11:22	12:00	41.25037	-71.83509	41.26657	-71.71746	37	7	SE	<2	B1	>5	Cloudy	None	7.4	80	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	12:00	13:00	41.26657	-71.71746	41.30468	-71.52353	37	7	SE	<2	B1	>5	Cloudy	None	9.1	86	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.30468	-71.52353	41.41221	-71.40749	35	5	SE	<2	B1	>5	Cloudy	None	9.1	85	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:00	41.41221	-71.40749	41.41221	-71.40749	40	6.9	SW	<2	B2	>5	Cloudy	Slight	8.8	358	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.41221	-71.40749	41.41391	-71.38030	28	2	SE	<2	B1	>5	Cloudy	None	9.4	34	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	15:00	17:00	41.41391	-71.38030	41.61269	-71.29033	30	6.9	S	<2	B2	>5	Cloudy	Slight	9.1	194	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	DeLeon, Grace	RPS	17:00	18:00	41.61269	-71.29033	41.69430	-71.18885	16	2.1	SW	<2	B2	>5	Cloudy	None	8.8	38	Transit	N/A
2022-11-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:25	41.69430	-71.18885	41.69465	-71.18774	7	6.9	SW	<2	B2	>5	Cloudy	None	1	33	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:45	18:00	41.69570	-71.18039	41.68767	-71.19655	8	5	S	<2	B2	>5	Precipitation	None	0.2	54	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.68767	-71.19655	41.55897	-71.32051	24	10	S	<2	B3	2-5	Precipitation	None	8.1	231	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.55897	-71.32051	41.41135	-71.39236	28	9	WSW	<2	B3	>5	Cloudy	None	9.6	199	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:39	41.41135	-71.39236	41.32321	-71.44332	30	4	S	<2	B3	>5	Cloudy	None	9.2	196	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:39	21:00	41.32321	-71.44332	41.30036	-71.50304	30	21	S	<2	B5	>5	Cloudy	None	9.2	196	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:30	41.30036	-71.50304	41.27520	-71.59237	28	19.9	WNW	<2	B4	>5	Cloudy	Severe	8.8	255	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:30	22:00	41.27520	-71.59237	41.26613	-71.68226	28	21	WNW	<2	B4	>5	Cloudy	None	8.3	274	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:08	41.26613	-71.68226	41.26320	-71.70766	36	14	NNW	<2	B4	1-2	Cloudy	None	8.3	263	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:08	23:00	41.26320	-71.70766	41.23508	-71.85437	36	14	NNW	<2	B4	0.5-1	Cloudy	None	8.3	263	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.23508	-71.85437	41.22173	-72.00365	53	14	NNW	<2	B4	0.5-1	Clear	None	7.9	282	Transit	N/A
2022-11-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.22173	-72.00365	41.22173	-72.00365	94	14	NNW	<2	B4	0.5-1	Clear	None	6.9	272	Transit	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	00:10	41.22020	-72.01135	41.21641	-72.03739	94	14	N	<2	B5	0.5-1	Clear	None	6.8	270	Transit	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:10	01:00	41.21641	-72.03739	41.19730	-71.94773	26	14	N	<2	B5	0.5-1	Clear	None	6.8	270	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.19730	-71.94773	41.20649	-72.00804	52	25	NW	<2	B5	0.5-1	Clear	None	5.4	293	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.20649	-72.00804	41.20230	-72.02709	52	19	SE	<2	B5	0.5-1	Clear	None	6.6	293	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.20230	-72.02709	41.19674	-71.95027	48	19	WSW	<2	B5	0.5-1	Clear	None	6.2	60	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.19674	-71.95027	41.19882	-71.98330	50	20	NW	<2	B5	0.5-1	Clear	None	6.5	101	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.19882	-71.98330	41.22374	-72.03797	55	15	NW	<2	B5	0.5-1	Clear	None	6.4	120	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.22374	-72.03797	41.20286	-72.00627	52	17	N	<2	B5	0.5-1	Clear	None	7	315	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.20286	-72.00627	41.21477	-72.02980	25	21	NW	<2	B5	0.5-1	Clear	None	7.1	133	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.21477	-72.02980	41.20996	-72.01519	25	21	WNW	<2	B5	0.5-1	Clear	None	6.3	146	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	10:00	41.20996	-72.01519	41.19424	-71.98156	25	18	NNW	<2	B5	0.5-1	Cloudy	None	6.3	146	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.19424	-71.98156	41.21604	-72.02415	24	17	NW	<2	B5	0.5-1	Cloudy	None	5.3	139	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:12	41.21604	-72.02415	41.20574	-72.00248	25	15	NE	<2	B4	1-2	Clear	None	5.1	129	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:12	11:23	41.20574	-72.00248	41.19895	-71.98407	25	15	NE	<2	B4	2-5	Clear	None	5.1	129	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:23	11:55	41.19895	-71.98407	41.20748	-72.00160	25	15	NE	<2	B4	>5	Clear	None	5.1	129	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:55	12:00	41.20748	-72.00160	41.20748	-72.00374	31	21	NNW	<2	B4	>5	Clear	Severe	1.1	304	Deploying/Retrieving	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.20748	-72.00374	41.22367	-72.04010	31	21	NNW	<2	B5	>5	Clear	Severe	1.1	304	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:13	41.22367	-72.04010	41.22718	-72.04912	70	26	NW	<2	B5	>5	Clear	Severe	1.6	298	Deploying/Retrieving	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:13	14:00	41.22718	-72.04912	41.20062	-72.00581	70	26	NW	<2	B5	>5	Clear	Severe	2.1	316	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.20062	-72.00581	41.19008	-71.99817	31	27	NNW	<2	B5	>5	Clear	Severe	4	126	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.19008	-71.99817	41.22222	-72.02843	35	14	WSW	<2	B5	>5	Clear	Severe	3.9	321	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.22222	-72.02843	41.18612	-71.98024	68	21	NW	<2	B5	>5	Clear	Severe	4.5	130	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.18612	-71.98024	41.21740	-72.02933	28	17	NW	<2	B5	>5	Clear	Severe	4.4	311	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21740	-72.02933	41.20196	-72.04551	26	13	NNW	<2	B4	>5	Clear	Severe	4	130	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:30	41.20196	-72.04551	41.17078	-72.03089	43	16	NW	<2	B4	>5	Clear	Severe	4.4	180	Standby	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:30	20:00	41.17078	-72.03089	41.15336	-72.00780	26	16	NNW	<2	B4	>5	Clear	Severe	3.3	156	Deploying/Retrieving	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.15336	-72.00780	41.18597	-72.05241	27	23	NW	<2	B4	>5	Clear	Severe	3.1	124	Transit	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:30	41.18597	-72.05241	41.20871	-72.07007	56	8.9	NNW	<2	B4	>5	Clear	Severe	3	317	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:30	22:00	41.20871	-72.07007	41.19087	-72.05376	66	8.8	NW	<2	B4	>5	Clear	Severe	2.9	281	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:12	41.19087	-72.05376	41.18340	-72.03918	81	15	NW	<2	B4	2-5	Clear	None	3.6	127	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:12	22:26	41.18340	-72.03918	41.17765	-72.02446	81	15	NW	<2	B4	1-2	Clear	None	3.6	127	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:26	23:00	41.17765	-72.02446	41.19313	-72.05459	81	10	NW	<2	B3	0.5-1	Clear	None	3.6	299	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:42	41.19313	-72.05459	41.21550	-72.09270	83	14	NNW	<2	B3	0.5-1	Clear	None	2.7	325	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:42	23:59	41.21550	-72.09270	41.20800	-72.07540	80	6	NNE	<2	B3	0.5-1	Clear	None	7.1	44	Silent	N/A
2022-11-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.20800	-72.07540	41.20800	-72.07540	80	6	NNE	<2	B3	0.5-1	Clear	None	7.1	44	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.20498	-72.07151	41.18758	-72.03410	78	11	N	<2	B3	0.5-1	Clear	None	4	151	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.18758	-72.03410	41.22694	-72.05579	37	18	NNW	<2	B4	0.5-1	Clear	None	2.9	333	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.22694	-72.05579	41.21368	-72.03861	45	10	SW	<2	B4	0.5-1	Clear	None	5.4	298	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.21368	-72.03861	41.21386	-72.03826	28	3	NE	<2	B2	0.5-1	Clear	None	3.5	278	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.21386	-72.03826	41.20901	-72.06107	28	5	SE	<2	B2	0.5-1	Clear	None	3.4	89	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.20901	-72.06107	41.21390	-72.02644	48	5	SW	<2	B2	0.5-1	Clear	None	3.5	93	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.21390	-72.02644	41.18869	-72.06886	48	2	NNE	<2	B2	0.5-1	Clear	None	2.9	102	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.18869	-72.06886	41.17570	-72.02920	61	8	ENE	<2	B2	0.5-1	Clear	None	3.5	55	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.17570	-72.02920	41.21158	-72.08611	58	6	ENE	<2	B2	0.5-1	Clear	None	6.3	280	Silent	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	09:34	41.21158	-72.08611	41.23090	-72.11294	70	3	SE	<2	B2	0.5-1	Clear	None	3.5	323	Deploying/Retrieving	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:34	09:55	41.23090	-72.11294	41.23661	-72.12447	64	3	SE	<2	B2	0.5-1	Clear	None	2.9	328	Soft Start	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:55	10:00	41.23661	-72.12447	41.23416	-72.11727	100	3	SE	<2	B1	0.5-1	Clear	None	2.9	130	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.23416	-72.11727	41.21845	-72.05992	100	3	SE	<2	B1	0.5-1	Clear	None	2.9	130	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:17	41.21845	-72.05992	41.20998	-72.04063	26	8	NE	<2	B2	1-2	Clear	None	3.7	170	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:17	11:30	41.20998	-72.04063	41.20117	-72.02804	26	8	NE	<2	B2	2-5	Clear	None	3.7	170	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	12:00	41.20117	-72.02804	41.21234	-72.04632	26	8	WNW	<2	B2	>5	Clear	Slight	3.8	109	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	12:00	12:05	41.21234	-72.04632	41.21466	-72.05188	31	11	NE	<2	B3	>5	Clear	Severe	3.5	304	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:05	13:00	41.21466	-72.05188	41.20468	-72.02948	31	11	NE	<2	B3	>5	Clear	Severe	3.5	304	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20468	-72.02948	41.21166	-72.04548	33	8	ENE	<2	B3	>5	Clear	Severe	2.9	325	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.21166	-72.04548	41.21732	-72.05714	30	9	NNW	<2	B3	>5	Clear	Severe	3.4	116	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.21732	-72.05714	41.22182	-72.05162	30	4	NE	<2	B3	>5	Cloudy	Moderate	3.5	114	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.22182	-72.05162	41.21333	-72.04856	32	4	E	<2	B3	>5	Cloudy	Moderate	3.6	337	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.21333	-72.04856	41.22464	-72.05725	27	6	N	<2	B2	>5	Cloudy	Slight	3.4	115	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.22464	-72.05725	41.22184	-72.05016	18	4	ENE	<2	B2	>5	Cloudy	Slight	3.2	230	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.22184	-72.05016	41.23604	-72.09999	28	4	ENE	<2	B2	>5	Cloudy	None	3.2	230	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:09	41.23604	-72.09999	41.23912	-72.11019	41	4	E	<2	B2	>5	Cloudy	None	3.4	298	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:09	20:49	41.23912	-72.11019	41.23281	-72.09750	41	4	E	<2	B1	>5	Cloudy	None	3.4	298	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:49	21:00	41.23281	-72.09750	41.22818	-72.08657	83	6	E	<2	B2	>5	Cloudy	None	3.3	137	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:35	41.22818	-72.08657	41.23525	-72.09859	79	2	WSW	<2	B2	>5	Cloudy	None	3.3	132	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:35	21:48	41.23525	-72.09859	41.23970	-72.11316	80	2	WSW	<2	B2	2-5	Cloudy	None	3.3	288	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:48	22:00	41.23970	-72.11316	41.24357	-72.12682	82	4	WSW	<2	B2	1-2	Cloudy	None	3.3	294	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:28	41.24357	-72.12682	41.22995	-72.09471	84	7	ENE	<2	B2	0.5-1	Cloudy	None	3.2	297	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:28	23:00	41.22995	-72.09471	41.23238	-72.08951	91	9	E	<2	B3	0.5-1	Cloudy	None	4.2	114	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.23238	-72.08951	41.24475	-72.14682	65	15	ENE	<2	B3	0.5-1	Cloudy	None	3.5	111	Full Power	N/A
2022-11-15	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.24475	-72.14682	41.24475	-72.14682	60	16	ENE	<2	B4	0.5-1	Cloudy	None	3.5	115	Full Power	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.24450	-72.14603	41.22998	-72.08325	54	5.7	ESE	<2	B3	0.5-1	Cloudy	None	4.4	124	Full Power	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.22998	-72.08325	41.22952	-72.09723	55	14.7	NE	<2	B3	0.5-1	Cloudy	None	2.8	297	Full Power	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	02:56	41.22952	-72.09723	41.23056	-72.13071	55	14.7	NE	<2	B3	0.5-1	Cloudy	None	2.8	297	Full Power	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:56	03:00	41.23056	-72.13071	41.23038	-72.13415	56	25	NE	<2	B3	0.5-1	Cloudy	None	2.1	281	Silent	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	03:13	41.23038	-72.13415	41.23037	-72.14702	56	25	NE	<2	B3	0.5-1	Precipitation	None	2.1	281	Deploying/Retrieving	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:13	04:00	41.23037	-72.14702	41.22622	-72.17012	56	25	NE	<2	B4	0.5-1	Precipitation	None	2.1	281	Standby	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.22622	-72.17012	41.19131	-72.00965	45	18	NE	<2	B5	0.3-0.5	Precipitation	None	8.1	98	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.19131	-72.00965	41.22446	-71.86424	31	24	NE	<2	B5	0.3-0.5	Precipitation	None	6.6	90	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.22446	-71.86424	41.25741	-71.72216	41	30	E	<2	B5	0.3-0.5	Precipitation	None	6.6	86	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.25741	-71.72216	41.28856	-71.58174	33	23.6	ENE	2-4	B5	0.3-0.5	Precipitation	None	7.3	77	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.28856	-71.58174	41.32619	-71.45287	25	33.7	ESE	2-4	B6	0.3-0.5	Precipitation	None	6.6	92	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	10:00	41.32619	-71.45287	41.41806	-71.39093	20	31	ESE	2-4	B6	0.3-0.5	Precipitation	None	6.4	77	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.41806	-71.39093	41.54624	-71.32391	30	31	ESE	2-4	B7	0.3-0.5	Precipitation	None	8.1	36	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:25	41.54624	-71.32391	41.60614	-71.29759	21	10	SE	<2	B2	0.3-0.5	Fog	None	9.3	21	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:25	11:58	41.60614	-71.29759	41.66786	-71.22412	21	10	SE	<2	B3	0.3-0.5	Fog	None	9.3	21	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	11:58	12:00	41.66786	-71.22412	41.67125	-71.21965	21	31	ESE	<2	B3	0.3-0.5	Fog	None	8	21	Transit	N/A
2022-11-16	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:25	41.67125	-71.21965	41.69578	-71.18041	15	3.4	SE	<2	B2	0.3-0.5	Fog	None	9.2	56	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:08	11:35	41.69574	-71.18031	41.65489	-71.23974	5	7	WNW	<2	B2	1-2	Clear	None	0.1	220	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:35	12:00	41.65489	-71.23974	41.60405	-71.29829	8	8	NNW	<2	B2	2-5	Clear	None	10.5	221	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	12:00	12:05	41.60405	-71.29829	41.59153	-71.30553	30	11	WNW	<2	B3	2-5	Fog	Moderate	9.7	202	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:05	13:00	41.59153	-71.30553	41.45438	-71.37051	30	11	WNW	<2	B3	2-5	Fog	Moderate	9.7	202	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.45438	-71.37051	41.40527	-71.20661	35	7	NW	<2	B3	2-5	Fog	Severe	9.3	194	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:44	41.40527	-71.20661	41.41861	-71.06396	22	8	W	<2	B3	2-5	Fog	Severe	9.1	87	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:44	15:00	41.41861	-71.06396	41.41905	-71.06299	20	9	W	<2	B3	2-5	Fog	Severe	0.8	87	Standby	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:24	41.41905	-71.06299	41.42079	-71.06031	20	7	W	<2	B3	>5	Clear	Severe	0.4	65	Standby	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:24	15:45	41.42079	-71.06031	41.42357	-71.04955	20	9	W	<2	B3	>5	Clear	Severe	5.2	200	Deploying/Retrieving	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:45	16:00	41.42357	-71.04955	41.41763	-71.06592	20	9	W	<2	B3	>5	Clear	Severe	5.2	200	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:50	41.41763	-71.06592	41.42098	-71.07860	17	7	NW	<2	B3	>5	Clear	Severe	3.6	242	Standby	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:50	17:00	41.42098	-71.07860	41.41859	-71.08899	16	7	WSW	<2	B3	>5	Cloudy	Severe	3.2	265	Deploying/Retrieving	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:13	41.41859	-71.08899	41.41348	-71.10467	16	16	W	<2	B4	>5	Cloudy	Moderate	3.7	249	Standby	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:13	17:15	41.41348	-71.10467	41.41293	-71.10643	16	16	W	<2	B4	>5	Cloudy	Moderate	3.7	249	Deploying/Retrieving	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:15	18:00	41.41293	-71.10643	41.41715	-71.06700	16	16	W	<2	B4	>5	Cloudy	Moderate	3.7	249	Silent	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.41715	-71.06700	41.41848	-71.06467	20	16	S	<2	B4	>5	Cloudy	Severe	3.5	69	Silent	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.41848	-71.06467	41.41568	-71.06584	20	7	SW	<2	B4	>5	Cloudy	Moderate	5.5	128	Silent	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:27	41.41568	-71.06584	41.42088	-71.05790	20	10	SW	<2	B4	>5	Cloudy	Slight	3.3	300	Silent	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:27	20:47	41.42088	-71.05790	41.41946	-71.06502	20	18	S	<2	B5	>5	Cloudy	Slight	3.4	270	Silent	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:47	20:58	41.41946	-71.06502	41.42181	-71.07659	20	16	WSW	<2	B5	>5	Cloudy	Slight	2.5	280	Deploying/Retrieving	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:58	21:00	41.42181	-71.07659	41.42106	-71.07930	20	16	WSW	<2	B5	>5	Cloudy	Slight	2.5	280	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:53	41.42106	-71.07930	41.40441	-71.22150	18	18	SW	<2	B5	>5	Cloudy	Severe	4	249	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:53	22:00	41.40441	-71.22150	41.40257	-71.23918	22	27	WNW	<2	B5	1-2	Cloudy	None	7.6	265	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:10	41.40257	-71.23918	41.39961	-71.26859	22	27	WNW	<2	B5	1-2	Cloudy	None	7.6	265	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:10	22:19	41.39961	-71.26859	41.39835	-71.29629	22	27	WNW	<2	B5	0.3-0.5	Cloudy	None	7.6	265	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:19	23:00	41.39835	-71.29629	41.45701	-71.37178	22	27	WNW	<2	B5	0.05-0.1	Cloudy	None	7.6	265	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:16	41.45701	-71.37178	41.48688	-71.34541	40	27	WNW	<2	B4	0.05-0.1	Cloudy	None	8	9	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:16	23:59	41.48688	-71.34541	41.58280	-71.31125	15	11	N	<2	B3	0.5-1	Cloudy	None	8.7	9	Transit	N/A
2022-11-19	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.58280	-71.31125	41.58280	-71.31125	15	15	WSW	<2	B3	0.5-1	Cloudy	None	8.7	9	Transit	N/A
2022-11-20	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.58888	-71.30780	41.69620	-71.18259	33	7	NE	<2	B2	0.5-1	Cloudy	None	8.8	36	Transit	N/A
2022-11-20	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	01:10	41.69620	-71.18259	41.69583	-71.18042	5	11	WSW	<2	B2	0.5-1	Cloudy	None	6.3	75	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:58	10:00	41.69608	-71.18056	41.69686	-71.18138	8	15	S	<2	B3	0.3-0.5	Clear	None	0.5	38	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.69686	-71.18138	41.58992	-71.30687	8	15	S	<2	B3	0.3-0.5	Clear	None	4.2	320	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:10	41.58992	-71.30687	41.56434	-71.31981	8	7	NW	<2	B3	0.5-1	Clear	None	9.3	206	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:10	11:25	41.56434	-71.31981	41.52663	-71.33496	8	7	NW	<2	B3	1-2	Clear	None	9	206	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:25	11:41	41.52663	-71.33496	41.48609	-71.34689	38	7	NW	<2	B3	2-5	Clear	None	9.6	186	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:41	12:00	41.48609	-71.34689	41.44249	-71.36752	33	9	WNW	<2	B3	>5	Clear	Moderate	9.9	202	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	12:00	12:11	41.44249	-71.36752	41.41870	-71.35295	25	8	NNW	<2	B3	>5	Clear	Severe	9.3	180	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:11	13:00	41.41870	-71.35295	41.41463	-71.18376	25	8	NNW	<2	B3	>5	Clear	Severe	9.3	100	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:35	41.41463	-71.18376	41.41660	-71.07366	18	17	NW	<2	B3	>5	Clear	Severe	9.6	92	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:35	13:51	41.41660	-71.07366	41.41677	-71.06754	19	10	NW	<2	B3	>5	Clear	Severe	4.5	95	Standby	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:51	14:00	41.41677	-71.06754	41.41563	-71.07011	19	8	WNW	<2	B3	>5	Clear	Severe	1.6	279	Deploying/Retrieving	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:32	41.41563	-71.07011	41.41358	-71.07596	19	8	WNW	<2	B3	>5	Clear	Severe	1	19	Deploying/Retrieving	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:32	14:41	41.41358	-71.07596	41.41763	-71.06570	21	13	W	<2	B3	>5	Clear	Severe	4.3	77	Standby	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:41	15:00	41.41763	-71.06570	41.41976	-71.06193	20	4	NNE	<2	B3	>5	Clear	Severe	2.5	359	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.41976	-71.06193	41.42060	-71.05992	21	9	WNW	<2	B3	>5	Clear	Severe	2.5	258	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.42060	-71.05992	41.42253	-71.05526	19	14	W	<2	B3	>5	Clear	Severe	3.2	61	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:13	41.42253	-71.05526	41.41613	-71.06937	20	8	WSW	<2	B3	>5	Cloudy	Slight	2.6	147	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:13	18:00	41.41613	-71.06937	41.41506	-71.05810	20	17	W	<2	B4	>5	Cloudy	Slight	3.1	183	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.41506	-71.05810	41.42245	-71.06332	20	8	S	<2	B4	>5	Cloudy	Slight	3.4	306	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:06	41.42245	-71.06332	41.42670	-71.05576	20	20	SW	<2	B4	>5	Cloudy	Moderate	3.8	59	Silent	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:06	19:15	41.42670	-71.05576	41.43319	-71.04622	20	20	SW	<2	B4	>5	Cloudy	Moderate	3.8	59	Deploying/Retrieving	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:15	20:00	41.43319	-71.04622	41.41929	-71.16967	20	21	W	<2	B4	>5	Cloudy	Severe	8.1	240	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.41929	-71.16967	41.41580	-71.35065	22	11	W	<2	B5	>5	Cloudy	Slight	8.1	276	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	22:00	41.41580	-71.35065	41.55477	-71.32279	20	19	NNW	<2	B5	>5	Cloudy	Severe	8.4	281	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:04	41.55477	-71.32279	41.56616	-71.31782	23	12	WSW	<2	B3	1-2	Clear	None	7.6	23	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:04	23:00	41.56616	-71.31782	41.68234	-71.20488	23	12	WSW	<2	B3	0.5-1	Clear	None	7.6	23	Transit	N/A
2022-11-21	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:20	41.68234	-71.20488	41.69567	-71.18038	8	9.5	ENE	<2	B3	0.5-1	Clear	None	7.6	23	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.69583	-71.18041	41.58509	-71.30830	5	8	WNW	<2	B2	>5	Clear	Severe	0.3	42	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.58509	-71.30830	41.44216	-71.37157	31	8	N	<2	B2	>5	Clear	Severe	9.6	205	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.44216	-71.37157	41.40767	-71.18963	26	9	NNW	<2	B2	>5	Clear	Severe	9	168	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:37	41.40767	-71.18963	41.41621	-71.06888	23	8.6	W	<2	B2	>5	Clear	Severe	9.3	104	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:37	21:50	41.41621	-71.06888	41.41648	-71.06838	19	8	W	<2	B2	2-5	Clear	Moderate	9	108	Transit	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:50	22:00	41.41648	-71.06838	41.41661	-71.06825	20	5.5	ESE	<2	B2	1-2	Clear	None	0.4	228	Standby	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:12	41.41661	-71.06825	41.42158	-71.06540	20	12	WNW	<2	B3	0.5-1	Clear	None	1	90	Deploying/Retrieving	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:12	23:00	41.42158	-71.06540	41.41987	-71.05653	20	12	WNW	<2	B3	0.5-1	Clear	None	1	90	Standby	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.41987	-71.05653	41.41857	-71.06391	17	8.8	NNE	<2	B3	0.5-1	Clear	None	3	100	Silent	N/A
2022-11-23	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.41857	-71.06391	41.41857	-71.06391	20	41	ENE	<2	B2	0.5-1	Clear	None	3.5	72	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.41914	-71.06275	41.42102	-71.05881	20	41	ENE	<2	B2	0.5-1	Clear	None	3.5	72	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.42102	-71.05881	41.43041	-71.06639	20	8	N	<2	B2	0.5-1	Clear	None	4.2	246	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.43041	-71.06639	41.40439	-71.08320	17	5.8	NNE	<2	B2	0.5-1	Clear	None	3.8	163	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.40439	-71.08320	41.41342	-71.07632	25	9.6	N	<2	B2	0.5-1	Clear	None	2.5	335	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.41342	-71.07632	41.41666	-71.06807	21	9	N	<2	B2	0.5-1	Clear	None	3.6	340	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.41666	-71.06807	41.41066	-71.05726	20	6	N	<2	B2	0.5-1	Clear	None	4	282	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.41066	-71.05726	41.42064	-71.05959	20	6.5	NE	<2	B2	0.5-1	Clear	None	4	282	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.42064	-71.05959	41.41557	-71.07249	20	16	NNE	<2	B2	0.5-1	Clear	None	3.7	245	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.41557	-71.07249	41.42433	-71.05600	23	4.3	ENE	<2	B2	0.5-1	Clear	None	2.8	90	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	10:00	41.42433	-71.05600	41.42154	-71.05788	16	7	NNW	<2	B2	0.5-1	Clear	None	3.2	44	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.42154	-71.05788	41.42222	-71.05447	20	9	N	<2	B2	0.5-1	Clear	None	3.6	63	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:07	41.42222	-71.05447	41.42217	-71.05645	20	7.5	NNW	<2	B2	0.5-1	Clear	None	3.7	86	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:07	11:22	41.42217	-71.05645	41.41253	-71.07043	20	7.5	NNW	<2	B2	1-2	Clear	None	3.7	242	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:22	11:43	41.41253	-71.07043	41.42208	-71.05675	20	7.5	NNW	<2	B2	2-5	Clear	None	3.7	222	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:43	12:00	41.42208	-71.05675	41.42128	-71.05812	20	8	NNW	<2	B2	>5	Clear	None	3.9	59	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:13	41.42128	-71.05812	41.41694	-71.07269	20	7.4	NNE	<2	B2	>5	Clear	Slight	3.9	252	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:13	13:00	41.41694	-71.07269	41.41622	-71.07489	20	7	NNE	<2	B2	>5	Clear	Severe	3.9	182	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.41622	-71.07489	41.41478	-71.06815	21	8	NE	<2	B2	>5	Clear	Severe	3.8	266	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.41478	-71.06815	41.41921	-71.07278	15	4	E	<2	B2	>5	Clear	Severe	2.7	33	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.41921	-71.07278	41.41163	-71.06987	17	0.1	NW	<2	B2	>5	Clear	Severe	4.1	131	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.41163	-71.06987	41.41549	-71.06288	17	4	ESE	<2	B2	>5	Clear	Severe	3.9	244	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.41549	-71.06288	41.41844	-71.06424	15	2	E	<2	B2	>5	Clear	Severe	4.3	280	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.41844	-71.06424	41.41727	-71.06070	15	2	E	<2	B1	>5	Clear	Severe	3.3	66	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.41727	-71.06070	41.41575	-71.07006	20	2.7	WNW	<2	B1	>5	Clear	Severe	3.2	153	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.41575	-71.07006	41.41720	-71.06662	21	5.3	SW	<2	B2	>5	Clear	Moderate	3.8	181	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	22:00	41.41720	-71.06662	41.41809	-71.06525	20	11	W	<2	B2	>5	Clear	Moderate	3.7	248	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:08	41.41809	-71.06525	41.42244	-71.05580	20	11	WSW	<2	B2	1-2	Clear	None	3.7	68	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-24	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:08	23:00	41.42244	-71.05580	41.41953	-71.06177	20	11	WSW	<2	B2	0.5-1	Clear	None	3.7	68	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.41953	-71.06177	41.42587	-71.05476	20	13.7	SW	<2	B2	0.5-1	Clear	None	3.8	66	Silent	N/A
2022-11-24	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.42587	-71.05476	41.42587	-71.05476	20	17	W	<2	B2	0.5-1	Clear	None	3.1	234	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.42213	-71.05722	41.41468	-71.05823	20	17	W	<2	B2	0.5-1	Clear	None	3.1	234	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.41468	-71.05823	41.41867	-71.06183	18	9	ESE	<2	B2	0.5-1	Clear	None	3.3	308	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.41867	-71.06183	41.42396	-71.05458	14	9.3	SW	<2	B2	0.5-1	Clear	None	2.4	159	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.42396	-71.05458	41.41403	-71.06358	20	14	SW	<2	B2	0.5-1	Clear	None	4.3	54	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.41403	-71.06358	41.42480	-71.05607	20	14	SSW	<2	B2	0.5-1	Clear	None	3.6	270	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.42480	-71.05607	41.42374	-71.05374	17	7	WSW	<2	B3	0.5-1	Clear	None	2.1	206	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.42374	-71.05374	41.42534	-71.06829	15	7	WSW	<2	B3	0.5-1	Cloudy	None	2.5	202	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.42534	-71.06829	41.42221	-71.05646	15	5	W	<2	B3	0.5-1	Cloudy	None	2.9	301	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.42221	-71.05646	41.42717	-71.07284	20	12	SSW	<2	B3	0.5-1	Cloudy	None	3.6	74	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	10:00	41.42717	-71.07284	41.42226	-71.05386	20	4	SW	<2	B3	0.5-1	Cloudy	None	2.5	142	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.42226	-71.05386	41.42182	-71.06428	14	10	SSW	<2	B3	0.5-1	Cloudy	None	3.5	121	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:15	41.42182	-71.06428	41.41279	-71.06555	14	9	SW	<2	B3	0.5-1	Cloudy	None	3.1	182	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:15	11:25	41.41279	-71.06555	41.41926	-71.05689	14	9	SW	<2	B3	1-2	Cloudy	None	3.1	327	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:25	11:45	41.41926	-71.05689	41.42041	-71.05891	20	9	SW	<2	B3	2-5	Cloudy	None	3.7	89	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:45	12:00	41.42041	-71.05891	41.41395	-71.06708	20	9	SW	<2	B3	>5	Cloudy	None	3.5	89	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:15	41.41395	-71.06708	41.42283	-71.04754	20	18	SSW	<2	B3	>5	Cloudy	None	2.5	188	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:15	13:00	41.42283	-71.04754	41.42272	-71.04822	18	15	SSW	<2	B3	>5	Cloudy	None	3.8	358	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.42272	-71.04822	41.41278	-71.07099	14	13	SSW	<2	B3	>5	Cloudy	None	3.9	62	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.41278	-71.07099	41.42197	-71.07292	13	8	WSW	<2	B3	>5	Cloudy	None	3.9	146	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.42197	-71.07292	41.41487	-71.07014	19	10	WSW	<2	B4	>5	Cloudy	None	3.3	266	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:28	41.41487	-71.07014	41.42046	-71.06297	15	17	SW	<2	B4	>5	Cloudy	None	3.9	55	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:28	17:00	41.42046	-71.06297	41.42253	-71.05653	13	23	WSW	<2	B4	>5	Precipitation	None	3.4	249	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:10	41.42253	-71.05653	41.41992	-71.06276	13	25	SSW	<2	B5	>5	Cloudy	None	2.1	294	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:10	17:26	41.41992	-71.06276	41.41277	-71.07554	14	26	WSW	<2	B5	2-5	Precipitation	None	2.9	225	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:26	18:00	41.41277	-71.07554	41.42774	-71.05943	14	28	WSW	<2	B5	2-5	Precipitation	None	2.5	267	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.42774	-71.05943	41.42528	-71.04843	17	15	S	<2	B5	2-5	Precipitation	None	1.9	263	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:50	41.42528	-71.04843	41.41498	-71.06862	19	13	WSW	<2	B5	2-5	Precipitation	None	4.6	330	Silent	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:50	20:00	41.41498	-71.06862	41.42247	-71.05567	19	18	WSW	<2	B5	2-5	Cloudy	None	4.6	330	Deploying/Retrieving	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.42247	-71.05567	41.41777	-71.05590	19	23	WSW	<2	B5	2-5	Fog	None	4.4	60	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:53	41.41777	-71.05590	41.40935	-71.07952	20	16	SW	<2	B5	2-5	Fog	None	4.2	71	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:53	22:00	41.40935	-71.07952	41.41423	-71.07086	20	14	WNW	<2	B5	1-2	Fog	None	4.2	67	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:07	41.41423	-71.07086	41.41960	-71.06104	20	17	WNW	<2	B5	0.5-1	Cloudy	None	4.3	60	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:07	22:49	41.41960	-71.06104	41.41237	-71.08301	20	17	WNW	<2	B5	0.1-0.3	Cloudy	None	4.3	60	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:49	23:00	41.41237	-71.08301	41.41664	-71.07289	20	17	WNW	<2	B5	0.05-0.1	Clear	None	4.3	239	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.41664	-71.07289	41.41908	-71.06105	20	21.1	WNW	<2	B5	0.05-0.1	Clear	None	3.8	64	Standby	N/A
2022-11-25	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.41908	-71.06105	41.41908	-71.06105	20	18	WNW	<2	B5	0.05-0.1	Clear	None	2.9	341	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.42071	-71.05763	41.41716	-71.06540	21	19	NE	<2	B5	0.05-0.1	Clear	None	4.4	72	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	02:00	41.41716	-71.06540	41.41774	-71.06584	20	11	NW	<2	B5	0.05-0.1	Cloudy	None	3.9	50	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.41774	-71.06584	41.41492	-71.06355	20	18	NW	<2	B5	0.05-0.1	Cloudy	None	3.8	250	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.41492	-71.06355	41.41967	-71.05027	20	12	WNW	<2	B5	0.05-0.1	Cloudy	None	3.5	75	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.41967	-71.05027	41.41289	-71.06233	19	11	E	<2	B5	0.05-0.1	Cloudy	None	3.1	43	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.41289	-71.06233	41.41174	-71.08403	19	22	NW	<2	B5	0.05-0.1	Cloudy	None	4	286	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.41174	-71.08403	41.41329	-71.06302	19	13	NW	<2	B5	0.05-0.1	Cloudy	None	3.5	250	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.41329	-71.06302	41.42537	-71.05299	19	20	WNW	<2	B5	0.05-0.1	Cloudy	None	3.6	49	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	08:00	09:00	41.42537	-71.05299	41.42765	-71.06635	18	10	S	<2	B5	0.05-0.1	Cloudy	None	4.9	74	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	09:00	10:00	41.42765	-71.06635	41.41393	-71.07128	17	16	NNW	<2	B5	0.05-0.1	Cloudy	None	5.1	278	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	10:38	41.41393	-71.07128	41.41900	-71.05593	20	17	WNW	<2	B5	0.3-0.5	Cloudy	None	5.8	250	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:38	10:58	41.41900	-71.05593	41.41731	-71.06595	20	17	WNW	<2	B5	0.3-0.5	Clear	None	2.9	230	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:58	11:00	41.41731	-71.06595	41.41806	-71.06453	20	20	WNW	<2	B4	0.5-1	Clear	None	3.5	57	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:12	41.41806	-71.06453	41.42309	-71.05305	20	20	WNW	<2	B4	0.5-1	Clear	None	3.5	57	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:12	11:30	41.42309	-71.05305	41.41450	-71.07162	20	10	NW	<2	B4	1-2	Clear	None	4	277	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:45	41.41450	-71.07162	41.41386	-71.06401	20	14	W	<2	B4	2-5	Clear	None	2.1	252	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:45	12:00	41.41386	-71.06401	41.42030	-71.06281	20	20	W	<2	B5	>5	Clear	None	5	89	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:15	41.42030	-71.06281	41.41891	-71.06100	20	17	W	<2	B5	>5	Clear	None	3.9	3	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:15	13:00	41.41891	-71.06100	41.41989	-71.06507	20	21	NW	<2	B5	>5	Clear	Moderate	4	146	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.41989	-71.06507	41.41182	-71.05891	20	20	NW	<2	B5	>5	Clear	Severe	3.7	124	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.41182	-71.05891	41.41608	-71.05889	21	23	NW	<2	B5	>5	Clear	Severe	4.5	74	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.41608	-71.05889	41.40826	-71.06201	20	10	WSW	<2	B4	>5	Clear	Severe	1.7	325	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.40826	-71.06201	41.41534	-71.06181	20	8	NW	<2	B4	>5	Clear	Severe	3.8	213	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.41534	-71.06181	41.41357	-71.06422	14	12	WNW	<2	B4	>5	Clear	Severe	4	153	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.41357	-71.06422	41.42399	-71.07003	21	4	NW	<2	B4	>5	Clear	Severe	3.4	179	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.42399	-71.07003	41.41622	-71.04713	14	7	WNW	<2	B3	>5	Clear	Severe	4.8	179	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.41622	-71.04713	41.41649	-71.04999	14	11	W	<2	B3	>5	Clear	Severe	3.7	309	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:00	21:49	41.41649	-71.04999	41.41841	-71.05064	20	10	NNE	<2	B3	>5	Clear	Severe	4.7	348	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	21:49	22:00	41.41841	-71.05064	41.41956	-71.06377	20	9	NW	<2	B3	1-2	Clear	None	4.5	278	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.41956	-71.06377	41.42094	-71.06211	21	13	NW	<2	B3	0.5-1	Clear	None	4	285	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:59	41.42094	-71.06211	41.40944	-71.05882	21	4	NE	<2	B3	0.5-1	Clear	None	3.6	27	Standby	N/A
2022-11-26	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.40944	-71.05882	41.40944	-71.05882	21	12	ENE	<2	B3	0.5-1	Clear	None	4	0	Standby	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	00:00	01:00	41.40953	-71.06202	41.41700	-71.06005	21	13	ENE	<2	B3	0.5-1	Clear	None	4	0	Silent	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:00	01:04	41.41700	-71.06005	41.42067	-71.06349	20	11	WNW	<2	B4	0.5-1	Clear	None	3.3	298	Silent	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:04	01:28	41.42067	-71.06349	41.41962	-71.06273	20	11	WNW	<2	B4	0.5-1	Clear	None	3.3	298	Standby	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:28	01:33	41.41962	-71.06273	41.42562	-71.06321	21	14	WNW	<2	B4	0.5-1	Clear	None	3.5	34	Deploying/Retrieving	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	01:33	02:00	41.42562	-71.06321	41.41053	-71.06619	21	14	NNE	<2	B4	0.5-1	Clear	None	3.5	34	Standby	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.41053	-71.06619	41.40854	-71.17100	14	21	W	<2	B5	0.5-1	Clear	None	5.1	35	Transit	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Parnell, Pamela	RPS	03:00	04:00	41.40854	-71.17100	41.41974	-71.35657	20	22	W	<2	B5	0.5-1	Clear	None	8.2	285	Transit	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Pena, Valeria	RPS	04:00	05:00	41.41974	-71.35657	41.54345	-71.32691	26	30	S	<2	B5	0.5-1	Clear	None	8.7	323	Transit	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Alvarado, Edgar; Coronel, Cesar	RPS	05:00	06:00	41.54345	-71.32691	41.65880	-71.23591	33	6.2	WSW	<2	B2	0.5-1	Clear	None	8.6	25	Transit	N/A
2022-11-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	06:44	41.65880	-71.23591	41.69593	-71.18039	11	6.2	SW	<2	B2	0.5-1	Clear	None	8	63	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	20:40	21:00	41.69595	-71.18080	41.66641	-71.22464	5	7	NW	<2	B3	>5	Clear	Severe	0.1	52	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	21:00	21:44	41.66641	-71.22464	41.57066	-71.31426	9	9	NE	<2	B3	>5	Clear	Severe	9.8	239	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	21:44	21:52	41.57066	-71.31426	41.55068	-71.32280	24	10	NNE	<2	B3	2-5	Clear	None	9.8	203	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	21:52	22:00	41.55068	-71.32280	41.53244	-71.33081	24	10	NNE	<2	B3	1-2	Clear	None	9.5	203	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.53244	-71.33081	41.39701	-71.42622	24	10	NNE	<2	B3	0.5-1	Clear	None	9.5	204	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	23:00	23:59	41.39701	-71.42622	41.29961	-71.55259	20	10	NNW	<2	B3	0.5-1	Clear	None	9.6	198	Transit	N/A
2022-11-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	23:59	00:00	41.29961	-71.55259	41.29961	-71.55259	36	7	NE	<2	B3	0.5-1	Clear	None	8.7	270	Transit	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	00:00	01:00	41.29433	-71.57849	41.24822	-71.74027	36	8	NE	<2	B3	0.5-1	Clear	None	8.7	270	Transit	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	01:00	02:00	41.24822	-71.74027	41.19299	-71.92463	34	6	NNE	<2	B3	0.5-1	Clear	None	9.1	257	Transit	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	02:26	41.19299	-71.92463	41.16589	-72.00741	35	11	NW	<2	B3	0.5-1	Clear	None	9.1	257	Transit	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:26	02:35	41.16589	-72.00741	41.17244	-72.01779	40	17	NNW	<2	B3	0.5-1	Clear	None	4.7	319	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:35	02:55	41.17244	-72.01779	41.18317	-72.03590	40	17	NNW	<2	B3	0.5-1	Clear	None	4.7	319	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:55	03:00	41.18317	-72.03590	41.18633	-72.04116	40	17	NNW	<2	B3	0.5-1	Clear	None	3.7	309	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	03:00	03:31	41.18633	-72.04116	41.18021	-72.03136	40	20	NNW	<2	B3	0.5-1	Clear	None	3.7	319	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	03:31	04:00	41.18021	-72.03136	41.19926	-72.06342	40	20	NNW	<2	B3	0.5-1	Clear	None	3.7	319	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	04:00	04:20	41.19926	-72.06342	41.21633	-72.09227	81	22	NNW	<2	B3	0.5-1	Clear	None	5.1	317	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	04:20	04:55	41.21633	-72.09227	41.20321	-72.07029	87	22	NNW	<2	B3	0.5-1	Clear	None	5.6	277	Transit	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	04:55	05:00	41.20321	-72.07029	41.20032	-72.06518	94	15	WNW	<2	B3	0.5-1	Clear	None	3.3	124	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	05:00	05:18	41.20032	-72.06518	41.18953	-72.04672	94	17	NW	<2	B3	0.5-1	Clear	None	3.4	124	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	05:18	05:20	41.18953	-72.04672	41.18858	-72.04533	80	17	NW	<2	B3	0.5-1	Clear	None	3.4	128	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	05:20	06:00	41.18858	-72.04533	41.20292	-72.07687	80	17	NW	<2	B3	0.5-1	Clear	None	3.4	128	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	06:00	06:17	41.20292	-72.07687	41.20976	-72.08180	80	15	NNW	<2	B3	0.5-1	Clear	None	4.7	318	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	06:17	07:00	41.20976	-72.08180	41.20246	-72.06911	80	15	NNW	<2	B3	0.5-1	Clear	None	4.7	318	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	07:00	08:00	41.20246	-72.06911	41.16896	-72.01709	92	14	N	<2	B3	0.5-1	Clear	None	2.7	127	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Pena, Valeria	RPS	08:00	09:00	41.16896	-72.01709	41.16710	-71.97838	43	8	N	<2	B3	0.5-1	Clear	None	3.1	309	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	09:00	10:00	41.16710	-71.97838	41.14070	-71.89391	24	7	N	<2	B3	0.5-1	Clear	None	4.4	122	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.14070	-71.89391	41.14552	-71.90515	32	9	N	<2	B3	0.5-1	Clear	None	3.9	122	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	11:00	11:13	41.14552	-71.90515	41.15293	-71.89171	33	15	NE	<2	B3	0.5-1	Clear	None	4.1	23	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	11:13	11:25	41.15293	-71.89171	41.16250	-71.88591	34	10	ENE	<2	B3	1-2	Clear	None	3.8	45	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	11:25	11:41	41.16250	-71.88591	41.15764	-71.88403	32	10	ENE	<2	B3	2-5	Cloudy	None	3.4	358	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	11:41	12:00	41.15764	-71.88403	41.14554	-71.90103	32	10	NE	<2	B3	>5	Cloudy	None	3.3	250	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela	RPS	12:00	13:00	41.14554	-71.90103	41.17699	-71.85900	34	12	NNE	<2	B3	>5	Cloudy	Severe	3	282	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.17699	-71.85900	41.13076	-71.89146	42	18	NNE	<2	B3	>5	Cloudy	Moderate	3.8	21	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.13076	-71.89146	41.17168	-71.86837	24	10	N	<2	B3	>5	Cloudy	Severe	3.3	150	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	15:00	16:00	41.17168	-71.86837	41.15358	-71.88244	45	11	ENE	<2	B3	>5	Cloudy	Severe	3.2	45	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.15358	-71.88244	41.15491	-71.90922	36	4	NNE	<2	B2	>5	Clear	Severe	4.1	211	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.15491	-71.90922	41.15576	-71.91955	31	3	SE	<2	B2	>5	Clear	Severe	3.7	147	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.15576	-71.91955	41.15728	-71.91307	34	3	WNW	<2	B2	>5	Clear	Severe	4.4	114	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:05	41.15728	-71.91307	41.15683	-71.92019	30	2	NE	<2	B2	>5	Clear	Severe	4.4	287	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:05	19:07	41.15683	-71.92019	41.15485	-71.91992	30	2	NE	<2	B2	>5	Clear	Severe	4.4	287	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:07	20:00	41.15485	-71.91992	41.16249	-71.95176	30	2	NE	<2	B2	>5	Clear	Severe	4.4	287	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.16249	-71.95176	41.18658	-72.02499	17	3	NE	<2	B1	>5	Cloudy	Moderate	3	297	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Saunders, Devin; Coronel, Cesar	RPS	21:00	21:45	41.18658	-72.02499	41.20739	-72.06114	23	3	NE	<2	B1	>5	Cloudy	Slight	4.2	350	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Saunders, Devin; Coronel, Cesar	RPS	21:45	21:50	41.20739	-72.06114	41.20960	-72.06562	48	3	SSE	<2	B1	2-5	Cloudy	None	3.5	289	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Saunders, Devin; Coronel, Cesar	RPS	21:50	22:00	41.20960	-72.06562	41.20515	-72.05933	48	3	SSE	<2	B1	1-2	Cloudy	None	3.5	207	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:30	41.20515	-72.05933	41.21064	-72.04294	74	0.4	W	<2	B1	0.5-1	Cloudy	None	3.9	94	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:30	23:00	41.21064	-72.04294	41.22148	-72.05849	81	1	W	<2	B1	0.5-1	Cloudy	None	3.4	94	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:51	41.22148	-72.05849	41.21112	-72.04369	21	7	W	<2	B1	0.5-1	Cloudy	None	3.4	240	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:51	23:59	41.21112	-72.04369	41.21288	-72.04756	30	3	NW	<2	B1	0.5-1	Cloudy	None	3.8	301	Standby	N/A
2022-11-29	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:59	00:00	41.21288	-72.04756	41.21288	-72.04756	30	1	WNW	<2	B1	0.5-1	Cloudy	None	3.7	299	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.21531	-72.05302	41.21530	-72.04357	30	2	WNW	<2	B1	0.5-1	Cloudy	None	3.7	299	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.21530	-72.04357	41.21616	-72.04264	28	2	ESE	<2	B1	0.5-1	Cloudy	None	3.9	232	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.21616	-72.04264	41.20071	-72.03322	25	3	SE	<2	B1	0.5-1	Cloudy	None	3.1	234	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.20071	-72.03322	41.19235	-72.02018	26	4	SE	<2	B1	0.5-1	Cloudy	None	3.2	230	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.19235	-72.02018	41.18642	-72.05094	46	4	S	<2	B1	0.5-1	Cloudy	None	3.8	100	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	05:20	41.18642	-72.05094	41.18861	-72.05213	68	6	S	<2	B2	0.5-1	Cloudy	None	4.3	280	Standby	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:20	05:50	41.18861	-72.05213	41.18981	-72.02276	66	3	S	<2	B2	0.5-1	Cloudy	None	2.9	90	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:50	06:00	41.18981	-72.02276	41.18996	-72.01473	34	2	WSW	<2	B2	0.5-1	Cloudy	None	2.2	99	Silent	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	06:07	41.18996	-72.01473	41.19189	-72.01166	29	3	SW	<2	B2	0.5-1	Cloudy	None	1.6	100	Silent	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:07	06:27	41.19189	-72.01166	41.19302	-72.03745	36	6	E	<2	B2	0.5-1	Cloudy	None	3.3	269	Soft Start	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:27	07:00	41.19302	-72.03745	41.20398	-72.04914	50	2	E	<2	B2	0.5-1	Cloudy	None	3.7	270	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.20398	-72.04914	41.20635	-72.02328	36	7	NE	<2	B2	0.5-1	Cloudy	None	4.5	327	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.20635	-72.02328	41.21325	-72.06347	35	6	ENE	<2	B2	0.5-1	Cloudy	None	3.4	35	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.21325	-72.06347	41.21061	-72.03732	39	10	SE	<2	B2	0.5-1	Cloudy	None	3.7	103	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.21061	-72.03732	41.21731	-72.05007	31	8	S	<2	B3	0.5-1	Cloudy	None	3.1	180	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:28	41.21731	-72.05007	41.19042	-72.04959	30	10	NW	<2	B4	0.5-1	Cloudy	None	3.6	195	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:28	11:30	41.19042	-72.04959	41.18867	-72.04869	85	11	NW	<2	B4	1-2	Cloudy	None	3.6	190	Full Power	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:34	41.18867	-72.04869	41.18453	-72.04610	65	13	SSE	<2	B4	1-2	Cloudy	None	3.5	160	Silent	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:34	11:55	41.18453	-72.04610	41.17083	-72.02947	65	13	SSE	<2	B4	2-5	Cloudy	None	3.5	160	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:55	12:00	41.17083	-72.02947	41.17025	-72.02341	46	13	SSE	<2	B4	>5	Cloudy	None	3.5	160	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:13	41.17025	-72.02341	41.17806	-72.02916	45	7	S	<2	B4	>5	Cloudy	None	3.6	68	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:13	12:20	41.17806	-72.02916	41.18136	-72.03790	46	12	SE	<2	B4	>5	Cloudy	None	3.8	303	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:20	12:28	41.18136	-72.03790	41.18735	-72.03554	46	12	SE	<2	B4	>5	Cloudy	None	3.8	303	Deploying/Retrieving	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:28	13:00	41.18735	-72.03554	41.20020	-71.93920	46	6	S	<2	B4	>5	Cloudy	None	9.4	117	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20020	-71.93920	41.25209	-71.74263	39	16	SSE	<2	B4	>5	Cloudy	None	10	78	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.25209	-71.74263	41.29512	-71.55031	36	9	S	<2	B4	>5	Cloudy	None	9.1	69	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.29512	-71.55031	41.37711	-71.43522	39	5	S	<2	B4	>5	Cloudy	None	9	94	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.37711	-71.43522	41.50763	-71.34764	28	22	SSE	<2	B4	2-5	Fog	None	8.7	357	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.50763	-71.34764	41.64703	-71.25057	30	15	SSE	<2	B4	2-5	Fog	None	9.8	33	Transit	N/A
2022-11-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:45	41.64703	-71.25057	41.69586	-71.18014	22	11	S	<2	B3	2-5	Fog	None	9.5	43	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:05	02:00	41.69585	-71.18019	41.60502	-71.29838	5	14	E	<2	B3	0.5-1	Clear	None	9	51	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.60502	-71.29838	41.47134	-71.35830	21	8	WNW	<2	B3	0.5-1	Clear	None	9	41	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.47134	-71.35830	41.32883	-71.42933	43	5	WNW	<2	B3	0.5-1	Clear	None	9	234	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.32883	-71.42933	41.27505	-71.59101	24	10	NNW	<2	B3	0.3-0.5	Cloudy	None	8.8	185	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.27505	-71.59101	41.23490	-71.78068	21	10	NW	<2	B4	0.3-0.5	Cloudy	None	8.6	263	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.23490	-71.78068	41.18757	-71.98402	32	13	NNW	<2	B4	0.3-0.5	Cloudy	None	9.2	267	Transit	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.18757	-71.98402	41.18057	-72.04028	21	12	NNW	<2	B4	0.5-1	Cloudy	None	10.3	261	Standby	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	08:54	41.18057	-72.04028	41.20336	-72.02237	20	10	WNW	<2	B4	0.5-1	Cloudy	None	3.4	184	Deploying/Retrieving	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:54	09:00	41.20336	-72.02237	41.20541	-72.02167	32	4	SE	<2	B3	0.5-1	Cloudy	None	2.1	41	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	09:12	41.20541	-72.02167	41.20979	-72.02842	27	4	SE	<2	B3	0.5-1	Cloudy	None	2.1	42	Silent	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:12	09:33	41.20979	-72.02842	41.20739	-72.03491	27	4	SE	<2	B3	0.5-1	Cloudy	None	2.1	300	Soft Start	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:33	10:00	41.20739	-72.03491	41.22311	-72.06253	27	17	NW	<2	B3	0.5-1	Cloudy	None	3.8	306	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.22311	-72.06253	41.21156	-72.05826	42	14	NW	<2	B3	0.5-1	Cloudy	None	3.5	181	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:23	41.21156	-72.05826	41.22251	-72.06020	28	3	SE	<2	B3	0.5-1	Clear	None	3.6	29	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:23	11:28	41.22251	-72.06020	41.21867	-72.06036	28	3	SW	<2	B3	1-2	Clear	None	3.6	29	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:28	11:35	41.21867	-72.06036	41.21549	-72.05217	27	3	SW	<2	B3	1-2	Clear	None	3.6	124	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:35	11:47	41.21549	-72.05217	41.20959	-72.03965	27	3	SW	<2	B3	2-5	Clear	None	3.6	124	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:47	12:00	41.20959	-72.03965	41.21119	-72.03246	27	3	SW	<2	B3	>5	Clear	Slight	3.6	124	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:23	41.21119	-72.03246	41.21990	-72.05685	26	3	SW	<2	B3	>5	Clear	Severe	3.5	299	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:23	13:00	41.21990	-72.05685	41.20768	-72.03531	26	3	SW	<2	B3	>5	Clear	Severe	3.5	299	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.20768	-72.03531	41.21302	-72.04836	31	8	NW	<2	B3	>5	Clear	Severe	3.5	134	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.21302	-72.04836	41.21367	-72.05034	32	7	NNW	<2	B2	>5	Clear	Severe	3.9	150	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:39	41.21367	-72.05034	41.21039	-72.03307	31	2	NW	<2	B2	>5	Clear	Severe	3.6	132	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:39	16:00	41.21039	-72.03307	41.20472	-72.03220	31	1	E	<2	B2	>5	Clear	Severe	2.8	256	Silent	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:48	41.20472	-72.03220	41.20732	-72.04367	34	1	ENE	<2	B2	>5	Clear	Severe	2.2	317	Silent	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:48	17:00	41.20732	-72.04367	41.20406	-72.02942	26	3	NW	<2	B2	>5	Clear	Severe	3.8	140	Soft Start	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:09	41.20406	-72.02942	41.20826	-72.03845	26	3	NW	<2	B2	>5	Clear	Severe	3.8	140	Soft Start	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:09	18:00	41.20826	-72.03845	41.21648	-72.06518	26	3	NW	<2	B2	>5	Clear	Severe	3.8	229	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21648	-72.06518	41.22031	-72.06466	26	4	WSW	<2	B2	>5	Clear	Severe	4.1	135	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.22031	-72.06466	41.24047	-72.11549	26	3	NE	<2	B2	>5	Clear	Severe	3.2	254	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.24047	-72.11549	41.22790	-72.08605	72	3	W	<2	B1	>5	Clear	Severe	4	301	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:43	41.22790	-72.08605	41.23900	-72.11085	69	2	WSW	<2	B1	>5	Clear	Slight	3.4	110	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:43	21:49	41.23900	-72.11085	41.24151	-72.11805	78	4	SSE	<2	B1	2-5	Cloudy	None	3.5	288	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:49	22:00	41.24151	-72.11805	41.23975	-72.12142	78	4	SSE	<2	B1	1-2	Cloudy	None	3.5	304	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23975	-72.12142	41.26276	-72.04800	78	4	W	<2	B1	0.5-1	Cloudy	None	3.9	116	Full Power	N/A
2022-12-02	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.26276	-72.04800	41.25243	-72.07725	11	12	SW	<2	B2	0.5-1	Cloudy	None	3.8	80	Full Power	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.25045	-72.08022	41.24786	-72.09257	45	13	WSW	<2	B3	0.5-1	Clear	None	4	237	Full Power	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	01:30	41.24786	-72.09257	41.24052	-72.08737	80	12	WSW	<2	B3	0.5-1	Clear	None	3.1	250	Full Power	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:30	02:00	41.24052	-72.08737	41.24544	-72.09570	97	6	WSW	<2	B3	0.5-1	Clear	None	3.4	255	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.24544	-72.09570	41.25158	-72.08039	78	8	SSE	<2	B3	0.5-1	Clear	None	3.5	257	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.25158	-72.08039	41.25907	-72.06073	60	6	SW	<2	B3	0.5-1	Clear	None	3.7	250	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.25907	-72.06073	41.25412	-72.06484	23	4	SSE	<2	B3	0.5-1	Clear	None	2.4	310	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.25412	-72.06484	41.24422	-72.08691	25	12	SSW	<2	B3	0.5-1	Clear	None	3.5	42	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.24422	-72.08691	41.24421	-72.09010	70	7	SSW	<2	B3	0.5-1	Clear	None	3.7	250	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.24421	-72.09010	41.24788	-72.08461	84	9	NNW	<2	B3	0.5-1	Cloudy	None	3.4	225	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.24788	-72.08461	41.24132	-72.09370	80	4	SSW	<2	B3	0.5-1	Cloudy	None	3.5	230	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	09:37	41.24132	-72.09370	41.25569	-72.07465	89	7	SW	<2	B3	0.5-1	Cloudy	None	3.6	213	Silent	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:37	10:00	41.25569	-72.07465	41.26456	-72.10272	25	7	SW	<2	B3	0.5-1	Cloudy	None	3.6	290	Deploying/Retrieving	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	10:39	41.26456	-72.10272	41.24578	-72.10730	9	1	NE	<2	B3	0.5-1	Cloudy	None	4.1	274	Deploying/Retrieving	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:39	11:00	41.24578	-72.10730	41.24624	-72.10821	46	8	SW	<2	B3	0.5-1	Cloudy	None	2.2	167	Standby	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:30	41.24624	-72.10821	41.28366	-72.08107	50	17	SSW	<2	B3	0.5-1	Cloudy	None	5.7	23	Standby	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:37	41.28366	-72.08107	41.29991	-72.07909	50	14	S	<2	B3	0.5-1	Cloudy	None	5.1	358	Transit	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:37	11:47	41.29991	-72.07909	41.32557	-72.08281	50	14	S	<2	B3	1-2	Cloudy	None	5.1	358	Transit	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:47	12:00	41.32557	-72.08281	41.35270	-72.08630	11	14	S	<2	B3	2-5	Cloudy	None	8.7	354	Transit	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:21	41.35270	-72.08630	41.37438	-72.08913	11	10	S	<2	B3	2-5	Cloudy	None	3.4	12	Transit	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:21	13:00	41.37438	-72.08913	41.43216	-72.09614	11	10	S	<2	B3	2-5	Cloudy	None	3.4	12	Transit	N/A
2022-12-03	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:47	41.43216	-72.09614	41.43306	-72.09630	4	9	N	<2	B3	2-5	Cloudy	None	0.6	22	Transit	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:50	12:00	41.43312	-72.09636	41.43144	-72.09714	7	0	E	<2	B0	>5	Clear	None	0.1	213	Transit	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.43144	-72.09714	41.37304	-72.08872	7	0	E	<2	B0	>5	Clear	None	3.8	208	Transit	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.37304	-72.08872	41.29963	-72.07847	14	0	E	<2	B1	>5	Clear	None	9.1	174	Transit	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:10	41.29963	-72.07847	41.27498	-72.06993	13	7	NW	<2	B2	>5	Clear	Severe	9.3	186	Transit	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:10	13:33	41.27498	-72.06993	41.26604	-72.05171	15	8	NW	<2	B2	>5	Clear	Severe	6	115	Standby	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:33	14:00	41.26604	-72.05171	41.25424	-72.06883	20	3	NNE	<2	B3	>5	Clear	Severe	2.6	258	Deploying/Retrieving	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:01	41.25424	-72.06883	41.25389	-72.06954	24	6	N	<2	B3	>5	Clear	Severe	2.6	280	Deploying/Retrieving	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:01	15:00	41.25389	-72.06954	41.23622	-72.11058	24	6	N	<2	B3	>5	Clear	Severe	2.6	280	Silent	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:08	41.23622	-72.11058	41.23188	-72.11404	74	6	E	<2	B3	>5	Clear	Severe	2.4	241	Silent	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:08	15:29	41.23188	-72.11404	41.24354	-72.10244	74	6	E	<2	B3	>5	Clear	Severe	2.4	241	Soft Start	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:29	16:00	41.24354	-72.10244	41.26267	-72.06693	71	5	WSW	<2	B3	>5	Clear	Severe	3.7	24	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.26267	-72.06693	41.26638	-72.04258	20	7	WSW	<2	B3	>5	Clear	Severe	3.6	31	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:27	41.26638	-72.04258	41.26772	-72.04623	12	6	WSW	<2	B3	>5	Clear	Severe	3.5	64	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:27	17:39	41.26772	-72.04623	41.26630	-72.04039	12	6	WSW	<2	B3	>5	Clear	Severe	3.5	64	Silent	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:39	18:00	41.26630	-72.04039	41.27025	-72.04144	12	6	WSW	<2	B3	>5	Clear	Severe	3.5	64	Soft Start	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.27025	-72.04144	41.24795	-72.07584	12	3	NNE	<2	B3	>5	Clear	Severe	3.6	245	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24795	-72.07584	41.26628	-72.04969	77	10	WSW	<2	B3	>5	Clear	Severe	4.3	44	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.26628	-72.04969	41.25007	-72.07283	15	5	N	<2	B3	>5	Cloudy	Moderate	3.7	248	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:45	41.25007	-72.07283	41.27192	-72.03900	67	4	S	<2	B2	>5	Cloudy	Slight	3.4	57	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:45	22:00	41.27192	-72.03900	41.26109	-72.05999	60	4	NNW	<2	B2	0.5-1	Cloudy	None	3.9	245	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.26109	-72.05999	41.26129	-72.05197	22	5	NNE	<2	B2	0.5-1	Cloudy	None	3.8	246	Full Power	N/A
2022-12-04	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.26129	-72.05197	41.25182	-72.07931	20	2	NNE	<2	B2	0.5-1	Cloudy	None	4.2	65	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.24949	-72.08275	41.25202	-72.08472	57	5	NNE	<2	B2	0.5-1	Cloudy	None	4	232	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.25202	-72.08472	41.27030	-72.03532	90	4	NE	<2	B2	0.5-1	Cloudy	None	4.1	238	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.27030	-72.03532	41.25976	-72.06403	12	4	E	<2	B2	0.5-1	Cloudy	None	4.2	70	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.25976	-72.06403	41.26517	-72.04673	23	4	E	<2	B2	0.5-1	Cloudy	None	3.9	250	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.26517	-72.04673	41.24827	-72.08763	14	3	ESE	<2	B2	0.5-1	Cloudy	None	4.1	53	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.24827	-72.08763	41.27375	-72.03836	70	1	NW	<2	B2	0.5-1	Cloudy	None	3.7	255	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.27375	-72.03836	41.24402	-72.08826	12	2	SSW	<2	B2	0.5-1	Cloudy	None	3.8	257	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.24402	-72.08826	41.27081	-72.04031	88	7	SW	<2	B2	0.5-1	Cloudy	None	4.3	47	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.27081	-72.04031	41.26260	-72.04716	11	6	E	<2	B2	0.5-1	Cloudy	None	3.5	236	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.26260	-72.04716	41.27117	-72.03945	16	4	S	<2	B2	0.5-1	Clear	None	3.7	70	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.27117	-72.03945	41.25581	-72.06218	12	4	SW	<2	B2	0.5-1	Clear	None	3.7	239	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:26	41.25581	-72.06218	41.27133	-72.03260	25	7	S	<2	B2	0.5-1	Clear	None	3.9	63	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:26	11:37	41.27133	-72.03260	41.26994	-72.04273	12	10	SW	<2	B2	1-2	Clear	None	3.8	7	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:37	11:55	41.26994	-72.04273	41.26011	-72.06166	13	10	SW	<2	B2	2-5	Clear	None	3.8	249	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:55	12:00	41.26011	-72.06166	41.25771	-72.06648	23	10	SW	<2	B2	>5	Clear	None	3.8	247	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:28	41.25771	-72.06648	41.24283	-72.09373	25	7	SW	<2	B3	>5	Clear	Slight	6.9	255	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:28	13:00	41.24283	-72.09373	41.25818	-72.06109	80	4	SW	<2	B3	>5	Clear	Severe	2.5	129	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.25818	-72.06109	41.25756	-72.07039	75	3	NNW	<2	B3	>5	Clear	Severe	4	49	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.25756	-72.07039	41.25700	-72.06553	25	3	ENE	<2	B3	>5	Clear	Severe	3.5	252	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.25700	-72.06553	41.26557	-72.04302	23	1	SSE	<2	B1	>5	Cloudy	Severe	4.2	46	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:57	41.26557	-72.04302	41.27064	-72.04301	13	6	WSW	<2	B2	>5	Cloudy	Severe	3.4	37	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:57	17:00	41.27064	-72.04301	41.26916	-72.04632	12	6	SSE	<2	B2	>5	Cloudy	Severe	3.6	242	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.26916	-72.04632	41.26438	-72.04719	12	6	SSE	<2	B2	>5	Cloudy	Severe	3.6	242	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.26438	-72.04719	41.25299	-72.07635	17	4	SW	<2	B2	>5	Cloudy	Severe	4	58	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.25299	-72.07635	41.24925	-72.06906	53	4	S	<2	B2	>5	Cloudy	Severe	3.7	243	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.24925	-72.06906	41.23798	-72.11961	38	9	S	<2	B2	>5	Cloudy	Slight	4.2	347	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:35	41.23798	-72.11961	41.23919	-72.11915	76	10	SSE	<2	B2	>5	Cloudy	Slight	3.7	265	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:35	21:46	41.23919	-72.11915	41.24315	-72.11654	70	10	SSW	<2	B2	2-5	Cloudy	None	3.6	237	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:46	22:00	41.24315	-72.11654	41.24113	-72.13675	70	10	SSW	<2	B2	1-2	Cloudy	None	3.6	251	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.24113	-72.13675	41.23777	-72.10301	70	5	SSE	<2	B2	0.5-1	Cloudy	None	4	265	Full Power	N/A
2022-12-05	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.23777	-72.10301	41.23765	-72.11057	79	6	SSE	<2	B2	0.5-1	Cloudy	None	4	288	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.23753	-72.10693	41.23305	-72.12807	75	5	S	<2	B2	0.5-1	Cloudy	None	3	113	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.23305	-72.12807	41.23691	-72.12750	55	6	SSE	<2	B2	0.5-1	Cloudy	None	6.1	338	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.23691	-72.12750	41.23550	-72.13080	85	5	ESE	<2	B2	0.5-1	Cloudy	None	3.8	216	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.23550	-72.13080	41.24185	-72.11954	80	7	SE	<2	B2	0.5-1	Cloudy	None	3.7	239	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.24185	-72.11954	41.22249	-72.15645	73	2	SSW	<2	B2	0.5-1	Cloudy	None	2.8	57	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.22249	-72.15645	41.22864	-72.14180	57	6	ESE	<2	B2	0.5-1	Cloudy	None	3.3	245	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.22864	-72.14180	41.22303	-72.15531	70	7	SE	<2	B3	0.5-1	Cloudy	None	4.3	76	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.22303	-72.15531	41.24849	-72.11019	58	7	ENE	<2	B3	0.5-1	Cloudy	None	3.5	242	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.24849	-72.11019	41.21752	-72.14573	55	10	ESE	<2	B3	0.5-1	Cloudy	None	3.7	334	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.21752	-72.14573	41.25256	-72.19239	41	9	SSE	<2	B3	0.5-1	Cloudy	None	3.9	95	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.25256	-72.19239	41.22458	-72.14339	64	8	SSE	<2	B3	0.5-1	Cloudy	None	4.2	305	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:35	41.22458	-72.14339	41.22401	-72.13668	58	10	SE	<2	B3	0.5-1	Cloudy	None	2.9	116	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:35	11:52	41.22401	-72.13668	41.22035	-72.14121	71	8	ESE	<2	B3	1-2	Cloudy	None	4	98	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:52	12:00	41.22035	-72.14121	41.21444	-72.13534	46	8	ESE	<2	B3	2-5	Cloudy	None	4	109	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:28	41.21444	-72.13534	41.23120	-72.15539	42	7	ESE	<2	B3	>5	Cloudy	Moderate	3.1	50	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:28	13:00	41.23120	-72.15539	41.25343	-72.19233	58	10	ESE	<2	B3	>5	Cloudy	Moderate	3.7	311	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.25343	-72.19233	41.21843	-72.13843	33	14	SE	<2	B3	>5	Fog	Slight	4.2	275	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.21843	-72.13843	41.24370	-72.18067	43	11	SSE	<2	B3	>5	Fog	Slight	3.8	95	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.24370	-72.18067	41.22237	-72.14979	43	19	SSE	<2	B3	>5	Fog	Moderate	3.4	137	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.22237	-72.14979	41.24640	-72.18641	52	12	SE	<2	B3	>5	Fog	Moderate	3.1	285	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.24640	-72.18641	41.21983	-72.14145	39	13	SE	<2	B3	>5	Cloudy	None	3.8	308	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21983	-72.14145	41.25003	-72.18427	55	9	E	<2	B3	>5	Fog	None	4	177	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.25003	-72.18427	41.23853	-72.12919	36	12	SSE	<2	B3	>5	Fog	None	3.6	281	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:45	41.23853	-72.12919	41.26631	-72.07568	82	7	SSE	<2	B3	>5	Fog	None	4.4	45	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:45	21:00	41.26631	-72.07568	41.25864	-72.08237	14	8	NNW	<2	B3	2-5	Fog	None	4.4	270	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:38	41.25864	-72.08237	41.24153	-72.08455	22	12	ESE	<2	B3	2-5	Precipitation	None	3.4	190	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:38	21:47	41.24153	-72.08455	41.24998	-72.08817	50	13	SE	<2	B4	1-2	Precipitation	None	3.5	342	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:47	22:00	41.24998	-72.08817	41.25359	-72.09298	50	13	SE	<2	B4	0.5-1	Precipitation	None	3.5	342	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.25359	-72.09298	41.25807	-72.09774	69	3	SSW	<2	B4	0.5-1	Precipitation	None	3.6	192	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:02	41.25807	-72.09774	41.26005	-72.09750	40	17	SE	<2	B4	0.5-1	Cloudy	None	3.9	17	Full Power	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:02	23:19	41.26005	-72.09750	41.24755	-72.10238	40	17	SE	<2	B4	0.5-1	Cloudy	None	3.9	17	Silent	N/A
2022-12-06	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:19	00:00	41.24755	-72.10238	41.25893	-72.08249	69	8	SE	<2	B4	0.5-1	Cloudy	None	3.9	163	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.25583	-72.08292	41.26918	-72.03753	25	9	SW	<2	B3	0.5-1	Cloudy	None	3.2	221	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.26918	-72.03753	41.24591	-72.09075	10	7	SE	<2	B3	0.5-1	Cloudy	None	3.9	60	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.24591	-72.09075	41.27129	-72.03283	88	7	S	<2	B3	0.5-1	Precipitation	None	3.1	233	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.27129	-72.03283	41.24410	-72.09596	11	8	SE	<2	B3	0.5-1	Precipitation	None	3.8	74	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	04:09	41.24410	-72.09596	41.24067	-72.10614	81	6	SSE	<2	B3	0.1-0.3	Precipitation	None	3.4	246	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:09	04:21	41.24067	-72.10614	41.23683	-72.11684	81	6	SSE	<2	B3	0.1-0.3	Precipitation	None	3.4	246	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:21	05:00	41.23683	-72.11684	41.22420	-72.12453	81	14	SE	<2	B3	0.1-0.3	Precipitation	None	2.6	246	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	05:14	41.22420	-72.12453	41.22720	-72.10269	70	8	SE	<2	B4	0.1-0.3	Precipitation	None	4.2	111	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:14	05:32	41.22720	-72.10269	41.24169	-72.09299	70	8	SE	<2	B4	0.1-0.3	Precipitation	None	4.2	50	Deploying/Retrieving	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:32	05:54	41.24169	-72.09299	41.26255	-72.08195	68	12	SSE	<2	B4	0.1-0.3	Precipitation	None	3.6	4	Deploying/Retrieving	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:54	06:00	41.26255	-72.08195	41.26585	-72.07056	27	15	ESE	<2	B4	0.1-0.3	Precipitation	None	9.4	70	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.26585	-72.07056	41.27106	-72.03265	20	9	S	<2	B4	0.1-0.3	Precipitation	None	9.9	94	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.27106	-72.03265	41.25959	-72.04277	11	5	ESE	<2	B4	0.1-0.3	Precipitation	None	3.5	216	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.25959	-72.04277	41.27393	-72.03190	17	8	ESE	<2	B4	0.1-0.3	Precipitation	None	3.1	212	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	09:17	41.27393	-72.03190	41.26125	-72.04761	12	4	SSE	<2	B3	0.1-0.3	Precipitation	None	3.2	248	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:17	10:00	41.26125	-72.04761	41.26173	-72.04905	17	8	S	<2	B3	0.1-0.3	Precipitation	None	3.6	124	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	10:40	41.26173	-72.04905	41.26041	-72.04464	20	10	SE	<2	B3	0.1-0.3	Precipitation	None	1.6	195	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:40	11:00	41.26041	-72.04464	41.27099	-72.03380	17	15	ESE	<2	B3	0.1-0.3	Precipitation	None	2.9	11	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:31	41.27099	-72.03380	41.27024	-72.03956	12	8	NNE	<2	B3	0.1-0.3	Precipitation	None	2.4	6	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:31	11:39	41.27024	-72.03956	41.26943	-72.05144	12	13	S	<2	B3	0.5-1	Precipitation	None	5	304	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:39	11:50	41.26943	-72.05144	41.26474	-72.06109	12	13	S	<2	B3	1-2	Fog	None	5	304	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:50	12:00	41.26474	-72.06109	41.26009	-72.06806	20	4	NW	<2	B3	2-5	Fog	None	2.6	229	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:28	41.26009	-72.06806	41.26645	-72.06665	24	15	ENE	<2	B3	2-5	Fog	None	3	232	Standby	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:28	12:39	41.26645	-72.06665	41.27717	-72.06418	20	19	S	<2	B3	1-2	Fog	None	3.7	12	Deploying/Retrieving	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:39	13:00	41.27717	-72.06418	41.29480	-72.05757	16	19	S	<2	B3	1-2	Fog	None	3.5	21	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:02	41.29480	-72.05757	41.29551	-72.05570	12	5	S	<2	B3	1-2	Precipitation	None	2.7	62	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:02	13:23	41.29551	-72.05570	41.28152	-72.04497	12	5	S	<2	B3	1-2	Precipitation	None	2.7	62	Soft Start	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:23	14:00	41.28152	-72.04497	41.27974	-72.04057	15	12	SSW	<2	B3	1-2	Precipitation	None	3.7	188	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.27974	-72.04057	41.27806	-72.04762	15	14	S	<2	B3	1-2	Precipitation	None	3.9	19	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.27806	-72.04762	41.24830	-72.09850	14	12	ESE	<2	B3	0.5-1	Fog	None	3.4	12	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:59	41.24830	-72.09850	41.22677	-72.07813	8	11	S	<2	B3	0.5-1	Fog	None	3.6	326	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	16:59	18:00	41.22677	-72.07813	41.23858	-72.08374	38	9	S	<2	B3	0.5-1	Fog	None	3.6	323	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23858	-72.08374	41.24048	-72.11904	68	11	SSW	<2	B3	0.5-1	Fog	None	3.8	205	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24048	-72.11904	41.22160	-72.14620	74	11	SSE	<2	B3	0.5-1	Fog	None	3.7	249	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:27	41.22160	-72.14620	41.23902	-72.17534	56	8	E	<2	B3	0.5-1	Fog	None	3.5	287	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:27	20:36	41.23902	-72.17534	41.24518	-72.18504	48	8	E	<2	B3	0.5-1	Fog	None	3.5	316	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Saunders, Devin; Simancas, Jorge	RPS	20:36	21:00	41.24518	-72.18504	41.24793	-72.18709	42	8	E	<2	B3	0.1-0.3	Fog	None	3.5	305	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:09	41.24793	-72.18709	41.24158	-72.17813	40	3	SW	<2	B2	0.1-0.3	Fog	None	3.6	131	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:09	21:39	41.24158	-72.17813	41.22170	-72.14694	64	4	SW	<2	B2	0.5-1	Fog	None	3.6	170	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:39	21:47	41.22170	-72.14694	41.21545	-72.14020	42	8	SSW	<2	B2	0.5-1	Fog	None	3.9	149	Soft Start	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:47	22:00	41.21545	-72.14020	41.21818	-72.14005	47	6	WSW	<2	B2	0.5-1	Fog	None	3.3	171	Soft Start	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:15	41.21818	-72.14005	41.22811	-72.15599	38	7	SE	<2	B2	0.5-1	Fog	None	3.9	314	Full Power	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:15	23:00	41.22811	-72.15599	41.25211	-72.18605	59	7	SE	<2	B2	0.05-0.1	Fog	None	3.9	314	Silent	N/A
2022-12-07	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.25211	-72.18605	41.21870	-72.13499	46	9	SSW	<2	B3	0.05-0.1	Fog	None	4	348	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	00:13	41.22044	-72.13507	41.22644	-72.14842	64	5	WSW	<2	B3	0.1-0.3	Fog	None	3.8	130	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:13	00:43	41.22644	-72.14842	41.24567	-72.17928	50	8	WSW	<2	B3	0.5-1	Cloudy	None	3.7	340	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:43	01:00	41.24567	-72.17928	41.25269	-72.19064	46	11	WSW	<2	B3	0.5-1	Cloudy	None	3.5	351	Soft Start	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	01:04	41.25269	-72.19064	41.25061	-72.18786	34	10	W	<2	B3	0.5-1	Cloudy	None	2.8	156	Soft Start	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:04	02:00	41.25061	-72.18786	41.23621	-72.16165	35	13	SW	<2	B2	0.5-1	Cloudy	None	3.7	110	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.23621	-72.16165	41.23780	-72.16557	56	15	W	<2	B2	0.5-1	Cloudy	None	3.9	109	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.23780	-72.16557	41.22626	-72.15128	50	15	NW	<2	B2	0.5-1	Cloudy	None	3.1	320	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.22626	-72.15128	41.22941	-72.14113	61	13	W	<2	B3	0.5-1	Fog	None	3.2	135	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	05:40	41.22941	-72.14113	41.24701	-72.11035	71	14	W	<2	B3	0.5-1	Fog	None	3.9	49	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:40	05:50	41.24701	-72.11035	41.23700	-72.12549	74	14	W	<2	B3	0.1-0.3	Fog	None	3.4	250	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:50	06:00	41.23700	-72.12549	41.23504	-72.11847	70	14	W	<2	B3	0.5-1	Fog	None	3.4	258	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	06:22	41.23504	-72.11847	41.23536	-72.12961	87	13	WNW	<2	B3	0.5-1	Fog	None	4.2	75	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:22	06:43	41.23536	-72.12961	41.22483	-72.14976	80	8	NW	<2	B3	0.5-1	Fog	None	3.3	258	Soft Start	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:43	07:00	41.22483	-72.14976	41.21799	-72.15374	60	5	NNW	<2	B3	0.5-1	Cloudy	None	3	252	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.21799	-72.15374	41.23050	-72.14291	56	5	ESE	<2	B3	0.5-1	Cloudy	None	3.9	30	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.23050	-72.14291	41.24239	-72.11919	75	5	NNW	<2	B3	0.5-1	Clear	None	3.4	260	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.24239	-72.11919	41.22686	-72.14534	75	10	NNW	<2	B3	0.5-1	Clear	None	4.1	251	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.22686	-72.14534	41.23160	-72.14061	71	4	WNW	<2	B3	0.5-1	Clear	None	3.7	45	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:30	41.23160	-72.14061	41.22071	-72.15675	75	5	NNW	<2	B2	0.5-1	Clear	None	3.9	251	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:45	41.22071	-72.15675	41.22845	-72.14176	63	5	NNW	<2	B2	1-2	Clear	None	3.9	53	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:45	12:00	41.22845	-72.14176	41.23670	-72.12519	63	5	NNW	<2	B2	2-5	Clear	None	3.9	53	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.23670	-72.12519	41.25553	-72.09534	63	3	NNW	<2	B3	>5	Clear	Slight	3.7	62	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.25553	-72.09534	41.24102	-72.08035	51	3	NNW	<2	B3	>5	Clear	Severe	3.7	70	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:11	41.24102	-72.08035	41.22792	-72.08145	84	17	NNW	<2	B3	>5	Clear	Severe	3.9	161	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:11	13:29	41.22792	-72.08145	41.24322	-72.08393	44	12	SSE	<2	B3	>5	Clear	Severe	3.8	60	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:29	13:34	41.24322	-72.08393	41.24733	-72.08685	92	9	WNW	<2	B3	>5	Clear	Severe	3.9	347	Deploying/Retrieving	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:34	14:00	41.24733	-72.08685	41.25322	-72.10873	92	9	WNW	<2	B3	>5	Clear	Severe	3.9	347	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:25	41.25322	-72.10873	41.24236	-72.13955	44	7	NNW	<2	B3	>5	Clear	Severe	4	236	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	14:25	15:00	41.24236	-72.13955	41.22448	-72.16755	79	14	NNW	<2	B4	>5	Clear	Severe	2.6	62	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.22448	-72.16755	41.21383	-72.14762	53	10	SW	<2	B4	>5	Clear	Severe	3.8	62	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.21383	-72.14762	41.24849	-72.08919	50	11	N	<2	B4	>5	Clear	Severe	3	309	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:56	41.24849	-72.08919	41.27746	-72.03535	80	13	NNW	<2	B4	>5	Clear	Severe	3.3	40	Standby	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:56	18:00	41.27746	-72.03535	41.28069	-72.03817	15	14	NNW	<2	B4	>5	Clear	Severe	3.7	323	Deploying/Retrieving	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.28069	-72.03817	41.25300	-72.08716	15	14	N	<2	B4	>5	Cloudy	Severe	3.7	324	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.25300	-72.08716	41.25586	-72.09521	17	13	NNW	<2	B4	>5	Cloudy	Severe	3.8	274	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:02	41.25586	-72.09521	41.25495	-72.09228	73	17	N	<2	B4	>5	Clear	Moderate	4.3	107	Silent	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:02	20:23	41.25495	-72.09228	41.25326	-72.06788	73	17	N	<2	B4	>5	Clear	Moderate	4.3	107	Soft Start	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:23	21:00	41.25326	-72.06788	41.27467	-72.03600	25	15	N	<2	B4	>5	Clear	Slight	3.8	31	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:30	41.27467	-72.03600	41.25649	-72.07221	9	12	NNE	<2	B2	>5	Clear	Slight	3.5	346	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:30	21:45	41.25649	-72.07221	41.24740	-72.08850	24	6	N	<2	B2	2-5	Clear	None	3.8	250	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:45	21:55	41.24740	-72.08850	41.24033	-72.10018	28	5	N	<2	B2	1-2	Clear	None	3.8	251	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:55	22:00	41.24033	-72.10018	41.23711	-72.10570	30	5	N	<2	B2	0.5-1	Clear	None	3.9	252	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23711	-72.10570	41.24192	-72.11036	92	7	N	<2	B2	0.5-1	Clear	None	3.7	251	Full Power	N/A
2022-12-08	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.24192	-72.11036	41.23721	-72.10044	75	6	N	<2	B2	0.5-1	Clear	None	3.9	279	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.23758	-72.09438	41.23673	-72.12876	43	3	NNE	<2	B2	0.5-1	Clear	None	3.8	91	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.23673	-72.12876	41.23820	-72.09503	78	6	SW	<2	B2	0.5-1	Clear	None	3.3	92	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.23820	-72.09503	41.23674	-72.10964	68	9	N	<2	B3	0.5-1	Clear	None	3.3	35	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.23674	-72.10964	41.23633	-72.12931	55	2	SW	<2	B3	0.5-1	Clear	None	3.5	94	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.23633	-72.12931	41.23937	-72.12279	85	6	SW	<2	B3	0.5-1	Clear	None	4	86	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.23937	-72.12279	41.23973	-72.09745	80	7	NE	<2	B3	0.5-1	Clear	None	3.7	277	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.23973	-72.09745	41.23627	-72.11146	80	13	SSW	<2	B3	0.5-1	Clear	None	3.5	96	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.23627	-72.11146	41.23989	-72.14011	93	8	SSW	<2	B3	0.5-1	Clear	None	4.5	86	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.23989	-72.14011	41.23424	-72.13295	82	6	ENE	<2	B3	0.5-1	Clear	None	3.3	285	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.23424	-72.13295	41.24055	-72.10484	82	5	NNE	<2	B3	0.5-1	Clear	None	4.7	264	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.24055	-72.10484	41.24171	-72.08578	76	6	NNE	<2	B3	0.5-1	Clear	None	4.7	275	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:27	41.24171	-72.08578	41.24037	-72.09066	89	12	SW	<2	B3	0.5-1	Clear	None	4.3	50	Silent	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:27	11:32	41.24037	-72.09066	41.23748	-72.09591	74	18	NNW	<2	B3	1-2	Clear	None	3.4	246	Silent	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:32	11:42	41.23748	-72.09591	41.23820	-72.10513	70	18	NNW	<2	B4	1-2	Clear	None	3.5	256	Soft Start	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:42	11:53	41.23820	-72.10513	41.24841	-72.10356	58	19	N	<2	B4	2-5	Clear	None	3.6	12	Soft Start	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:53	12:00	41.24841	-72.10356	41.25242	-72.10115	58	19	N	<2	B4	>5	Clear	None	3.6	12	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.25242	-72.10115	41.23754	-72.11503	55	13	SSW	<2	B4	>5	Clear	None	3.2	86	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.23754	-72.11503	41.23835	-72.13864	82	11	N	<2	B4	>5	Clear	None	4.2	54	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.23835	-72.13864	41.22595	-72.07598	80	7	S	<2	B4	>5	Clear	Severe	3.6	92	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.22595	-72.07598	41.22390	-72.15056	50	10	NNE	<2	B4	>5	Clear	Severe	4	324	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.22390	-72.15056	41.24668	-72.18484	62	14	NNE	<2	B3	>5	Clear	Severe	2.9	354	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.24668	-72.18484	41.22747	-72.15562	42	12	N	<2	B3	>5	Clear	Severe	3.7	331	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.22747	-72.15562	41.20886	-72.06876	60	9	N	<2	B3	>5	Clear	Severe	3.3	139	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.20886	-72.06876	41.21408	-72.06047	64	6	NNW	<2	B3	>5	Clear	Severe	4	67	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.21408	-72.06047	41.21076	-72.05267	26	9	NNW	<2	B3	>5	Clear	Severe	4.5	117	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.21076	-72.05267	41.20729	-72.04459	32	13	N	<2	B3	>5	Clear	Severe	4.5	127	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:40	41.20729	-72.04459	41.21705	-72.06343	31	14	NNW	<2	B3	>5	Clear	Severe	4.8	136	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:40	21:50	41.21705	-72.06343	41.21120	-72.05036	34	11	NNE	<2	B3	2-5	Clear	Severe	4.2	154	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	22:00	41.21120	-72.05036	41.20498	-72.03738	34	11	NNE	<2	B3	1-2	Clear	None	4.2	154	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.20498	-72.03738	41.20856	-72.03429	31	16	N	<2	B3	0.5-1	Clear	None	3.4	353	Full Power	N/A
2022-12-09	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.20856	-72.03429	41.20994	-72.03820	30	9	N	<2	B3	0.5-1	Clear	None	3.4	310	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.21164	-72.04161	41.21209	-72.04734	26	16	NNE	<2	B4	0.5-1	Clear	None	3.8	319	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.21209	-72.04734	41.21188	-72.04711	32	15	NNE	<2	B4	0.5-1	Clear	None	3.4	327	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.21188	-72.04711	41.21137	-72.04618	32	12	N	<2	B4	0.5-1	Clear	None	4	307	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.21137	-72.04618	41.21469	-72.05426	24	12	NNE	<2	B4	0.5-1	Clear	None	3.9	341	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.21469	-72.05426	41.21553	-72.05755	31	12	NNE	<2	B4	0.5-1	Clear	None	3.8	331	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.21553	-72.05755	41.22068	-72.05623	28	16	NNE	<2	B4	0.5-1	Clear	None	4.1	311	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.22068	-72.05623	41.21668	-72.06063	28	11	NNE	<2	B4	0.5-1	Clear	None	3.2	316	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.21668	-72.06063	41.22039	-72.05690	27	17	NNE	<2	B4	0.5-1	Clear	None	3.1	312	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.22039	-72.05690	41.21930	-72.06553	29	14	NNE	<2	B4	0.5-1	Clear	None	4	310	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.21930	-72.06553	41.21238	-72.06423	22	20	NNE	<2	B4	0.5-1	Clear	None	4.7	226	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.21238	-72.06423	41.21144	-72.05603	45	15	NNE	<2	B4	0.5-1	Clear	None	4.1	115	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:33	41.21144	-72.05603	41.21738	-72.05113	31	8	ENE	<2	B4	0.5-1	Cloudy	None	4	90	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:33	11:42	41.21738	-72.05113	41.22246	-72.06251	25	8	ENE	<2	B4	1-2	Cloudy	None	3.8	322	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:42	12:00	41.22246	-72.06251	41.21114	-72.04860	20	12	NNE	<2	B4	2-5	Cloudy	None	4.2	234	Silent	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	12:00	12:20	41.21114	-72.04860	41.20199	-72.02796	20	15	NE	<2	B4	>5	Cloudy	None	3.4	136	Deploying/Retrieving	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:20	12:28	41.20199	-72.02796	41.19935	-72.02684	39	7	SW	<2	B3	>5	Cloudy	None	1.2	117	Standby	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:28	13:00	41.19935	-72.02684	41.20355	-72.06340	39	14	SW	<2	B3	>5	Cloudy	None	1.2	180	Standby	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:15	41.20355	-72.06340	41.20835	-72.06168	41	10	NE	<2	B3	>5	Cloudy	None	4.4	318	Standby	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:15	13:25	41.20835	-72.06168	41.21016	-72.05777	44	10	NE	<2	B3	>5	Cloudy	None	1.4	78	Deploying/Retrieving	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:25	13:42	41.21016	-72.05777	41.21096	-72.04824	44	10	NE	<2	B3	>5	Cloudy	None	1.1	78	Silent	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:42	14:00	41.21096	-72.04824	41.20608	-72.03709	31	10	ENE	<2	B3	>5	Cloudy	Severe	1.9	84	Soft Start	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:04	41.20608	-72.03709	41.20614	-72.03465	33	15	NNE	<2	B3	>5	Cloudy	Severe	1.3	75	Soft Start	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:04	15:00	41.20614	-72.03465	41.20268	-72.04125	33	15	NNE	<2	B3	>5	Cloudy	Severe	1.3	75	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.20268	-72.04125	41.20598	-72.03577	34	14	N	<2	B4	>5	Clear	Severe	4.4	54	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.20598	-72.03577	41.20326	-72.03672	31	16	NE	<2	B4	>5	Cloudy	Moderate	3.8	69	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.20326	-72.03672	41.20565	-72.04010	35	8	ENE	<2	B4	>5	Cloudy	Moderate	4.1	2	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.20565	-72.04010	41.21115	-72.03964	34	6	ENE	<2	B4	>5	Cloudy	Slight	4.4	313	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.21115	-72.03964	41.23421	-72.08295	30	6	E	<2	B4	>5	Cloudy	Severe	3.4	305	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.23421	-72.08295	41.22815	-72.08402	60	13	NE	<2	B4	>5	Cloudy	Severe	3.8	304	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:40	41.22815	-72.08402	41.23953	-72.11236	55	16	NE	<2	B3	>5	Cloudy	Slight	4.4	185	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:40	21:50	41.23953	-72.11236	41.24169	-72.12431	57	10	NE	<2	B3	2-5	Cloudy	None	3.4	292	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	22:00	41.24169	-72.12431	41.23703	-72.11325	75	11	NE	<2	B3	1-2	Cloudy	None	4.5	205	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23703	-72.11325	41.23913	-72.11072	84	14	NE	<2	B4	0.5-1	Cloudy	None	3.6	123	Full Power	N/A
2022-12-10	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.23913	-72.11072	41.23193	-72.08826	75	19	ESE	<2	B4	0.5-1	Cloudy	None	3.6	305	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.23397	-72.09489	41.22750	-72.07543	72	10	NE	<2	B4	0.5-1	Cloudy	None	4.2	301	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.22750	-72.07543	41.23220	-72.10102	30	13	NE	<2	B4	0.5-1	Cloudy	None	3.7	340	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.23220	-72.10102	41.23954	-72.12206	30	11	WSW	<2	B4	0.5-1	Cloudy	None	3.8	132	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.23954	-72.12206	41.23344	-72.09648	77	11	N	<2	B4	0.5-1	Cloudy	None	3.3	115	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.23344	-72.09648	41.23175	-72.07634	89	7	E	<2	B4	0.5-1	Cloudy	None	3.8	312	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.23175	-72.07634	41.23352	-72.09323	34	4	ESE	<2	B4	0.5-1	Cloudy	None	4	328	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.23352	-72.09323	41.24411	-72.11994	74	12	WSW	<2	B4	0.5-1	Cloudy	None	3.7	128	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.24411	-72.11994	41.23354	-72.08375	68	20	ENE	<2	B4	0.5-1	Cloudy	None	3.4	240	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.23354	-72.08375	41.23038	-72.08249	58	14	NE	<2	B4	0.5-1	Cloudy	None	3.8	303	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.23038	-72.08249	41.23912	-72.11980	58	11	WSW	<2	B4	0.5-1	Cloudy	None	4.1	128	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.23912	-72.11980	41.23780	-72.10003	77	11	SSE	<2	B4	0.5-1	Cloudy	None	3.3	121	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:35	41.23780	-72.10003	41.23479	-72.10034	75	14	NE	<2	B4	0.5-1	Cloudy	None	3.7	299	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:35	11:45	41.23479	-72.10034	41.23033	-72.08658	40	14	NE	<2	B4	1-2	Cloudy	None	3.7	299	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:45	12:00	41.23033	-72.08658	41.22948	-72.07228	23	14	NE	<2	B4	2-5	Cloudy	None	3.7	299	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.22948	-72.07228	41.24156	-72.11374	23	17	ENE	<2	B4	>5	Cloudy	None	4.1	20	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.24156	-72.11374	41.23430	-72.09696	23	17	ENE	<2	B4	>5	Cloudy	None	4.1	20	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.23430	-72.09696	41.24418	-72.12252	73	20	ENE	<2	B5	>5	Cloudy	None	4	109	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	15:00	41.24418	-72.12252	41.23464	-72.17189	73	10	ENE	<2	B5	>5	Cloudy	Severe	4	319	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.23464	-72.17189	41.23538	-72.15928	42	10	ENE	<2	B4	>5	Cloudy	None	3.8	0	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.23538	-72.15928	41.22464	-72.16643	58	8	ENE	<2	B3	>5	Cloudy	None	3.6	109	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.22464	-72.16643	41.24092	-72.08988	41	15	N	<2	B3	>5	Cloudy	None	4.5	76	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.24092	-72.08988	41.24137	-72.08926	75	8	E	<2	B3	>5	Cloudy	None	3.2	37	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24137	-72.08926	41.24030	-72.08948	85	9	ENE	<2	B3	>5	Cloudy	None	3.7	19	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.24030	-72.08948	41.24005	-72.08977	85	15	ESE	<2	B4	>5	Cloudy	None	3.4	15	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:40	41.24005	-72.08977	41.24504	-72.12006	67	11	ENE	<2	B4	>5	Cloudy	None	3.6	10	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:40	21:50	41.24504	-72.12006	41.24020	-72.13127	61	15	ENE	<2	B4	2-5	Cloudy	None	3.3	234	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	22:00	41.24020	-72.13127	41.23460	-72.14161	82	17	E	<2	B4	1-2	Cloudy	None	3.5	246	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23460	-72.14161	41.24171	-72.11455	70	19	NE	<2	B4	0.5-1	Precipitation	None	3.5	249	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:18	41.24171	-72.11455	41.24114	-72.12829	69	15	NE	<2	B4	0.5-1	Precipitation	None	3.5	314	Full Power	N/A
2022-12-11	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:18	00:00	41.24114	-72.12829	41.21497	-72.16743	69	15	NE	<2	B4	0.1-0.3	Precipitation	None	3.5	314	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	00:15	41.21504	-72.16543	41.21994	-72.14910	50	16	ESE	<2	B4	0.3-0.5	Precipitation	None	4.3	126	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:15	00:46	41.21994	-72.14910	41.24122	-72.18286	55	21	NE	<2	B4	0.5-1	Precipitation	None	4.1	310	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:46	00:55	41.24122	-72.18286	41.24735	-72.19321	48	11	ENE	<2	B4	0.5-1	Precipitation	None	4	317	Soft Start	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:55	01:00	41.24735	-72.19321	41.24777	-72.19893	38	9	E	<2	B4	0.3-0.5	Precipitation	None	4.1	322	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.24777	-72.19893	41.22853	-72.14945	39	8	E	<2	B4	0.3-0.5	Precipitation	None	3.1	103	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	02:25	41.22853	-72.14945	41.21578	-72.14638	70	12	E	<2	B4	0.5-1	Precipitation	None	3.3	137	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:25	02:46	41.21578	-72.14638	41.21439	-72.14613	39	18	ENE	<2	B4	0.5-1	Precipitation	None	3.7	69	Soft Start	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:46	03:00	41.21439	-72.14613	41.22010	-72.14430	50	22	ENE	<2	B4	0.5-1	Precipitation	None	3.2	99	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.22010	-72.14430	41.23961	-72.17856	67	16	ENE	<2	B4	0.5-1	Precipitation	None	3.3	4	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.23961	-72.17856	41.22476	-72.15403	51	17	ENE	<2	B4	0.5-1	Precipitation	None	4.5	343	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	05:22	41.22476	-72.15403	41.22927	-72.13505	54	8	NNW	<2	B4	0.5-1	Precipitation	None	3.7	115	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:22	06:00	41.22927	-72.13505	41.24484	-72.12830	63	14	NNE	<2	B4	0.5-1	Precipitation	None	4	56	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	06:25	41.24484	-72.12830	41.22770	-72.15276	69	16	N	<2	B4	0.5-1	Precipitation	None	4.2	252	Deploying/Retrieving	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:25	07:00	41.22770	-72.15276	41.22279	-72.19469	69	6	NNE	<2	B3	0.5-1	Precipitation	None	4.2	280	Standby	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	07:39	41.22279	-72.19469	41.21770	-72.21040	52	10	ENE	<2	B3	0.3-0.5	Precipitation	None	3.2	285	Standby	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:39	08:00	41.21770	-72.21040	41.21719	-72.18226	55	10	ENE	<2	B3	0.3-0.5	Precipitation	None	3	112	Standby	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	08:11	41.21719	-72.18226	41.21841	-72.15599	55	15	N	<2	B4	0.3-0.5	Precipitation	None	3	112	Standby	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:11	08:20	41.21841	-72.15599	41.22202	-72.14255	48	16	NNE	<2	B4	0.3-0.5	Precipitation	None	4.7	66	Deploying/Retrieving	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:20	09:00	41.22202	-72.14255	41.24217	-72.09387	70	15	NNE	<2	B4	0.1-0.3	Precipitation	None	4.4	67	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.24217	-72.09387	41.23775	-72.10199	82	14	N	<2	B4	0.05-0.1	Precipitation	None	3.3	310	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	10:30	41.23775	-72.10199	41.24132	-72.11757	84	13	E	<2	B4	0.3-0.5	Precipitation	None	3.2	52	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:30	11:00	41.24132	-72.11757	41.22649	-72.12689	75	9	N	<2	B4	0.5-1	Fog	None	3.4	289	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:08	41.22649	-72.12689	41.23095	-72.11536	88	20	E	<2	B4	0.5-1	Fog	None	3.9	33	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:08	11:30	41.23095	-72.11536	41.23929	-72.09545	88	20	E	<2	B4	0.5-1	Fog	None	3.9	33	Soft Start	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:35	41.23929	-72.09545	41.24530	-72.09440	74	23	NNE	<2	B4	0.5-1	Fog	None	4.4	6	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:35	11:44	41.24530	-72.09440	41.25609	-72.09252	74	23	NNE	<2	B4	1-2	Fog	None	4.4	6	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:44	12:00	41.25609	-72.09252	41.24691	-72.09315	50	23	NNE	<2	B4	2-5	Fog	None	4.4	5	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.24691	-72.09315	41.23081	-72.08582	46	17	NNE	<2	B3	>5	Cloudy	None	3.5	181	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	12:34	41.23081	-72.08582	41.23371	-72.08882	46	15	NNE	<2	B3	>5	Cloudy	None	3.5	333	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:34	13:00	41.23371	-72.08882	41.23670	-72.11806	46	15	NNE	<2	B3	>5	Cloudy	None	3.5	333	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.23670	-72.11806	41.22947	-72.09377	79	20	NNE	<2	B3	>5	Cloudy	Moderate	4.8	250	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:26	41.22947	-72.09377	41.23455	-72.09229	73	15	NNW	<2	B3	>5	Cloudy	None	3.6	60	Silent	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:26	14:47	41.23455	-72.09229	41.22293	-72.11700	72	19	NNE	<2	B3	>5	Cloudy	None	3.9	251	Soft Start	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:47	15:00	41.22293	-72.11700	41.22788	-72.10184	70	10	E	<2	B3	>5	Cloudy	Slight	3.7	85	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.22788	-72.10184	41.21336	-72.06467	89	17	N	<2	B3	>5	Cloudy	Severe	4	62	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	17:00	41.21336	-72.06467	41.21473	-72.05810	35	16	NE	<2	B3	>5	Cloudy	None	4.4	112	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.21473	-72.05810	41.21873	-72.05888	30	17	N	<2	B3	>5	Clear	Severe	3.7	123	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21873	-72.05888	41.23660	-72.08958	28	13	NNW	<2	B3	>5	Clear	Severe	3.9	124	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.23660	-72.08958	41.21704	-72.05485	64	15	NW	<2	B3	>5	Clear	Severe	4.2	125	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.21704	-72.05485	41.21502	-72.05274	30	9	NNE	<2	B3	>5	Clear	Severe	3.6	314	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:40	41.21502	-72.05274	41.23655	-72.08351	31	4	W	<2	B3	>5	Clear	Slight	3.8	20	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:40	21:50	41.23655	-72.08351	41.22849	-72.07375	25	16	NNE	<2	B3	2-5	Clear	None	4.2	165	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	22:00	41.22849	-72.07375	41.22080	-72.06081	21	17	N	<2	B3	1-2	Clear	None	4.3	116	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.22080	-72.06081	41.21898	-72.05415	28	18	NNE	<2	B3	0.5-1	Clear	None	3.8	18	Full Power	N/A
2022-12-12	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.21898	-72.05415	41.21525	-72.04993	28	11	NNE	<2	B3	0.5-1	Clear	None	3.5	342	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.21602	-72.04725	41.21383	-72.05536	28	13	NNE	<2	B3	0.5-1	Clear	None	3.9	136	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.21383	-72.05536	41.22154	-72.06409	32	20	NNW	<2	B4	0.5-1	Clear	None	4.3	101	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.22154	-72.06409	41.22514	-72.06627	25	11.5	N	<2	B3	0.5-1	Clear	None	4.1	140	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	04:00	41.22514	-72.06627	41.22336	-72.07423	15	18	NNW	<2	B3	0.5-1	Clear	None	2.9	135	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	05:00	41.22336	-72.07423	41.22240	-72.07268	17	14	NNW	<2	B3	0.5-1	Clear	None	2.9	125	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	06:00	41.22240	-72.07268	41.21979	-72.06901	19	15	N	<2	B3	0.5-1	Clear	None	2.3	126	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	07:00	41.21979	-72.06901	41.21550	-72.05723	34	14	NNE	<2	B3	0.5-1	Clear	None	4	144	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	08:00	41.21550	-72.05723	41.21088	-72.05237	30	14	NNE	<2	B3	0.5-1	Clear	None	3.8	334	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	09:00	41.21088	-72.05237	41.21847	-72.06397	28	18	N	<2	B3	0.5-1	Clear	None	4.3	128	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	10:00	41.21847	-72.06397	41.22198	-72.07880	27	17	N	<2	B3	0.5-1	Clear	None	4.6	117	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.22198	-72.07880	41.22213	-72.07984	36	15	N	<2	B3	0.5-1	Clear	None	5	143	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:25	41.22213	-72.07984	41.21720	-72.06599	30	14	NNE	<2	B3	0.5-1	Clear	None	5.6	144	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:25	11:57	41.21720	-72.06599	41.22902	-72.09314	26	14	NNE	<2	B3	1-2	Clear	None	3.3	312	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:57	12:00	41.22902	-72.09314	41.22716	-72.08926	77	12	N	<2	B3	2-5	Clear	None	5	135	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:31	41.22716	-72.08926	41.21159	-72.05861	77	12	N	<2	B3	>5	Clear	None	5	135	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:31	13:00	41.21159	-72.05861	41.22890	-72.09228	77	12	N	<2	B4	>5	Clear	None	5	308	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	14:00	41.22890	-72.09228	41.22842	-72.07992	23	10	N	<2	B4	>5	Clear	Severe	4.1	270	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:00	14:43	41.22842	-72.07992	41.21525	-72.05048	52	13	NNW	<2	B3	>5	Clear	Severe	3.9	315	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:43	14:45	41.21525	-72.05048	41.21414	-72.04844	31	10	NNW	<2	B3	>5	Clear	Severe	3.4	127	Silent	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	14:45	15:00	41.21414	-72.04844	41.20516	-72.03545	31	10	NNW	<2	B3	>5	Clear	Severe	3.4	127	Deploying/Retrieving	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:33	41.20516	-72.03545	41.18866	-72.01024	34	10	NNW	<2	B3	>5	Clear	Severe	3.3	125	Standby	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:33	16:00	41.18866	-72.01024	41.19368	-72.03054	30	10	NNW	<2	B3	>5	Clear	Severe	0.7	90	Standby	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:00	16:15	41.19368	-72.03054	41.20217	-72.03247	40	11	W	<2	B3	>5	Clear	Severe	2.6	3	Deploying/Retrieving	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:15	16:34	41.20217	-72.03247	41.21175	-72.03206	32	10	N	<2	B3	>5	Clear	Severe	2	10	Silent	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:34	16:55	41.21175	-72.03206	41.21524	-72.05929	27	10	NW	<2	B3	>5	Clear	Severe	2.3	358	Soft Start	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	16:55	17:00	41.21524	-72.05929	41.21863	-72.06441	30	15	NNW	<2	B3	>5	Clear	Severe	4.1	318	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.21863	-72.06441	41.22387	-72.07665	30	15	NNW	<2	B4	>5	Clear	Severe	4.1	318	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.22387	-72.07665	41.22148	-72.07028	25	14	NW	<2	B4	>5	Clear	Severe	4.1	129	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.22148	-72.07028	41.22062	-72.06391	20	15	NNW	<2	B3	>5	Clear	Severe	4.3	121	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.22062	-72.06391	41.21708	-72.04837	30	12	NNW	<2	B3	>5	Clear	Severe	3.6	134	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:50	41.21708	-72.04837	41.22568	-72.07180	28	14	NNW	<2	B3	>5	Clear	Slight	4.3	128	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	21:55	41.22568	-72.07180	41.22143	-72.06526	20	17	NW	<2	B3	2-5	Clear	None	4.1	146	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:55	22:00	41.22143	-72.06526	41.21834	-72.05982	17	17	NW	<2	B3	1-2	Clear	None	4	147	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.21834	-72.05982	41.22160	-72.06695	28	18	NW	<2	B3	0.5-1	Clear	None	3.6	139	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	23:23	41.22160	-72.06695	41.23001	-72.07187	27	24	NW	<2	B4	0.5-1	Clear	None	4.6	136	Full Power	N/A
2022-12-13	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:23	00:00	41.23001	-72.07187	41.21751	-72.05334	47	26	NNW	<2	B4	0.5-1	Clear	None	3.6	317	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	00:00	01:00	41.21973	-72.05007	41.21975	-72.05186	30	25	N	<2	B4	0.5-1	Clear	None	3.7	0	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	01:00	02:00	41.21975	-72.05186	41.21742	-72.04940	30	23	NW	<2	B4	0.5-1	Clear	None	4.3	307	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	02:00	03:00	41.21742	-72.04940	41.21977	-72.05460	28	21	WNW	<2	B4	0.5-1	Clear	None	3.4	327	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:00	03:45	41.21977	-72.05460	41.21638	-72.05858	26	21	WNW	<2	B4	0.5-1	Clear	None	4	312	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:45	03:47	41.21638	-72.05858	41.21519	-72.05557	30	22	WNW	<2	B4	0.5-1	Clear	None	4.5	125	Silent	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	03:47	04:00	41.21519	-72.05557	41.21427	-72.05647	31	22	WNW	<2	B4	0.5-1	Clear	None	4.5	125	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:00	04:40	41.21427	-72.05647	41.23228	-72.08875	27	27	NW	<2	B4	0.5-1	Clear	None	3.9	314	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	04:40	05:00	41.23228	-72.08875	41.24664	-72.11153	63	26	NW	<2	B4	0.5-1	Clear	None	3.6	309	Silent	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:00	05:21	41.24664	-72.11153	41.23378	-72.09453	63	20	WNW	<2	B4	0.5-1	Clear	None	4	321	Silent	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:21	05:42	41.23378	-72.09453	41.21834	-72.07049	61	23	NW	<2	B4	0.5-1	Clear	None	4.7	140	Soft Start	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	05:42	06:00	41.21834	-72.07049	41.21747	-72.06263	24	23	NW	<2	B4	0.5-1	Clear	None	4	128	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:00	06:55	41.21747	-72.06263	41.22198	-72.06388	24	22	NW	<2	B5	0.5-1	Clear	None	4	320	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Parnell, Pamela	RPS	06:55	07:00	41.22198	-72.06388	41.22654	-72.07115	26	38	NW	<2	B5	0.5-1	Clear	None	3.2	332	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:00	07:18	41.22654	-72.07115	41.23977	-72.09271	33	30	NNW	<2	B6	0.5-1	Clear	None	5.1	315	Full Power	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	07:18	08:00	41.23977	-72.09271	41.25696	-72.14682	73	35	NNW	<2	B6	0.5-1	Clear	None	3.5	314	Silent	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:00	08:03	41.25696	-72.14682	41.25724	-72.15279	68	32	NW	<2	B6	0.5-1	Clear	None	3.7	284	Silent	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:03	08:40	41.25724	-72.15279	41.25817	-72.18937	47	31	WNW	<2	B6	0.5-1	Cloudy	None	2.7	276	Deploying/Retrieving	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Saunders, Devin	RPS	08:40	09:00	41.25817	-72.18937	41.25756	-72.18007	40	30	WNW	<2	B6	0.5-1	Cloudy	None	2.4	282	Standby	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:00	09:40	41.25756	-72.18007	41.24975	-72.12643	35	29	WNW	<2	B6	0.5-1	Cloudy	None	4.5	108	Standby	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Saunders, Devin	RPS	09:40	10:00	41.24975	-72.12643	41.24617	-72.14238	70	30	N	<2	B6	0.5-1	Precipitation	None	2.8	265	Standby	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Pena, Valeria	RPS	10:00	11:00	41.24617	-72.14238	41.25327	-72.17798	58	30	NNW	<2	B6	0.5-1	Clear	None	2.5	298	Standby	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:00	11:30	41.25327	-72.17798	41.25884	-72.10984	42	20	ESE	<2	B5	0.5-1	Clear	None	5	87	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:30	11:40	41.25884	-72.10984	41.27035	-72.09082	19	22	WNW	<2	B5	1-2	Clear	None	6.6	36	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria; Simancas, Jorge	RPS	11:40	12:00	41.27035	-72.09082	41.30883	-72.08045	19	22	WNW	<2	B5	2-5	Clear	None	6.6	36	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	12:00	12:30	41.30883	-72.08045	41.36700	-72.08813	9	25	WNW	<2	B4	>5	Clear	None	6.6	5	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.36700	-72.08813	41.43112	-72.09673	9	15	W	<2	B3	>5	Clear	Moderate	8.5	5	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Pena, Valeria	RPS	13:00	13:15	41.43112	-72.09673	41.43297	-72.09660	6	13	W	<2	B2	>5	Clear	Severe	1.7	350	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:38	21:00	41.43254	-72.09671	41.40252	-72.09620	6	11	NNE	<2	B1	>5	Clear	Severe	6	199	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:00	21:40	41.40252	-72.09620	41.31148	-72.08067	6	9	N	<2	B1	>5	Clear	Severe	2.4	202	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:40	21:50	41.31148	-72.08067	41.28823	-72.08157	16	9	N	<2	B1	2-5	Clear	None	8	202	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Saunders, Devin	RPS	21:50	22:00	41.28823	-72.08157	41.27769	-72.10652	16	9	N	<2	B1	1-2	Clear	None	8	263	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:30	41.27769	-72.10652	41.27344	-72.17000	20	5	N	<2	B2	0.5-1	Clear	None	8.3	234	Transit	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:30	23:00	41.27344	-72.17000	41.27382	-72.17325	18	13	N	<2	B2	0.5-1	Clear	None	4.1	340	Standby	N/A
2022-12-14	*Brooks McCall*	HRG	Visual	Parnell, Pamela; Simancas, Jorge	RPS	23:00	00:00	41.27382	-72.17325	41.26606	-72.17767	76	7	N	<2	B2	0.5-1	Clear	None	2.2	281	Standby	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.26190	-72.17821	41.25237	-72.18308	36	13	E	<2	B2	0.5-1	Clear	None	4	219	Standby	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.25237	-72.18308	41.26528	-72.18295	42	14	NW	<2	B2	0.5-1	Clear	None	3.5	330	Standby	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	02:15	41.26528	-72.18295	41.25177	-72.18479	29	12	WNW	<2	B2	0.5-1	Clear	None	4	205	Standby	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:15	02:25	41.25177	-72.18479	41.24272	-72.18611	43	17	NNW	<2	B2	0.5-1	Clear	None	3.3	208	Deploying/Retrieving	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:25	03:00	41.24272	-72.18611	41.25453	-72.18181	43	17	NNW	<2	B2	0.5-1	Clear	None	3.3	208	Silent	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	03:22	41.25453	-72.18181	41.27779	-72.18458	43	17	N	<2	B2	0.5-1	Clear	None	3.8	354	Soft Start	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:22	04:00	41.27779	-72.18458	41.25725	-72.18564	43	17	N	<2	B2	0.5-1	Clear	None	3.8	354	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.25725	-72.18564	41.26523	-72.18219	42	14	S	<2	B2	0.5-1	Clear	None	3.8	354	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.26523	-72.18219	41.23483	-72.18711	30	10	NNW	<2	B3	0.5-1	Clear	None	3.9	25	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23483	-72.18711	41.25811	-72.18437	45	7	WNW	<2	B2	0.5-1	Clear	None	4.5	162	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.25811	-72.18437	41.25896	-72.18431	45	18	N	<2	B2	0.5-1	Clear	None	3.5	163	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.25896	-72.18431	41.23013	-72.19149	32	21	N	<2	B2	0.5-1	Clear	None	4.3	22	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.23013	-72.19149	41.26100	-72.18427	50	12	E	<2	B3	0.5-1	Clear	None	4.2	221	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.26100	-72.18427	41.23496	-72.18692	50	11	ENE	<2	B3	0.5-1	Clear	None	3.8	15	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:32	41.23496	-72.18692	41.25596	-72.18484	46	16	NNE	<2	B3	0.5-1	Clear	None	3.4	197	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:32	11:43	41.25596	-72.18484	41.26697	-72.18345	36	15	NNE	<2	B3	1-2	Clear	None	3.7	357	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:43	12:00	41.26697	-72.18345	41.27341	-72.18643	28	12	NNE	<2	B3	2-5	Clear	None	3.7	358	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.27341	-72.18643	41.25297	-72.18482	25	7	N	<2	B2	>5	Clear	None	4.3	260	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.25297	-72.18482	41.26537	-72.18318	41	10	NE	<2	B2	>5	Cloudy	Moderate	3.6	202	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.26537	-72.18318	41.25858	-72.10907	29	7	ENE	<2	B2	>5	Cloudy	Moderate	3.8	4	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.25858	-72.10907	41.22768	-72.08719	35	1	NNW	<2	B2	>5	Cloudy	None	4.3	1	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.22768	-72.08719	41.23856	-72.08478	69	3.4	NNW	<2	B2	>5	Cloudy	None	3.4	130	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.23856	-72.08478	41.25906	-72.08221	83	7	NE	<2	B2	>5	Cloudy	None	3.8	180	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.25906	-72.08221	41.24331	-72.08493	30	7	ENE	<2	B2	>5	Cloudy	None	4	135	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:43	41.24331	-72.08493	41.23723	-72.08707	92	9	E	<2	B3	>5	Cloudy	None	3.8	22	Full Power	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:43	20:00	41.23723	-72.08707	41.23893	-72.10893	66	16	E	<2	B4	>5	Cloudy	None	4.5	264	Silent	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:30	41.23893	-72.10893	41.24812	-72.13592	80	15	ENE	<2	B4	>5	Cloudy	None	3.2	308	Silent	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:30	20:38	41.24812	-72.13592	41.25058	-72.14012	58	15	ENE	<2	B4	>5	Cloudy	None	1.6	328	Deploying/Retrieving	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:38	20:40	41.25058	-72.14012	41.25152	-72.14000	58	16	ENE	<2	B4	>5	Cloudy	None	2.2	42	Standby	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:40	20:49	41.25152	-72.14000	41.26080	-72.11596	68	19	E	<2	B4	>5	Cloudy	None	8.3	65	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:49	21:00	41.26080	-72.11596	41.26797	-72.10290	26	20	E	<2	B4	>5	Cloudy	None	8.4	69	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:30	41.26797	-72.10290	41.34276	-72.08525	15	20	N	<2	B4	>5	Cloudy	None	8.4	46	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:30	21:40	41.34276	-72.08525	41.36318	-72.08761	15	2	E	<2	B1	2-5	Cloudy	None	8.3	3	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:40	21:50	41.36318	-72.08761	41.38692	-72.09214	15	2	E	<2	B1	1-2	Cloudy	None	8.3	3	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	22:00	41.38692	-72.09214	41.40777	-72.09591	10	2	E	<2	B1	0.5-1	Cloudy	None	8.3	3	Transit	N/A
2022-12-15	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:20	41.40777	-72.09591	41.43309	-72.09662	8	5	NNE	<2	B1	0.5-1	Cloudy	None	9	7	Transit	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:40	21:50	41.43301	-72.09656	41.41475	-72.09262	8	4	NW	<2	B1	>5	Clear	None	1.2	205	Transit	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	21:55	41.41475	-72.09262	41.40221	-72.09644	9	4	NW	<2	B1	2-5	Clear	None	9.4	194	Transit	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:55	22:00	41.40221	-72.09644	41.38937	-72.09236	9	4	NW	<2	B1	1-2	Clear	None	9.4	194	Transit	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:45	41.38937	-72.09236	41.28198	-72.07399	10	5	NNW	<2	B1	0.5-1	Clear	None	9.5	165	Transit	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:45	23:00	41.28198	-72.07399	41.28032	-72.06020	17	10	SSE	<2	B3	0.5-1	Clear	None	3.7	41	Standby	N/A
2022-12-17	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.28032	-72.06020	41.26748	-72.04836	17	11	SSE	<2	B3	0.5-1	Clear	None	3.7	41	Standby	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.27196	-72.04797	41.26965	-72.08422	32	7	ENE	<2	B3	0.5-1	Cloudy	None	4.9	353	Standby	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	01:25	41.26965	-72.08422	41.26513	-72.09773	22	11	WNW	<2	B3	0.5-1	Cloudy	None	1.9	270	Standby	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:25	01:35	41.26513	-72.09773	41.26464	-72.09964	25	12	WNW	<2	B3	0.5-1	Clear	None	1.1	291	Deploying/Retrieving	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:35	01:52	41.26464	-72.09964	41.26442	-72.10634	25	12	WNW	<2	B3	0.5-1	Clear	None	1.1	291	Silent	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:52	02:00	41.26442	-72.10634	41.25937	-72.10538	32	23	WNW	<2	B3	0.5-1	Clear	None	1	278	Soft Start	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	02:12	41.25937	-72.10538	41.24972	-72.09193	32	9	W	<2	B3	0.5-1	Clear	None	3.8	198	Soft Start	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:12	03:00	41.24972	-72.09193	41.25196	-72.07461	51	23	WNW	<2	B3	0.5-1	Clear	None	4.1	167	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25196	-72.07461	41.25957	-72.11494	51	20	WNW	<2	B3	0.5-1	Clear	None	3.2	17	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.25957	-72.11494	41.26449	-72.18099	51	13	NW	<2	B3	0.5-1	Clear	None	3.4	289	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.26449	-72.18099	41.25889	-72.17757	27	5	NNW	<2	B2	0.5-1	Clear	None	4	198	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.25889	-72.17757	41.24434	-72.18303	37	2	NNE	<2	B2	0.5-1	Clear	None	4.3	5	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.24434	-72.18303	41.27422	-72.17373	40	7	NW	<2	B2	0.5-1	Clear	None	4.1	191	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.27422	-72.17373	41.24248	-72.17893	40	11	E	<2	B3	0.5-1	Clear	None	4.1	33	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.24248	-72.17893	41.26231	-72.15470	47	6	SSE	<2	B3	0.5-1	Clear	None	3.9	30	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.26231	-72.15470	41.24503	-72.09298	71	17	WNW	<2	B3	0.5-1	Cloudy	None	4.3	142	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:34	41.24503	-72.09298	41.24027	-72.13862	82	8	WNW	<2	B3	0.5-1	Cloudy	None	4.6	309	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:34	11:45	41.24027	-72.13862	41.23881	-72.14234	63	8	WNW	<2	B3	1-2	Cloudy	None	4.4	274	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:45	11:53	41.23881	-72.14234	41.24038	-72.13079	80	5	W	<2	B3	2-5	Cloudy	None	3.9	92	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:53	12:00	41.24038	-72.13079	41.24036	-72.12038	83	5	W	<2	B3	>5	Cloudy	None	4.3	86	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.24036	-72.12038	41.24019	-72.12018	75	5	W	<2	B3	>5	Clear	Slight	4	98	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.24019	-72.12018	41.23569	-72.09581	78	11	NW	<2	B3	>5	Clear	Moderate	3.8	282	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23569	-72.09581	41.23472	-72.13197	76	8	NW	<2	B3	>5	Clear	Severe	3.6	270	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.23472	-72.13197	41.26699	-72.05587	87	8	WNW	<2	B3	>5	Clear	Severe	5.3	92	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.26699	-72.05587	41.28092	-72.04063	18	5	SSW	<2	B3	>5	Clear	Severe	4.4	57	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.28092	-72.04063	41.27317	-72.05459	15	6	WNW	<2	B3	>5	Cloudy	Severe	2.7	269	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.27317	-72.05459	41.26948	-72.05617	14	3	NNE	<2	B3	>5	Cloudy	Severe	3.5	250	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.26948	-72.05617	41.26648	-72.05274	14	8	NW	<2	B3	>5	Cloudy	Severe	3.5	64	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.26648	-72.05274	41.27270	-72.04931	18	4	WNW	<2	B3	>5	Clear	Moderate	2.9	273	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:45	41.27270	-72.04931	41.26849	-72.05616	15	6	WNW	<2	B3	>5	Clear	Slight	3.8	50	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:45	21:50	41.26849	-72.05616	41.27075	-72.05248	16	7	WSW	<2	B3	2-5	Clear	None	2.9	50	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	22:00	41.27075	-72.05248	41.27621	-72.04185	16	7	WSW	<2	B3	1-2	Clear	None	2.9	50	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.27621	-72.04185	41.28217	-72.03111	13	4	S	<2	B3	0.5-1	Clear	None	3.5	55	Full Power	N/A
2022-12-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.28217	-72.03111	41.27761	-72.03279	12	12	SW	<2	B3	0.5-1	Clear	None	3.9	83	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.27619	-72.03614	41.26730	-72.05166	14	14	N	<2	B3	0.5-1	Clear	None	3.2	250	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.26730	-72.05166	41.27465	-72.03445	15	8	NW	<2	B3	0.5-1	Clear	None	3	256	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.27465	-72.03445	41.27247	-72.04141	12	4	SE	<2	B3	0.5-1	Clear	None	4	50	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.27247	-72.04141	41.26576	-72.04908	12	7	SE	<2	B3	0.5-1	Clear	None	3.3	253	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-19	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.26576	-72.04908	41.27373	-72.04325	14	17	W	<2	B3	0.5-1	Clear	None	4.3	108	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.27373	-72.04325	41.26603	-72.05455	14	15	WNW	<2	B3	0.5-1	Clear	None	3.9	250	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.26603	-72.05455	41.28131	-72.03212	18	8	WNW	<2	B3	0.5-1	Clear	None	3.7	206	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.28131	-72.03212	41.23964	-72.08974	10	12	WSW	<2	B3	0.5-1	Clear	None	3.8	59	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23964	-72.08974	41.23840	-72.16778	7	15	S	<2	B3	0.5-1	Clear	None	4.9	234	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.23840	-72.16778	41.23910	-72.13084	47	17	ESE	<2	B3	0.5-1	Clear	None	3.7	311	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	10:04	41.23910	-72.13084	41.24297	-72.12275	82	15	NNW	<2	B3	0.5-1	Clear	None	5	54	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:04	11:00	41.24297	-72.12275	41.24866	-72.12832	82	15	NNW	<2	B3	0.5-1	Clear	None	5	54	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:32	41.24866	-72.12832	41.25923	-72.18096	67	15	WNW	<2	B4	0.5-1	Clear	None	3.4	276	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:32	11:44	41.25923	-72.18096	41.26286	-72.19835	65	15	WNW	<2	B4	1-2	Clear	None	3.9	288	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:44	12:00	41.26286	-72.19835	41.26358	-72.20861	65	16	WNW	<2	B4	2-5	Clear	None	4.1	288	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.26358	-72.20861	41.26191	-72.19249	73	16	WNW	<2	B4	>5	Clear	None	4	14	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.26191	-72.19249	41.25772	-72.19252	29	19	WNW	<2	B4	>5	Clear	Moderate	4	286	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.25772	-72.19252	41.25723	-72.18670	28	16	WNW	<2	B4	>5	Clear	Severe	4	275	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.25723	-72.18670	41.25003	-72.17206	33	10	NNW	<2	B4	>5	Clear	Severe	3.4	274	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.25003	-72.17206	41.25687	-72.17269	46	9	NW	<2	B4	>5	Clear	Severe	3.6	267	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:49	41.25687	-72.17269	41.25487	-72.18531	29	15	WNW	<2	B4	>5	Clear	Severe	5	287	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:49	18:00	41.25487	-72.18531	41.24460	-72.18004	36	13	SE	<2	B4	>5	Clear	Severe	3.4	168	Soft Start	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:09	41.24460	-72.18004	41.23785	-72.16912	44	16	NW	<2	B4	>5	Clear	Severe	4.5	152	Soft Start	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:09	19:00	41.23785	-72.16912	41.22267	-72.15838	45	16	NW	<2	B4	>5	Clear	Severe	4.3	141	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.22267	-72.15838	41.25727	-72.20397	55	22	NW	<2	B4	>5	Clear	Severe	2.8	292	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.25727	-72.20397	41.23505	-72.13637	34	8	NNW	<2	B4	>5	Clear	Severe	3.2	232	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:05	41.23505	-72.13637	41.23224	-72.12766	65	14	S	<2	B4	>5	Clear	Severe	3.2	112	Silent	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:05	21:27	41.23224	-72.12766	41.22263	-72.13470	65	14	S	<2	B4	>5	Clear	Severe	3.2	112	Soft Start	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:27	21:44	41.22263	-72.13470	41.22211	-72.14270	65	23	NNE	<2	B4	2-5	Clear	Slight	2.7	285	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:44	21:50	41.22211	-72.14270	41.22612	-72.14821	65	20	NNE	<2	B4	1-2	Clear	None	3.4	335	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	22:00	41.22612	-72.14821	41.23217	-72.15741	65	20	NNE	<2	B4	0.5-1	Clear	None	3.4	335	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23217	-72.15741	41.25761	-72.20350	60	14	W	<2	B4	0.5-1	Clear	None	3.7	333	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	23:06	41.25761	-72.20350	41.25805	-72.19583	33	15	SSW	<2	B4	0.5-1	Clear	None	3	90	Full Power	N/A
2022-12-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:06	00:00	41.25805	-72.19583	41.25804	-72.18331	30	15	WNW	<2	B4	0.5-1	Clear	None	3.1	94	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.25821	-72.18664	41.25578	-72.18620	29	22	N	<2	B4	0.5-1	Clear	None	3.5	279	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.25578	-72.18620	41.25993	-72.14880	34	12	NW	<2	B4	0.5-1	Clear	None	3.4	288	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.25993	-72.14880	41.25633	-72.18337	51	13	WNW	<2	B4	0.5-1	Clear	None	3.4	293	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25633	-72.18337	41.25487	-72.18788	51	13	SW	<2	B4	0.5-1	Clear	None	3.4	92	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.25487	-72.18788	41.25621	-72.15317	32	13	SW	<2	B4	0.5-1	Cloudy	None	3.3	275	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.25621	-72.15317	41.25346	-72.19069	60	11	NNW	<2	B4	0.5-1	Cloudy	None	3.1	285	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.25346	-72.19069	41.25332	-72.17960	38	16	WSW	<2	B4	0.5-1	Cloudy	None	3.7	86	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	07:14	41.25332	-72.17960	41.25268	-72.20532	39	12	NNW	<2	B4	0.5-1	Clear	None	4.3	285	Silent	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:14	07:35	41.25268	-72.20532	41.26330	-72.20080	34	12	NNW	<2	B4	0.5-1	Clear	None	4.2	265	Soft Start	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:35	08:00	41.26330	-72.20080	41.26887	-72.17904	25	12	NNW	<2	B4	0.5-1	Clear	None	3.3	45	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	08:00	09:00	41.26887	-72.17904	41.25874	-72.17585	34	8	N	<2	B4	0.5-1	Clear	None	4.1	287	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.25874	-72.17585	41.23526	-72.17888	38	6	NE	<2	B4	0.5-1	Clear	None	4	7	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	10:00	11:00	41.23526	-72.17888	41.27184	-72.17830	20	8	N	<2	B4	0.5-1	Clear	None	4	196	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:35	41.27184	-72.17830	41.25073	-72.18066	22	14	NNW	<2	B4	0.5-1	Clear	None	3.5	156	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:35	11:46	41.25073	-72.18066	41.23906	-72.18191	47	17	N	<2	B4	1-2	Clear	None	3.8	179	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:46	11:52	41.23906	-72.18191	41.23804	-72.17658	45	14	N	<2	B4	2-5	Clear	None	3.8	179	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:52	12:00	41.23804	-72.17658	41.24047	-72.16487	47	6	SSW	<2	B3	>5	Clear	None	3.7	81	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:08	41.24047	-72.16487	41.24295	-72.15300	42	8	NW	<2	B3	>5	Clear	None	4.2	81	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:08	12:25	41.24295	-72.15300	41.24892	-72.12515	42	8	NW	<2	B3	>5	Clear	Slight	4.2	81	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	12:25	13:00	41.24892	-72.12515	41.26327	-72.08021	44	7	NW	<2	B3	>5	Clear	Severe	4.6	71	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.26327	-72.08021	41.26644	-72.04188	59	6	N	<2	B3	>5	Clear	Severe	4.4	52	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.26644	-72.04188	41.27726	-72.04553	13	17	N	<2	B4	>5	Clear	Severe	2.8	114	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.27726	-72.04553	41.26681	-72.05130	15	17	NW	<2	B4	>5	Clear	Severe	3.8	219	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.26681	-72.05130	41.26792	-72.05469	15	14	NNW	<2	B4	>5	Clear	Severe	4.6	155	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.26792	-72.05469	41.25770	-72.06934	18	7	N	<2	B3	>5	Clear	Severe	3.6	253	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.25770	-72.06934	41.26012	-72.06917	25	1	SSW	<2	B3	>5	Clear	Severe	3.5	50	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:56	41.26012	-72.06917	41.26379	-72.05360	25	10	N	<2	B3	>5	Clear	Severe	3.4	248	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:56	20:00	41.26379	-72.05360	41.26617	-72.04873	20	6	SSW	<2	B3	>5	Clear	Severe	3.9	61	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.26617	-72.04873	41.24815	-72.09029	11	3	SSW	<2	B3	>5	Clear	Severe	2.9	60	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:40	41.24815	-72.09029	41.26693	-72.04750	84	9	E	<2	B3	>5	Clear	Severe	3.3	240	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:40	21:50	41.26693	-72.04750	41.27371	-72.03927	23	7	E	<2	B3	2-5	Clear	Slight	4.1	57	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	22:00	41.27371	-72.03927	41.26939	-72.05083	23	7	E	<2	B3	1-2	Clear	Slight	4.1	57	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.26939	-72.05083	41.25202	-72.07357	18	4	NNE	<2	B3	0.5-1	Clear	None	3.2	243	Full Power	N/A
2022-12-20	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.25202	-72.07357	41.25745	-72.07262	70	6	SSW	<2	B3	0.5-1	Clear	None	4.2	64	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.25609	-72.07526	41.26357	-72.05291	25	9	E	<2	B2	0.5-1	Clear	None	3.9	251	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	01:34	41.26357	-72.05291	41.26294	-72.06127	20	7	SW	<2	B2	0.5-1	Clear	None	4.2	59	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:34	01:45	41.26294	-72.06127	41.25941	-72.07387	20	7	SW	<2	B2	0.5-1	Clear	None	4.2	59	Silent	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:45	02:00	41.25941	-72.07387	41.25579	-72.06715	20	8	N	<2	B2	0.5-1	Clear	None	4.2	31	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.25579	-72.06715	41.25764	-72.07169	28	8	ESE	<2	B2	0.5-1	Clear	None	3	30	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25764	-72.07169	41.26614	-72.04753	28	7	E	<2	B2	0.5-1	Clear	None	3.2	262	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.26614	-72.04753	41.24448	-72.09180	15	8	NE	<2	B2	0.5-1	Clear	None	3.7	43	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.24448	-72.09180	41.26572	-72.04967	84	8	NNW	<2	B2	0.5-1	Clear	None	5.2	160	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	06:51	41.26572	-72.04967	41.25437	-72.06477	13	3	N	<2	B2	0.5-1	Clear	None	3.5	250	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:51	07:00	41.25437	-72.06477	41.25835	-72.05654	23	6	NNE	<2	B2	0.5-1	Clear	None	4.1	50	Silent	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	07:07	41.25835	-72.05654	41.26385	-72.04573	23	6	NNE	<2	B2	0.5-1	Clear	None	4.1	50	Deploying/Retrieving	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:07	07:47	41.26385	-72.04573	41.26051	-72.05904	25	12	WSW	<2	B2	0.5-1	Clear	None	4.1	47	Standby	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:47	07:55	41.26051	-72.05904	41.25796	-72.05757	22	12	WSW	<2	B2	0.5-1	Clear	None	3	47	Deploying/Retrieving	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:55	08:00	41.25796	-72.05757	41.26084	-72.05184	25	10	SE	<2	B2	0.5-1	Clear	None	4.5	79	Silent	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	08:03	41.26084	-72.05184	41.26250	-72.04864	14	9	N	<2	B2	0.5-1	Clear	None	3.4	79	Silent	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:03	08:24	41.26250	-72.04864	41.27163	-72.03722	14	9	N	<2	B2	0.5-1	Clear	None	3.4	79	Soft Start	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:24	09:00	41.27163	-72.03722	41.24987	-72.07876	11	10	ENE	<2	B2	0.5-1	Clear	None	3.8	244	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.24987	-72.07876	41.27067	-72.03430	62	11	NW	<2	B2	0.5-1	Clear	None	4	241	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.27067	-72.03430	41.24899	-72.07175	11	8	NW	<2	B2	0.5-1	Clear	None	3.5	14	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:32	41.24899	-72.07175	41.26989	-72.03390	78	3	NE	<2	B2	0.5-1	Clear	None	4.1	75	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:32	11:42	41.26989	-72.03390	41.26684	-72.04555	11	4	NE	<2	B2	1-2	Clear	None	3.7	265	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:42	12:00	41.26684	-72.04555	41.25588	-72.06678	14	4	NE	<2	B2	2-5	Clear	None	3.8	250	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.25588	-72.06678	41.26706	-72.03812	57	5	NE	<2	B2	>5	Clear	Severe	4.2	248	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.26706	-72.03812	41.24772	-72.07463	30	7	NNE	<2	B2	>5	Clear	Severe	3.8	52	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.24772	-72.07463	41.25258	-72.07224	74	5	NE	<2	B2	>5	Cloudy	Moderate	4.8	53	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.25258	-72.07224	41.26502	-72.04035	77	5	NE	<2	B2	>5	Cloudy	Severe	3.7	257	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.26502	-72.04035	41.24728	-72.08218	22	7	NE	<2	B2	>5	Cloudy	Severe	4.5	52	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.24728	-72.08218	41.26850	-72.03968	65	3	NE	<2	B1	>5	Clear	Severe	4.2	31	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.26850	-72.03968	41.24400	-72.08006	15	5	W	<2	B1	>5	Clear	Severe	3.8	244	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24400	-72.08006	41.26315	-72.04287	92	5	SW	<2	B1	>5	Clear	Severe	4.2	23	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.26315	-72.04287	41.24383	-72.07989	11	4	SSW	<2	B1	>5	Clear	Severe	3.9	244	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:50	41.24383	-72.07989	41.26166	-72.05131	93	2	E	<2	B1	>5	Clear	Severe	4	55	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:50	21:56	41.26166	-72.05131	41.25813	-72.05817	24	3	WNW	<2	B1	2-5	Clear	None	3.9	242	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:56	22:00	41.25813	-72.05817	41.25565	-72.06262	24	3	WNW	<2	B1	1-2	Clear	None	3.9	242	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.25565	-72.06262	41.26189	-72.04999	26	2	WSW	<2	B1	0.5-1	Clear	None	3.2	234	Full Power	N/A
2022-12-21	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.26189	-72.04999	41.24654	-72.10599	21	3	SW	<2	B1	0.5-1	Clear	None	3.7	60	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.24604	-72.10758	41.22716	-72.13846	63	5	N	<2	B2	0.5-1	Clear	None	4.3	256	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.22716	-72.13846	41.23599	-72.14016	64	1	SW	<2	B2	0.5-1	Clear	None	3.5	69	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23599	-72.14016	41.25116	-72.10480	71	3	NE	<2	B2	0.5-1	Clear	None	4.6	241	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25116	-72.10480	41.27689	-72.03866	52	5	N	<2	B2	0.5-1	Clear	None	4.1	67	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.27689	-72.03866	41.26693	-72.06655	13	5	N	<2	B2	0.5-1	Clear	None	3.3	307	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.26693	-72.06655	41.23138	-72.14073	14	4	ENE	<2	B2	0.5-1	Clear	None	4.2	258	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23138	-72.14073	41.23961	-72.12432	79	2	NE	<2	B2	0.5-1	Clear	None	3.7	252	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23961	-72.12432	41.24131	-72.12535	82	3	NE	<2	B2	0.5-1	Clear	None	3.6	251	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.24131	-72.12535	41.22589	-72.14488	85	8	N	<2	B2	0.5-1	Clear	None	3.4	35	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.22589	-72.14488	41.23108	-72.14271	60	8	E	<2	B2	0.5-1	Clear	None	3.8	59	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.23108	-72.14271	41.24250	-72.10998	78	9	E	<2	B2	0.5-1	Cloudy	None	4.2	234	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:36	41.24250	-72.10998	41.21946	-72.16215	78	11	NE	<2	B2	0.5-1	Clear	None	4.5	216	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:36	11:46	41.21946	-72.16215	41.22582	-72.15328	77	11	NE	<2	B2	1-2	Clear	None	4.4	216	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:46	12:00	41.22582	-72.15328	41.23290	-72.13771	66	8	NNW	<2	B2	2-5	Clear	None	3.6	71	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:35	41.23290	-72.13771	41.25161	-72.10222	82	5	ENE	<2	B2	>5	Clear	None	3.4	73	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:35	13:00	41.25161	-72.10222	41.23404	-72.12450	71	6	ENE	<2	B2	>5	Clear	None	4.7	238	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.23404	-72.12450	41.24178	-72.11083	92	11	NE	<2	B2	>5	Clear	None	4.2	203	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	14:19	41.24178	-72.11083	41.24337	-72.08910	68	21	ENE	<2	B3	>5	Cloudy	None	5.2	65	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:19	15:00	41.24337	-72.08910	41.22426	-72.11659	80	14	E	<2	B3	>5	Cloudy	None	5.2	218	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:35	41.22426	-72.11659	41.21348	-72.15664	80	14	E	<2	B3	>5	Cloudy	None	5.2	14	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:35	16:00	41.21348	-72.15664	41.22177	-72.12870	87	18	ENE	<2	B4	>5	Cloudy	None	3.3	77	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.22177	-72.12870	41.20849	-72.17511	70	12	NNE	<2	B4	>5	Cloudy	None	4.2	84	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:06	41.20849	-72.17511	41.20498	-72.18145	52	19	E	<2	B4	>5	Cloudy	None	3.4	245	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:06	17:27	41.20498	-72.18145	41.21682	-72.15800	49	16	NE	<2	B4	>5	Cloudy	None	4.7	160	Soft Start	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:27	17:58	41.21682	-72.15800	41.23830	-72.11870	58	10	ESE	<2	B4	>5	Cloudy	None	5.1	45	Full Power	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:58	18:00	41.23830	-72.11870	41.23964	-72.11659	77	13	E	<2	B4	>5	Cloudy	None	3.7	41	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:15	41.23964	-72.11659	41.24774	-72.10475	77	13	E	<2	B4	>5	Cloudy	None	3.7	41	Silent	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:15	18:25	41.24774	-72.10475	41.25170	-72.09806	56	10	E	<2	B4	>5	Cloudy	None	2.8	31	Deploying/Retrieving	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:25	18:32	41.25170	-72.09806	41.25536	-72.08997	56	10	E	<2	B4	>5	Cloudy	None	2.8	31	Standby	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:32	19:00	41.25536	-72.08997	41.31350	-72.08124	54	11	E	<2	B4	>5	Cloudy	None	4.2	40	Transit	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.31350	-72.08124	41.42683	-72.09797	20	3	SE	<2	B2	>5	Cloudy	None	4	2	Transit	N/A
2022-12-22	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:15	41.42683	-72.09797	41.43301	-72.09660	7	4	E	<2	B1	>5	Cloudy	None	8.9	25	Transit	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:05	14:00	41.43300	-72.09660	41.30379	-72.08233	8	4	NNE	<2	B0	>5	Clear	Severe	5	199	Transit	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	14:22	41.30379	-72.08233	41.25095	-72.11423	53	4	NNW	<2	B1	>5	Clear	Severe	8	178	Transit	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:22	15:00	41.25095	-72.11423	41.24823	-72.13976	46	4	NNW	<2	B2	>5	Clear	Severe	5.5	208	Standby	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.24823	-72.13976	41.27018	-72.22491	72	6	SSW	<2	B2	>5	Clear	Severe	3.9	280	Standby	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	16:25	41.27018	-72.22491	41.25437	-72.25931	45	4	SSW	<2	B2	>5	Clear	Severe	3.1	240	Standby	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:25	16:34	41.25437	-72.25931	41.24778	-72.26995	32	8	WNW	<2	B2	>5	Clear	Severe	4.4	233	Deploying/Retrieving	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:34	16:49	41.24778	-72.26995	41.23810	-72.28930	32	8	NW	<2	B2	>5	Clear	Severe	4.4	233	Silent	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:49	17:00	41.23810	-72.28930	41.23679	-72.27757	35	6	W	<2	B2	>5	Clear	Severe	4.1	113	Soft Start	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:10	41.23679	-72.27757	41.23807	-72.26285	36	11	SSE	<2	B3	>5	Clear	Severe	4	88	Soft Start	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:10	18:00	41.23807	-72.26285	41.24398	-72.19020	35	9	WSW	<2	B3	>5	Clear	Severe	4.2	90	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.24398	-72.19020	41.24144	-72.12339	44	12	SW	<2	B3	>5	Clear	Severe	4.2	94	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24144	-72.12339	41.22692	-72.16467	86	3	W	<2	B3	>5	Clear	Severe	4.4	148	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.22692	-72.16467	41.23619	-72.12904	53	5	WSW	<2	B3	>5	Clear	Severe	3.9	271	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:43	41.23619	-72.12904	41.23217	-72.13178	84	8	NNW	<2	B3	>5	Clear	Severe	4.5	12	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:43	22:00	41.23217	-72.13178	41.23944	-72.11189	85	4	ENE	<2	B3	1-2	Clear	None	5	170	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23944	-72.11189	41.23865	-72.17091	78	7	SW	<2	B3	0.5-1	Cloudy	None	3.5	348	Full Power	N/A
2022-12-26	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.23865	-72.17091	41.22968	-72.16789	54	7	NW	<2	B3	0.5-1	Cloudy	None	3.8	301	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	00:10	41.22924	-72.16711	41.22219	-72.15404	59	7	ENE	<2	B3	0.5-1	Clear	None	4.3	157	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:10	00:43	41.22219	-72.15404	41.21676	-72.12931	59	7	ENE	<2	B3	0.5-1	Clear	None	4.3	157	Silent	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:43	01:00	41.21676	-72.12931	41.22414	-72.13956	50	3	NE	<2	B2	0.5-1	Clear	None	2.7	306	Deploying/Retrieving	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	01:11	41.22414	-72.13956	41.22853	-72.14715	60	4	E	<2	B2	0.5-1	Clear	None	2.9	303	Standby	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:11	01:21	41.22853	-72.14715	41.23212	-72.15380	60	4	E	<2	B2	0.5-1	Clear	None	2.9	303	Deploying/Retrieving	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:21	01:41	41.23212	-72.15380	41.24348	-72.17475	58	4	E	<2	B2	0.5-1	Clear	None	2.9	303	Soft Start	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:41	02:00	41.24348	-72.17475	41.24705	-72.19179	41	13	N	<2	B3	0.5-1	Clear	None	3.8	316	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.24705	-72.19179	41.22366	-72.12540	39	14	N	<2	B3	0.5-1	Clear	None	3.7	130	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	03:00	04:00	41.22366	-72.12540	41.25146	-72.18898	76	17	S	<2	B3	0.5-1	Clear	None	3.5	78	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.25146	-72.18898	41.23699	-72.17361	76	15	S	<2	B3	0.5-1	Clear	None	4.1	245	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23699	-72.17361	41.24335	-72.10625	49	14	WNW	<2	B3	0.5-1	Clear	None	4.3	130	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.24335	-72.10625	41.22166	-72.16484	68	10	S	<2	B3	0.5-1	Clear	None	4.3	86	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.22166	-72.16484	41.28089	-72.17300	63	6	W	<2	B3	0.5-1	Clear	None	4.1	321	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.28089	-72.17300	41.22349	-72.16799	17	20	N	<2	B3	0.5-1	Clear	None	4.1	246	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.22349	-72.16799	41.28208	-72.17907	42	8	NNE	<2	B3	0.5-1	Clear	None	3.7	348	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.28208	-72.17907	41.24304	-72.17448	17	16	WNW	<2	B3	0.5-1	Cloudy	None	3.9	255	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:40	41.24304	-72.17448	41.27237	-72.17620	49	9	SW	<2	B3	0.5-1	Cloudy	None	4.1	336	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:40	11:50	41.27237	-72.17620	41.26197	-72.17761	23	5	WNW	<2	B3	1-2	Cloudy	None	3.8	148	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:50	12:00	41.26197	-72.17761	41.25129	-72.17885	37	6	WNW	<2	B3	2-5	Cloudy	None	3.8	218	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.25129	-72.17885	41.27259	-72.16980	48	1	WSW	<2	B3	>5	Cloudy	None	4.1	216	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.27259	-72.16980	41.23385	-72.16872	24	7	WNW	<2	B3	>5	Cloudy	None	4.4	353	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23385	-72.16872	41.23662	-72.12065	52	12	N	<2	B3	>5	Cloudy	None	3.7	63	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.23662	-72.12065	41.26958	-72.17656	78	8	W	<2	B3	>5	Cloudy	Severe	4.5	279	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.26958	-72.17656	41.25600	-72.17440	23	9	WNW	<2	B3	>5	Cloudy	Severe	4	171	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.25600	-72.17440	41.23862	-72.18153	36	10	SE	<2	B3	>5	Cloudy	Severe	3.8	37	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23862	-72.18153	41.27315	-72.17718	47	6	WNW	<2	B3	>5	Cloudy	Severe	4.1	180	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.27315	-72.17718	41.24282	-72.18173	29	4	N	<2	B3	>5	Cloudy	Severe	4.5	189	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.24282	-72.18173	41.25824	-72.18259	49	6	SE	<2	B3	>5	Cloudy	Severe	4.4	0	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:45	41.25824	-72.18259	41.25234	-72.17684	34	8	NE	<2	B3	>5	Cloudy	Severe	4	215	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:45	21:55	41.25234	-72.17684	41.26384	-72.17566	34	8	NE	<2	B3	2-5	Cloudy	Slight	4	215	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:55	22:00	41.26384	-72.17566	41.27005	-72.17454	34	2	WNW	<2	B3	1-2	Cloudy	None	4	344	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.27005	-72.17454	41.23606	-72.17800	34	1	WNW	<2	B2	0.5-1	Cloudy	None	4.5	344	Full Power	N/A
2022-12-27	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.23606	-72.17800	41.25754	-72.18165	46	9	WNW	<2	B2	0.5-1	Cloudy	None	3.6	320	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.25574	-72.18186	41.27271	-72.17361	41	3	N	<2	B2	0.5-1	Clear	None	3.5	225	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.27271	-72.17361	41.24003	-72.17668	23	7	NW	<2	B2	0.5-1	Clear	None	4.4	12	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.24003	-72.17668	41.25050	-72.18112	40	4	SE	<2	B2	0.5-1	Clear	None	3.8	2	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25050	-72.18112	41.23773	-72.17472	47	4	E	<2	B2	0.5-1	Clear	None	4.2	183	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.23773	-72.17472	41.22841	-72.15546	47	5	ENE	<2	B2	0.5-1	Clear	None	3.7	112	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.22841	-72.15546	41.23184	-72.16496	56	5	N	<2	B2	0.5-1	Clear	None	4.3	324	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	06:31	41.23184	-72.16496	41.23241	-72.13251	57	3	WNW	<2	B2	0.5-1	Clear	None	4.1	121	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:31	06:32	41.23241	-72.13251	41.23299	-72.13416	78	3	WNW	<2	B2	0.5-1	Clear	None	4.1	121	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:32	06:42	41.23299	-72.13416	41.23998	-72.14806	78	6	S	<2	B2	0.5-1	Clear	None	4.5	312	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:42	07:00	41.23998	-72.14806	41.24891	-72.16899	38	5	WSW	<2	B2	0.5-1	Clear	None	3.9	316	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.24891	-72.16899	41.22315	-72.13399	42	3	SW	<2	B2	0.5-1	Clear	None	3.7	329	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.22315	-72.13399	41.24250	-72.18199	51	4	NNE	<2	B2	0.5-1	Clear	None	4.1	86	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.24250	-72.18199	41.22968	-72.10383	49	2	SW	<2	B2	0.5-1	Clear	None	4.4	147	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.22968	-72.10383	41.24779	-72.09651	54	6	SW	<2	B2	0.5-1	Clear	None	6.3	2	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:09	41.24779	-72.09651	41.23895	-72.09925	87	4	S	<2	B2	0.5-1	Clear	None	3.4	328	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:09	11:38	41.23895	-72.09925	41.24377	-72.09443	87	4	S	<2	B2	0.5-1	Cloudy	None	3.4	328	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:38	11:46	41.24377	-72.09443	41.24606	-72.10081	83	4	S	<2	B2	1-2	Cloudy	None	4.2	325	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:46	12:00	41.24606	-72.10081	41.23366	-72.10471	63	4	S	<2	B2	2-5	Cloudy	None	3.9	256	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:15	41.23366	-72.10471	41.21918	-72.09099	63	4	S	<2	B2	>5	Cloudy	None	4.2	212	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:15	12:33	41.21918	-72.09099	41.24187	-72.09363	86	4	S	<2	B2	>5	Cloudy	Slight	6.1	335	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:33	13:00	41.24187	-72.09363	41.21823	-72.08750	71	4	S	<2	B2	>5	Cloudy	Severe	3.8	246	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.21823	-72.08750	41.18318	-72.04179	73	4	SW	<2	B2	>5	Cloudy	Severe	4.2	177	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	14:45	41.18318	-72.04179	41.22075	-72.11199	52	4	NNE	<2	B2	>5	Cloudy	Severe	3.9	313	Silent	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:45	15:00	41.22075	-72.11199	41.22461	-72.13349	48	8	SSW	<2	B2	>5	Cloudy	Severe	4.2	286	Soft Start	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:06	41.22461	-72.13349	41.22685	-72.14166	56	6	W	<2	B3	>5	Cloudy	Severe	4	292	Soft Start	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:06	16:00	41.22685	-72.14166	41.22299	-72.13804	65	6	W	<2	B3	>5	Cloudy	Severe	3.9	305	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.22299	-72.13804	41.23654	-72.15933	70	6	WSW	<2	B3	>5	Cloudy	Severe	3.6	121	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.23654	-72.15933	41.23806	-72.16884	56	7	SW	<2	B3	>5	Cloudy	None	3.8	124	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23806	-72.16884	41.23876	-72.15449	54	7	W	<2	B3	>5	Cloudy	Severe	3.7	160	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.23876	-72.15449	41.23998	-72.15826	51	16	SSW	<2	B3	>5	Cloudy	Severe	3.9	339	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.23998	-72.15826	41.23590	-72.15901	53	7	WSW	<2	B4	>5	Cloudy	Severe	4.1	131	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:36	41.23590	-72.15901	41.23313	-72.14408	52	4	E	<2	B4	>5	Cloudy	Severe	5.5	140	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:36	21:45	41.23313	-72.14408	41.23908	-72.15310	67	10	N	<2	B4	2-5	Cloudy	Moderate	3.6	301	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:45	22:00	41.23908	-72.15310	41.22871	-72.14492	46	12	N	<2	B4	1-2	Cloudy	Slight	3.3	283	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.22871	-72.14492	41.24917	-72.10007	70	5	WNW	<2	B3	0.5-1	Clear	None	4.2	155	Full Power	N/A
2022-12-28	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.24917	-72.10007	41.23465	-72.10247	76	11	S	<2	B3	0.5-1	Clear	None	4.4	281	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.23174	-72.09773	41.23222	-72.07994	89	10	NNE	<2	B3	0.5-1	Clear	None	4.2	187	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.23222	-72.07994	41.23631	-72.08754	51	2	N	<2	B3	0.5-1	Clear	None	3.7	306	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23631	-72.08754	41.22880	-72.08230	69	6	SSE	<2	B3	0.5-1	Clear	None	2.2	316	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.22880	-72.08230	41.22981	-72.09324	56	8	NNW	<2	B3	0.5-1	Clear	None	4.3	299	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.22981	-72.09324	41.23869	-72.08443	92	8	NW	<2	B3	0.5-1	Clear	None	3.5	308	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23869	-72.08443	41.25738	-72.09823	57	2	ESE	<2	B3	0.5-1	Clear	None	3.9	33	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	06:04	41.25738	-72.09823	41.25379	-72.10252	60	10	W	<2	B3	0.5-1	Clear	None	3.6	212	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:04	06:25	41.25379	-72.10252	41.24244	-72.11382	60	7	WSW	<2	B3	0.5-1	Clear	None	3.8	212	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:25	06:46	41.24244	-72.11382	41.25598	-72.09280	67	12	W	<2	B3	0.5-1	Clear	None	3.5	75	Soft Start	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:46	07:00	41.25598	-72.09280	41.25952	-72.07902	53	8	SSW	<2	B3	0.5-1	Clear	None	4	72	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	07:20	41.25952	-72.07902	41.23540	-72.08215	22	4	WNW	<2	B3	0.5-1	Clear	None	3.9	141	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	07:20	07:35	41.23540	-72.08215	41.23195	-72.10721	53	4	WNW	<2	B3	0.5-1	Clear	None	5.1	224	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:35	08:00	41.23195	-72.10721	41.23848	-72.13757	72	8	WSW	<2	B3	0.5-1	Clear	None	4.7	292	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	08:06	41.23848	-72.13757	41.23503	-72.13407	81	7	NNE	<2	B3	0.5-1	Clear	None	3.5	181	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:06	08:27	41.23503	-72.13407	41.22969	-72.10478	81	7	NNE	<2	B3	0.5-1	Clear	None	3.5	129	Soft Start	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:27	09:00	41.22969	-72.10478	41.24915	-72.08714	96	9	NE	<2	B3	0.5-1	Clear	None	4.2	136	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	09:10	41.24915	-72.08714	41.25962	-72.09858	78	5	ESE	<2	B3	0.5-1	Clear	None	4.3	329	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:10	09:49	41.25962	-72.09858	41.22606	-72.13202	54	10	NE	<2	B3	0.5-1	Clear	None	4.3	215	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:49	10:00	41.22606	-72.13202	41.21975	-72.14026	71	15	NNE	<2	B3	0.5-1	Clear	None	3.8	232	Soft Start	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	10:10	41.21975	-72.14026	41.22151	-72.13526	54	19	WSW	<2	B3	0.5-1	Clear	None	4.2	247	Soft Start	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:10	11:00	41.22151	-72.13526	41.25275	-72.18652	42	11	WNW	<2	B3	0.5-1	Clear	None	3.5	258	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:22	41.25275	-72.18652	41.24165	-72.17994	33	10	WSW	<2	B3	0.5-1	Cloudy	None	3.7	258	Full Power	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:22	11:40	41.24165	-72.17994	41.24981	-72.19062	49	10	WSW	<2	B3	0.5-1	Cloudy	None	3.8	325	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:40	11:50	41.24981	-72.19062	41.24050	-72.17971	44	10	WSW	<2	B3	1-2	Cloudy	None	4.5	178	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:50	12:00	41.24050	-72.17971	41.23836	-72.16423	49	10	WSW	<2	B3	2-5	Cloudy	None	3.9	126	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.23836	-72.16423	41.25028	-72.15501	54	11	SSW	<2	B3	>5	Cloudy	None	4.7	1	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.25028	-72.15501	41.25459	-72.18300	54	6	SSW	<2	B3	>5	Cloudy	Severe	2.9	267	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.25459	-72.18300	41.25246	-72.16206	40	5	SW	<2	B3	>5	Cloudy	Severe	3.8	277	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:50	41.25246	-72.16206	41.24878	-72.17153	45	8	SE	<2	B3	>5	Cloudy	Severe	6.7	267	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:50	16:00	41.24878	-72.17153	41.25585	-72.16631	48	4	WNW	<2	B3	>5	Cloudy	Severe	4	139	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.25585	-72.16631	41.25097	-72.19698	42	10	SSW	<2	B3	>5	Cloudy	Severe	4	6	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:38	41.25097	-72.19698	41.24550	-72.14751	35	5	SW	<2	B3	>5	Cloudy	Severe	3.8	93	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:46	41.24550	-72.14751	41.24094	-72.14597	52	6	SW	<2	B3	>5	Cloudy	Severe	4.3	165	Deploying/Retrieving	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:46	17:52	41.24094	-72.14597	41.23628	-72.14669	53	6	SW	<2	B3	>5	Cloudy	Severe	4.3	180	Standby	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:52	17:55	41.23628	-72.14669	41.23407	-72.14730	55	6	SW	<2	B3	>5	Cloudy	Severe	4.3	194	Deploying/Retrieving	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:55	18:00	41.23407	-72.14730	41.23045	-72.14818	55	6	SW	<2	B3	>5	Cloudy	Severe	4.3	194	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23045	-72.14818	41.24340	-72.13013	66	10	SW	<2	B3	>5	Cloudy	Severe	2.7	171	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24340	-72.13013	41.24215	-72.12987	77	11	WSW	<2	B3	>5	Cloudy	Severe	4.8	226	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.24215	-72.12987	41.23636	-72.10015	83	9	SW	<2	B3	>5	Cloudy	Severe	2.6	165	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:38	41.23636	-72.10015	41.24167	-72.09472	91	9	N	<2	B3	>5	Cloudy	Severe	2.4	210	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:38	21:47	41.24167	-72.09472	41.23345	-72.09262	76	10	N	<2	B3	2-5	Cloudy	Slight	4.5	262	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:47	22:00	41.23345	-72.09262	41.21908	-72.07964	69	7	NNE	<2	B3	1-2	Cloudy	None	4.5	166	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.21908	-72.07964	41.23936	-72.09029	29	9	SSE	<2	B3	0.5-1	Cloudy	None	4.8	334	Silent	N/A
2022-12-29	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.23936	-72.09029	41.22972	-72.08522	72	3	W	<2	B3	0.5-1	Cloudy	None	2.9	284	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.23018	-72.08634	41.24246	-72.07968	62	9	N	<2	B2	0.5-1	Clear	None	1.9	274	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.24246	-72.07968	41.22903	-72.09557	85	5	NNW	<2	B2	0.5-1	Clear	None	2.6	257	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.22903	-72.09557	41.21989	-72.08143	82	8	S	<2	B2	0.5-1	Clear	None	4	38	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.21989	-72.08143	41.22085	-72.08046	35	10	N	<2	B2	0.5-1	Clear	None	3.7	4	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.22085	-72.08046	41.23151	-72.08990	43	9	SW	<2	B2	0.5-1	Clear	None	3.6	25	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	05:41	41.23151	-72.08990	41.24567	-72.13234	67	4	SW	<2	B2	0.5-1	Clear	None	4.4	333	Silent	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:41	05:57	41.24567	-72.13234	41.23783	-72.14394	60	3	WNW	<2	B2	0.5-1	Clear	None	3.4	236	Deploying/Retrieving	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:57	06:00	41.23783	-72.14394	41.23554	-72.14499	60	3	WNW	<2	B2	0.5-1	Clear	None	3.4	180	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23554	-72.14499	41.24977	-72.10877	60	4	WNW	<2	B2	0.5-1	Clear	None	4.4	195	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.24977	-72.10877	41.23544	-72.13578	60	7	NW	<2	B2	0.5-1	Clear	None	4	69	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23544	-72.13578	41.25107	-72.10952	60	6	SSW	<2	B2	0.5-1	Clear	None	4.4	74	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.25107	-72.10952	41.25500	-72.09189	58	7	W	<2	B2	0.5-1	Clear	None	4.5	238	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.25500	-72.09189	41.24149	-72.12020	60	8	W	<2	B2	0.5-1	Clear	None	3.6	77	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:13	41.24149	-72.12020	41.24923	-72.10335	65	5	SW	<2	B2	0.5-1	Clear	None	4	56	Standby	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:13	11:32	41.24923	-72.10335	41.28922	-72.07725	62	8	ESE	<2	B2	0.5-1	Clear	None	7.2	57	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:32	11:44	41.28922	-72.07725	41.32022	-72.08084	13	10	SSW	<2	B2	1-2	Clear	None	9.6	350	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:44	12:00	41.32022	-72.08084	41.35955	-72.08718	10	10	SSW	<2	B1	2-5	Clear	None	9.6	358	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.35955	-72.08718	41.43367	-72.09595	11	2	S	<2	B0	>5	Clear	None	8.9	3	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.43367	-72.09595	41.43549	-72.09448	8	1	S	<2	B0	>5	Clear	Severe	2.1	196	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.43549	-72.09448	41.43542	-72.09382	8	1	S	<2	B0	>5	Clear	Severe	0.2	183	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:25	41.43542	-72.09382	41.43272	-72.09681	8	2	NNW	<2	B1	>5	Clear	Severe	0.4	243	Transit	N/A
2022-12-30	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:55	41.43269	-72.09683	41.43359	-72.09626	8	3	N	<2	B1	0.5-1	Clear	None	0.1	211	Transit	N/A
2022-12-31	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:55	13:00	41.43357	-72.09629	41.43401	-72.09541	8	2	WNW	<2	B1	0.5-1	Fog	None	0.7	216	Transit	N/A
2022-12-31	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.43401	-72.09541	41.43511	-72.09428	8	2	WNW	<2	B1	0.3-0.5	Fog	None	0.7	216	Transit	N/A
2022-12-31	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	14:42	41.43511	-72.09428	41.43265	-72.09673	8	1	W	<2	B1	0.3-0.5	Fog	None	1.5	234	Transit	N/A
2022-12-31	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:46	21:00	41.43268	-72.09684	41.43332	-72.09580	8	2	SSE	<2	B1	0.05-0.1	Fog	None	0.1	208	Transit	N/A
2022-12-31	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:31	41.43332	-72.09580	41.43364	-72.09626	8	2	SSE	<2	B1	0.05-0.1	Fog	None	0.2	211	Transit	N/A
2023-01-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:55	20:00	41.43353	-72.09622	41.43475	-72.09491	8	2	E	<2	B1	>5	Cloudy	None	0.1	216	Transit	N/A
2023-01-02	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.43475	-72.09491	41.43363	-72.09564	8	2	E	<2	B1	>5	Cloudy	None	2	233	Transit	N/A
2023-01-02	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:30	41.43363	-72.09564	41.43361	-72.09627	8	2	E	<2	B1	>5	Cloudy	Slight	0.4	167	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	00:51	01:58	41.43357	-72.09625	41.4326	-72.09675	8	1	NE	<2	B1	0.5-1	Cloudy	None	0.4	210	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:16	11:48	41.43268	-72.09684	41.37141	-72.08843	8	1	SSW	<2	B1	0.5-1	Cloudy	None	1	210	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:48	11:55	41.37141	-72.08843	41.35224	-72.0862	12	1	N	<2	B1	1-2	Cloudy	None	10	177	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:55	12:00	41.35224	-72.0862	41.33858	-72.08442	10	1	N	<2	B1	2-5	Cloudy	None	10	177	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:50	41.33858	-72.08442	41.23059	-72.15254	10	7	N	<2	B1	2-5	Fog	None	9.8	178	Transit	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:50	12:55	41.23059	-72.15254	41.22447	-72.15702	63	0	N	<2	B1	2-5	Fog	None	5.3	222	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:55	12:56	41.22447	-72.15702	41.22407	-72.15623	63	1	N	<2	B1	2-5	Fog	None	3	85	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:56	13:00	41.22407	-72.15623	41.22485	-72.15132	58	1	N	<2	B1	2-5	Fog	None	2.8	88	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.22485	-72.15132	41.23787	-72.14114	75	5	E	<2	B1	2-5	Fog	None	2.8	67	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23787	-72.14114	41.23434	-72.14799	75	5	E	<2	B1	2-5	Fog	None	4.4	242	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:05	41.23434	-72.14799	41.23163	-72.15097	63	5	ENE	<2	B2	2-5	Fog	None	2.3	235	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:05	15:19	41.23163	-72.15097	41.22437	-72.15811	63	5	ENE	<2	B2	2-5	Fog	None	2.3	235	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:19	15:29	41.22437	-72.15811	41.22644	-72.14222	55	7	SE	<2	B2	2-5	Precipitation	None	4	146	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:29	16:00	41.22644	-72.14222	41.23179	-72.14087	65	7	SE	<2	B2	2-5	Fog	None	4.9	47	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.23179	-72.14087	41.23064	-72.15649	79	9	S	<2	B2	2-5	Fog	None	4.9	24	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:23	41.23064	-72.15649	41.24868	-72.12163	53	9	S	<2	B2	2-5	Fog	None	5.2	51	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:23	17:33	41.24868	-72.12163	41.24153	-72.12079	60	9	S	<2	B2	2-5	Fog	None	5.3	101	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:33	17:47	41.24153	-72.12079	41.2299	-72.13394	80	9	S	<2	B2	1-2	Fog	None	4.3	239	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:47	18:00	41.2299	-72.13394	41.21939	-72.14587	64	9	S	<2	B2	1-2	Fog	None	4	239	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.21939	-72.14587	41.22501	-72.1391	56	5	SSE	<2	B2	1-2	Fog	None	4	243	Standby	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:18	41.22501	-72.1391	41.21835	-72.14137	55	7	SSE	<2	B2	1-2	Fog	None	1.5	282	Deploying/Retrieving	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:18	19:32	41.21835	-72.14137	41.21346	-72.14637	33	7	SSW	<2	B2	1-2	Fog	None	1.1	237	Silent	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:32	19:56	41.21346	-72.14637	41.22513	-72.11125	33	7	SSW	<2	B2	2-5	Fog	None	3.7	192	Silent	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:56	20:00	41.22513	-72.11125	41.22797	-72.10554	86	14	WSW	<2	B2	2-5	Fog	None	4.6	49	Soft Start	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:19	41.22797	-72.10554	41.24305	-72.08266	107	14	WSW	<2	B2	2-5	Fog	None	4.6	49	Soft Start	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:19	21:00	41.24305	-72.08266	41.23802	-72.09553	85	14	WSW	<2	B2	2-5	Fog	None	4.8	28	Full Power	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:36	41.23802	-72.09553	41.25732	-72.07222	71	9	NNE	<2	B2	2-5	Fog	None	4.1	219	Full Power	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:36	21:47	41.25732	-72.07222	41.25281	-72.0821	71	8	NW	<2	B2	1-2	Fog	None	3.9	332	Full Power	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:47	22:00	41.25281	-72.0821	41.2413	-72.09172	60	14	N	<2	B2	0.5-1	Fog	None	3.1	217	Full Power	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.2413	-72.09172	41.24559	-72.08788	78	5	SW	<2	B2	0.5-1	Fog	None	3.9	211	Full Power	N/A
2023-01-03	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.24559	-72.08788	41.23992	-72.09113	82	8	WSW	<2	B2	0.5-1	Fog	None	3.9	236	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.23921	-72.09163	41.24955	-72.08406	72	15	N	<2	B2	0.5-1	Fog	None	4.4	224	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.24955	-72.08406	41.24955	-72.08392	86	4	WSW	<2	B2	0.5-1	Fog	None	4.2	185	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.24955	-72.08392	41.25015	-72.08361	62	9	WSW	<2	B2	0.5-1	Fog	None	4.1	222	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.25015	-72.08361	41.26237	-72.06815	65	6	NNE	<2	B2	0.5-1	Fog	None	3.6	204	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.26237	-72.06815	41.24981	-72.07556	22	4	SE	<2	B2	0.5-1	Fog	None	4.3	304	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.24981	-72.07556	41.24331	-72.08142	80	4	SE	<2	B2	0.5-1	Fog	None	4.2	22	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.24331	-72.08142	41.23721	-72.08756	92	9	SE	<2	B2	0.5-1	Fog	None	4.4	22	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23721	-72.08756	41.23434	-72.08936	77	5	SE	<2	B2	0.5-1	Fog	None	4.5	28	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23434	-72.08936	41.23381	-72.09044	60	5	W	<2	B2	0.5-1	Fog	None	4.1	32	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	09:24	41.23381	-72.09044	41.25718	-72.07066	71	6	SE	<2	B2	0.5-1	Fog	None	4.6	46	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:24	09:30	41.25718	-72.07066	41.25356	-72.07704	42	2	NW	<2	B2	0.5-1	Fog	None	3.8	229	Silent	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:30	10:00	41.25356	-72.07704	41.2466	-72.0826	42	2	NW	<2	B2	0.5-1	Fog	None	3.8	229	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.2466	-72.0826	41.25235	-72.07775	42	4	NW	<2	B2	0.5-1	Fog	None	3.7	216	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:38	41.25235	-72.07775	41.22399	-72.10484	36	8	WSW	<2	B2	0.5-1	Fog	None	8	234	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:38	11:50	41.22399	-72.10484	41.23323	-72.09217	94	8	WSW	<2	B2	1-2	Fog	None	4.5	89	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:50	12:00	41.23323	-72.09217	41.24254	-72.08339	60	6	SW	<2	B2	2-5	Fog	None	4.1	52	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:24	41.24254	-72.08339	41.25223	-72.07706	86	6	SW	<2	B2	2-5	Fog	None	3.8	74	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:24	13:00	41.25223	-72.07706	41.23534	-72.0895	80	6	SW	<2	B2	2-5	Fog	None	4.1	216	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	13:14	41.23534	-72.0895	41.24826	-72.07455	80	7	SW	<2	B2	2-5	Fog	None	5	53	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:14	13:17	41.24826	-72.07455	41.25027	-72.0708	32	8	SW	<2	B2	2-5	Fog	None	5	53	Silent	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:17	14:00	41.25027	-72.0708	41.22431	-72.10442	32	5	WNW	<2	B2	2-5	Fog	None	4.3	38	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	14:25	41.22431	-72.10442	41.23139	-72.14342	88	3	W	<2	B2	2-5	Fog	None	4.4	286	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:25	14:47	41.23139	-72.14342	41.23144	-72.17695	88	3	W	<2	B2	2-5	Fog	None	4.4	286	Silent	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:47	15:00	41.23144	-72.17695	41.23961	-72.18584	55	2	NNE	<2	B2	2-5	Fog	None	4.2	264	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:15	41.23961	-72.18584	41.25666	-72.18414	44	1	WSW	<2	B1	1-2	Fog	None	4.4	4	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:15	15:25	41.25666	-72.18414	41.26702	-72.18279	33	1	WSW	<2	B1	0.5-1	Fog	None	3.8	359	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:25	15:38	41.26702	-72.18279	41.27881	-72.18446	26	1	WSW	<2	B1	1-2	Fog	Slight	3.9	352	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:38	16:00	41.27881	-72.18446	41.25745	-72.18609	20	1	WSW	<2	B1	2-5	Fog	Severe	3	246	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.25745	-72.18609	41.27188	-72.17839	22	3	WSW	<2	B1	2-5	Fog	Severe	3.6	217	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.27188	-72.17839	41.22962	-72.18501	22	5	SSE	<2	B1	2-5	Fog	Moderate	3.9	338	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.22962	-72.18501	41.27237	-72.18111	46	2	SW	<2	B1	2-5	Fog	Moderate	6.4	94	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.27237	-72.18111	41.25032	-72.18066	22	5	NNE	<2	B1	2-5	Fog	Moderate	3.8	204	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	20:00	21:51	41.25032	-72.18066	41.26281	-72.17902	44	7	NW	<2	B1	2-5	Fog	Slight	4.3	188	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:51	22:00	41.26281	-72.17902	41.27254	-72.17802	34	10	E	<2	B1	0.5-1	Fog	Slight	4	33	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:02	41.27254	-72.17802	41.27475	-72.17781	21	10	ENE	<2	B1	0.5-1	Fog	None	3.8	31	Full Power	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:02	22:13	41.27475	-72.17781	41.27679	-72.18153	21	10	ENE	<2	B1	0.1-0.3	Fog	None	3.8	31	Silent	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:13	23:00	41.27679	-72.18153	41.22939	-72.18185	20	10	ENE	<2	B1	0.05-0.1	Fog	None	4.1	139	Silent	N/A
2023-01-04	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.22939	-72.18185	41.24644	-72.10891	54	10	E	<2	B2	0.05-0.1	Fog	None	3.5	138	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	00:34	41.2485	-72.10756	41.2296	-72.14826	54	12	ENE	<2	B3	0.05-0.1	Fog	None	5.2	249	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:34	01:00	41.2296	-72.14826	41.23439	-72.17738	58	20	ENE	<2	B3	0.5-1	Fog	None	5.2	208	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	01:04	41.23439	-72.17738	41.23836	-72.1786	33	7	E	<2	B3	0.5-1	Fog	None	3.7	27	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:04	01:25	41.23836	-72.1786	41.25832	-72.17399	33	7	E	<2	B3	0.5-1	Fog	None	3.7	27	Soft Start	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:25	02:00	41.25832	-72.17399	41.23074	-72.17478	32	12	ENE	<2	B3	0.5-1	Fog	None	5	11	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23074	-72.17478	41.23204	-72.17552	52	17	E	<2	B3	0.5-1	Fog	None	5	55	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.23204	-72.17552	41.23073	-72.17586	50	19	NE	<2	B3	0.5-1	Fog	None	4.2	32	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.23073	-72.17586	41.2399	-72.17721	55	15	NNE	<2	B3	0.5-1	Fog	None	4.4	76	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.2399	-72.17721	41.25278	-72.18414	46	6	NNE	<2	B3	0.5-1	Fog	None	4.7	11	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	06:00	07:00	41.25278	-72.18414	41.24688	-72.18478	41	7	NE	<2	B3	0.5-1	Fog	None	4	199	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.24688	-72.18478	41.25938	-72.18328	42	4	SSE	<2	B3	0.5-1	Fog	None	3.8	349	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.25938	-72.18328	41.25408	-72.18572	33	4	S	<2	B3	0.5-1	Fog	None	3.6	209	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.25408	-72.18572	41.24191	-72.17533	41	3	NE	<2	B3	0.5-1	Fog	None	3.9	7	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.24191	-72.17533	41.28295	-72.17593	52	10	N	<2	B3	0.5-1	Fog	None	4.2	200	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:45	41.28295	-72.17593	41.24174	-72.17479	17	11	NNE	<2	B2	0.5-1	Cloudy	None	4.2	358	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:45	11:55	41.24174	-72.17479	41.23113	-72.1743	46	2	NNW	<2	B2	1-2	Cloudy	None	3.8	144	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:55	12:00	41.23113	-72.1743	41.23313	-72.17928	55	2	NNW	<2	B2	2-5	Cloudy	None	4.3	311	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.23313	-72.17928	41.22886	-72.17163	48	2	NNW	<2	B2	>5	Cloudy	None	4.3	45	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.22886	-72.17163	41.22982	-72.17504	52	4	NE	<2	B2	>5	Cloudy	None	4.1	81	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.22982	-72.17504	41.22918	-72.17946	52	10	NE	<2	B2	>5	Cloudy	None	4.7	21	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.22918	-72.17946	41.28108	-72.17169	54	11	NE	<2	B2	>5	Cloudy	None	4.6	237	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.28108	-72.17169	41.27225	-72.17222	18	5	ENE	<2	B2	>5	Cloudy	None	5.2	107	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.27225	-72.17222	41.25811	-72.19528	22	7	ENE	<2	B2	>5	Cloudy	None	4.1	353	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	18:29	41.25811	-72.19528	41.25989	-72.17548	21	6	NNE	<2	B2	>5	Cloudy	None	1.7	266	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:29	19:00	41.25989	-72.17548	41.25315	-72.17476	25	5	NNE	<2	B2	>5	Cloudy	None	4.1	358	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:09	41.25315	-72.17476	41.24505	-72.17548	36	9	NNE	<2	B2	>5	Cloudy	None	3.8	211	Silent	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:09	19:30	41.24505	-72.17548	41.25446	-72.17616	35	9	NNE	<2	B2	>5	Cloudy	None	3.2	235	Soft Start	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:30	20:00	41.25446	-72.17616	41.28108	-72.17467	37	6	ENE	<2	B2	>5	Cloudy	None	4	350	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.28108	-72.17467	41.27408	-72.17795	19	6	NNE	<2	B2	>5	Cloudy	None	4.8	231	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:44	41.27408	-72.17795	41.27803	-72.16942	25	8	NNE	<2	B2	>5	Cloudy	None	5.7	189	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:44	21:51	41.27803	-72.16942	41.28288	-72.16916	18	13	N	<2	B2	2-5	Cloudy	None	4.6	39	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:51	22:00	41.28288	-72.16916	41.2726	-72.17477	18	13	W	<2	B2	1-2	Cloudy	None	4.6	211	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.2726	-72.17477	41.26629	-72.17361	18	9	NNE	<2	B2	0.5-1	Cloudy	None	4.6	210	Full Power	N/A
2023-01-05	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.26629	-72.17361	41.25251	-72.18299	27	11	NNE	<2	B2	0.5-1	Cloudy	None	4.6	12	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.25375	-72.17792	41.27638	-72.17372	40	10	ESE	<2	B2	0.5-1	Cloudy	None	3.4	77	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.27638	-72.17372	41.25472	-72.1811	20	7	NNE	<2	B2	0.5-1	Cloudy	None	4.7	185	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.25472	-72.1811	41.23749	-72.18456	35	8	NNE	<2	B2	0.5-1	Cloudy	None	4.8	25	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.23749	-72.18456	41.27966	-72.17713	44	6	S	<2	B2	0.5-1	Cloudy	None	4.9	219	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.27966	-72.17713	41.23979	-72.17776	17	6	NNE	<2	B2	0.5-1	Cloudy	None	4.2	268	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23979	-72.17776	41.23909	-72.1677	56	8	NE	<2	B2	0.5-1	Cloudy	None	4.1	150	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23909	-72.1677	41.23282	-72.14392	52	3	ENE	<2	B2	0.5-1	Cloudy	None	3.9	307	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23282	-72.14392	41.25203	-72.18431	66	5	E	<2	B2	0.5-1	Cloudy	None	4.3	317	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.25203	-72.18431	41.22181	-72.1424	42	8	SE	<2	B2	0.5-1	Cloudy	None	3.7	275	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.22181	-72.1424	41.24343	-72.1872	59	5	NE	<2	B2	0.5-1	Cloudy	None	3.5	318	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.24343	-72.1872	41.26343	-72.1748	46	5	N	<2	B2	0.5-1	Precipitation	None	4	9	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:45	41.26343	-72.1748	41.22582	-72.15002	27	4	NNW	<2	B2	0.5-1	Precipitation	None	4	180	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:45	11:54	41.22582	-72.15002	41.21941	-72.14052	60	4	W	<2	B2	1-2	Precipitation	None	3.6	118	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:54	12:00	41.21941	-72.14052	41.21323	-72.14036	44	4	W	<2	B2	2-5	Precipitation	None	3.5	118	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	12:30	41.21323	-72.14036	41.22833	-72.13671	50	4	W	<2	B2	>5	Cloudy	None	4.1	253	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:30	13:00	41.22833	-72.13671	41.24164	-72.12332	80	4	W	<2	B2	>5	Cloudy	None	3.6	57	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	13:24	41.24164	-72.12332	41.22337	-72.16023	52	10	N	<2	B2	>5	Cloudy	None	4.4	213	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:24	13:29	41.22337	-72.16023	41.21865	-72.1625	72	7	NNW	<2	B2	>5	Cloudy	None	4.4	158	Silent	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:29	14:00	41.21865	-72.1625	41.23282	-72.13415	72	7	NNW	<2	B2	>5	Cloudy	None	4.4	158	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23282	-72.13415	41.22363	-72.16326	81	8	NNE	<2	B2	>5	Cloudy	None	3.8	62	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:38	41.22363	-72.16326	41.23972	-72.12176	41	10	NE	<2	B2	>5	Cloudy	None	4.7	10	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:38	16:00	41.23972	-72.12176	41.23705	-72.13191	77	11	E	<2	B2	>5	Precipitation	None	4.3	68	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.23705	-72.13191	41.22233	-72.16993	72	8	ENE	<2	B2	>5	Precipitation	None	3.4	216	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.22233	-72.16993	41.24166	-72.0992	49	1	ESE	<2	B2	2-5	Fog	None	4.3	314	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.24166	-72.0992	41.25312	-72.07987	81	4	N	<2	B2	2-5	Fog	None	4.9	293	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.25312	-72.07987	41.27208	-72.04234	86	5	NNE	<2	B2	2-5	Fog	None	4.6	15	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.27208	-72.04234	41.25837	-72.05866	12	5	NNE	<2	B2	>5	Cloudy	None	4.3	239	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:48	41.25837	-72.05866	41.25747	-72.07165	18	7	ESE	<2	B2	>5	Cloudy	None	4.3	59	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:48	22:00	41.25747	-72.07165	41.24948	-72.08738	27	7	ESE	<2	B2	2-5	Cloudy	None	3.5	257	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	22:09	41.24948	-72.08738	41.24669	-72.08525	90	4	NE	<2	B2	1-2	Cloudy	None	3.9	254	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-06	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:09	23:00	41.24669	-72.08525	41.27656	-72.04053	85	4	NE	<2	B2	0.5-1	Cloudy	None	4.3	28	Full Power	N/A
2023-01-06	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.27656	-72.04053	41.2546	-72.07559	13	4	NW	<2	B2	0.5-1	Cloudy	None	4.5	227	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.2576	-72.06987	41.27105	-72.06198	22	5	SW	<2	B2	0.5-1	Cloudy	None	4.5	63	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.27105	-72.06198	41.26952	-72.06345	19	6	NNW	<2	B2	0.5-1	Cloudy	None	4.5	207	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.26952	-72.06345	41.26326	-72.06361	21	4	NNW	<2	B2	0.5-1	Cloudy	None	4.5	207	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.26326	-72.06361	41.26245	-72.05231	23	4	SW	<2	B2	0.5-1	Cloudy	None	4.2	228	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.26245	-72.05231	41.25789	-72.04945	24	5	N	<2	B2	0.5-1	Cloudy	None	3.9	53	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.25789	-72.04945	41.25105	-72.07232	21	8	NW	<2	B2	0.5-1	Cloudy	None	4.1	143	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.25105	-72.07232	41.23864	-72.08472	47	5	WSW	<2	B2	0.5-1	Cloudy	None	4.3	168	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23864	-72.08472	41.20623	-72.03676	92	6	ENE	<2	B2	0.5-1	Cloudy	None	4.1	111	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.20623	-72.03676	41.21369	-72.05287	36	14	N	<2	B2	0.5-1	Cloudy	None	4.2	305	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	09:14	41.21369	-72.05287	41.221	-72.06944	31	13	NW	<2	B2	0.5-1	Cloudy	None	3.8	306	Full Power	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:14	09:35	41.221	-72.06944	41.20182	-72.05382	16	13	NW	<2	B2	0.5-1	Cloudy	None	3.5	242	Silent	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:35	09:54	41.20182	-72.05382	41.19605	-72.02337	53	9	ENE	<2	B2	0.5-1	Cloudy	None	5	103	Deploying/Retrieving	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:54	10:00	41.19605	-72.02337	41.1959	-72.01419	36	8	E	<2	B2	0.5-1	Cloudy	None	3.8	69	Standby	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	10:26	41.1959	-72.01419	41.18749	-71.99913	36	8	E	<2	B2	0.5-1	Cloudy	None	3.8	69	Standby	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:26	11:00	41.18749	-71.99913	41.20948	-72.06359	36	8	E	<2	B2	0.5-1	Cloudy	None	3.8	69	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:43	41.20948	-72.06359	41.30209	-72.0803	26	13	NW	<2	B2	0.5-1	Cloudy	None	7.3	310	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:43	11:53	41.30209	-72.0803	41.32775	-72.08259	10	13	NW	<2	B2	1-2	Cloudy	None	9.5	357	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:53	12:00	41.32775	-72.08259	41.3458	-72.08477	10	13	NW	<2	B2	2-5	Cloudy	None	9.5	358	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	12:00	12:45	41.3458	-72.08477	41.43294	-72.09668	17	7	NW	<2	B1	>5	Cloudy	None	9.1	359	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:48	21:00	41.4332	-72.09665	41.40527	-72.09592	8	7	NNW	<2	B1	>5	Cloudy	None	7.6	189	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:41	41.40527	-72.09592	41.30076	-72.07951	8	5	N	<2	B1	>5	Cloudy	None	9.5	188	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:41	21:51	41.30076	-72.07951	41.28107	-72.06558	10	4	NNE	<2	B2	2-5	Cloudy	None	9.3	175	Transit	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:51	22:00	41.28107	-72.06558	41.27389	-72.05271	12	5	SE	<2	B2	1-2	Cloudy	None	5.4	137	Standby	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.27389	-72.05271	41.26105	-72.05577	15	6	WNW	<2	B2	0.5-1	Cloudy	None	4.2	118	Standby	N/A
2023-01-07	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.26105	-72.05577	41.26507	-72.04379	20	4	NNW	<2	B2	0.5-1	Cloudy	None	3.7	249	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.26432	-72.04585	41.23191	-72.14225	20	5	NE	<2	B2	0.5-1	Cloudy	None	4.1	240	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.23191	-72.14225	41.22849	-72.15082	75	7	NNW	<2	B2	0.5-1	Cloudy	None	4.3	241	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.22849	-72.15082	41.22766	-72.14448	58	3	NE	<2	B2	0.5-1	Cloudy	None	3.7	62	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.22766	-72.14448	41.22543	-72.15367	71	20	N	<2	B2	0.5-1	Cloudy	None	5.9	320	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.22543	-72.15367	41.27051	-72.1784	61	21	NW	<2	B2	0.5-1	Cloudy	None	4	329	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.27051	-72.1784	41.25505	-72.17761	25	10	NW	<2	B3	0.5-1	Cloudy	None	4	360	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.25505	-72.17761	41.24326	-72.11065	37	3	NNW	<2	B3	0.5-1	Cloudy	None	4.1	357	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.24326	-72.11065	41.21553	-72.05225	52	14	NNW	<2	B3	0.5-1	Cloudy	None	5	132	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.21553	-72.05225	41.24481	-72.07076	29	20	N	<2	B3	0.5-1	Cloudy	None	3.7	304	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.24481	-72.07076	41.27279	-72.05078	90	7	W	<2	B3	0.5-1	Cloudy	None	3.2	357	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.27279	-72.05078	41.27327	-72.04413	15	12	W	<2	B3	0.5-1	Clear	None	4.3	68	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:38	41.27327	-72.04413	41.2713	-72.04893	13	2	NNE	<2	B3	0.5-1	Clear	None	4.1	245	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:38	11:48	41.2713	-72.04893	41.2739	-72.04341	12	8	SW	<2	B3	1-2	Clear	None	3.6	63	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:48	12:00	41.2739	-72.04341	41.26663	-72.05577	12	8	SW	<2	B3	2-5	Clear	None	3.7	213	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.26663	-72.05577	41.26724	-72.04979	19	6	NNW	<2	B3	>5	Clear	None	0.7	239	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.26724	-72.04979	41.26711	-72.04998	15	9	SW	<2	B3	>5	Clear	Severe	0.1	142	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.26711	-72.04998	41.26563	-72.05361	15	8	SW	<2	B3	>5	Clear	Severe	0.8	148	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	15:30	41.26563	-72.05361	41.26271	-72.05164	20	2	NE	<2	B2	>5	Clear	Severe	3.8	240	Standby	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:30	15:45	41.26271	-72.05164	41.26701	-72.04927	18	2	NE	<2	B2	>5	Clear	Severe	2.4	35	Deploying/Retrieving	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:45	16:00	41.26701	-72.04927	41.26243	-72.06145	15	2	NE	<2	B2	>5	Clear	Severe	2	330	Silent	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	16:49	41.26243	-72.06145	41.2653	-72.05614	15	5	NNE	<2	B2	>5	Clear	Severe	3.6	252	Silent	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:49	17:00	41.2653	-72.05614	41.27258	-72.04252	14	3	N	<2	B2	>5	Clear	Severe	4.1	57	Soft Start	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:11	41.27258	-72.04252	41.28052	-72.03684	12	1	SSE	<2	B2	>5	Clear	Severe	4.2	60	Soft Start	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:11	18:00	41.28052	-72.03684	41.2522	-72.07072	15	1	SSE	<2	B2	>5	Clear	Severe	3.8	127	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.2522	-72.07072	41.27277	-72.04209	39	4	WSW	<2	B2	>5	Clear	Severe	4	54	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.27277	-72.04209	41.2616	-72.06692	13	4	SW	<2	B2	>5	Clear	Severe	4.2	30	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:36	41.2616	-72.06692	41.28407	-72.03247	25	3	SSE	<2	B2	>5	Cloudy	Moderate	3.9	347	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:36	21:00	41.28407	-72.03247	41.26853	-72.05507	14	2	SW	<2	B2	>5	Cloudy	Slight	3.6	237	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:33	41.26853	-72.05507	41.28056	-72.03347	17	4	S	<2	B2	>5	Cloudy	Slight	4.9	151	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:33	21:46	41.28056	-72.03347	41.27578	-72.0475	19	9	N	<2	B2	2-5	Cloudy	Slight	3.2	312	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:46	22:00	41.27578	-72.0475	41.27023	-72.06292	19	15	N	<2	B2	1-2	Cloudy	None	3.9	243	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.27023	-72.06292	41.26741	-72.04169	19	9	S	<2	B2	0.5-1	Cloudy	None	4.4	175	Full Power	N/A
2023-01-08	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.26741	-72.04169	41.24442	-72.05961	12	3	SSW	<2	B2	0.5-1	Clear	None	2.8	187	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.24343	-72.06337	41.23205	-72.09131	57	6	ESE	<2	B2	0.5-1	Clear	None	3.6	296	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.23205	-72.09131	41.23523	-72.08449	70	4	W	<2	B2	0.5-1	Clear	None	4.7	124	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23523	-72.08449	41.23166	-72.0818	67	6	SSW	<2	B2	0.5-1	Clear	None	4.2	290	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.23166	-72.0818	41.2387	-72.10014	54	7	SSW	<2	B2	0.5-1	Clear	None	4.2	107	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.2387	-72.10014	41.23384	-72.07427	53	8	W	<2	B2	0.5-1	Cloudy	None	4.1	289	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23384	-72.07427	41.23167	-72.09822	81	5	SSW	<2	B2	0.5-1	Cloudy	None	4.6	289	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23167	-72.09822	41.2263	-72.08315	93	7	WNW	<2	B2	0.5-1	Cloudy	None	4.1	282	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.2263	-72.08315	41.23838	-72.1196	54	12	WNW	<2	B2	0.5-1	Cloudy	None	4.3	26	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23838	-72.1196	41.23345	-72.10277	77	13	W	<2	B2	0.5-1	Cloudy	None	4	293	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.23345	-72.10277	41.22652	-72.07881	96	14	WNW	<2	B2	0.5-1	Precipitation	None	3.7	288	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.22652	-72.07881	41.228	-72.10313	54	4	WNW	<2	B2	0.5-1	Precipitation	None	3.7	326	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:14	41.228	-72.10313	41.22287	-72.08213	47	3	W	<2	B2	0.5-1	Precipitation	None	4.7	64	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	11:14	11:20	41.22287	-72.08213	41.22733	-72.07796	54	4	WNW	<2	B2	0.5-1	Precipitation	None	3.7	326	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:20	11:45	41.22733	-72.07796	41.23847	-72.11476	40	3	W	<2	B1	0.5-1	Fog	None	4	293	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:45	12:00	41.23847	-72.11476	41.23581	-72.12927	76	3	W	<2	B1	1-2	Fog	None	4.3	298	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.23581	-72.12927	41.23836	-72.10468	84	4	NNW	<2	B1	2-5	Fog	None	4.9	154	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.23836	-72.10468	41.23036	-72.07966	76	3	NW	<2	B1	2-5	Fog	None	4.5	292	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23036	-72.07966	41.22612	-72.08482	62	3	WSW	<2	B1	2-5	Fog	None	4.1	57	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.22612	-72.08482	41.23242	-72.10455	63	4	NW	<2	B2	>5	Fog	None	4.1	127	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.23242	-72.10455	41.23524	-72.12708	105	8	WNW	<2	B2	>5	Fog	None	4	118	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.23524	-72.12708	41.23844	-72.11536	84	3	NNE	<2	B2	>5	Fog	None	3.8	241	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23844	-72.11536	41.23106	-72.09209	71	2	NE	<2	B2	>5	Fog	Severe	4.2	295	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.23106	-72.09209	41.22499	-72.11833	81	5	NNW	<2	B2	>5	Cloudy	Severe	3.9	299	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.22499	-72.11833	41.24012	-72.09295	50	8	WNW	<2	B2	>5	Clear	Severe	3.7	217	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:43	41.24012	-72.09295	41.23457	-72.12929	86	10	S	<2	B2	>5	Clear	Severe	5.2	114	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:43	21:54	41.23457	-72.12929	41.23443	-72.14528	86	12	N	<2	B2	2-5	Clear	Slight	3.9	284	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:54	22:00	41.23443	-72.14528	41.239	-72.15059	73	14	ESE	<2	B2	1-2	Clear	Slight	4	284	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.239	-72.15059	41.24129	-72.1242	44	15	NNW	<2	B2	0.5-1	Clear	None	4	319	Full Power	N/A
2023-01-09	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.24129	-72.1242	41.24098	-72.11076	92	9	NNW	<2	B2	0.5-1	Cloudy	None	4.4	280	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.24101	-72.11338	41.23741	-72.09095	75	10	NNE	<2	B2	0.5-1	Clear	None	4	281	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.23741	-72.09095	41.23649	-72.10768	77	8	SW	<2	B2	0.5-1	Clear	None	4.4	347	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23649	-72.10768	41.23527	-72.13609	85	14	ENE	<2	B2	0.5-1	Clear	None	3.7	90	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.23527	-72.13609	41.23817	-72.1125	81	14	WSW	<2	B2	0.5-1	Clear	None	4.3	104	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.23817	-72.1125	41.23564	-72.07941	76	18	NW	<2	B2	0.5-1	Clear	None	3.8	256	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23564	-72.07941	41.23437	-72.10785	55	8	S	<2	B3	0.5-1	Clear	None	3.9	40	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23437	-72.10785	41.23495	-72.11803	85	8	NE	<2	B3	0.5-1	Clear	None	3.7	3	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23495	-72.11803	41.23538	-72.09592	89	15	WNW	<2	B3	0.5-1	Clear	None	3.7	284	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23538	-72.09592	41.23252	-72.16499	64	10	NW	<2	B3	0.5-1	Cloudy	None	4.9	85	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.23252	-72.16499	41.28183	-72.17528	65	7	NNW	<2	B3	0.5-1	Cloudy	None	3.4	272	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.28183	-72.17528	41.24003	-72.1767	17	5	W	<2	B3	0.5-1	Cloudy	None	4.2	90	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:45	41.24003	-72.1767	41.28463	-72.17173	47	11	WSW	<2	B3	0.5-1	Cloudy	None	3.8	348	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:45	11:54	41.28463	-72.17173	41.27528	-72.17372	14	16	WNW	<2	B3	1-2	Cloudy	None	3.8	270	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:54	12:00	41.27528	-72.17372	41.26925	-72.1743	22	16	WNW	<2	B3	2-5	Cloudy	None	4	197	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.26925	-72.1743	41.28108	-72.17684	24	16	WNW	<2	B3	>5	Cloudy	None	3	188	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.28108	-72.17684	41.24034	-72.15552	16	12	WNW	<2	B3	>5	Cloudy	None	4.5	244	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.24034	-72.15552	41.24171	-72.13323	42	17	NNE	<2	B3	>5	Cloudy	None	4	82	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.24171	-72.13323	41.22877	-72.15106	87	6	NNW	<2	B3	>5	Cloudy	None	4	347	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.22877	-72.15106	41.24116	-72.17874	87	13	WNW	<2	B3	>5	Cloudy	None	3.4	352	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.24116	-72.17874	41.23629	-72.17006	49	11	NW	<2	B3	>5	Cloudy	None	4	127	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.23629	-72.17006	41.24406	-72.18007	55	8	NNW	<2	B3	>5	Cloudy	None	4.1	322	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	20:00	41.24406	-72.18007	41.22716	-72.15964	44	10	N	<2	B3	>5	Cloudy	None	3.8	321	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	21:00	41.22716	-72.15964	41.21898	-72.15147	60	11	NW	<2	B3	>5	Cloudy	Slight	3.9	145	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	21:36	41.21898	-72.15147	41.24559	-72.11015	57	13	N	<2	B3	>5	Cloudy	Slight	3.7	342	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:36	21:49	41.24559	-72.11015	41.2413	-72.1203	62	15	N	<2	B3	2-5	Cloudy	Slight	2.8	320	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:49	22:00	41.2413	-72.1203	41.23515	-72.13309	79	10	NNE	<2	B3	1-2	Cloudy	None	3.5	262	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Simancas, Jorge	RPS	22:00	23:00	41.23515	-72.13309	41.23062	-72.13325	80	2	NW	<2	B2	0.5-1	Cloudy	None	4	258	Full Power	N/A
2023-01-10	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Simancas, Jorge	RPS	23:00	00:00	41.23062	-72.13325	41.22495	-72.15274	72	3	NE	<2	B2	0.5-1	Cloudy	None	4.2	36	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	00:00	01:00	41.22471	-72.15317	41.24389	-72.11692	55	7	ENE	<2	B2	0.5-1	Clear	None	3.8	233	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	01:00	02:00	41.24389	-72.11692	41.23153	-72.13214	64	5	NNE	<2	B2	0.5-1	Clear	None	3.8	249	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	02:00	03:00	41.23153	-72.13214	41.2264	-72.15151	87	2	NNE	<2	B2	0.5-1	Clear	None	3.7	60	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	03:00	04:00	41.2264	-72.15151	41.24956	-72.10625	62	12	ESE	<2	B2	0.5-1	Clear	None	4.3	231	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	04:00	05:00	41.24956	-72.10625	41.23037	-72.13606	54	14	N	<2	B2	0.5-1	Cloudy	None	4.5	343	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	05:00	06:00	41.23037	-72.13606	41.23026	-72.1467	65	8	NNW	<2	B2	0.5-1	Cloudy	None	4	69	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Miranda, Sergio	RPS	06:00	07:00	41.23026	-72.1467	41.22832	-72.15227	61	8	N	<2	B2	0.5-1	Clear	None	4.2	238	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.22832	-72.15227	41.23132	-72.16623	54	5	ENE	<2	B2	0.5-1	Cloudy	None	4.1	323	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	08:00	09:00	41.23132	-72.16623	41.24094	-72.18005	58	8	WSW	<2	B2	0.5-1	Cloudy	None	3.9	150	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Mohammed, Kristal	RPS	09:00	09:00	41.24094	-72.18005	41.24094	-72.18005	58	8	WSW	<2	B2	0.5-1	Cloudy	None	3.9	150	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	09:00	10:00	41.24094	-72.18005	41.22737	-72.15353	48	6	NE	<2	B2	0.5-1	Cloudy	None	3.4	306	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.22737	-72.15353	41.24383	-72.17888	64	12	NNE	<2	B2	0.5-1	Cloudy	None	3.9	164	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:42	41.24383	-72.17888	41.24442	-72.17941	49	3	ENE	<2	B2	0.5-1	Cloudy	None	3.8	307	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:42	11:50	41.24442	-72.17941	41.23835	-72.17038	47	3	ENE	<2	B3	1-2	Cloudy	None	4.3	138	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:50	12:00	41.23835	-72.17038	41.2308	-72.15842	50	3	ENE	<2	B3	2-5	Cloudy	None	4	124	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	12:00	13:00	41.2308	-72.15842	41.23172	-72.16351	60	9	NNE	<2	B3	>5	Cloudy	None	3.8	126	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.23172	-72.16351	41.23639	-72.16385	58	11	NNE	<2	B3	>5	Cloudy	Moderate	3.6	332	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23639	-72.16385	41.24056	-72.17486	57	8	NNE	<2	B3	>5	Cloudy	Severe	3.6	120	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	15:00	16:00	41.24056	-72.17486	41.21808	-72.14281	50	3	NNE	<2	B3	>5	Clear	Severe	4.1	243	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.21808	-72.14281	41.22653	-72.15748	57	5	W	<2	B3	>5	Clear	Severe	3.7	123	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	41.22653	-72.15748	41.2349	-72.19399	58	5	N	<2	B2	>5	Clear	Severe	4.6	116	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	18:00	19:00	41.2349	-72.19399	41.27805	-72.18035	56	3	N	<2	B2	>5	Clear	Severe	4	328	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:00	19:32	41.27805	-72.18035	41.23922	-72.18462	21	2	NE	<2	B2	>5	Clear	Severe	4	205	Full Power	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:32	20:00	41.23922	-72.18462	41.21869	-72.18221	45	1	S	<2	B2	>5	Cloudy	Severe	4.5	191	Silent	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:00	20:02	41.21869	-72.18221	41.22065	-72.18286	50	8	SE	<2	B2	>5	Cloudy	Severe	3.1	343	Deploying/Retrieving	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:02	20:22	41.22065	-72.18286	41.23649	-72.17162	50	8	SE	<2	B2	>5	Cloudy	Severe	3.1	343	Standby	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Simancas, Jorge	RPS	20:22	21:00	41.23649	-72.17162	41.29783	-72.08363	50	8	SE	<2	B2	>5	Cloudy	Severe	10	54	Transit	N/A
2023-01-11	*Brooks McCall*	HRG	Visual	Coronel, Cesar; Maharajh, Avinash	RPS	21:00	22:00	41.29783	-72.08363	41.43278	-72.09644	25	10	SSW	<2	B2	>5	Cloudy	Severe	8	27	Transit	N/A
2023-01-12	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:15	11:00	41.42918	-72.09607	41.35377	-72.08822	8	3	N	<2	B1	0.5-1	Cloudy	None	0.8	200	Transit	N/A
2023-01-12	*Brooks McCall*	HRG	Visual	Mohammed, Kristal; Simancas, Jorge	RPS	11:00	11:19	41.35377	-72.08822	41.353	-72.09218	7	4	NNE	<2	B1	0.5-1	Cloudy	None	4.2	203	Transit	N/A
2023-01-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	19:25	20:00	41.35306	-72.09226	41.40609	-72.09584	8	8	SE	<2	B2	>5	Precipitation	None	1.2	118	Transit	N/A
2023-01-12	*Brooks McCall*	HRG	Visual	Coronel, Cesar	RPS	20:00	20:25	41.40609	-72.09584	41.43277	-72.09647	6	8	SE	<2	B2	>5	Cloudy	None	3	118	Transit	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:00	20:00	41.4275	-72.10122	41.28046	-72.08666	8	12	NNE	<2	B3	2-5	Cloudy	None	1	193	Transit	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:00	20:39	41.28046	-72.08666	41.26499	-72.18247	13	17	NNE	<2	B3	>5	Cloudy	None	8.8	218	Transit	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:39	21:00	41.26499	-72.18247	41.23979	-72.18675	13	5	NNE	<2	B2	>5	Cloudy	None	4.3	283	Standby	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	21:00	22:00	41.23979	-72.18675	41.24767	-72.18606	50	6	W	<2	B2	>5	Cloudy	None	3.9	57	Standby	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	23:00	41.24767	-72.18606	41.23918	-72.12888	39	8	N	<2	B3	>5	Cloudy	None	3.9	201	Standby	N/A
2023-01-13	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	00:00	41.23918	-72.12888	41.23413	-72.14095	75	8	WSW	<2	B3	>5	Cloudy	None	3.7	255	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:00	01:00	41.22898	-72.15107	41.24162	-72.12162	81	8	WSW	<2	B3	1-2	Cloudy	None	3.3	262.9	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:00	02:00	41.24162	-72.12162	41.24978	-72.18105	86	8	ENE	<2	B3	1-2	Cloudy	None	4.9	276	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	03:00	41.24978	-72.18105	41.26101	-72.18112	45	20	NNE	<2	B5	1-2	Cloudy	None	3.7	3	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:00	04:00	41.26101	-72.18112	41.23829	-72.18394	26	20	NNE	<2	B5	1-2	Cloudy	None	4.2	16	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:00	41.23829	-72.18394	41.24108	-72.18575	59	17	N	<2	B5	1-2	Cloudy	None	4.3	178	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:00	06:00	41.24108	-72.18575	41.24489	-72.19515	48	18	E	<2	B5	1-2	Cloudy	None	4.4	250	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	06:14	41.24489	-72.19515	41.23789	-72.21065	41	19	N	<2	B5	1-2	Cloudy	None	3	240	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:14	06:42	41.23789	-72.21065	41.21942	-72.24663	41	19	N	<2	B5	1-2	Cloudy	None	3	240	Deploying/Retrieving	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:42	07:00	41.21942	-72.24663	41.22333	-72.22553	41	19	N	<2	B5	1-2	Cloudy	None	3	240	Soft Start	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	07:04	41.22333	-72.22553	41.22619	-72.22068	54	12	NW	<2	B4	1-2	Cloudy	None	4.2	261.58	Soft Start	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:04	08:00	41.22619	-72.22068	41.27494	-72.1771	54	12	NW	<2	B4	1-2	Cloudy	None	4.2	261.58	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.27494	-72.1771	41.23614	-72.17851	54	12	NW	<2	B4	1-2	Cloudy	None	4.2	261.58	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.23614	-72.17851	41.26393	-72.18228	48	17	E	<2	B5	1-2	Precipitation	None	3.6	3	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.26393	-72.18228	41.23553	-72.16663	29	15	NNW	<2	B4	1-2	Precipitation	None	4.2	185	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:51	41.23553	-72.16663	41.22289	-72.15031	56	11	E	<2	B4	1-2	Precipitation	None	4	329	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:51	12:00	41.22289	-72.15031	41.21808	-72.13793	57	11	E	<2	B4	2-5	Cloudy	None	5	106	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	13:00	41.21808	-72.13793	41.22802	-72.1704	57	13	SSW	<2	B4	>5	Cloudy	None	3.9	182	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.22802	-72.1704	41.23204	-72.07937	59	14	N	<2	B4	>5	Cloudy	None	5.3	83	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.23204	-72.07937	41.23478	-72.09288	57	17	N	<2	B5	>5	Cloudy	None	3.5	37	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.23478	-72.09288	41.25457	-72.07146	64	17	N	<2	B5	>5	Cloudy	None	4.3	120	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.25457	-72.07146	41.24837	-72.06928	24	17	NNE	<2	B5	>5	Cloudy	None	4.2	243	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:48	41.24837	-72.06928	41.21891	-72.10114	71	15	NNE	<2	B4	>5	Cloudy	None	4.3	48	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:48	18:00	41.21891	-72.10114	41.227	-72.08709	71	15	WSW	<2	B4	1-2	Fog	None	4.3	132	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	18:00	19:00	41.227	-72.08709	41.22522	-72.09983	88	13	NNW	<2	B4	1-2	Fog	None	5	46	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:00	19:46	41.22522	-72.09983	41.23605	-72.08415	88	13	ESE	<2	B4	2-5	Fog	None	5.5	242	Full Power	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:46	19:53	41.23605	-72.08415	41.24186	-72.07762	66	12	SSE	<2	B4	2-5	Fog	None	3	52	Silent	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:53	20:00	41.24186	-72.07762	41.24547	-72.07396	66	12	SSE	<2	B4	2-5	Fog	None	3	52	Deploying/Retrieving	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:00	20:15	41.24547	-72.07396	41.25179	-72.06399	34	11	NNW	<2	B4	2-5	Fog	None	2.7	46	Deploying/Retrieving	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:15	21:00	41.25179	-72.06399	41.26559	-72.04151	26	12	NNW	<2	B4	>5	Cloudy	None	1.2	73	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda	RPS	21:00	22:00	41.26559	-72.04151	41.26676	-72.04383	16	13	N	<2	B4	>5	Cloudy	None	3.7	47	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	22:15	41.26676	-72.04383	41.26901	-72.04243	25	11	NNE	<2	B4	2-5	Cloudy	None	4	74	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:15	23:00	41.26901	-72.04243	41.25459	-72.0644	25	11	NNE	<2	B4	1-2	Cloudy	None	4	74	Standby	N/A
2023-01-14	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	00:00	41.25459	-72.0644	41.25293	-72.07051	28	11	NNE	<2	B4	1-2	Cloudy	None	3.2	24	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:00	01:00	41.25993	-72.05936	41.25366	-72.06783	24	14	NNE	<2	B4	1-2	Cloudy	None	4.1	61	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:00	02:00	41.25366	-72.06783	41.25315	-72.06595	26	23	ESE	<2	B5	1-2	Cloudy	None	3.9	241	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	03:00	41.25315	-72.06595	41.25271	-72.06819	28	22	NE	<2	B5	1-2	Cloudy	None	4.8	39	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:00	04:00	41.25271	-72.06819	41.25706	-72.06072	32	23	ESE	<2	B5	1-2	Cloudy	None	3.2	239	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:00	41.25706	-72.06072	41.26909	-72.04819	29	13	N	<2	B4	0.5-1	Cloudy	None	6.5	46	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:00	06:00	41.26909	-72.04819	41.254	-72.06457	25	19	SE	<2	B5	0.5-1	Cloudy	None	4.2	242	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	07:00	41.254	-72.06457	41.25846	-72.06468	25	16	NE	<2	B4	0.5-1	Cloudy	None	4.2	47	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.25846	-72.06468	41.25303	-72.06815	25	18	E	<2	B4	0.5-1	Cloudy	None	3.5	55	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.25303	-72.06815	41.2499	-72.07272	24	14	NE	<2	B4	0.5-1	Cloudy	None	3.6	70	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.2499	-72.07272	41.23593	-72.09506	34	15	NW	<2	B4	0.5-1	Cloudy	None	5	240	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Maharajh, Avinash; Miranda, Sergio	RPS	10:00	11:00	41.23593	-72.09506	41.26401	-72.05716	30	23	NNE	<2	B5	0.5-1	Cloudy	None	5.3	206	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:45	41.26401	-72.05716	41.25054	-72.07129	22	17	NE	<2	B4	1-2	Cloudy	None	2.7	48	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:45	12:00	41.25054	-72.07129	41.25901	-72.06305	22	17	NE	<2	B4	2-5	Cloudy	None	2.7	48	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	13:00	41.25901	-72.06305	41.26369	-72.0573	31	14	NNE	<2	B4	>5	Cloudy	None	3.1	18	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.26369	-72.0573	41.24262	-72.0771	22	21	NNE	<2	B5	>5	Cloudy	None	3.3	6	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.24262	-72.0771	41.24467	-72.07322	26	20	NNE	<2	B5	>5	Cloudy	None	3.1	350	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.24467	-72.07322	41.26538	-72.05912	24	13	N	<2	B4	>5	Cloudy	None	3.6	251	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.26538	-72.05912	41.25221	-72.07422	28	21	NNE	<2	B5	>5	Cloudy	None	3.6	15	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:55	41.25221	-72.07422	41.26235	-72.0683	32	22	NNE	<2	B6	>5	Precipitation	None	4.9	225	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	17:55	18:56	41.26235	-72.0683	41.24371	-72.0819	23	32	N	<2	B6	>5	Precipitation	None	4	44	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	18:56	19:58	41.24371	-72.0819	41.2432	-72.08024	69	30	N	<2	B6	>5	Precipitation	None	4.4	25	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	19:58	20:55	41.2432	-72.08024	41.26313	-72.06888	21	22	ENE	<2	B6	>5	Cloudy	None	4.8	217	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda	RPS	20:55	22:00	41.26313	-72.06888	41.25834	-72.06918	22	23	N	<2	B6	>5	Cloudy	None	3.3	40	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	22:15	41.25834	-72.06918	41.24571	-72.07757	25	18	NNE	<2	B5	2-5	Cloudy	None	4.6	209	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:15	23:00	41.24571	-72.07757	41.25137	-72.0726	25	18	NNE	<2	B5	1-2	Cloudy	None	4.6	209	Standby	N/A
2023-01-15	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	00:00	41.25137	-72.0726	41.26452	-72.06698	23	15	NW	<2	B4	1-2	Cloudy	None	5.6	224	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:00	01:00	41.26961	-72.06439	41.25672	-72.06567	20	24	ENE	2-4	B6	1-2	Cloudy	None	3.4	41	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:00	02:00	41.25672	-72.06567	41.25215	-72.06438	24	26	N	2-4	B6	0.5-1	Cloudy	None	4.7	45	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	03:00	41.25215	-72.06438	41.24698	-72.06855	24	22	NNE	2-4	B5	0.5-1	Precipitation	None	5.3	23	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:00	04:00	41.24698	-72.06855	41.25444	-72.05842	24	26	NE	2-4	B6	0.5-1	Cloudy	None	2.2	33	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:00	41.25444	-72.05842	41.26027	-72.05788	24	25	NNE	2-4	B6	0.5-1	Cloudy	None	4.3	213	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:00	06:00	41.26027	-72.05788	41.27618	-72.04692	22	19	SSE	2-4	B5	0.5-1	Cloudy	None	4.1	219	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	07:00	41.27618	-72.04692	41.27473	-72.04876	25	21	NNE	2-4	B5	0.5-1	Cloudy	None	2.4	25	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.27473	-72.04876	41.2756	-72.05	22	18	NNE	2-4	B5	0.5-1	Cloudy	None	3.2	30	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.2756	-72.05	41.26448	-72.05749	25	9	NNE	<2	B3	0.5-1	Cloudy	None	3.2	37	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.26448	-72.05749	41.24603	-72.07255	24	9	NNE	<2	B3	0.5-1	Cloudy	None	3.3	26	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.24603	-72.07255	41.25655	-72.06031	24	12	NNE	<2	B4	0.5-1	Cloudy	None	1.7	21	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:39	41.25655	-72.06031	41.23049	-72.09503	25	12	NE	<2	B4	0.5-1	Cloudy	None	5	228	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:39	12:00	41.23049	-72.09503	41.23293	-72.08346	62	12	NE	<2	B4	1-2	Cloudy	None	4	107	Deploying/Retrieving	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	12:27	41.23293	-72.08346	41.24366	-72.09256	74	12	NNE	<2	B4	2-5	Cloudy	None	1.7	355	Deploying/Retrieving	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:27	12:49	41.24366	-72.09256	41.23002	-72.09901	85	11	NNE	<2	B3	>5	Cloudy	None	2.8	338	Soft Start	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:49	13:00	41.23002	-72.09901	41.22652	-72.08642	77	10	NNE	<2	B3	>5	Cloudy	None	4.2	135	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.22652	-72.08642	41.24771	-72.07114	75	7	NNW	<2	B3	>5	Cloudy	None	3.3	31	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.24771	-72.07114	41.22383	-72.09075	46	15	NNE	<2	B4	>5	Cloudy	None	4.4	28	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.22383	-72.09075	41.2392	-72.0874	56	15	NNE	<2	B4	>5	Cloudy	None	3.9	18	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.2392	-72.0874	41.25804	-72.067	95	11	N	<2	B4	>5	Cloudy	None	4.6	234	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.25804	-72.067	41.21922	-72.09171	66	11	NW	<2	B4	>5	Cloudy	Severe	4.4	252	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	18:00	19:00	41.21922	-72.09171	41.23624	-72.08637	84	16	SW	<2	B4	>5	Cloudy	Moderate	4.3	130	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:00	20:00	41.23624	-72.08637	41.25165	-72.06854	84	7	E	<2	B3	>5	Cloudy	Slight	4.9	231	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:00	20:53	41.25165	-72.06854	41.22121	-72.09666	15	13	N	<2	B4	>5	Cloudy	Slight	4.6	44	Full Power	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:53	21:00	41.22121	-72.09666	41.22415	-72.10353	80	12	ENE	<2	B4	>5	Cloudy	Slight	3.9	283	Silent	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda	RPS	21:00	22:00	41.22415	-72.10353	41.25198	-72.07086	80	12	ENE	<2	B4	>5	Cloudy	Slight	3.9	283	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	23:00	41.25198	-72.07086	41.25403	-72.068	67	9	NNW	<2	B3	2-5	Cloudy	None	3.7	94	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	23:42	41.25403	-72.068	41.2243	-72.08713	56	9	WNW	<2	B3	1-2	Cloudy	None	2.6	351	Standby	N/A
2023-01-16	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:42	00:00	41.2243	-72.08713	41.21458	-72.09488	70	16	NW	<2	B4	1-2	Cloudy	None	2.3	201	Soft Start	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:00	01:00	41.23939	-72.07815	41.23751	-72.08679	68	11	N	<2	B4	0.5-1	Cloudy	None	3.2	324	Soft Start	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:00	02:00	41.23751	-72.08679	41.24087	-72.08411	63	6	ENE	<2	B3	0.5-1	Cloudy	None	4.6	246	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	03:00	41.24087	-72.08411	41.24635	-72.07783	91	5	NNW	<2	B4	0.5-1	Clear	None	4.6	239	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:00	04:00	41.24635	-72.07783	41.24586	-72.07881	93	7	NNW	<2	B3	0.5-1	Clear	None	4.5	263	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:00	41.24586	-72.07881	41.25532	-72.0674	93	7	NNW	<2	B3	0.5-1	Clear	None	4.5	263	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:00	06:00	41.25532	-72.0674	41.23145	-72.09008	45	8	ENE	<2	B3	0.5-1	Clear	None	4.4	72	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	07:00	41.23145	-72.09008	41.23592	-72.08977	63	9	SE	<2	B3	0.5-1	Clear	None	4.5	33	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.23592	-72.08977	41.25444	-72.07217	77	5	NNE	<2	B3	0.5-1	Clear	None	4.3	221	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.25444	-72.07217	41.24461	-72.07967	62	7	NE	<2	B3	0.5-1	Clear	None	4.1	237	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.24461	-72.07967	41.22709	-72.08785	75	14	E	<2	B4	0.5-1	Clear	None	3.6	57	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.22709	-72.08785	41.25427	-72.07393	78	12	W	<2	B4	0.5-1	Clear	None	3.9	207	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:45	41.25427	-72.07393	41.23717	-72.10512	65	15	W	<2	B4	0.5-1	Clear	None	3.9	189	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:45	11:52	41.23717	-72.10512	41.24566	-72.10336	62	13	ENE	<2	B4	1-2	Clear	None	4.6	16	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:52	12:00	41.24566	-72.10336	41.25286	-72.09912	62	13	ENE	<2	B4	2-5	Clear	None	5.1	14	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	13:00	41.25286	-72.09912	41.23541	-72.06619	58	17	NNE	2-4	B5	>5	Clear	None	3.9	107	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.23541	-72.06619	41.24088	-72.08851	79	18	WNW	2-4	B5	>5	Clear	Severe	4.2	274	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.24088	-72.08851	41.22897	-72.08507	94	11	WNW	<2	B4	>5	Cloudy	Severe	4.4	25	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.22897	-72.08507	41.25771	-72.08287	105	15	W	<2	B4	>5	Cloudy	Severe	3.6	245	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	16:56	41.25771	-72.08287	41.25149	-72.0713	42	14	W	<2	B4	>5	Cloudy	Severe	2	260	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:56	17:00	41.25149	-72.0713	41.25501	-72.07226	42	12	SW	<2	B4	>5	Cloudy	Severe	4.1	327	Silent	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	17:16	41.25501	-72.07226	41.26008	-72.0673	26	8	NE	<2	B3	>5	Cloudy	Severe	1.4	71	Silent	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:16	18:00	41.26008	-72.0673	41.24463	-72.07639	26	8	NE	<2	B3	>5	Cloudy	Severe	1.4	71	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	18:00	19:00	41.24463	-72.07639	41.25418	-72.06014	26	6	SSW	<2	B3	>5	Cloudy	Moderate	5.2	37	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:00	19:23	41.25418	-72.06014	41.24413	-72.084	17	16	N	<2	B4	>5	Cloudy	Slight	4	275	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:23	19:31	41.24413	-72.084	41.24779	-72.07437	77	16	N	<2	B4	>5	Cloudy	Slight	4	69	Silent	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:31	20:00	41.24779	-72.07437	41.26175	-72.05657	77	15	N	<2	B4	>5	Cloudy	Slight	4	69	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:00	21:00	41.26175	-72.05657	41.24445	-72.08099	20	11	NNE	<2	B4	>5	Cloudy	None	3.7	242	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda	RPS	21:00	22:00	41.24445	-72.08099	41.2032	-72.05805	88	8	W	<2	B3	>5	Cloudy	None	3.8	190	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	23:00	41.2032	-72.05805	41.21011	-72.04703	72	6	W	<2	B3	2-5	Cloudy	None	3.5	173	Full Power	N/A
2023-01-17	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	00:00	41.21011	-72.04703	41.20893	-72.05635	30	7	SSW	<2	B3	1-2	Cloudy	None	2.6	198	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	00:00	01:00	41.20322	-72.04394	41.20949	-72.04755	35	7	WNW	<2	B3	1-2	Cloudy	None	3.7	135	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:00	02:00	41.20949	-72.04755	41.21818	-72.05675	31	7	NW	<2	B3	1-2	Cloudy	None	3.3	315	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	03:00	41.21818	-72.05675	41.24983	-72.09255	26	5	W	<2	B2	1-2	Cloudy	None	3.8	280	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:00	04:00	41.24983	-72.09255	41.23861	-72.10622	77	5	WSW	<2	B2	1-2	Cloudy	None	4.2	188	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:00	41.23861	-72.10622	41.23121	-72.13518	74	5	W	<2	B2	1-2	Cloudy	None	3.4	289	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:00	06:00	41.23121	-72.13518	41.23143	-72.15708	83	6	WSW	<2	B2	1-2	Cloudy	None	4	69	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	07:00	41.23143	-72.15708	41.26109	-72.20042	60	3	WNW	<2	B2	1-2	Cloudy	None	4	312	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	08:00	41.26109	-72.20042	41.25644	-72.17995	40	12	WSW	<2	B4	1-2	Cloudy	None	4.9	104	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.25644	-72.17995	41.23646	-72.17127	38	3	NNE	<2	B2	1-2	Cloudy	None	3.4	222	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.23646	-72.17127	41.25426	-72.1616	41	4	SW	<2	B2	1-2	Cloudy	None	5	212	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	11:00	41.25426	-72.1616	41.2541	-72.19019	72	6	S	<2	B2	1-2	Cloudy	None	4.7	319	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:50	41.2541	-72.19019	41.27833	-72.17898	36	5	WNW	<2	B2	1-2	Cloudy	None	3.8	189	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:50	12:00	41.27833	-72.17898	41.27378	-72.19128	20	5	WNW	<2	B2	2-5	Cloudy	None	4.1	266	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	13:00	41.27378	-72.19128	41.25178	-72.18357	31	6	W	<2	B2	>5	Cloudy	None	3.8	171	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	13:00	14:00	41.25178	-72.18357	41.25648	-72.17658	49	4	N	<2	B2	>5	Cloudy	None	4.4	202	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	14:00	15:00	41.25648	-72.17658	41.25155	-72.18341	48	8	WSW	<2	B3	>5	Cloudy	None	3.2	318	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	15:00	16:00	41.25155	-72.18341	41.21504	-72.15855	43	6	NW	<2	B2	>5	Cloudy	Moderate	4.3	185	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Mohammed, Kristal	RPS	16:00	17:00	41.21504	-72.15855	41.22626	-72.15041	54	7	WNW	<2	B3	>5	Clear	Severe	5.8	165	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	17:00	18:00	41.22626	-72.15041	41.24127	-72.18581	66	9	WSW	<2	B3	>5	Clear	Severe	4	318	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	18:00	19:00	41.24127	-72.18581	41.22679	-72.14013	44	10	NE	<2	B3	>5	Clear	Severe	4.2	195	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Pfiefer, MacKenzie	RPS	19:00	20:00	41.22679	-72.14013	41.22637	-72.14334	69	12	SSW	<2	B4	>5	Clear	Moderate	4.2	132	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	20:00	21:00	41.22637	-72.14334	41.24316	-72.11563	42	19	NW	<2	B5	>5	Clear	Severe	4.6	42	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda	RPS	21:00	22:00	41.24316	-72.11563	41.23592	-72.06572	66	14	E	<2	B4	>5	Clear	Moderate	4.7	60	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Pfiefer, MacKenzie	RPS	22:00	23:00	41.23592	-72.06572	41.23034	-72.05427	68	16	ENE	<2	B4	2-5	Clear	None	2.8	127	Full Power	N/A
2023-01-18	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Miranda, Sergio	RPS	23:00	00:00	41.23034	-72.05427	41.24245	-72.07942	87	7	NW	<2	B3	1-2	Clear	None	5.5	338	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:00	00:54	41.25118	-72.07756	41.22098	-72.08864	90	6	NNE	<2	B3	1-2	Clear	None	3.1	20	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	00:54	01:05	41.22098	-72.08864	41.23388	-72.08279	72	5	ESE	<2	B3	1-2	Clear	None	5.8	25	Silent	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:05	01:33	41.23388	-72.08279	41.25844	-72.08289	63	5	N	<2	B3	1-2	Clear	None	3.2	18	Silent	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:33	01:36	41.25844	-72.08289	41.25491	-72.08562	63	5	N	<2	B3	1-2	Clear	None	3.2	18	Soft Start	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	01:36	02:00	41.25491	-72.08562	41.25345	-72.08181	63	5	N	<2	B3	1-2	Clear	None	3.2	18	Silent	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:00	02:04	41.25345	-72.08181	41.25196	-72.08898	58	6	W	<2	B3	1-2	Clear	None	5	258	Silent	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:04	02:27	41.25196	-72.08898	41.24313	-72.12052	57	6	W	<2	B3	1-2	Clear	None	3.5	253	Soft Start	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	02:27	03:01	41.24313	-72.12052	41.22436	-72.15027	57	6	W	<2	B3	1-2	Clear	None	3.5	253	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	03:01	04:00	41.22436	-72.15027	41.2749	-72.1829	62	14	NNW	<2	B3	1-2	Clear	None	3.4	316	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	04:00	05:03	41.2749	-72.1829	41.26832	-72.17975	19	3	N	<2	B3	1-2	Clear	None	3	325	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Pfiefer, MacKenzie	RPS	05:03	06:00	41.26832	-72.17975	41.25171	-72.18157	24	10	NW	<2	B3	1-2	Clear	None	4	28	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Pfiefer, MacKenzie	RPS	06:00	07:00	41.25171	-72.18157	41.23241	-72.16617	41	4	W	<2	B3	1-2	Clear	None	5	145	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:00	07:29	41.23241	-72.16617	41.23028	-72.15381	59	6	WNW	<2	B3	1-2	Clear	None	3.9	142	Full Power	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:29	07:30	41.23028	-72.15381	41.23028	-72.15496	59	7	NNW	<2	B3	1-2	Clear	None	3	281	Silent	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:30	07:48	41.23028	-72.15496	41.23	-72.17476	59	7	NNW	<2	B3	1-2	Clear	None	3	281	Deploying/Retrieving	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	07:48	08:00	41.23	-72.17476	41.23018	-72.18582	59	7	NNW	<2	B3	1-2	Clear	None	3	281	Standby	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Mohammed, Kristal	RPS	08:00	09:00	41.23018	-72.18582	41.22839	-72.24642	45	7	WNW	<2	B3	1-2	Clear	None	0.7	288	Standby	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Gomez Ortiz, Brenda; Miranda, Sergio	RPS	09:00	10:00	41.22839	-72.24642	41.22422	-72.24198	39	9	E	<2	B3	1-2	Clear	None	8	92	Standby	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:00	10:31	41.22422	-72.24198	41.22665	-72.26063	39	9	E	<2	B3	1-2	Clear	None	8	92	Standby	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Miranda, Sergio; Mohammed, Kristal	RPS	10:31	11:00	41.22665	-72.26063	41.24427	-72.18632	39	9	E	<2	B3	1-2	Clear	None	8	92	Transit	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:00	11:45	41.24427	-72.18632	41.29881	-72.07883	21	7	NW	<2	B3	1-2	Clear	None	7	60	Transit	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda; Mohammed, Kristal	RPS	11:45	12:00	41.29881	-72.07883	41.33629	-72.08424	12	8	N	<2	B3	2-5	Clear	None	9.1	8	Transit	N/A
2023-01-19	*Brooks McCall*	HRG	Visual	Bravo, Esmeralda	RPS	12:00	12:47	41.33629	-72.08424	41.433	-72.09655	12	7	W	<2	B3	>5	Clear	None	9.1	9	Transit	N/A
Lease OCS-A -0544																							
2022-08-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	00:00	41.62146	-70.91354	41.62322	-70.91355	2.4	8	SW	<2	B2	>5	Clear	None	0.8	173	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:26	41.62712	-70.91478	41.58733	-70.88315	1.8	7.7	SSW	<2	B1	>5	Clear	None	5.9	356	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:26	00:44	41.58733	-70.88315	41.55264	-70.85879	0.7	7.7	SSW	<2	B1	2-5	Clear	None	8	153	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:44	00:59	41.55264	-70.85879	41.52438	-70.84252	1.3	13.9	SSW	<2	B1	1-2	Fog	None	7.5	155	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	00:59	01:46	41.52438	-70.84252	41.47515	-70.95456	12.9	15	SW	<2	B4	0.1-0.3	Fog	None	7.1	202	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:46	02:00	41.47515	-70.95456	41.46010	-70.98799	21.3	13.8	SW	<2	B4	0.3-0.5	Fog	None	7.4	245	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:27	41.46010	-70.98799	41.41971	-71.04077	21.7	9.7	SSW	<2	B4	0.3-0.5	Fog	None	7.7	235	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:27	02:59	41.41971	-71.04077	41.37662	-71.10839	21.7	9.7	SSW	<2	B4	0.1-0.3	Fog	None	7.7	235	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	02:59	03:23	41.37662	-71.10839	41.34730	-71.16116	29	12	SSW	<2	B4	0.1-0.3	Fog	None	7.4	233	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:23	04:04	41.34730	-71.16116	41.28369	-71.23228	29	12	SSW	<2	B4	0.5-1	Clear	None	7.4	233	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:04	04:58	41.28369	-71.23228	41.19798	-71.32266	32.9	9.3	SW	<2	B3	0.5-1	Clear	None	7.4	214	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	04:58	06:16	41.19798	-71.32266	41.07864	-71.45787	34.7	8.7	SW	<2	B3	0.5-1	Clear	None	7.3	217	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:16	06:59	41.07864	-71.45787	41.01608	-71.53806	26.8	9.2	S	<2	B3	0.5-1	Clear	None	7.3	222	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	06:59	08:03	41.01608	-71.53806	40.91764	-71.65558	46	12	SSW	<2	B3	0.5-1	Clear	None	7.3	227	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:03	09:00	40.91764	-71.65558	40.82857	-71.75221	47.8	13	SSW	<2	B3	0.5-1	Clear	None	7.7	220	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:24	40.82857	-71.75221	40.79008	-71.79173	45	12	W	<2	B3	1-2	Clear	None	7.5	221	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:24	10:05	40.79008	-71.79173	40.72972	-71.87172	45	12	W	<2	B3	1-2	Clear	None	7.5	221	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:05	10:59	40.72972	-71.87172	40.65601	-71.98192	47.5	13	W	<2	B3	>5	Clear	None	7.4	226	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:59	12:01	40.65601	-71.98192	40.55914	-72.09810	47.5	12	W	<2	B3	>5	Cloudy	None	7.4	226	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:01	13:00	40.55914	-72.09810	40.46724	-72.21057	54.2	20	W	<2	B4	>5	Cloudy	None	7.4	221	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.46724	-72.21057	40.38339	-72.33817	57.9	13	SW	<2	B4	>5	Cloudy	None	7.6	223	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:05	40.38339	-72.33817	40.33164	-72.49881	54.8	13	WSW	<2	B4	>5	Cloudy	None	7.6	244	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:05	16:00	40.33164	-72.49881	40.29137	-72.63163	52.1	14	SE	<2	B4	>5	Cloudy	Slight	7.6	250	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:56	40.29137	-72.63163	40.26141	-72.77403	50.2	18	SW	<2	B4	>5	Cloudy	None	7.3	245	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	16:56	17:24	40.26141	-72.77403	40.25880	-72.84714	50.2	13.4	SW	<2	B4	>5	Cloudy	None	7.3	253	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	17:24	18:02	40.25880	-72.84714	40.25528	-72.93723	50	13	SW	<2	B4	>5	Cloudy	None	7.3	253	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:02	18:19	40.25528	-72.93723	40.24662	-72.94861	50.2	10.8	SSW	<2	B4	>5	Cloudy	None	4.1	258	Transit	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:19	19:00	40.24662	-72.94861	40.24471	-72.94179	44.5	14.4	SSW	<2	B4	>5	Cloudy	None	0.6	134	Deploying/Retrieving	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:17	40.24471	-72.94179	40.24358	-72.96115	45.4	15.1	SSW	<2	B4	>5	Cloudy	None	2.1	228	Deploying/Retrieving	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:17	19:57	40.24358	-72.96115	40.23890	-72.96177	45.4	15.1	SSW	<2	B4	>5	Cloudy	None	5	357	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:57	20:11	40.23890	-72.96177	40.23038	-72.96472	48	14	SSW	<2	B4	>5	Cloudy	None	2.4	195	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:11	20:15	40.23038	-72.96472	40.22823	-72.96544	48	14	SSW	<2	B4	>5	Cloudy	None	2.4	195	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:15	21:07	40.22823	-72.96544	40.19609	-72.96792	48	14	SSW	<2	B4	>5	Cloudy	None	2.4	195	Deploying/Retrieving	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:07	21:29	40.19609	-72.96792	40.18138	-72.95257	47	7.8	S	<2	B4	>5	Clear	Severe	2.9	148	Deploying/Retrieving	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:29	21:49	40.18138	-72.95257	40.19052	-72.96517	47	7.8	S	<2	B3	>5	Clear	Severe	3.4	161	Soft Start	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:49	22:00	40.19052	-72.96517	40.20351	-72.97294	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	330	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:04	40.20351	-72.97294	40.20808	-72.97452	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:04	22:13	40.20808	-72.97452	40.21927	-72.97860	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Testing	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:13	22:14	40.21927	-72.97860	40.22109	-72.97933	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:14	22:35	40.22109	-72.97933	40.24710	-72.98947	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:35	22:39	40.24710	-72.98947	40.25124	-72.98911	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:39	23:00	40.25124	-72.98911	40.27693	-72.98827	47	7.8	S	<2	B3	>5	Clear	Severe	4.4	340	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:37	40.27693	-72.98827	40.32380	-72.98689	47	10	S	<2	B3	>5	Clear	Severe	4.4	340	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:37	23:39	40.32380	-72.98689	40.32708	-72.98680	41	11	NE	<2	B3	>5	Clear	Slight	4.4	340	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:39	23:51	40.32708	-72.98680	40.32725	-72.97207	41	11	NE	<2	B3	>5	Clear	Slight	4.5	0	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:51	23:54	40.32725	-72.97207	40.32341	-72.97308	41	11	NE	<2	B3	>5	Clear	Slight	4.5	0	Silent	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.32341	-72.97308	40.32162	-72.97300	41	11	NE	<2	B3	>5	Clear	Slight	4.5	0	Full Power	N/A
2022-08-05	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:35	40.31762	-72.97294	40.27134	-72.97429	42.7	8.6	SSW	<2	B3	>5	Cloudy	None	4.5	179	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:35	00:44	40.27134	-72.97429	40.26042	-72.97473	44.1	8	SSW	<2	B3	2-5	Cloudy	None	4.2	179	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:44	00:45	40.26042	-72.97473	40.25910	-72.97465	44.1	8	SSW	<2	B3	0.5-1	Cloudy	None	4.2	179	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:45	00:56	40.25910	-72.97465	40.24460	-72.97682	44.1	9	S	<2	B3	0.5-1	Cloudy	None	4.2	179	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	00:56	01:05	40.24460	-72.97682	40.24605	-72.98882	44.5	8	S	<2	B3	0.5-1	Cloudy	None	4.7	240	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:05	01:09	40.24605	-72.98882	40.25156	-72.98937	44.5	8	S	<2	B3	0.5-1	Cloudy	None	4.7	240	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:09	01:58	40.25156	-72.98937	40.31388	-72.98755	44.5	8	S	<2	B3	0.5-1	Cloudy	None	4.7	1	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:58	02:05	40.31388	-72.98755	40.32421	-72.98728	48.2	9.9	S	<2	B3	0.5-1	Cloudy	None	4.9	3.8	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:05	02:07	40.32421	-72.98728	40.32730	-72.98724	48.2	9.9	S	<2	B3	0.5-1	Cloudy	None	4.9	3.8	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:07	02:20	40.32730	-72.98724	40.32919	-72.97343	48.2	9.9	S	<2	B3	0.5-1	Cloudy	None	4.9	3.8	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:20	02:25	40.32919	-72.97343	40.32202	-72.97312	48.2	9.9	S	<2	B3	0.5-1	Cloudy	None	4.9	3.8	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:25	03:00	40.32202	-72.97312	40.27796	-72.97449	48.2	9.9	S	<2	B3	0.5-1	Cloudy	None	4.9	182	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:13	40.27796	-72.97449	40.26112	-72.97495	43.3	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	176	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:13	03:14	40.26112	-72.97495	40.25983	-72.97499	43.3	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	176	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:14	03:40	40.25983	-72.97499	40.24719	-72.98966	43.3	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	176	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:40	03:43	40.24719	-72.98966	40.25126	-72.98970	43.3	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	359	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:43	04:00	40.25126	-72.98970	40.27390	-72.98908	43.3	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	359	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:38	40.27390	-72.98908	40.32359	-72.98770	44	12	SW	<2	B3	0.5-1	Cloudy	None	4.7	0	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:38	04:40	40.32359	-72.98770	40.32613	-72.98750	45	13	SW	<2	B3	0.5-1	Cloudy	None	4.4	1	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:40	04:54	40.32613	-72.98750	40.32722	-72.97343	45	13	SW	<2	B3	0.5-1	Cloudy	None	4.4	1	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:54	04:57	40.32722	-72.97343	40.32344	-72.97344	45	13	SW	<2	B3	0.5-1	Cloudy	None	4.4	185	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:57	05:00	40.32344	-72.97344	40.31958	-72.97357	45	13	SW	<2	B3	0.5-1	Cloudy	None	4.4	185	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:48	40.31958	-72.97357	40.26086	-72.97534	44	12	SW	<2	B3	0.5-1	Cloudy	None	3.7	186	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:48	05:50	40.26086	-72.97534	40.25731	-72.97547	44	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	184	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:50	06:00	40.25731	-72.97547	40.24967	-72.98139	44	14	SW	<2	B3	0.5-1	Cloudy	None	4.2	184	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:10	40.24967	-72.98139	40.24274	-72.98772	44	14	SW	<2	B3	0.5-1	Cloudy	None	3.4	218	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:10	06:57	40.24274	-72.98772	40.22867	-73.01537	45	14	SW	<2	B3	0.5-1	Cloudy	None	3.5	217	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	06:57	08:00	40.22867	-73.01537	40.19697	-73.02761	45	11	SW	<2	B3	0.5-1	Cloudy	None	4	48	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:58	40.19697	-73.02761	40.21324	-73.01390	44	11	SW	<2	B3	0.5-1	Clear	None	4	8	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	08:58	09:24	40.21324	-73.01390	40.21676	-73.00490	45	12	SSW	<2	B3	0.5-1	Clear	None	2.8	272	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:24	09:50	40.21676	-73.00490	40.19654	-73.01791	45	12	SSW	<2	B3	1-2	Clear	None	2.8	185	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:50	10:00	40.19654	-73.01791	40.19476	-73.02711	46	13	SSW	<2	B3	>5	Clear	None	3	222	Soft Start	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:10	40.19476	-73.02711	40.20586	-73.01886	44	13	SSW	<2	B3	>5	Clear	None	4.6	18	Soft Start	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:10	10:25	40.20586	-73.01886	40.22498	-73.01873	45	13	SSW	<2	B3	>5	Clear	None	4.5	350	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:25	10:29	40.22498	-73.01873	40.23022	-73.01859	45	12	SSW	<2	B3	>5	Clear	None	4.7	356	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:29	11:00	40.23022	-73.01859	40.26822	-73.01757	45	12	SSW	<2	B3	>5	Clear	None	4.7	356	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:38	40.26822	-73.01757	40.31589	-73.01608	44	13	SSW	<2	B3	>5	Clear	Moderate	4.6	0	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:38	11:38	40.31589	-73.01608	40.31589	-73.01608	43	10	SSW	<2	B3	>5	Clear	Severe	4.7	0	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:38	12:00	40.31589	-73.01608	40.34323	-73.01268	43	10	SW	<2	B3	>5	Clear	Severe	4.7	0	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:17	40.34323	-73.01268	40.32709	-73.00119	41	8	NW	<2	B3	>5	Clear	Severe	4.5	141	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:17	12:20	40.32709	-73.00119	40.32323	-73.00131	40	11	WSW	<2	B3	>5	Clear	Severe	4.6	183	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:20	13:00	40.32323	-73.00131	40.27190	-73.00288	40	11	SW	<2	B3	>5	Clear	Severe	4.6	183	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:25	40.27190	-73.00288	40.23952	-73.00383	43	9	SW	<2	B3	>5	Clear	Severe	4.7	181	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:25	13:26	40.23952	-73.00383	40.23822	-73.00387	44	11	WSW	<2	B3	>5	Clear	Severe	4.2	163	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:26	13:49	40.23822	-73.00387	40.22572	-73.01866	44	11	WSW	<2	B3	>5	Clear	Severe	4.2	163	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:49	13:53	40.22572	-73.01866	40.23072	-73.01887	45	10	SW	<2	B3	>5	Clear	Severe	4.3	351	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:53	14:02	40.23072	-73.01887	40.24234	-73.01856	45	10	SW	<2	B3	>5	Clear	Severe	4.3	351	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:02	14:59	40.24234	-73.01856	40.31436	-73.01650	44	10	WSW	<2	B3	>5	Clear	Severe	4.5	0	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:59	15:00	40.31436	-73.01650	40.31658	-73.01651	40	9	NE	<2	B3	>5	Clear	Severe	4.7	358	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:23	40.31658	-73.01651	40.32881	-73.00215	40	9	NE	<2	B3	>5	Clear	Severe	4.7	358	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:23	15:27	40.32881	-73.00215	40.32363	-73.00168	41	9	SW	<2	B3	>5	Clear	Severe	4.6	181	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:27	16:02	40.32363	-73.00168	40.27649	-73.00310	41	9	SW	<2	B3	>5	Clear	Severe	4.6	181	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:02	16:31	40.27649	-73.00310	40.23922	-73.00420	43	13	SW	<2	B3	>5	Clear	Severe	4.7	181	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:31	16:32	40.23922	-73.00420	40.23758	-73.00424	43	13	SW	<2	B3	>5	Clear	Severe	4.7	181	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:32	16:40	40.23758	-73.00424	40.22699	-73.00553	43	13	SW	<2	B3	>5	Clear	Severe	4.7	181	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:40	16:52	40.22699	-73.00553	40.22622	-73.01856	43	13	SW	<2	B3	>5	Clear	Severe	4.7	181	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:52	16:55	40.22622	-73.01856	40.23016	-73.01923	45	11	NE	<2	B3	>5	Clear	Severe	4.7	1	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:55	16:59	40.23016	-73.01923	40.23597	-73.01909	45	11	NE	<2	B3	>5	Clear	Severe	4.7	1	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:59	17:52	40.23597	-73.01909	40.30442	-73.01716	45	11	NE	<2	B3	>5	Clear	Severe	4.7	1	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:52	17:57	40.30442	-73.01716	40.31047	-73.01699	45	11	NE	<2	B3	>5	Clear	Severe	4.7	1	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	17:57	18:22	40.31047	-73.01699	40.31505	-73.00298	43.8	16	SW	<2	B3	>5	Clear	Slight	4.6	10.2	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:22	18:42	40.31505	-73.00298	40.29324	-73.00665	43.8	16	SW	<2	B3	>5	Clear	Moderate	4.6	10.2	Soft Start	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:42	18:50	40.29324	-73.00665	40.29650	-73.01705	41.8	18	SW	<2	B3	>5	Clear	Moderate	4	236	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:50	18:53	40.29650	-73.01705	40.29997	-73.01719	41.8	18	SW	<2	B3	>5	Clear	Moderate	4	236	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:53	19:03	40.29997	-73.01719	40.31302	-73.01694	41	15	SSW	<2	B4	>5	Clear	Severe	4	356	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:03	19:05	40.31302	-73.01694	40.31634	-73.01687	40.5	16.2	SSW	<2	B4	>5	Clear	Severe	4.5	354	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:05	19:27	40.31634	-73.01687	40.32659	-73.00211	40.5	16.2	SSW	<2	B4	>5	Clear	Severe	4.5	354	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:27	19:30	40.32659	-73.00211	40.32289	-73.00203	40.5	16.2	SSW	<2	B4	>5	Clear	Severe	4.5	354	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:30	19:57	40.32289	-73.00203	40.29015	-73.00310	40.5	16.2	SSW	2-4	B4	>5	Clear	Severe	4.5	354	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:57	20:38	40.29015	-73.00310	40.24292	-73.00448	42.8	20	SW	2-4	B4	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:38	20:42	40.24292	-73.00448	40.23815	-73.00457	42.8	20	SW	2-4	B4	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:42	20:53	40.23815	-73.00457	40.22713	-73.01052	42.8	20	SW	2-4	B4	>5	Clear	Severe	4.3	180	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:53	21:00	40.22713	-73.01052	40.22180	-73.01628	44.7	20	SSW	2-4	B4	>5	Clear	Severe	4.3	214	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:48	40.22180	-73.01628	40.19515	-73.06243	44.5	16.4	SSW	2-4	B4	>5	Clear	Severe	3.8	214	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:48	21:51	40.19515	-73.06243	40.19948	-73.06237	44.5	16.4	SSW	2-4	B4	>5	Clear	Severe	4.5	357	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:51	21:59	40.19948	-73.06237	40.20940	-73.06229	44.5	16.4	SSW	2-4	B4	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:59	23:00	40.20940	-73.06229	40.28610	-73.06011	44.5	17	SSW	2-4	B4	>5	Clear	Severe	4.5	354	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:15	40.28610	-73.06011	40.30503	-73.05956	44.5	17	SSW	2-4	B4	>5	Clear	Severe	4.5	354	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:16	40.30503	-73.05956	40.30584	-73.05954	44.5	17	SSW	2-4	B4	>5	Clear	Severe	4.5	354	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:16	23:48	40.30584	-73.05954	40.31566	-73.04468	44.5	17	SSW	2-4	B4	>5	Clear	Moderate	4.5	354	Full Power	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	23:51	40.31566	-73.04468	40.31285	-73.04477	38	20	SW	2-4	B4	>5	Clear	None	3.8	192	Silent	N/A
2022-08-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:51	00:00	40.31285	-73.04477	40.30541	-73.04496	38	20	SW	2-4	B4	>5	Clear	None	3.8	192	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:33	40.30262	-73.04505	40.26333	-73.04614	44	17.9	SSW	2-4	B4	>5	Cloudy	None	4.5	175	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:33	01:00	40.26333	-73.04614	40.23193	-73.04708	44	20	SW	2-4	B4	1-2	Clear	None	3.5	180	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:22	40.23193	-73.04708	40.20913	-73.04772	44	18.3	SSW	2-4	B4	0.5-1	Clear	None	4.2	190	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:22	01:24	40.20913	-73.04772	40.20685	-73.04781	44	18.3	SSW	2-4	B4	0.5-1	Clear	None	4.2	190	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:24	01:56	40.20685	-73.04781	40.19555	-73.06295	44	18.3	SSW	2-4	B4	0.5-1	Clear	None	4.2	190	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:56	01:58	40.19555	-73.06295	40.19822	-73.06290	44.8	19.3	SSW	2-4	B4	0.5-1	Clear	None	4.2	4	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:58	03:00	40.19822	-73.06290	40.27858	-73.06060	44.8	19.3	SSW	2-4	B4	0.5-1	Clear	None	4.6	4	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:19	40.27858	-73.06060	40.30299	-73.05992	45	18	SW	2-4	B4	0.5-1	Clear	None	4.6	357	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:19	03:21	40.30299	-73.05992	40.30565	-73.05982	45	18	SW	2-4	B4	0.5-1	Clear	None	4.6	357	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:21	03:47	40.30565	-73.05982	40.31625	-73.04497	45	18	SW	2-4	B4	0.5-1	Clear	None	4.6	357	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:47	03:49	40.31625	-73.04497	40.31401	-73.04505	45	18	SW	2-4	B5	0.5-1	Clear	None	4.6	357	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:49	04:00	40.31401	-73.04505	40.30214	-73.04538	41.2	20.4	SW	2-4	B5	0.5-1	Cloudy	None	4.6	194	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.30214	-73.04538	40.23730	-73.04725	41.2	20.4	SW	2-4	B5	0.5-1	Cloudy	None	4.2	185	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:25	40.23730	-73.04725	40.20845	-73.04814	44	18	SW	2-4	B5	0.5-1	Clear	None	4	189	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:25	05:26	40.20845	-73.04814	40.20728	-73.04818	46	20	SW	2-4	B5	0.5-1	Clear	None	4	189	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:26	05:54	40.20728	-73.04818	40.19428	-73.06325	46	19	SW	2-4	B5	0.5-1	Clear	None	4.2	189	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:54	05:57	40.19428	-73.06325	40.19805	-73.06325	45	19	SW	2-4	B5	0.5-1	Cloudy	None	4.4	356	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:57	07:00	40.19805	-73.06325	40.27715	-73.06104	45	20	SW	2-4	B5	0.5-1	Cloudy	None	4.5	355	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:22	40.27715	-73.06104	40.30417	-73.06025	42	17.4	SW	2-4	B5	0.5-1	Cloudy	None	4.5	354	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:22	07:23	40.30417	-73.06025	40.30541	-73.06021	42	18	SW	2-4	B5	0.5-1	Cloudy	None	4.4	353	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:23	07:49	40.30541	-73.06021	40.31659	-73.04507	42	18	SW	2-4	B5	0.5-1	Cloudy	None	4.5	354	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:49	07:52	40.31659	-73.04507	40.31309	-73.04533	39	20	SW	2-4	B5	0.5-1	Cloudy	None	4.4	193	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:52	08:00	40.31309	-73.04533	40.30409	-73.04568	39	20	SW	2-4	B5	0.5-1	Cloudy	None	4.4	193	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.30409	-73.04568	40.23639	-73.04769	42.8	20	WSW	2-4	B5	0.5-1	Cloudy	None	3.2	197	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:24	40.23639	-73.04769	40.20853	-73.04848	41	18	SW	2-4	B5	1-2	Cloudy	None	3.8	193	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:24	09:25	40.20853	-73.04848	40.20732	-73.04853	41	18	SW	2-4	B5	1-2	Cloudy	None	3.8	193	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:25	10:00	40.20732	-73.04853	40.17723	-73.07595	41	18	SW	2-4	B5	1-2	Cloudy	None	3.8	193	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:18	40.17723	-73.07595	40.17329	-73.09165	45	19	SW	2-4	B5	>5	Clear	Moderate	4.2	223	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:18	10:22	40.17329	-73.09165	40.17798	-73.09162	46	17	SW	2-4	B5	>5	Clear	Severe	4.1	347	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:22	11:00	40.17798	-73.09162	40.22298	-73.09044	46	17	SW	2-4	B5	>5	Clear	Severe	4.3	352	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.22298	-73.09044	40.29273	-73.08849	43	15	SW	2-4	B4	>5	Clear	Severe	4.3	351	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:01	40.29273	-73.08849	40.29391	-73.08844	41	13	SW	2-4	B4	>5	Clear	Moderate	4.2	359	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:01	12:02	40.29391	-73.08844	40.29507	-73.08842	41	13	SW	2-4	B4	>5	Clear	Slight	4.2	359	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:02	12:27	40.29507	-73.08842	40.30846	-73.07381	41	13	SW	2-4	B4	>5	Clear	Slight	4.2	359	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:27	12:31	40.30846	-73.07381	40.30331	-73.07394	43	13	SW	2-4	B4	>5	Clear	Slight	4.9	182	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:31	13:00	40.30331	-73.07394	40.26587	-73.07510	43	13	SW	2-4	B4	>5	Clear	Slight	4.9	182	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.26587	-73.07510	40.19355	-73.07702	42	16	SW	2-4	B5	>5	Cloudy	Slight	4.8	183	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:06	40.19355	-73.07702	40.18714	-73.07722	44	15	SW	<2	B4	>5	Cloudy	Slight	4.3	180	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:06	14:07	40.18714	-73.07722	40.18598	-73.07725	45	15	SW	<2	B4	>5	Cloudy	Slight	4.5	180	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:07	14:32	40.18598	-73.07725	40.17219	-73.09185	45	15	SW	<2	B4	>5	Cloudy	Slight	4.5	180	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:32	14:36	40.17219	-73.09185	40.17744	-73.09200	45	16	SW	<2	B4	>5	Clear	Moderate	4.5	359	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:36	15:00	40.17744	-73.09200	40.20741	-73.09112	45	15	SW	<2	B4	>5	Clear	Moderate	4.5	0	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.20741	-73.09112	40.28830	-73.08888	43	16	SW	<2	B4	>5	Clear	Severe	4.8	0	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:05	40.28830	-73.08888	40.29396	-73.08876	41	16	SSW	<2	B4	>5	Clear	Severe	4.7	2	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:05	16:06	40.29396	-73.08876	40.29551	-73.08870	41	16	SSW	<2	B4	>5	Clear	Severe	4.7	2	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:06	16:30	40.29551	-73.08870	40.30778	-73.07421	41	16	SSW	<2	B4	>5	Clear	Severe	4.7	2	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:30	16:34	40.30778	-73.07421	40.30248	-73.07433	41	16	SSW	<2	B4	>5	Clear	Severe	4.7	175	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:34	17:00	40.30248	-73.07433	40.27279	-73.07513	41	17	SW	<2	B5	>5	Clear	Severe	4.7	180	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.27279	-73.07513	40.20893	-73.07702	42	19	SW	<2	B5	>5	Cloudy	Moderate	3.4	183	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:23	40.20893	-73.07702	40.18486	-73.07770	43.2	20.6	SSW	<2	B5	>5	Cloudy	Slight	3.9	184	Full Power	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:23	18:40	40.18486	-73.07770	40.17623	-73.08463	43.2	20.6	SSW	2-4	B5	>5	Cloudy	Slight	3.9	184	Silent	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:40	19:00	40.17623	-73.08463	40.19469	-73.07848	43.2	20.6	SSW	2-4	B5	>5	Cloudy	Moderate	3.2	13	Deploying/Retrieving	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	20:00	40.19469	-73.07848	40.24853	-73.05195	42.6	19.7	SSW	2-4	B5	>5	Cloudy	Moderate	3.6	11	Deploying/Retrieving	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:23	40.24853	-73.05195	40.23015	-73.10055	41.7	23.5	SSW	2-4	B5	>5	Cloudy	Severe	3.1	260	Transit	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:23	21:00	40.23015	-73.10055	40.19740	-73.17498	41.7	23.5	SSW	2-4	B5	>5	Cloudy	Severe	6.4	260	Transit	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.19740	-73.17498	40.14780	-73.29293	41	22.8	SSW	2-4	B5	>5	Cloudy	Severe	6.2	235	Transit	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.14780	-73.29293	40.09948	-73.40229	39.3	25	NNE	2-4	B5	>5	Clear	Severe	6.2	240	Transit	N/A
2022-08-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.09948	-73.40229	40.05412	-73.51144	40	26	NNE	2-4	B5	>5	Clear	Slight	6.2	240	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:40	40.05067	-73.51957	40.01638	-73.59847	44.5	26.2	SSW	2-4	B5	>5	Cloudy	None	7.3	247	Transit	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:40	01:00	40.01638	-73.59847	39.99654	-73.64212	35.9	23	SSW	2-4	B5	1-2	Clear	None	6.5	238	Transit	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	39.99654	-73.64212	39.93881	-73.77236	28	23	SSW	2-4	B6	0.5-1	Clear	None	6.5	238	Transit	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	39.93881	-73.77236	39.88400	-73.91129	24.6	20.5	SSW	2-4	B6	0.5-1	Clear	None	7.1	230	Transit	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:40	39.88400	-73.91129	39.90631	-74.00614	22	19	SSW	<2	B4	0.5-1	Clear	None	7.6	249	Transit	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:40	04:00	39.90631	-74.00614	39.92921	-74.00450	22	19	SSW	<2	B4	0.5-1	Clear	None	7.6	249	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	39.92921	-74.00450	39.98532	-73.99819	24	15	SSW	<2	B3	0.5-1	Clear	None	3.3	9	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	39.98532	-73.99819	40.03614	-73.97362	21.6	14	SSW	<2	B3	0.5-1	Clear	None	3.4	4	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.03614	-73.97362	40.08901	-73.97203	23.7	12	SSW	<2	B3	0.5-1	Clear	None	3.3	20	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.08901	-73.97203	40.14429	-73.96433	23.7	12	SSW	<2	B3	0.5-1	Clear	None	3.3	20	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.14429	-73.96433	40.19941	-73.95301	20.4	12	SSW	<2	B3	0.5-1	Clear	None	3.3	7	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:27	40.19941	-73.95301	40.22500	-73.94931	20	11	SSW	<2	B3	0.5-1	Clear	None	3.3	6	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:27	10:00	40.22500	-73.94931	40.25466	-73.94369	20	11	SSW	<2	B3	2-5	Clear	None	3.3	6	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.25466	-73.94369	40.21243	-73.95104	16.7	12	SSW	<2	B3	>5	Clear	None	3.5	7	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.21243	-73.95104	40.13763	-73.96357	18	12	SSW	<2	B3	>5	Clear	Severe	4.3	184	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.13763	-73.96357	40.06761	-73.97184	18.2	13	SSW	<2	B3	>5	Clear	Severe	3.9	183	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:05	40.06761	-73.97184	39.99299	-73.98625	23.4	13	SSW	<2	B3	>5	Clear	Severe	4.2	192	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:05	15:00	39.99299	-73.98625	39.93099	-73.99745	20.4	16	SSW	<2	B4	>5	Clear	Severe	4.3	191	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	39.93099	-73.99745	39.87057	-74.01758	20.1	18	S	<2	B5	>5	Clear	Severe	4.1	188	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	39.87057	-74.01758	39.86160	-74.02269	15.4	21	SSW	<2	B5	2-5	Fog	Severe	3.3	189	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	39.86160	-74.02269	39.92484	-74.01617	14.3	21	S	<2	B5	2-5	Fog	Severe	3.8	4	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:29	39.92484	-74.01617	39.95707	-74.01416	17.7	21.1	SSW	<2	B5	2-5	Fog	None	3.9	14.4	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:29	19:00	39.95707	-74.01416	39.99140	-74.01143	17.7	21.1	SSW	<2	B5	2-5	Precipitation	None	3.9	14.4	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:59	39.99140	-74.01143	40.06107	-74.00528	19.4	22.9	S	<2	B5	2-5	Precipitation	None	3.8	10.2	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:59	21:00	40.06107	-74.00528	40.12725	-73.99211	18.6	22.3	S	<2	B5	2-5	Cloudy	None	4	2	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.12725	-73.99211	40.19338	-73.97538	13.9	22.9	S	<2	B5	2-5	Cloudy	Moderate	4.2	357	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.19338	-73.97538	40.25391	-73.95912	14.5	22	S	<2	B5	2-5	Fog	Severe	3.9	7	Standby	N/A
2022-08-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.25391	-73.95912	40.30757	-73.94434	15	19	S	<2	B5	2-5	Fog	Severe	3.9	8	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:25	40.31171	-73.94321	40.29321	-73.94948	13.4	17.3	SSW	2-4	B5	2-5	Fog	None	3.6	17.6	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:25	01:00	40.29321	-73.94948	40.25938	-73.95596	13.4	17.3	SSW	2-4	B5	1-2	Fog	None	3.7	179	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	40.25938	-73.95596	40.20156	-73.97473	13.7	17.6	SSW	2-4	B5	0.5-1	Fog	None	3.4	195	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.20156	-73.97473	40.14220	-73.98634	12.8	18.2	SSW	2-4	B5	0.5-1	Fog	None	3.2	189	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.14220	-73.98634	40.08100	-74.00085	13	17	SSW	<2	B3	0.5-1	Clear	None	3.6	184	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.08100	-74.00085	40.01959	-74.01641	16.1	15	SSW	<2	B3	0.5-1	Clear	None	3.6	187	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.01959	-74.01641	39.95876	-74.03231	20.1	15	SSW	<2	B3	0.5-1	Clear	None	3.5	191	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	39.95876	-74.03231	39.89600	-74.04391	17.3	15	SSW	<2	B3	0.5-1	Clear	None	3.5	191	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	39.89600	-74.04391	39.89622	-74.03608	16.3	13	SSW	<2	B4	0.5-1	Clear	None	3.8	178	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	39.89622	-74.03608	39.94968	-74.02776	16.9	13.5	SSW	<2	B4	0.5-1	Clear	None	3.4	6	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:30	39.94968	-74.02776	39.97579	-74.02366	16.3	10	S	<2	B3	0.5-1	Clear	None	3.3	5	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:30	10:00	39.97579	-74.02366	40.00063	-74.01956	16.3	10	S	<2	B3	1-2	Clear	None	3.3	5	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.00063	-74.01956	40.05022	-74.00841	17.6	8	S	<2	B3	>5	Clear	None	2.8	11	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.05022	-74.00841	40.10145	-73.99637	16.7	10	SSW	<2	B3	>5	Clear	Moderate	3	10	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.10145	-73.99637	40.15399	-73.98406	20.1	11	SSW	<2	B3	>5	Clear	Slight	3.5	10	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.15399	-73.98406	40.20671	-73.97266	18.8	7	SW	<2	B3	>5	Clear	Severe	3	9	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.20671	-73.97266	40.26174	-73.96263	17.9	9	S	<2	B3	>5	Clear	Severe	3.3	12	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.26174	-73.96263	40.31624	-73.95103	14	16	WSW	<2	B3	>5	Clear	Severe	3.5	6	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.31624	-73.95103	40.27042	-73.93672	12.4	8	SE	<2	B3	>5	Clear	Severe	3	15	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.27042	-73.93672	40.20938	-73.91909	53.8	17	N	<2	B3	>5	Clear	Slight	4	169	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.20938	-73.91909	40.26616	-73.90197	15.8	19.7	S	<2	B4	2-5	Fog	Slight	3.3	167	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	20:00	40.26616	-73.90197	40.36355	-73.89032	18.8	16.4	SSW	<2	B4	2-5	Fog	Slight	5.9	9.7	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	21:00	40.36355	-73.89032	40.47189	-73.89070	20.7	12.5	S	<2	B4	2-5	Fog	Slight	5.3	0.9	Standby	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.47189	-73.89070	40.52349	-73.99991	13.5	10.5	S	<2	B4	2-5	Fog	None	7	352	Transit	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.52349	-73.99991	40.60812	-74.04078	17.9	16.5	SW	<2	B4	2-5	Precipitation	None	5.5	294	Transit	N/A
2022-08-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:42	40.60812	-74.04078	40.66088	-74.07134	14.5	18	NW	<2	B2	2-5	Cloudy	None	5.5	343	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:11	40.66077	-74.07125	40.65023	-74.07290	12.1	1.8	SSE	<2	B1	>5	Cloudy	None	0.5	110	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:11	10:55	40.65023	-74.07290	40.56303	-74.03209	14.3	1.8	SSE	<2	B1	2-5	Precipitation	None	7.9	130	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:55	12:00	40.56303	-74.03209	40.47623	-73.90592	13.1	7	SSW	<2	B1	2-5	Precipitation	None	7.4	170	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.47623	-73.90592	40.39066	-73.78234	16.5	5	NE	<2	B2	2-5	Precipitation	None	8.3	128	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.39066	-73.78234	40.39808	-73.60188	16	9	ENE	<2	B2	>5	Cloudy	Slight	8.5	74	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.39808	-73.60188	40.35341	-73.41662	73	11	NE	<2	B3	>5	Cloudy	Moderate	8.8	105	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.35341	-73.41662	40.28008	-73.24770	30.4	9	NE	<2	B3	>5	Cloudy	None	8.9	116	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.28008	-73.24770	40.18819	-73.14741	34.4	10	ENE	<2	B3	>5	Cloudy	Slight	8.7	116	Transit	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.18819	-73.14741	40.18326	-73.14344	42.6	5	NNE	<2	B2	>5	Cloudy	Slight	8.7	165	Deploying/Retrieving	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:28	40.18326	-73.14344	40.18462	-73.14116	41.7	3.5	NW	<2	B2	>5	Cloudy	Slight	4.8	8.6	Deploying/Retrieving	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:28	18:36	40.18462	-73.14116	40.18590	-73.14804	41.7	3.5	NW	<2	B2	>5	Cloudy	Slight	4.8	8.6	Deploying/Retrieving	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:36	19:00	40.18590	-73.14804	40.19388	-73.17477	41.7	3.5	NW	<2	B2	>5	Cloudy	Slight	4.8	8.6	Deploying/Retrieving	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:33	40.19388	-73.17477	40.18775	-73.15777	38.4	4.1	WSW	<2	B2	>5	Cloudy	Slight	3.4	292	Deploying/Retrieving	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:33	19:47	40.18775	-73.15777	40.18404	-73.13652	38.4	4.1	WSW	<2	B2	>5	Cloudy	Slight	3.4	292	Standby	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:47	20:00	40.18404	-73.13652	40.18214	-73.11479	38.4	4.1	WSW	<2	B2	>5	Cloudy	Slight	3.4	292	Soft Start	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:07	40.18214	-73.11479	40.18117	-73.10274	44.8	3.4	WSW	<2	B2	>5	Cloudy	Slight	3.4	107	Soft Start	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:07	20:36	40.18117	-73.10274	40.17194	-73.09206	44.8	3.4	WSW	<2	B2	>5	Cloudy	Slight	3.4	107	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:36	20:41	40.17194	-73.09206	40.17792	-73.09241	44.8	3.4	WSW	<2	B2	>5	Cloudy	Slight	3.4	107	Silent	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:41	21:00	40.17792	-73.09241	40.19998	-73.09167	44.8	3.4	WSW	<2	B2	>5	Cloudy	Slight	3.4	107	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.19998	-73.09167	40.27842	-73.08942	42.5	4.8	S	<2	B2	>5	Cloudy	Moderate	4.8	358	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:12	40.27842	-73.08942	40.29450	-73.08901	40.7	7	SSE	<2	B2	>5	Cloudy	Slight	4.6	5	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:12	22:13	40.29450	-73.08901	40.29490	-73.08899	40.7	7	SSE	<2	B2	>5	Cloudy	Severe	4.6	5	Silent	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:13	22:38	40.29490	-73.08899	40.30680	-73.07472	40.7	7	SSE	<2	B2	>5	Cloudy	Severe	4.6	5	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:38	22:41	40.30680	-73.07472	40.30244	-73.07472	40.7	9	SSW	<2	B2	>5	Cloudy	Severe	4.6	172	Silent	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:41	23:00	40.30244	-73.07472	40.27747	-73.07538	40.7	9	SSW	<2	B2	>5	Cloudy	Severe	4.6	172	Full Power	N/A
2022-08-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.27747	-73.07538	40.20527	-73.07746	42	9	S	<2	B2	>5	Cloudy	Severe	4.6	177	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:11	40.20012	-73.07764	40.18786	-73.07792	43.3	8.3	SW	<2	B2	>5	Cloudy	None	4.4	176	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:11	00:13	40.18786	-73.07792	40.18526	-73.07797	43.3	8.3	SW	<2	B2	>5	Cloudy	None	4.4	176	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:13	00:33	40.18526	-73.07797	40.16685	-73.09882	43.3	8.3	SW	<2	B2	>5	Cloudy	None	4.4	176	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:33	00:49	40.16685	-73.09882	40.16240	-73.11788	46	10	S	<2	B2	0.5-1	Clear	None	4.6	232	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:49	00:53	40.16240	-73.11788	40.16748	-73.11768	46	10	S	<2	B2	0.5-1	Clear	None	4.6	232	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:53	01:00	40.16748	-73.11768	40.17625	-73.11738	49.2	9.5	SW	<2	B2	0.5-1	Clear	None	4.5	5.2	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	40.17625	-73.11738	40.25204	-73.11535	44.1	10.5	SW	<2	B3	0.5-1	Clear	None	4.5	358	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:16	40.25204	-73.11535	40.27186	-73.11476	41.6	10.5	SSW	<2	B3	0.5-1	Clear	None	4.7	357	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:16	02:18	40.27186	-73.11476	40.27428	-73.11470	41.6	10.5	SSW	<2	B3	0.5-1	Clear	None	4.7	357	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:18	02:39	40.27428	-73.11470	40.28884	-73.10355	41.6	10.5	SSW	<2	B3	0.5-1	Clear	None	4.7	357	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:39	02:44	40.28884	-73.10355	40.28218	-73.10383	41.6	10.5	SSW	<2	B3	0.5-1	Clear	None	4.7	184	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:44	03:00	40.28218	-73.10383	40.26172	-73.10436	40.5	7.9	SSW	<2	B3	0.5-1	Clear	None	4.1	184	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.26172	-73.10436	40.18582	-73.10653	44	8	SSW	<2	B3	0.5-1	Clear	None	4.5	187	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:15	40.18582	-73.10653	40.16632	-73.10705	44.6	5.5	SSE	<2	B3	0.5-1	Clear	None	4.5	188	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:15	04:17	40.16632	-73.10705	40.16367	-73.10711	47	7	SSE	<2	B3	0.5-1	Clear	None	4.8	188	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:17	04:29	40.16367	-73.10711	40.16268	-73.11721	47	7	SSE	<2	B3	0.5-1	Clear	None	4.8	189	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:29	04:33	40.16268	-73.11721	40.16751	-73.11732	46	7	SSE	<2	B3	0.5-1	Clear	None	4.4	354	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:33	05:00	40.16751	-73.11732	40.20122	-73.11635	46	7	SSE	<2	B3	0.5-1	Clear	None	4.4	354	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:57	40.20122	-73.11635	40.27152	-73.11438	42	6	NE	<2	B2	0.5-1	Clear	None	4.5	356	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:57	05:59	40.27152	-73.11438	40.27400	-73.11435	44	7	W	<2	B2	0.5-1	Clear	None	4.5	359	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:59	06:00	40.27400	-73.11435	40.27521	-73.11429	44	7	W	<2	B2	0.5-1	Clear	None	4.5	359	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:19	40.27521	-73.11429	40.28584	-73.10319	44	7	W	<2	B2	0.5-1	Clear	None	4.5	359	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:19	06:22	40.28584	-73.10319	40.28165	-73.10346	45	6	NNW	<2	B2	0.5-1	Clear	None	5	178	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:22	07:00	40.28165	-73.10346	40.23473	-73.10484	45	6	NNW	<2	B2	0.5-1	Clear	None	5	178	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:52	40.23473	-73.10484	40.16639	-73.10673	43	13	NNE	<2	B3	0.5-1	Cloudy	None	4.5	176	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:52	07:55	40.16639	-73.10673	40.16244	-73.10704	46	19	NNE	<2	B3	0.5-1	Cloudy	None	4.8	178	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:55	08:00	40.16244	-73.10704	40.15861	-73.11272	47	19	NNE	<2	B4	0.5-1	Cloudy	None	4.6	207	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:06	40.15861	-73.11272	40.16230	-73.11721	46	18	NNE	<2	B4	0.5-1	Cloudy	None	3.5	324	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:06	08:11	40.16230	-73.11721	40.16745	-73.11701	44	18	NNE	<2	B4	0.5-1	Cloudy	None	3.7	6	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:11	09:00	40.16745	-73.11701	40.21982	-73.11550	44	19	NNE	<2	B4	0.5-1	Cloudy	None	3.9	5	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:33	40.21982	-73.11550	40.25475	-73.11450	44	21	NNE	<2	B5	0.5-1	Cloudy	None	3.7	9	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:33	09:50	40.25475	-73.11450	40.27196	-73.11403	44	21	NNE	<2	B5	1-2	Cloudy	None	3.7	9	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:50	09:51	40.27196	-73.11403	40.27303	-73.11399	46	20	NNE	<2	B5	2-5	Cloudy	None	3.8	9	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:51	10:00	40.27303	-73.11399	40.28263	-73.11308	46	20	NNE	<2	B5	2-5	Cloudy	None	3.8	9	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:14	40.28263	-73.11308	40.28657	-73.10306	41	17	NNE	<2	B5	>5	Cloudy	None	3.8	9	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:14	10:17	40.28657	-73.10306	40.28229	-73.10316	41	17	NNE	<2	B5	>5	Cloudy	None	3.8	177	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:17	11:00	40.28229	-73.10316	40.22652	-73.10462	41	17	NNE	<2	B5	>5	Cloudy	None	3.8	177	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:48	40.22652	-73.10462	40.16635	-73.10629	41	19	NNE	<2	B5	>5	Cloudy	Slight	4.5	166	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:48	11:49	40.16635	-73.10629	40.16515	-73.10628	43	22	NNE	<2	B5	>5	Cloudy	Moderate	4.5	170	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:49	12:00	40.16515	-73.10628	40.15787	-73.11710	43	22	NNE	<2	B5	>5	Cloudy	Moderate	4.5	170	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:07	40.15787	-73.11710	40.16358	-73.11910	46	20	NNE	<2	B5	>5	Cloudy	Slight	3.3	335	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:07	12:10	40.16358	-73.11910	40.16678	-73.11899	44	22	NNE	<2	B5	>5	Cloudy	Slight	3.7	13	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:10	13:00	40.16678	-73.11899	40.21816	-73.11756	44	23	NNE	<2	B5	>5	Cloudy	Moderate	3.6	14	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:54	40.21816	-73.11756	40.27200	-73.11610	42	22	NNE	<2	B5	>5	Cloudy	Slight	3.5	10	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:54	13:55	40.27200	-73.11610	40.27299	-73.11608	40	20	NNE	<2	B5	>5	Cloudy	Slight	3.8	13	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:55	14:00	40.27299	-73.11608	40.27790	-73.11642	40	20	NNE	<2	B5	>5	Cloudy	Slight	3.8	13	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:19	40.27790	-73.11642	40.28622	-73.10519	40	18	NNE	<2	B5	>5	Cloudy	Slight	3.9	60	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:19	14:22	40.28622	-73.10519	40.28211	-73.10528	40	17	NNE	<2	B5	>5	Cloudy	Slight	4.7	174	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:22	14:30	40.28211	-73.10528	40.27195	-73.10541	40	19	NNE	<2	B5	>5	Cloudy	Slight	4.5	170	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:30	15:00	40.27195	-73.10541	40.28802	-73.11399	40	18	NNE	<2	B5	>5	Cloudy	Slight	4.5	184	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:08	40.28802	-73.11399	40.28682	-73.10528	39	19	NNE	<2	B5	>5	Cloudy	Moderate	3.5	73	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:08	15:12	40.28682	-73.10528	40.28179	-73.10526	40	17	NNE	<2	B4	>5	Cloudy	Severe	4.5	176	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:12	16:00	40.28179	-73.10526	40.22241	-73.10679	40	16	NNE	<2	B4	>5	Cloudy	Severe	4.5	169	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:46	40.22241	-73.10679	40.16505	-73.10846	43	15	NNE	<2	B4	>5	Cloudy	Moderate	4.5	169	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:46	16:47	40.16505	-73.10846	40.16470	-73.10847	43	15	NNE	<2	B4	>5	Clear	Moderate	4.5	169	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:47	17:00	40.16470	-73.10847	40.15352	-73.12338	43	13	NNE	<2	B4	>5	Clear	Moderate	4.5	169	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:12	40.15352	-73.12338	40.14750	-73.14214	46	13	NNE	<2	B4	>5	Clear	Moderate	4.7	254	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:12	17:23	40.14750	-73.14214	40.15382	-73.15040	46	13	NNE	<2	B4	>5	Clear	Moderate	4.7	254	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:23	17:26	40.15382	-73.15040	40.15760	-73.15026	46	13	NNE	<2	B4	>5	Clear	Moderate	4.7	11	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:26	18:00	40.15760	-73.15026	40.19575	-73.14923	45	13	N	<2	B4	>5	Clear	Moderate	4	9	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:44	40.19575	-73.14923	40.24932	-73.14773	42.2	11	NNW	<2	B4	>5	Clear	Slight	4.3	358	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:44	18:46	40.24932	-73.14773	40.25098	-73.14767	42.2	11	NNW	<2	B4	>5	Clear	Slight	4.3	358	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:46	18:47	40.25098	-73.14767	40.25220	-73.14767	40.2	11	NNW	<2	B4	>5	Clear	Slight	4.3	5.8	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:47	19:00	40.25220	-73.14767	40.26778	-73.14191	40.2	11	NNW	<2	B4	>5	Clear	Slight	4.3	5.8	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:07	40.26778	-73.14191	40.26553	-73.13341	40.2	5.2	NNW	<2	B4	>5	Clear	Moderate	4.1	154	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:07	19:10	40.26553	-73.13341	40.26170	-73.13339	40.2	5.2	NNW	<2	B4	>5	Clear	Moderate	4.1	154	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:10	19:38	40.26170	-73.13339	40.22573	-73.13426	40.2	5.2	NNW	<2	B4	>5	Clear	Moderate	4.1	154	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:38	20:00	40.22573	-73.13426	40.19952	-73.13499	40.2	5.2	NNW	<2	B4	>5	Clear	Moderate	4.1	154	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:36	40.19952	-73.13499	40.15536	-73.13622	42.7	3.9	NE	<2	B4	>5	Clear	Moderate	4.9	171	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:36	20:37	40.15536	-73.13622	40.15416	-73.13623	45.1	3.9	NE	<2	B4	>5	Clear	Moderate	4.3	182	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:37	20:50	40.15416	-73.13623	40.15282	-73.14992	45.1	1.1	ESE	<2	B4	>5	Clear	Moderate	4.3	182	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:50	20:53	40.15282	-73.14992	40.15637	-73.14998	45.1	1	SE	<2	B4	>5	Clear	Moderate	4.3	357	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:53	21:00	40.15637	-73.14998	40.16440	-73.14973	45.1	1	SE	<2	B4	>5	Clear	Slight	4.3	357	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.16440	-73.14973	40.24621	-73.14747	45.7	2.2	SSE	<2	B4	>5	Clear	Slight	4.7	1.2	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:04	40.24621	-73.14747	40.25079	-73.14732	42	4	S	<2	B2	>5	Cloudy	Moderate	4.7	0.05	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:04	22:06	40.25079	-73.14732	40.25401	-73.14724	42	4	S	<2	B2	>5	Cloudy	Moderate	4.7	0.05	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:06	22:26	40.25401	-73.14724	40.26491	-73.13269	42	4	S	<2	B2	>5	Cloudy	Moderate	4.7	0.05	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:26	22:29	40.26491	-73.13269	40.26121	-73.13303	42	4	S	<2	B2	>5	Cloudy	Severe	4.7	186	Silent	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:29	23:00	40.26121	-73.13303	40.22185	-73.13403	42	6	SSE	<2	B2	>5	Cloudy	Severe	4.6	178	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:10	40.22185	-73.13403	40.20951	-73.13441	42	5	SE	<2	B2	>5	Cloudy	Severe	4.6	180	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:10	23:49	40.20951	-73.13441	40.16157	-73.13573	42	5	SE	<2	B2	>5	Cloudy	Moderate	4.6	180	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	23:51	40.16157	-73.13573	40.15880	-73.13583	42	5	SE	<2	B2	>5	Cloudy	Slight	4.6	180	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:51	23:54	40.15880	-73.13583	40.15549	-73.13594	42	5	SE	<2	B2	>5	Cloudy	Slight	4.6	180	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	23:54	40.15549	-73.13594	40.15477	-73.13596	42	5	SE	<2	B2	>5	Cloudy	Slight	4.6	180	Full Power	N/A
2022-08-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.15477	-73.13596	40.15258	-73.13604	42	5	SE	<2	B2	>5	Cloudy	Slight	4.6	180	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:16	40.14839	-73.13615	40.13163	-73.13682	40.5	2.9	SSE	<2	B1	>5	Cloudy	None	3.7	194	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:16	00:26	40.13163	-73.13682	40.13224	-73.14910	43	2	S	<2	B1	2-5	Cloudy	None	4	234	Soft Start	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:26	00:36	40.13224	-73.14910	40.14504	-73.14998	43	2	S	<2	B1	2-5	Clear	None	4.7	346	Soft Start	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:36	00:41	40.14504	-73.14998	40.15141	-73.14976	43	3	S	<2	B1	0.5-1	Clear	None	4.7	356	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:41	00:56	40.15141	-73.14976	40.16942	-73.14927	43	3	S	<2	B1	0.5-1	Clear	None	4.7	358	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:56	01:00	40.16942	-73.14927	40.17265	-73.14921	42.7	1.4	SSW	<2	B1	0.5-1	Clear	None	3.8	357	Deploying/Retrieving	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:32	40.17265	-73.14921	40.18836	-73.14727	42.7	1.4	SSW	<2	B1	0.5-1	Clear	None	3.8	357	Deploying/Retrieving	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:32	02:00	40.18836	-73.14727	40.17910	-73.14119	42.7	1.4	SSW	<2	B1	0.5-1	Clear	None	3.8	357	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:52	40.17910	-73.14119	40.15077	-73.14950	44.2	3.8	NW	<2	B1	0.5-1	Clear	None	3.8	174	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:52	03:00	40.15077	-73.14950	40.15606	-73.14944	44.7	9.9	WNW	<2	B2	0.5-1	Clear	None	2.7	345	Deploying/Retrieving	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:30	40.15606	-73.14944	40.16763	-73.13871	43	10	WNW	<2	B2	0.5-1	Clear	None	2.5	343	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:30	03:50	40.16763	-73.13871	40.15250	-73.14977	44	10	WNW	<2	B2	0.5-1	Clear	None	5	47	Soft Start	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:50	03:50	40.15250	-73.14977	40.15301	-73.14972	44	10	WNW	<2	B2	0.5-1	Clear	None	5	47	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:50	03:54	40.15301	-73.14972	40.15686	-73.14967	44	10	WNW	<2	B2	0.5-1	Clear	None	5	47	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:54	04:00	40.15686	-73.14967	40.16333	-73.14950	44.2	19.5	NNE	<2	B3	0.5-1	Clear	None	4	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:26	40.16333	-73.14950	40.19168	-73.14877	44.2	19.5	NNE	<2	B3	0.5-1	Clear	None	4	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:26	05:00	40.19168	-73.14877	40.22589	-73.14784	44.2	19.5	NNE	<2	B5	0.5-1	Clear	None	4	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:25	40.22589	-73.14784	40.25136	-73.14715	44	19	NNE	<2	B5	0.5-1	Clear	None	3.6	358	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:25	05:27	40.25136	-73.14715	40.25337	-73.14705	44	19	NNE	<2	B5	0.5-1	Clear	None	3.6	0	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:27	06:00	40.25337	-73.14705	40.25581	-73.13360	44	18	NNE	<2	B5	0.5-1	Clear	None	3.6	1	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:48	40.25581	-73.13360	40.27920	-73.13078	44	15	NNE	<2	B4	0.5-1	Clear	None	4.3	249	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:48	07:00	40.27920	-73.13078	40.26457	-73.12958	42	15	NNE	<2	B4	0.5-1	Clear	None	4.4	143	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:28	40.26457	-73.12958	40.23965	-73.13175	40	16	NNE	<2	B4	0.5-1	Clear	None	4.4	177	Deploying/Retrieving	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:28	08:00	40.23965	-73.13175	40.21537	-73.13826	41.5	18	NNE	<2	B4	0.5-1	Clear	None	2.5	110	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:41	40.21537	-73.13826	40.25834	-73.13727	42.3	18.6	NNE	<2	B5	0.5-1	Clear	None	3.6	13	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:41	09:00	40.25834	-73.13727	40.26272	-73.13294	42	21.1	NNE	<2	B5	0.5-1	Clear	None	3.7	10	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:31	40.26272	-73.13294	40.26184	-73.14349	42	18	NNE	<2	B5	0.5-1	Clear	None	4.3	169	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:31	10:00	40.26184	-73.14349	40.28608	-73.14058	43	18	NNE	<2	B5	1-2	Clear	None	3.3	14	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.28608	-73.14058	40.22817	-73.17089	43	19.7	NNE	<2	B5	>5	Clear	None	3.3	58	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.22817	-73.17089	40.25218	-73.15958	42	19	NNE	<2	B5	>5	Clear	Severe	3.3	3	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:18	40.25218	-73.15958	40.26456	-73.15214	40	17	NNE	<2	B5	>5	Clear	Moderate	2.7	33	Standby	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:18	12:48	40.26456	-73.15214	40.28269	-73.14669	40	19	NNE	<2	B5	>5	Clear	Moderate	2.6	25	Deploying/Retrieving	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:48	12:56	40.28269	-73.14669	40.28863	-73.14213	39	17	NNE	<2	B5	>5	Clear	Severe	2.2	39	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:56	13:00	40.28863	-73.14213	40.29179	-73.13997	39	16	N	<2	B5	>5	Clear	Severe	2.9	23	Soft Start	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:16	40.29179	-73.13997	40.28051	-73.13131	40	16	N	<2	B5	>5	Clear	Severe	4.1	94	Soft Start	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:16	13:27	40.28051	-73.13131	40.26695	-73.13248	39	14	N	<2	B4	>5	Clear	Severe	4.2	174	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:27	13:32	40.26695	-73.13248	40.26095	-73.13264	40	15	N	<2	B4	>5	Clear	Severe	4.5	169	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:32	14:00	40.26095	-73.13264	40.22685	-73.13351	40	15	N	<2	B4	>5	Clear	Severe	4.4	165	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:54	40.22685	-73.13351	40.15522	-73.13547	42	16	N	<2	B4	>5	Clear	Severe	4.6	173	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:54	14:55	40.15522	-73.13547	40.15398	-73.13553	44	12	N	<2	B4	>5	Clear	Severe	4.6	176	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:55	15:32	40.15398	-73.13553	40.17400	-73.17776	44	12	N	<2	B4	>5	Clear	Severe	4.6	176	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:32	15:36	40.17400	-73.17776	40.17884	-73.17791	43	14	N	<2	B4	>5	Clear	Severe	4.4	2	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:36	16:00	40.17884	-73.17791	40.20790	-73.17721	43	14	N	<2	B4	>5	Clear	Severe	4.4	2	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:19	40.20790	-73.17721	40.23107	-73.17650	42	14	N	<2	B3	>5	Clear	Severe	4.2	1	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:19	16:20	40.23107	-73.17650	40.23240	-73.17648	42	14	N	<2	B3	>5	Clear	Severe	4.2	1	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:20	16:52	40.23240	-73.17648	40.25425	-73.16145	42	14	N	<2	B3	>5	Clear	Severe	4.2	1	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:52	16:56	40.25425	-73.16145	40.24935	-73.16157	42	8	NW	<2	B3	>5	Clear	Severe	4.2	181	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:56	17:00	40.24935	-73.16157	40.24464	-73.16169	42	8	NW	<2	B3	>5	Clear	Severe	4.2	181	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.24464	-73.16169	40.17345	-73.16358	42	8	NW	<2	B3	>5	Clear	Severe	4.2	181	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:05	40.17345	-73.16358	40.16743	-73.16374	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	4.1	171	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:05	18:06	40.16743	-73.16374	40.16626	-73.16375	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	4.1	171	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:06	18:28	40.16626	-73.16375	40.17406	-73.17836	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	4.1	171	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:28	18:32	40.17406	-73.17836	40.17890	-73.17823	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	5	350	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:32	18:45	40.17890	-73.17823	40.19525	-73.17779	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	5	350	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:45	19:00	40.19525	-73.17779	40.21330	-73.17734	43.2	5.4	NNW	<2	B3	>5	Clear	Slight	5	350	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:13	40.21330	-73.17734	40.22936	-73.17694	41.7	3.1	NW	<2	B3	>5	Clear	Slight	4.6	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:13	19:15	40.22936	-73.17694	40.23260	-73.17683	41.7	3.1	NW	<2	B3	>5	Clear	Slight	4.6	0	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:15	19:45	40.23260	-73.17683	40.25396	-73.16178	41.7	3.1	NW	<2	B3	>5	Clear	Slight	4.6	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:45	19:48	40.25396	-73.16178	40.24983	-73.16190	41.7	3.1	NW	<2	B3	>5	Clear	Moderate	4.6	183	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:48	20:00	40.24983	-73.16190	40.23469	-73.16226	41.7	3.1	NW	<2	B3	>5	Clear	Moderate	4.6	183	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:32	40.23469	-73.16226	40.19312	-73.16342	41.3	4.7	W	<2	B3	>5	Clear	Moderate	4.6	177	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:32	20:32	40.19312	-73.16342	40.19312	-73.16342	41.3	4.7	W	<2	B3	>5	Clear	Moderate	4.6	177	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:32	20:53	40.19312	-73.16342	40.16650	-73.16416	41.3	4.7	W	<2	B3	>5	Clear	Moderate	4.6	177	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:53	20:55	40.16650	-73.16416	40.16485	-73.16418	41.3	4.7	W	<2	B3	>5	Clear	Moderate	4.7	188	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:55	21:00	40.16485	-73.16418	40.16036	-73.16794	42.2	5.8	W	<2	B3	>5	Clear	Moderate	4.4	232	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:13	40.16036	-73.16794	40.17396	-73.17872	42.2	5.8	W	<2	B3	>5	Clear	Moderate	4.4	232	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:13	21:17	40.17396	-73.17872	40.17878	-73.17865	42.2	5.8	W	<2	B3	>5	Clear	Moderate	4.4	232	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:17	21:49	40.17878	-73.17865	40.21746	-73.17758	42.2	5.8	W	<2	B3	>5	Clear	Moderate	4.4	232	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:49	22:00	40.21746	-73.17758	40.23032	-73.17724	42.2	5.8	W	<2	B3	>5	Clear	Moderate	4.4	232	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:01	40.23032	-73.17724	40.23153	-73.17722	42.2	6	SW	<2	B2	>5	Clear	Severe	4.4	0	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:01	22:30	40.23153	-73.17722	40.25406	-73.16121	42.2	6	SW	<2	B2	>5	Clear	Severe	4.4	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:30	22:34	40.25406	-73.16121	40.24967	-73.16225	42.2	6	SW	<2	B2	>5	Clear	Severe	4.4	0	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:34	23:00	40.24967	-73.16225	40.21730	-73.16304	42.2	6	SW	<2	B2	>5	Clear	Severe	4.4	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:40	40.21730	-73.16304	40.16720	-73.16451	42	6	SW	<2	B2	>5	Clear	Severe	4.6	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:40	23:42	40.16720	-73.16451	40.16429	-73.16460	42	6	SW	<2	B2	>5	Clear	Severe	4.6	0	Silent	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:42	23:53	40.16429	-73.16460	40.16178	-73.17758	42	6	SW	<2	B2	>5	Clear	Moderate	4.6	0	Full Power	N/A
2022-08-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:53	00:00	40.16178	-73.17758	40.16502	-73.18207	42	6	SW	<2	B2	>5	Clear	None	4.6	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:20	40.16722	-73.18510	40.18605	-73.20682	42.3	8.3	SSW	<2	B3	2-5	Clear	None	4.5	315	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:20	00:24	40.18605	-73.20682	40.19043	-73.20687	43	8.3	SSW	<2	B3	2-5	Clear	None	4.3	0.04	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:24	00:28	40.19043	-73.20687	40.19449	-73.20680	43	8.3	SSW	<2	B3	2-5	Clear	None	4.3	0.04	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:28	00:38	40.19449	-73.20680	40.20560	-73.20642	43	8.3	SSW	<2	B3	1-2	Clear	None	4	357	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:38	00:41	40.20560	-73.20642	40.20916	-73.20634	43	8	S	<2	B3	0.5-1	Clear	None	4.4	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:41	00:43	40.20916	-73.20634	40.21155	-73.20632	43	8	S	<2	B3	0.5-1	Clear	None	4.4	0	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:43	01:00	40.21155	-73.20632	40.22839	-73.19847	43	8	S	<2	B3	0.5-1	Clear	None	4.4	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:06	40.22839	-73.19847	40.22291	-73.19196	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:06	01:09	40.22291	-73.19196	40.21892	-73.19204	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:09	01:32	40.21892	-73.19204	40.18910	-73.19284	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:32	01:34	40.18910	-73.19284	40.18643	-73.19289	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:34	01:46	40.18643	-73.19289	40.18470	-73.20674	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:46	01:51	40.18470	-73.20674	40.19063	-73.20654	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	60	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:51	02:00	40.19063	-73.20654	40.20149	-73.20620	40	7.7	SSW	<2	B3	0.5-1	Clear	None	4.3	2.6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:06	40.20149	-73.20620	40.20847	-73.20610	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:06	02:08	40.20847	-73.20610	40.21080	-73.20604	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:08	02:28	40.21080	-73.20604	40.22331	-73.19136	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:28	02:31	40.22331	-73.19136	40.21941	-73.19154	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:31	02:54	40.21941	-73.19154	40.18945	-73.19240	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:54	02:56	40.18945	-73.19240	40.18686	-73.19246	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:56	03:00	40.18686	-73.19246	40.18312	-73.19645	40.3	8.8	SSW	<2	B3	0.5-1	Clear	None	4	2.6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:08	40.18312	-73.19645	40.18574	-73.20611	40	6	S	<2	B3	0.5-1	Clear	None	4.7	248	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:08	03:12	40.18574	-73.20611	40.19049	-73.20606	40	6	S	<2	B3	0.5-1	Clear	None	4.2	1	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:12	03:28	40.19049	-73.20606	40.20915	-73.20569	40	6	S	<2	B3	0.5-1	Clear	None	4.2	1	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:28	03:29	40.20915	-73.20569	40.21031	-73.20568	40	6	S	<2	B3	0.5-1	Clear	None	4.2	1	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:29	03:52	40.21031	-73.20568	40.22329	-73.19103	40	6	S	<2	B3	0.5-1	Clear	None	4.2	1	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:52	03:56	40.22329	-73.19103	40.21866	-73.19128	40	6	S	<2	B3	0.5-1	Clear	None	4.2	1	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:56	04:00	40.21866	-73.19128	40.21428	-73.19144	40	6	S	<2	B3	0.5-1	Clear	None	4.2	181	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:21	40.21428	-73.19144	40.18935	-73.19204	41.7	7.2	SW	<2	B3	0.5-1	Clear	None	4.6	181	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:21	04:22	40.18935	-73.19204	40.18832	-73.19208	41.7	7.2	SW	<2	B3	0.5-1	Clear	None	4.6	181	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:22	05:00	40.18832	-73.19208	40.20662	-73.18434	41.7	7.2	SW	<2	B3	0.5-1	Clear	None	4.6	181	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.20662	-73.18434	40.26783	-73.13258	41	7	SW	<2	B3	0.5-1	Clear	None	4.4	27	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:28	40.26783	-73.13258	40.28638	-73.10464	41	8	WSW	<2	B3	0.5-1	Clear	None	4.4	28	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:28	06:32	40.28638	-73.10464	40.28178	-73.10487	41	8	WSW	<2	B3	0.5-1	Clear	None	4	184	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:32	07:00	40.28178	-73.10487	40.24716	-73.10591	41	8	WSW	<2	B3	0.5-1	Clear	None	4	184	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.24716	-73.10591	40.17261	-73.10795	42.6	7.4	W	<2	B3	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:05	40.17261	-73.10795	40.16675	-73.10811	45	10	W	<2	B3	0.5-1	Clear	None	4.3	174	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:05	08:07	40.16675	-73.10811	40.16438	-73.10815	46	7	W	<2	B3	0.5-1	Clear	None	4	167	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:07	08:20	40.16438	-73.10815	40.16219	-73.11899	46	7	W	<2	B3	0.5-1	Clear	None	4	176	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:20	08:24	40.16219	-73.11899	40.16676	-73.11880	45	9	W	<2	B3	0.5-1	Clear	None	3.9	3	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:24	09:00	40.16676	-73.11880	40.21178	-73.11746	44	8	W	<2	B3	0.5-1	Clear	None	4.5	7	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:26	40.21178	-73.11746	40.24260	-73.11664	44	8	W	<2	B3	0.5-1	Clear	None	4.6	6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:26	09:49	40.24260	-73.11664	40.27206	-73.11583	44	8	W	<2	B3	1-2	Clear	None	4.4	4	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:49	09:50	40.27206	-73.11583	40.27339	-73.11576	44	8	W	<2	B3	2-5	Clear	None	4.4	4	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:50	10:00	40.27339	-73.11576	40.28654	-73.11511	44	8	W	<2	B3	2-5	Clear	None	4.4	4	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:10	40.28654	-73.11511	40.28628	-73.10446	40	6	NW	<2	B2	>5	Clear	None	4.5	4	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:10	10:14	40.28628	-73.10446	40.28186	-73.10453	42	5	NW	<2	B2	>5	Clear	Severe	4.1	177	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:14	11:00	40.28186	-73.10453	40.22310	-73.10613	42	5	NW	<2	B2	>5	Clear	Severe	4.1	177	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:49	40.22310	-73.10613	40.16624	-73.10766	42	4	NNW	<2	B2	>5	Clear	Severe	4.3	173	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:49	11:50	40.16624	-73.10766	40.16518	-73.10768	42	4	NNW	<2	B2	>5	Clear	Severe	3.9	177	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:50	12:00	40.16518	-73.10768	40.16073	-73.11782	42	5	NW	<2	B2	>5	Clear	Severe	3.9	177	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:01	40.16073	-73.11782	40.16190	-73.11837	45	6	NNW	<2	B2	>5	Clear	Severe	4.6	355	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:01	12:05	40.16190	-73.11837	40.16691	-73.11830	45	6	NNW	<2	B2	>5	Clear	Severe	4.6	355	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:05	13:00	40.16691	-73.11830	40.23699	-73.11635	43	6	NNW	<2	B2	>5	Clear	Severe	4.8	5	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:28	40.23699	-73.11635	40.27269	-73.11532	42	8	NNE	<2	B3	>5	Cloudy	Slight	4.6	6	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:28	13:29	40.27269	-73.11532	40.27397	-73.11525	40	5	N	<2	B3	>5	Cloudy	Slight	4.5	3	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:29	13:51	40.27397	-73.11525	40.28548	-73.10390	40	5	N	<2	B3	>5	Cloudy	Slight	4.5	3	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:51	13:53	40.28548	-73.10390	40.28294	-73.10410	40	2	NNW	<2	B2	>5	Cloudy	Slight	4.6	180	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:53	14:00	40.28294	-73.10410	40.27408	-73.10440	40	2	NNW	<2	B2	>5	Cloudy	Slight	4.5	185	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.27408	-73.10440	40.19845	-73.10656	41	2	NNW	<2	B2	>5	Cloudy	Slight	4.5	181	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:10	40.19845	-73.10656	40.18380	-73.10699	42	2	ENE	<2	B2	>5	Cloudy	Slight	4.7	186	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:10	15:17	40.18380	-73.10699	40.17538	-73.10721	42	1	NE	<2	B2	>5	Cloudy	Slight	4.7	187	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:17	15:24	40.17538	-73.10721	40.16612	-73.10749	42	1	NE	<2	B2	>5	Cloudy	Slight	4.7	187	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:24	15:25	40.16612	-73.10749	40.16474	-73.10750	46	4	NNE	<2	B2	>5	Cloudy	Slight	4.8	188	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:25	15:38	40.16474	-73.10750	40.16280	-73.11765	46	4	NNE	<2	B2	>5	Cloudy	Slight	4.8	188	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:38	15:42	40.16280	-73.11765	40.16770	-73.11789	45	5	NNE	<2	B2	>5	Cloudy	None	4.3	343	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:42	16:00	40.16770	-73.11789	40.19178	-73.11734	45	4	NNE	<2	B2	>5	Cloudy	None	4.3	351	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:32	40.19178	-73.11734	40.22923	-73.11585	43	3	NE	<2	B1	>5	Cloudy	None	4.6	353	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:32	16:32	40.22923	-73.11585	40.22926	-73.11585	43	3	NE	<2	B1	>5	Cloudy	None	4.6	353	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:32	16:56	40.22926	-73.11585	40.25912	-73.11554	43	3	NE	<2	B1	>5	Cloudy	None	4.6	353	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:56	17:00	40.25912	-73.11554	40.26355	-73.11541	43	3	NE	<2	B1	>5	Cloudy	None	4.6	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:07	40.26355	-73.11541	40.27280	-73.11518	43	3	NE	<2	B1	>5	Cloudy	None	4.6	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:07	17:17	40.27280	-73.11518	40.28586	-73.11361	43	3	NE	<2	B1	>5	Cloudy	None	4.6	0	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:17	17:31	40.28586	-73.11361	40.28154	-73.10286	43	3	NE	<2	B1	>5	Cloudy	None	4.6	4	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:31	18:00	40.28154	-73.10286	40.24367	-73.10391	41	4	SE	<2	B1	>5	Cloudy	None	4.9	190	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:34	40.24367	-73.10391	40.19566	-73.10524	42.3	4.1	S	<2	B2	>5	Cloudy	None	5.1	170	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:34	18:58	40.19566	-73.10524	40.16545	-73.10613	42.3	4.1	S	<2	B2	>5	Cloudy	None	5.1	170	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:58	18:59	40.16545	-73.10613	40.16413	-73.10614	48.6	4	SE	<2	B2	>5	Cloudy	None	4.6	192	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:59	19:00	40.16413	-73.10614	40.16282	-73.10613	48.6	4	SE	<2	B2	>5	Cloudy	None	4.6	192	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:12	40.16282	-73.10613	40.16313	-73.11660	48.6	4	SE	<2	B2	>5	Cloudy	None	4.6	192	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:12	19:16	40.16313	-73.11660	40.16705	-73.11662	48.6	4	SE	<2	B2	>5	Cloudy	None	4	10	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:16	20:00	40.16705	-73.11662	40.21535	-73.11531	48.6	4	SE	<2	B2	>5	Cloudy	None	4	10	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:47	40.21535	-73.11531	40.27168	-73.11371	42.5	4.6	S	<2	B2	>5	Cloudy	None	4.3	2.3	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:47	20:49	40.27168	-73.11371	40.27417	-73.11366	42.5	4.6	S	<2	B2	>5	Cloudy	None	4.3	2.3	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:49	21:00	40.27417	-73.11366	40.28853	-73.11215	42.5	4.6	S	<2	B2	>5	Cloudy	None	4.3	2.3	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:09	40.28853	-73.11215	40.28473	-73.10239	40.2	7	SSE	<2	B2	>5	Cloudy	None	4.7	3.2	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:09	21:12	40.28473	-73.10239	40.28198	-73.10238	40.2	7	SSE	<2	B2	>5	Cloudy	None	4.7	3.2	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:12	22:00	40.28198	-73.10238	40.22228	-73.10411	40.2	7	SSE	<2	B2	>5	Cloudy	None	4.7	180	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:44	40.22228	-73.10411	40.16525	-73.10565	44	6	S	<2	B2	>5	Cloudy	None	4.6	178	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	22:46	40.16525	-73.10565	40.16315	-73.10568	44	7	SE	<2	B2	>5	Cloudy	None	4.6	168	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:46	22:57	40.16315	-73.10568	40.16187	-73.11616	44	7	SE	<2	B2	>5	Cloudy	Severe	4.6	168	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:57	23:00	40.16187	-73.11616	40.16493	-73.11633	44	7	SE	<2	B2	>5	Cloudy	Severe	4.6	168	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:03	40.16493	-73.11633	40.16769	-73.11624	44	7	SE	<2	B2	>5	Cloudy	Severe	4.6	168	Silent	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:03	23:50	40.16769	-73.11624	40.22195	-73.11466	44	6	SE	<2	B2	>5	Cloudy	Severe	4.6	9	Full Power	N/A
2022-08-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:50	00:00	40.22195	-73.11466	40.22963	-73.11444	44	6	SE	<2	B2	>5	Cloudy	None	4.6	4	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:29	40.23421	-73.11438	40.27056	-73.11338	42.7	5.8	SSE	<2	B2	>5	Cloudy	None	4.4	2.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:29	00:30	40.27056	-73.11338	40.27161	-73.11334	42.7	5.8	SSE	<2	B2	2-5	Cloudy	None	4.4	2.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:30	00:32	40.27161	-73.11334	40.27417	-73.11324	42.7	5.8	SSE	<2	B2	2-5	Cloudy	None	4.4	2.2	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:32	00:34	40.27417	-73.11324	40.27700	-73.11313	42.7	5.8	SSE	<2	B2	2-5	Cloudy	None	4.4	2.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:34	00:51	40.27700	-73.11313	40.28695	-73.10202	42.7	5.8	SSE	<2	B2	0.5-1	Cloudy	None	4.4	2.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:51	00:55	40.28695	-73.10202	40.28208	-73.10217	42.7	5.8	SSE	<2	B2	0.5-1	Cloudy	None	4.4	2.2	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:55	01:00	40.28208	-73.10217	40.27536	-73.10230	42.7	5.8	SSE	<2	B2	0.5-1	Cloudy	None	4.4	2.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	40.27536	-73.10230	40.19970	-73.10438	42.7	7.8	SSE	<2	B2	0.5-1	Cloudy	None	4.7	176	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:28	40.19970	-73.10438	40.16632	-73.10528	42.5	8.7	SSE	<2	B2	0.5-1	Cloudy	None	4.6	185	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:28	02:30	40.16632	-73.10528	40.16452	-73.10537	44.7	8	SSE	<2	B2	0.5-1	Cloudy	None	3.1	180	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:30	02:39	40.16452	-73.10537	40.16249	-73.11642	44.7	8	SSE	<2	B2	0.5-1	Cloudy	None	3.1	180	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:39	02:42	40.16249	-73.11642	40.16644	-73.11601	44.7	8	SSE	<2	B2	0.5-1	Cloudy	None	3.1	180	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:42	03:00	40.16644	-73.11601	40.19001	-73.11529	44.7	6.7	SSE	<2	B2	0.5-1	Cloudy	None	3.1	180	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.19001	-73.11529	40.26711	-73.11314	42.7	7.1	SSW	<2	B2	0.5-1	Clear	None	4.7	5	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:04	40.26711	-73.11314	40.27211	-73.11297	43	6	S	<2	B2	0.5-1	Cloudy	None	4.5	358	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:04	04:06	40.27211	-73.11297	40.27473	-73.11290	43	6	S	<2	B2	0.5-1	Cloudy	None	4.5	358	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:06	04:23	40.27473	-73.11290	40.28592	-73.10140	43	6	S	<2	B2	0.5-1	Cloudy	None	4.5	358	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:23	04:26	40.28592	-73.10140	40.28203	-73.10176	43	6	S	<2	B2	0.5-1	Cloudy	None	4.5	358	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:26	05:00	40.28203	-73.10176	40.23879	-73.10304	43	6	S	<2	B2	0.5-1	Cloudy	None	4.5	358	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:57	40.23879	-73.10304	40.16701	-73.10496	42	5	SSW	<2	B2	0.5-1	Cloudy	None	4.3	184	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:57	05:59	40.16701	-73.10496	40.16435	-73.10506	47	2	SW	<2	B2	0.5-1	Cloudy	None	4.6	192	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:59	06:00	40.16435	-73.10506	40.16313	-73.10524	47	2	SW	<2	B2	0.5-1	Cloudy	None	4.6	192	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:33	40.16313	-73.10524	40.15307	-73.14994	47	2	SW	<2	B2	0.5-1	Cloudy	None	4.6	192	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:33	06:36	40.15307	-73.14994	40.15696	-73.14965	45	2	SW	<2	B1	0.5-1	Cloudy	None	4.5	351	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:36	07:00	40.15696	-73.14965	40.18743	-73.14887	45	2	SW	<2	B1	0.5-1	Cloudy	None	4.5	351	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:49	40.18743	-73.14887	40.25127	-73.14721	44.2	1.4	NNE	<2	B1	0.5-1	Cloudy	None	4.6	355	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:49	07:50	40.25127	-73.14721	40.25256	-73.14718	44.2	3	N	<2	B1	0.5-1	Cloudy	None	4.7	356	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:50	08:00	40.25256	-73.14718	40.26485	-73.14074	44.2	3	N	<2	B1	0.5-1	Cloudy	None	4.7	356	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:08	40.26485	-73.14074	40.26575	-73.13187	40	3	N	<2	B1	0.5-1	Cloudy	None	4.5	18	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:08	08:11	40.26575	-73.13187	40.26199	-73.13257	40	3	NNW	<2	B1	0.5-1	Cloudy	None	4.5	200	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:11	08:29	40.26199	-73.13257	40.23823	-73.13348	40	3	NNW	<2	B1	0.5-1	Cloudy	None	4.7	187	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:29	08:30	40.23823	-73.13348	40.23690	-73.13352	43	3	NNW	<2	B1	0.5-1	Cloudy	None	4.3	194	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:30	08:59	40.23690	-73.13352	40.20967	-73.16186	43	3	NNW	<2	B1	0.5-1	Cloudy	None	4.2	224	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:59	09:00	40.20967	-73.16186	40.20838	-73.16213	43	5	N	<2	B1	0.5-1	Cloudy	None	4.6	194	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:03	40.20838	-73.16213	40.20486	-73.16282	43	5	N	<2	B1	0.5-1	Cloudy	None	4.6	194	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:03	09:08	40.20486	-73.16282	40.19791	-73.16318	43	5	N	<2	B1	0.5-1	Cloudy	None	4.9	186	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:08	09:09	40.19791	-73.16318	40.19665	-73.16324	43	5	N	<2	B1	0.5-1	Cloudy	None	4.9	185	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:09	09:38	40.19665	-73.16324	40.16031	-73.14380	43	5	N	<2	B1	1-2	Cloudy	None	4.9	185	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:38	10:00	40.16031	-73.14380	40.15731	-73.14988	43	6	NNE	<2	B1	2-5	Clear	None	4.7	153	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.15731	-73.14988	40.21421	-73.13636	43	6	NNE	<2	B1	>5	Clear	None	4.5	357	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.21421	-73.13636	40.18594	-73.11626	44	7	NNE	<2	B1	>5	Clear	Severe	4.7	162	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:29	40.18594	-73.11626	40.22024	-73.11643	43	10	NE	<2	B2	>5	Cloudy	Moderate	4.2	11	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:29	12:34	40.22024	-73.11643	40.22624	-73.11636	42	10	NE	<2	B3	>5	Cloudy	Moderate	4.3	1	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:34	12:42	40.22624	-73.11636	40.23578	-73.11616	42	10	NE	<2	B3	>5	Cloudy	Moderate	4.3	2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:42	12:43	40.23578	-73.11616	40.23698	-73.11620	42	11	ENE	<2	B3	>5	Cloudy	Moderate	4.3	9	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:43	13:00	40.23698	-73.11620	40.25749	-73.11583	42	11	ENE	<2	B3	>5	Cloudy	Moderate	4.3	9	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:05	40.25749	-73.11583	40.26439	-73.11567	40	11	NE	<2	B3	>5	Cloudy	Moderate	4.4	3	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:05	13:09	40.26439	-73.11567	40.26851	-73.11552	40	11	NE	<2	B3	>5	Cloudy	Moderate	4.4	3	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:09	13:44	40.26851	-73.11552	40.24023	-73.10554	40	11	NE	<2	B3	>5	Cloudy	Moderate	4.4	5.3	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:44	13:51	40.24023	-73.10554	40.23068	-73.10574	40	11	NE	<2	B3	>5	Cloudy	Moderate	4.4	177.1	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:51	14:00	40.23068	-73.10574	40.22430	-73.11301	40	11	NE	<2	B3	>5	Cloudy	Moderate	4.4	178.2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.22430	-73.11301	40.27925	-73.07028	43	11	NE	<2	B3	>5	Cloudy	Severe	3.6	326	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:27	40.27925	-73.07028	40.28726	-73.04576	41	11	ENE	<2	B3	>5	Cloudy	Moderate	4.5	42	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:27	15:30	40.28726	-73.04576	40.28454	-73.04592	41	11	ENE	<2	B3	>5	Cloudy	Moderate	4.5	178.6	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	16:00	40.28454	-73.04592	40.24669	-73.03436	41	11	ENE	<2	B3	>5	Cloudy	Moderate	4.5	180.6	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:16	40.24669	-73.03436	40.22554	-73.02769	44	11	ENE	<2	B3	>5	Cloudy	Slight	4.7	164	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:16	16:20	40.22554	-73.02769	40.22072	-73.02704	44	11	ENE	<2	B3	>5	Cloudy	None	4.7	164	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:20	16:40	40.22072	-73.02704	40.20665	-73.03166	44	11	ENE	<2	B3	>5	Cloudy	None	4.7	158	Soft Start	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:40	16:49	40.20665	-73.03166	40.21592	-73.03533	44	11	ENE	<2	B3	>5	Cloudy	None	4.7	341	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:49	16:52	40.21592	-73.03533	40.21963	-73.03512	44	11	ENE	<2	B3	>5	Cloudy	None	4.7	3	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:52	17:00	40.21963	-73.03512	40.23009	-73.03478	44	12	NNE	<2	B3	>5	Cloudy	None	4.7	2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.23009	-73.03478	40.30579	-73.03263	44	12	NNE	<2	B3	>5	Cloudy	None	4.7	2	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:07	40.30579	-73.03263	40.31527	-73.03234	43	13.6	NNE	<2	B4	>5	Cloudy	None	4.4	357	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:07	18:08	40.31527	-73.03234	40.31632	-73.03232	43	13.6	NNE	<2	B4	>5	Cloudy	None	4.4	357	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:08	18:22	40.31632	-73.03232	40.31791	-73.02831	43	13.6	NNE	<2	B4	>5	Cloudy	None	4.4	357	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:22	18:26	40.31791	-73.02831	40.31301	-73.02847	43	13.6	NNE	<2	B4	>5	Cloudy	None	4.4	357	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:26	19:00	40.31301	-73.02847	40.26972	-73.02978	43	13.6	NNE	<2	B4	>5	Cloudy	None	4.4	192	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:39	40.26972	-73.02978	40.21947	-73.03117	42.8	11.9	ENE	<2	B4	>5	Cloudy	None	4.3	192	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:39	19:40	40.21947	-73.03117	40.21774	-73.03122	42.8	11.9	ENE	<2	B4	>5	Cloudy	None	4.3	192	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:40	19:52	40.21774	-73.03122	40.21448	-73.03820	42.8	11.9	ENE	<2	B4	>5	Cloudy	None	4.3	192	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:52	19:56	40.21448	-73.03820	40.21957	-73.03831	44.2	13	E	<2	B4	>5	Cloudy	None	4.6	1.6	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:56	20:00	40.21957	-73.03831	40.22469	-73.03821	44.2	13	E	<2	B4	>5	Cloudy	None	4.6	1.6	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	21:00	40.22469	-73.03821	40.29975	-73.03594	44.2	13	E	<2	B4	>5	Cloudy	None	4.6	1.6	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:11	40.29975	-73.03594	40.31408	-73.03557	41.2	10.4	E	<2	B4	>5	Cloudy	Slight	4.7	1.7	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:11	21:12	40.31408	-73.03557	40.31561	-73.03551	41.2	10.4	E	<2	B4	>5	Cloudy	Slight	4.7	1.7	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:12	21:23	40.31561	-73.03551	40.31645	-73.02817	41.2	10.4	E	<2	B4	>5	Cloudy	Slight	4.7	1.7	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:23	21:26	40.31645	-73.02817	40.31349	-73.02809	41.2	10.4	E	<2	B4	>5	Cloudy	Slight	4.7	1.7	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:26	22:00	40.31349	-73.02809	40.27010	-73.02932	41.2	10.4	E	<2	B4	>5	Cloudy	Slight	4.7	1.7	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:43	40.27010	-73.02932	40.21821	-73.03081	42	10	E	<2	B4	>5	Cloudy	Severe	4.7	173	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:43	22:44	40.21821	-73.03081	40.21787	-73.03081	42	10	E	<2	B4	>5	Cloudy	Severe	4.7	173	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	22:53	40.21787	-73.03081	40.21569	-73.03830	42	10	E	<2	B4	>5	Clear	Severe	4.7	173	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	22:57	40.21569	-73.03830	40.21982	-73.03764	42	10	E	<2	B4	>5	Clear	Severe	4.7	173	Silent	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:57	23:00	40.21982	-73.03764	40.22258	-73.03751	44	11	ENE	<2	B4	>5	Clear	Severe	4.7	8	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:50	40.22258	-73.03751	40.28729	-73.03588	44	11	ENE	<2	B4	>5	Clear	Severe	4.7	6	Full Power	N/A
2022-08-15	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:50	00:00	40.28729	-73.03588	40.29332	-73.03571	44	11	ENE	<2	B4	>5	Clear	None	4.7	6	Full Power	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:12	40.29947	-73.03552	40.31457	-73.03510	42.7	11.7	ENE	<2	B3	>5	Clear	None	4.6	7	Full Power	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:12	00:24	40.31457	-73.03510	40.32364	-73.02723	42.7	11.7	ENE	<2	B3	2-5	Clear	None	4.6	7	Silent	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:24	00:27	40.32364	-73.02723	40.32366	-73.02359	40	10	NNE	<2	B3	1-2	Clear	None	2.8	96	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:27	00:34	40.32366	-73.02359	40.32384	-73.01717	40	10	NNE	<2	B3	1-2	Clear	None	2.8	96	Silent	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:34	00:50	40.32384	-73.01717	40.32410	-73.00045	40	10	NNE	<2	B3	1-2	Clear	None	2.8	96	Deploying/Retrieving	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:50	01:00	40.32410	-73.00045	40.32455	-72.99900	40	9	NNE	<2	B3	0.5-1	Clear	None	2.8	96	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:52	40.32455	-72.99900	40.32471	-73.03304	40	8.2	NNE	<2	B3	0.5-1	Clear	None	2.2	178	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:52	02:00	40.32471	-73.03304	40.31943	-73.04006	40	11.6	ENE	<2	B3	0.5-1	Clear	None	4.3	203	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.31943	-73.04006	40.25894	-73.18369	38.4	12.2	ENE	<2	B3	0.5-1	Clear	None	6.7	225	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.25894	-73.18369	40.25415	-73.36596	37	10	NE	<2	B3	0.5-1	Clear	None	8.5	270	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.25415	-73.36596	40.26249	-73.55215	37	10	NE	<2	B3	0.5-1	Clear	None	8.4	273	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.26249	-73.55215	40.27290	-73.74229	28.6	12	NE	<2	B3	0.5-1	Clear	None	8.3	276	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.27290	-73.74229	40.27178	-73.94198	17.3	13	NE	<2	B3	0.5-1	Clear	None	8.8	273	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:08	40.27178	-73.94198	40.26192	-73.95810	15.8	12.5	NE	<2	B4	0.5-1	Clear	None	9.3	273	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:08	08:00	40.26192	-73.95810	40.26725	-73.90079	17	13	NE	<2	B4	0.5-1	Clear	None	4.7	165	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.26725	-73.90079	40.28563	-73.84843	19.8	16	NE	<2	B4	0.5-1	Clear	None	3.3	63	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:29	40.28563	-73.84843	40.27579	-73.88910	18	18	NE	<2	B4	1-2	Clear	None	3.7	274	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:29	10:00	40.27579	-73.88910	40.26329	-73.93446	18	18	NE	<2	B4	2-5	Clear	Severe	3.7	274	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.26329	-73.93446	40.29333	-73.92394	15.5	18	NE	<2	B4	>5	Clear	Severe	3.9	253	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.29333	-73.92394	40.36407	-73.85816	17.9	19	NE	<2	B4	>5	Clear	Severe	6.9	37	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.36407	-73.85816	40.45800	-73.94269	17.9	17	NE	<2	B4	>5	Clear	Severe	7.1	39	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:30	40.45800	-73.94269	40.47660	-74.02595	13.7	12	NE	<2	B3	>5	Clear	Severe	8.9	307	Transit	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:30	14:00	40.47660	-74.02595	40.48669	-74.07949	9.4	14	ENE	<2	B3	>5	Clear	Severe	5	289	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.48669	-74.07949	40.50014	-74.13295	10	11	ENE	<2	B3	>5	Clear	Severe	5	288	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50014	-74.13295	40.48774	-74.06466	9.7	16	ENE	<2	B3	>5	Clear	Severe	3.7	100	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.48774	-74.06466	40.50102	-74.08579	6.7	9	E	<2	B3	>5	Clear	Severe	4.8	238	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.50102	-74.08579	40.49724	-74.09522	6.7	9	E	<2	B3	>5	Clear	Severe	4.8	238	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.49724	-74.09522	40.49775	-74.09943	5.5	11.5	ESE	<2	B3	>5	Clear	Slight	0.5	328	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	20:00	40.49775	-74.09943	40.49316	-74.10286	5	12.6	ESE	<2	B3	>5	Clear	Moderate	1.3	225	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	21:00	40.49316	-74.10286	40.49193	-74.10402	5	9.6	ESE	<2	B3	>5	Clear	Moderate	0.6	44	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.49193	-74.10402	40.49283	-74.10067	5.8	9.6	ESE	<2	B3	>5	Clear	Moderate	0.7	114	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.49283	-74.10067	40.49316	-74.10396	4.8	9.6	ESE	<2	B3	>5	Clear	Moderate	0.4	232	Standby	N/A
2022-08-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.49316	-74.10396	40.49148	-74.10286	4.8	9.6	ESE	<2	B3	>5	Clear	Moderate	0.4	232	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:25	40.49156	-74.10330	40.49310	-74.10084	6.1	8.3	ESE	<2	B3	>5	Clear	None	0.5	287	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:25	01:00	40.49310	-74.10084	40.49323	-74.10166	6.1	8.3	ESE	<2	B3	1-2	Clear	None	0.5	287	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	40.49323	-74.10166	40.49424	-74.10870	5.7	7	NW	<2	B2	0.5-1	Clear	None	4	95	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.49424	-74.10870	40.49330	-74.10392	6.1	4	ESE	<2	B2	0.5-1	Clear	None	0.5	30	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.49330	-74.10392	40.49170	-74.09946	6	3	ENE	<2	B2	0.5-1	Clear	None	0.7	336	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.49170	-74.09946	40.49369	-74.10196	6	8.5	WSW	<2	B2	0.5-1	Clear	None	0.4	215	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.49369	-74.10196	40.49173	-74.09677	9.1	10	ENE	<2	B2	0.5-1	Clear	None	4.4	103	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49173	-74.09677	40.49558	-74.09819	9.1	12	E	<2	B2	0.5-1	Clear	None	0.9	148	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.49558	-74.09819	40.49261	-74.09743	7	15.3	NE	<2	B3	0.5-1	Cloudy	None	0.5	187	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.49261	-74.09743	40.49342	-74.09622	5.7	11.7	NE	<2	B3	0.5-1	Cloudy	None	0.6	175	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:33	40.49342	-74.09622	40.49406	-74.09912	6.4	8	NE	<2	B2	0.5-1	Cloudy	None	0.6	160	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:33	10:00	40.49406	-74.09912	40.49242	-74.09772	7	8	NE	<2	B2	1-2	Cloudy	None	2	349	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.49242	-74.09772	40.49185	-74.09774	6	9	NE	<2	B2	2-5	Clear	None	0.3	2	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.49185	-74.09774	40.49693	-74.10289	7	6	NNW	<2	B2	>5	Clear	Severe	1.3	345	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.49693	-74.10289	40.49540	-74.10052	7.9	5	NNE	<2	B2	>5	Clear	Severe	1.5	0	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49540	-74.10052	40.49568	-74.09997	8.2	1	NNW	<2	B1	>5	Clear	Severe	0.2	269	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.49568	-74.09997	40.49600	-74.09801	8.8	4	WSW	<2	B1	>5	Cloudy	Slight	0.2	53	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.49600	-74.09801	40.49575	-74.09933	8.5	3	NNW	<2	B1	>5	Cloudy	Slight	0.4	46	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.49575	-74.09933	40.49534	-74.10339	8.5	3	NNW	<2	B1	>5	Cloudy	Slight	0.4	46	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49534	-74.10339	40.49870	-74.08145	8.5	3	NNW	<2	B1	>5	Cloudy	Slight	0.4	174	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.49870	-74.08145	40.50220	-74.07798	5.7	4.2	S	<2	B1	>5	Cloudy	Slight	1.4	71.1	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	20:00	40.50220	-74.07798	40.49747	-74.07273	5	6.2	SSE	<2	B1	>5	Cloudy	None	2.4	204	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	21:00	40.49747	-74.07273	40.49182	-74.07274	5.3	3.1	S	<2	B1	>5	Cloudy	None	0.4	66	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.49182	-74.07274	40.49351	-74.06401	5.3	6.6	SW	<2	B1	>5	Cloudy	None	0.8	83	Standby	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.49351	-74.06401	40.46878	-73.95221	5.3	4	SW	<2	B1	>5	Cloudy	None	0.8	138	Transit	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:50	40.46878	-73.95221	40.40234	-73.83881	13.7	10	S	<2	B2	>5	Cloudy	None	9.7	140	Transit	N/A
2022-08-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:50	00:00	40.40234	-73.83881	40.39906	-73.82476	23.1	10	SSW	<2	B2	>5	Cloudy	None	9.7	105	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:21	40.39635	-73.80976	40.38356	-73.74652	32.6	9.1	SSW	<2	B3	>5	Cloudy	None	7.9	102	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:21	01:00	40.38356	-73.74652	40.36130	-73.63283	22.6	9.9	SSW	<2	B3	2-5	Cloudy	None	8.2	107	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	02:00	40.36130	-73.63283	40.33115	-73.46463	22.8	10.5	S	<2	B3	2-5	Cloudy	None	8.2	103	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.33115	-73.46463	40.30970	-73.28863	28.5	8.6	SSW	<2	B3	0.5-1	Cloudy	None	8.9	97	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.30970	-73.28863	40.29737	-73.11011	30.4	7	SSW	<2	B3	0.5-1	Cloudy	None	8.8	98	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:35	40.29737	-73.11011	40.29897	-73.00460	39.3	6	WNW	<2	B3	0.5-1	Cloudy	None	8.5	93	Transit	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:35	05:00	40.29897	-73.00460	40.30407	-72.98642	39.3	6	WNW	<2	B3	0.5-1	Cloudy	None	8.5	93	Standby	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.30407	-72.98642	40.30154	-73.00186	43.2	13	SW	<2	B3	0.5-1	Cloudy	None	0.5	345	Standby	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:40	40.30154	-73.00186	40.30455	-72.99473	41.4	14	WSW	<2	B4	0.5-1	Clear	None	1.2	355	Standby	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:40	07:00	40.30455	-72.99473	40.30561	-72.99177	42.3	12	WSW	<2	B4	0.5-1	Clear	None	1.2	110	Deploying/Retrieving	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.30561	-72.99177	40.31119	-73.03132	41	12.5	WSW	<2	B4	0.5-1	Clear	None	1.4	142	Deploying/Retrieving	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:56	40.31119	-73.03132	40.32776	-72.97644	41.2	16	W	<2	B4	0.5-1	Clear	None	3.2	326	Deploying/Retrieving	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:56	09:00	40.32776	-72.97644	40.32439	-72.97611	40	13	WNW	<2	B4	0.5-1	Clear	None	2.8	142	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:02	40.32439	-72.97611	40.32227	-72.97585	42	11	WNW	<2	B4	0.5-1	Clear	None	3.9	180	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:02	09:30	40.32227	-72.97585	40.28974	-72.97535	42	11	WNW	<2	B4	1-2	Clear	None	3.9	180	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:30	09:32	40.28974	-72.97535	40.28888	-72.97703	42	11	WNW	<2	B4	>5	Clear	None	3.9	180	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:32	09:52	40.28888	-72.97703	40.29476	-73.00208	42	11	WNW	<2	B4	>5	Clear	None	3.9	180	Soft Start	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:52	10:00	40.29476	-73.00208	40.30477	-73.00290	42	11	WNW	<2	B4	>5	Clear	None	3.9	180	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:42	40.30477	-73.00290	40.31392	-73.02773	44	12.5	WNW	<2	B4	>5	Clear	None	4.5	330	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:42	11:00	40.31392	-73.02773	40.29031	-73.02847	43	11	WNW	<2	B4	>5	Clear	Severe	4.7	178	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:54	40.29031	-73.02847	40.21970	-73.03046	43	11	WNW	<2	B4	>5	Clear	Severe	4.6	179	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:54	11:56	40.21970	-73.03046	40.21703	-73.03061	43	15	WNW	<2	B4	>5	Clear	Severe	4.6	210	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:56	12:00	40.21703	-73.03061	40.21402	-73.03497	43	15	WNW	<2	B4	>5	Clear	Severe	4.6	220	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.21402	-73.03497	40.26953	-73.09817	44	16	W	<2	B4	>5	Clear	Severe	4.3	302	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:27	40.26953	-73.09817	40.28689	-73.10282	41	13	W	<2	B4	>5	Clear	Severe	4.7	318	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:27	13:31	40.28689	-73.10282	40.28176	-73.10315	40	10	WNW	<2	B4	>5	Clear	Severe	4.5	195	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:31	14:00	40.28176	-73.10315	40.24356	-73.10418	40	10	WNW	<2	B4	>5	Clear	Severe	4.6	181	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:59	40.24356	-73.10418	40.16664	-73.10631	43	13	W	<2	B4	>5	Clear	Severe	4.8	183	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:59	15:00	40.16664	-73.10631	40.16536	-73.10634	46	12	W	<2	B4	>5	Clear	Severe	4.7	183	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:15	40.16536	-73.10634	40.16367	-73.11914	46	12	W	<2	B4	>5	Clear	Severe	4.7	183	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:15	15:18	40.16367	-73.11914	40.16723	-73.11945	45	13	WNW	<2	B4	>5	Clear	Severe	4.3	357	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:18	16:00	40.16723	-73.11945	40.21946	-73.11799	45	13	WNW	<2	B4	>5	Clear	Severe	4.3	357	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:43	40.21946	-73.11799	40.27369	-73.11646	43	11	SSW	<2	B4	>5	Clear	Severe	4.3	357	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:43	16:44	40.27369	-73.11646	40.27432	-73.11647	43	11	SSW	<2	B4	>5	Clear	Severe	4.3	357	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:44	16:56	40.27432	-73.11647	40.28933	-73.11608	43	11	SSW	<2	B4	>5	Clear	Severe	4.3	357	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:56	17:00	40.28933	-73.11608	40.29088	-73.10921	40	11	SSW	<2	B4	>5	Clear	Severe	4.3	125	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:05	40.29088	-73.10921	40.28540	-73.10567	40	9	WSW	<2	B4	>5	Clear	Severe	4.9	121	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:05	17:08	40.28540	-73.10567	40.28134	-73.10561	40	9	WSW	<2	B4	>5	Clear	Severe	4.9	180	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:08	18:01	40.28134	-73.10561	40.21425	-73.10744	40	9	WSW	<2	B4	>5	Clear	Severe	4.9	180	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:01	18:39	40.21425	-73.10744	40.16663	-73.10879	42.3	13.2	SW	<2	B4	>5	Clear	Moderate	4.5	185	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:39	18:41	40.16663	-73.10879	40.16417	-73.10889	46	13.2	SW	<2	B4	>5	Clear	Moderate	4.2	179	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:41	18:59	40.16417	-73.10889	40.16243	-73.11991	46	13.2	SW	<2	B4	>5	Clear	Moderate	4.2	179	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:59	19:00	40.16243	-73.11991	40.16377	-73.11988	45	12.2	SW	<2	B4	>5	Clear	Moderate	4.7	1	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:03	40.16377	-73.11988	40.16753	-73.11980	45	12.2	SW	<2	B4	>5	Clear	Moderate	4.7	1	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:03	20:00	40.16753	-73.11980	40.23775	-73.11783	45	12.2	SW	<2	B4	>5	Clear	Moderate	4.7	1	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:27	40.23775	-73.11783	40.27215	-73.11689	41.7	17.6	SSW	<2	B4	>5	Clear	Moderate	4.4	0.4	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:27	20:28	40.27215	-73.11689	40.27343	-73.11685	40.2	19	SSW	<2	B4	>5	Clear	Moderate	4.6	359	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:28	20:49	40.27343	-73.11685	40.28741	-73.10608	40.2	19	SSW	<2	B4	>5	Clear	Moderate	4.6	359	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:49	20:53	40.28741	-73.10608	40.28232	-73.10600	40.7	19.5	SW	<2	B4	>5	Clear	Moderate	4.6	183	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:53	21:59	40.28232	-73.10600	40.20745	-73.10811	40.7	19.5	SW	<2	B4	>5	Clear	Moderate	4.6	183	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:59	22:37	40.20745	-73.10811	40.16541	-73.10923	43	18	SW	<2	B4	>5	Clear	Severe	4.1	186	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:37	22:39	40.16541	-73.10923	40.16380	-73.10923	43	18	SW	<2	B4	>5	Clear	Severe	4.1	186	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:39	22:50	40.16380	-73.10923	40.16441	-73.12041	43	18	SW	<2	B4	>5	Clear	Severe	4.1	186	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:50	22:53	40.16441	-73.12041	40.16730	-73.12014	43	17	SSW	<2	B4	>5	Clear	Severe	4.5	3	Silent	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	23:00	40.16730	-73.12014	40.17522	-73.11992	43	17	SSW	<2	B4	>5	Clear	Severe	4.5	3	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:44	40.17522	-73.11992	40.23285	-73.11830	43	17	SSW	<2	B4	>5	Clear	Severe	4.6	357	Full Power	N/A
2022-08-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:44	00:00	40.23285	-73.11830	40.24413	-73.11801	43	17	SSW	<2	B4	>5	Clear	None	4.6	357	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:15	40.25231	-73.11780	40.27148	-73.11726	41.7	18.5	SSW	<2	B5	>5	Clear	None	4.5	3.9	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:15	00:17	40.27148	-73.11726	40.27404	-73.11717	42	18.5	SSW	<2	B5	2-5	Clear	None	4.5	356	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:17	00:22	40.27404	-73.11717	40.28145	-73.11669	42	18.5	SSW	<2	B5	2-5	Clear	None	4.5	356	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:22	00:25	40.28145	-73.11669	40.28442	-73.11632	42	18.5	SSW	<2	B5	1-2	Clear	None	4.5	356	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:25	00:37	40.28442	-73.11632	40.28689	-73.10641	42.3	17.7	SSW	<2	B5	0.5-1	Clear	None	4.7	1	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:37	00:41	40.28689	-73.10641	40.28243	-73.10638	42.3	17.7	SSW	<2	B5	0.5-1	Clear	None	4.7	1	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:41	01:00	40.28243	-73.10638	40.26107	-73.10692	41	21	SW	<2	B5	0.5-1	Clear	None	4.1	185	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:56	40.26107	-73.10692	40.19936	-73.10858	40	20	SW	<2	B5	0.5-1	Clear	None	4	186	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:56	02:00	40.19936	-73.10858	40.19523	-73.10873	40	20	SW	<2	B5	0.5-1	Clear	None	4	186	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:27	40.19523	-73.10873	40.16684	-73.10953	40	20	SW	<2	B5	0.5-1	Clear	None	3.7	192	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:27	02:30	40.16684	-73.10953	40.16367	-73.10960	40	20	SW	<2	B5	0.5-1	Clear	None	3.7	192	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:30	03:00	40.16367	-73.10960	40.18009	-73.10820	40	20	SW	<2	B5	0.5-1	Clear	None	3.7	192	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:02	40.18009	-73.10820	40.18167	-73.10629	40	20	SW	<2	B5	0.5-1	Clear	None	4.2	42	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:02	04:00	40.18167	-73.10629	40.17991	-73.07456	40	19	SW	<2	B5	0.5-1	Clear	None	4.1	36	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.17991	-73.07456	40.14507	-73.12502	45.3	22	WSW	2-4	B5	0.5-1	Clear	None	3.3	225	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.14507	-73.12502	40.18773	-73.05304	44	16	WSW	2-4	B5	0.5-1	Clear	None	4.5	338	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.18773	-73.05304	40.19109	-73.03687	45	15	WSW	<2	B4	0.5-1	Clear	None	3.7	56	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:09	40.19109	-73.03687	40.19179	-73.04725	45	16	WSW	<2	B4	0.5-1	Clear	None	3.7	282	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:09	07:29	40.19179	-73.04725	40.20039	-73.05434	45	16	WSW	<2	B4	0.5-1	Clear	None	3.7	282	Soft Start	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:29	08:00	40.20039	-73.05434	40.20012	-73.05653	47	14	W	<2	B4	0.5-1	Clear	None	4.3	187	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.20012	-73.05653	40.19255	-73.06118	40.3	16	WSW	<2	B4	0.5-1	Clear	None	4.8	162	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:02	40.19255	-73.06118	40.19464	-73.06115	42	12	W	<2	B4	0.5-1	Clear	None	4.1	350	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:02	09:07	40.19464	-73.06115	40.19869	-73.06113	42	13	W	<2	B4	0.5-1	Clear	None	3.2	353	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:07	09:42	40.19869	-73.06113	40.23888	-73.05998	42	13	W	<2	B4	1-2	Clear	None	3.2	353	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:42	09:55	40.23888	-73.05998	40.25420	-73.05947	42	12	W	<2	B4	2-5	Clear	None	4.5	358	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:55	09:55	40.25420	-73.05947	40.25483	-73.05946	42	12	W	<2	B4	>5	Clear	Severe	4.5	358	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:55	10:00	40.25483	-73.05946	40.26023	-73.05937	42	12	W	<2	B4	>5	Clear	Severe	4.5	358	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:27	40.26023	-73.05937	40.25306	-73.04547	42	10	WSW	<2	B4	>5	Clear	Severe	4.5	23	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:27	10:47	40.25306	-73.04547	40.23101	-73.05278	42	10	WSW	<2	B3	>5	Clear	Severe	4.5	23	Soft Start	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:47	11:03	40.23101	-73.05278	40.24580	-73.05979	42	10	WSW	<2	B3	>5	Clear	Severe	4.5	23	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:03	11:07	40.24580	-73.05979	40.25092	-73.05960	42	10	WSW	<2	B3	>5	Clear	Severe	4.5	23	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:07	11:50	40.25092	-73.05960	40.30380	-73.05804	42	10	WSW	<2	B3	>5	Clear	Severe	4.5	23	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:50	11:51	40.30380	-73.05804	40.30512	-73.05802	43	8	W	<2	B3	>5	Clear	Severe	4.6	6	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:51	12:00	40.30512	-73.05802	40.31699	-73.05742	43	8	W	<2	B3	>5	Clear	Severe	4.6	6	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:15	40.31699	-73.05742	40.31636	-73.04323	43	8	W	<2	B3	>5	Clear	Severe	4.3	175	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:15	12:17	40.31636	-73.04323	40.31383	-73.04328	43	9	W	<2	B3	>5	Clear	Severe	4.7	177	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:17	13:00	40.31383	-73.04328	40.25827	-73.04491	43	8	W	<2	B3	>5	Clear	Severe	4.7	176	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:39	40.25827	-73.04491	40.20801	-73.04634	43	9	W	<2	B3	>5	Clear	Severe	4.6	176	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:39	13:40	40.20801	-73.04634	40.20671	-73.04639	43	8	WNW	<2	B3	>5	Clear	Severe	4.6	176	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:40	14:00	40.20671	-73.04639	40.19097	-73.06018	43	8	WNW	<2	B3	>5	Clear	Severe	4.6	176	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:04	40.19097	-73.06018	40.19537	-73.06165	45	7	WNW	<2	B3	>5	Clear	Severe	4.3	10	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:04	14:06	40.19537	-73.06165	40.19805	-73.06152	45	7	WNW	<2	B3	>5	Clear	Severe	4.3	10	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:06	14:26	40.19805	-73.06152	40.22356	-73.06067	45	7	WNW	<2	B3	>5	Clear	Severe	4.3	10	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:26	15:00	40.22356	-73.06067	40.26591	-73.05949	45	8	W	<2	B3	>5	Clear	Severe	4.7	8	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:30	40.26591	-73.05949	40.30516	-73.05834	42	7	W	<2	B3	>5	Clear	Severe	4.6	7	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	15:54	40.30516	-73.05834	40.31794	-73.04350	43	6	W	<2	B3	>5	Clear	Severe	4.7	7	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:54	15:58	40.31794	-73.04350	40.31318	-73.04369	39	6	WSW	<2	B3	>5	Clear	Severe	4.1	178	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:58	16:00	40.31318	-73.04369	40.31026	-73.04377	39	6	WSW	<2	B3	>5	Clear	Severe	4.6	177	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.31026	-73.04377	40.23613	-73.04587	39	6	WSW	<2	B3	>5	Clear	Moderate	4.6	177	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:23	40.23613	-73.04587	40.20827	-73.04665	45	8	SW	<2	B3	>5	Clear	Moderate	4.1	176	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:23	17:25	40.20827	-73.04665	40.20628	-73.04674	45	8	SW	<2	B3	>5	Clear	Moderate	4.1	176	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:25	17:48	40.20628	-73.04674	40.19515	-73.06180	45	8	SW	<2	B3	>5	Clear	Moderate	4.1	176	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:48	17:51	40.19515	-73.06180	40.19951	-73.06171	45	8	SW	<2	B3	>5	Clear	Moderate	4.1	2	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:51	18:00	40.19951	-73.06171	40.20847	-73.06152	44	10	SSW	<2	B3	>5	Clear	Moderate	4.1	1	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.20847	-73.06152	40.28641	-73.05929	43.1	9.7	SSW	<2	B3	>5	Clear	Slight	4.3	9.1	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:14	40.28641	-73.05929	40.30428	-73.05882	41.2	8.6	SSW	<2	B3	>5	Clear	Moderate	4.6	0.5	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:14	19:15	40.30428	-73.05882	40.30660	-73.05872	41.2	8.6	SSW	<2	B3	>5	Clear	Moderate	4.6	0.5	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:15	20:00	40.30660	-73.05872	40.29072	-73.05037	41.2	8.6	SSW	<2	B3	>5	Clear	Moderate	4.6	0.5	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	21:00	40.29072	-73.05037	40.31353	-73.06090	40.2	12.5	SSW	<2	B3	>5	Cloudy	Moderate	3.2	184	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.31353	-73.06090	40.28572	-73.04495	39.7	13.3	SSW	<2	B3	>5	Cloudy	Severe	3.5	2.3	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:50	40.28572	-73.04495	40.32343	-73.05144	43	14	SW	<2	B3	>5	Cloudy	Severe	3.4	192	Full Power	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:50	23:00	40.32343	-73.05144	40.32832	-73.04041	43	13	SSW	<2	B3	>5	Cloudy	Severe	4.6	12	Silent	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:20	40.32832	-73.04041	40.30893	-73.03962	43	14	SSW	<2	B3	>5	Cloudy	Severe	4.6	187	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:20	23:39	40.30893	-73.03962	40.28905	-73.04012	43	14	SSW	<2	B3	>5	Cloudy	Moderate	4.6	187	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:39	23:44	40.28905	-73.04012	40.28415	-73.04024	43	14	SSW	<2	B3	>5	Cloudy	Slight	4.6	187	Standby	N/A
2022-08-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:44	00:00	40.28415	-73.04024	40.26887	-73.04114	43	15	SSW	<2	B3	>5	Cloudy	None	4	193	Standby	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:22	40.25775	-73.04786	40.26554	-73.05400	42.7	15	SSW	<2	B3	>5	Clear	None	3.6	258	Standby	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:22	01:00	40.26554	-73.05400	40.31550	-73.05486	42.7	15	SSW	<2	B3	1-2	Clear	None	4.8	355	Standby	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:50	40.31550	-73.05486	40.29436	-73.04471	42.2	14.8	WSW	<2	B4	0.5-1	Clear	None	4.7	350	Standby	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:50	02:00	40.29436	-73.04471	40.28533	-73.04514	42.2	14.8	WSW	<2	B4	0.5-1	Clear	None	4.7	350	Soft Start	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:10	40.28533	-73.04514	40.29166	-73.05149	42.5	13.8	SSW	<2	B4	0.5-1	Clear	None	3.8	209	Soft Start	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:10	02:40	40.29166	-73.05149	40.31803	-73.04304	42.5	13.8	SSW	<2	B4	0.5-1	Clear	None	3.8	209	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:40	02:45	40.31803	-73.04304	40.31314	-73.04414	42.5	13.8	SSW	<2	B4	0.5-1	Clear	None	3.8	209	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:45	03:00	40.31314	-73.04414	40.29525	-73.04454	42.5	13.8	SSW	<2	B4	0.5-1	Clear	None	3.8	209	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.29525	-73.04454	40.21794	-73.04681	43	13	SSW	<2	B4	0.5-1	Clear	None	4.7	181	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:07	40.21794	-73.04681	40.20878	-73.04710	43	11	SW	<2	B4	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:07	04:09	40.20878	-73.04710	40.20618	-73.04716	43	11	SW	<2	B4	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:09	04:32	40.20618	-73.04716	40.19295	-73.06228	43	11	SW	<2	B4	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:32	04:36	40.19295	-73.06228	40.19788	-73.06227	43	11	SW	<2	B4	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:36	05:00	40.19788	-73.06227	40.22823	-73.06131	43	11	SW	<2	B4	0.5-1	Clear	None	4.5	355	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:59	40.22823	-73.06131	40.30314	-73.05920	44	10	SW	<2	B3	0.5-1	Clear	None	4.6	2	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:59	06:01	40.30314	-73.05920	40.30570	-73.05911	43	9	SW	<2	B3	0.5-1	Clear	None	4.5	3	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:01	06:26	40.30570	-73.05911	40.31760	-73.04437	43	9	SW	<2	B3	0.5-1	Clear	None	4.5	3	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:26	06:30	40.31760	-73.04437	40.31363	-73.04444	43	11	SW	<2	B3	0.5-1	Clear	None	4.6	175	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:30	07:00	40.31363	-73.04444	40.27693	-73.04542	43	11	SW	<2	B3	0.5-1	Clear	None	4.6	175	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:53	40.27693	-73.04542	40.20866	-73.04740	42	8	SW	<2	B3	0.5-1	Clear	None	4.7	175	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:53	07:55	40.20866	-73.04740	40.20612	-73.04749	43	11	SW	<2	B3	0.5-1	Clear	None	4.6	177	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:55	08:00	40.20612	-73.04749	40.19968	-73.04840	43	11	SW	<2	B3	0.5-1	Clear	None	4.6	177	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:18	40.19968	-73.04840	40.19266	-73.06371	46	11	SW	<2	B3	0.5-1	Clear	None	4.5	183	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:18	08:25	40.19266	-73.06371	40.19902	-73.06360	44	9	SW	<2	B3	0.5-1	Cloudy	None	3.3	9	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:25	09:00	40.19902	-73.06360	40.24246	-73.06229	45	9	SW	<2	B3	0.5-1	Cloudy	None	3	7	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:44	40.24246	-73.06229	40.30103	-73.06063	44	8	SW	<2	B3	0.5-1	Cloudy	None	4.6	9	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	09:47	40.30103	-73.06063	40.30385	-73.06052	44	8	SW	<2	B3	1-2	Cloudy	None	4.6	9	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:47	09:48	40.30385	-73.06052	40.30513	-73.06050	44	8	SW	<2	B3	2-5	Cloudy	None	3.8	9	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:48	10:00	40.30513	-73.06050	40.31773	-73.06006	44	8	SW	<2	B3	2-5	Cloudy	None	3.7	6	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:16	40.31773	-73.06006	40.31758	-73.04556	44	8	SW	<2	B3	>5	Cloudy	None	4.6	0	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:16	10:19	40.31758	-73.04556	40.31381	-73.04573	44	8	SW	<2	B3	>5	Cloudy	Slight	4.6	179	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:19	11:00	40.31381	-73.04573	40.26235	-73.04731	44	9	SW	<2	B3	>5	Cloudy	Slight	4.6	179	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:43	40.26235	-73.04731	40.20851	-73.04881	44	9	SW	<2	B3	>5	Cloudy	None	4.5	179	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:43	11:44	40.20851	-73.04881	40.20727	-73.04881	43	8	SW	<2	B3	>5	Cloudy	None	4.4	180	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:44	12:00	40.20727	-73.04881	40.18858	-73.05423	43	8	SW	<2	B3	>5	Cloudy	None	4.3	181	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:09	40.18858	-73.05423	40.19442	-73.06407	44	7	SSW	<2	B3	>5	Cloudy	None	4.6	224	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:09	12:12	40.19442	-73.06407	40.19835	-73.06392	45	6	SSW	<2	B3	>5	Cloudy	None	4.7	2	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	13:00	40.19835	-73.06392	40.25848	-73.06212	44	6	SSW	<2	B3	>5	Cloudy	None	4.5	0	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:35	40.25848	-73.06212	40.30353	-73.06098	42	8	SSW	<2	B3	>5	Cloudy	None	4.6	0	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:35	13:37	40.30353	-73.06098	40.30612	-73.06087	43	8	SSW	<2	B3	>5	Cloudy	Moderate	4.6	1	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:37	14:02	40.30612	-73.06087	40.31763	-73.04594	43	8	SSW	<2	B3	>5	Cloudy	Moderate	4.6	1	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:02	14:05	40.31763	-73.04594	40.31387	-73.04614	39	9	SSW	<2	B3	>5	Clear	Severe	4.7	185	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:05	15:00	40.31387	-73.04614	40.24441	-73.04813	41	9	SSW	<2	B3	>5	Clear	Severe	4.6	183	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:28	40.24441	-73.04813	40.20877	-73.04910	44	9	WSW	<2	B3	>5	Clear	Severe	4.6	183	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:28	15:29	40.20877	-73.04910	40.20750	-73.04915	44	9	WSW	<2	B3	>5	Clear	Severe	4.5	183	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:29	15:54	40.20750	-73.04915	40.19427	-73.06431	44	9	WSW	<2	B3	>5	Clear	Severe	4.5	183	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:54	15:57	40.19427	-73.06431	40.19825	-73.06427	44	8	WSW	<2	B3	>5	Clear	Severe	4.8	356	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:57	16:00	40.19825	-73.06427	40.20216	-73.06422	45	8	WSW	<2	B3	>5	Clear	Severe	4.6	355	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:09	40.20216	-73.06422	40.21296	-73.06394	44	8	SW	<2	B3	>5	Clear	Moderate	3.5	352	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:09	16:12	40.21296	-73.06394	40.21695	-73.06385	44	8	SW	<2	B3	>5	Clear	Moderate	3.5	352	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:12	16:33	40.21695	-73.06385	40.23335	-73.05082	44	8	SW	<2	B3	>5	Clear	Moderate	4	352	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:33	16:43	40.23335	-73.05082	40.22211	-73.04962	44	8	SW	<2	B3	>5	Clear	Moderate	3.5	352	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:43	17:00	40.22211	-73.04962	40.20405	-73.05152	44	8	SW	<2	B3	>5	Clear	Moderate	3.5	352	Soft Start	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:03	40.20405	-73.05152	40.20282	-73.05575	44	6	SSW	<2	B3	>5	Clear	Moderate	4	250	Soft Start	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:03	17:12	40.20282	-73.05575	40.20996	-73.06387	44	6	SSW	<2	B3	>5	Clear	Moderate	4	250	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:12	17:15	40.20996	-73.06387	40.21275	-73.06391	44	6	SSW	<2	B3	>5	Clear	Moderate	4	352	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:15	17:36	40.21275	-73.06391	40.23908	-73.06313	44	6	SSW	<2	B3	>5	Clear	Moderate	4	352	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:36	18:00	40.23908	-73.06313	40.26730	-73.06237	44	6	SSW	<2	B3	>5	Clear	Moderate	4	352	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:31	40.26730	-73.06237	40.30361	-73.06133	42.2	5.1	SW	<2	B3	>5	Clear	Slight	4.3	358	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:31	18:32	40.30361	-73.06133	40.30477	-73.06130	42.7	5.1	SW	<2	B3	>5	Clear	Slight	4	358	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:32	18:56	40.30477	-73.06130	40.31886	-73.04632	42.7	5.1	SW	<2	B3	>5	Clear	Slight	4	358	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:56	19:00	40.31886	-73.04632	40.31361	-73.04656	38.7	6.8	S	<2	B3	>5	Cloudy	Slight	4.9	183	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:47	40.31361	-73.04656	40.25436	-73.04826	38.7	6.8	S	<2	B3	>5	Cloudy	Slight	4.9	183	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:47	20:00	40.25436	-73.04826	40.23822	-73.04868	42.6	6.3	S	<2	B3	>5	Cloudy	Slight	4.8	182	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:24	40.23822	-73.04868	40.20779	-73.04954	42.6	7.1	S	<2	B3	>5	Cloudy	Slight	4.5	178	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:24	20:25	40.20779	-73.04954	40.20653	-73.04962	42.6	7.1	S	<2	B3	>5	Cloudy	Moderate	4.5	178	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:25	20:48	40.20653	-73.04962	40.19518	-73.06450	42.6	7.1	S	<2	B3	>5	Cloudy	Severe	4.5	178	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:48	20:51	40.19518	-73.06450	40.19804	-73.06461	42.6	7.1	S	<2	B3	>5	Cloudy	Severe	4.5	1.3	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:51	20:57	40.19804	-73.06461	40.20570	-73.06450	42.6	7.1	S	<2	B3	>5	Cloudy	Severe	4.5	1.3	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:57	21:00	40.20570	-73.06450	40.20836	-73.06443	42.6	7.1	S	<2	B3	>5	Cloudy	Severe	4.5	1.3	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:01	40.20836	-73.06443	40.28593	-73.06220	42.2	7.7	S	<2	B3	>5	Cloudy	Severe	4.5	5.2	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:01	22:15	40.28593	-73.06220	40.30358	-73.06170	41	10	S	<2	B3	>5	Clear	Severe	4.5	0	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:15	22:17	40.30358	-73.06170	40.30673	-73.06160	41	10	S	<2	B3	>5	Clear	Severe	4.5	0	Silent	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:17	22:45	40.30673	-73.06160	40.31711	-73.02975	41	10	S	<2	B3	>5	Clear	Severe	4.5	13	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:45	22:49	40.31711	-73.02975	40.31219	-73.02991	41	10	S	<2	B3	>5	Clear	Severe	4.5	178	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:49	23:00	40.31219	-73.02991	40.29848	-73.03033	41	11	S	<2	B3	>5	Clear	Severe	4.6	182	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:42	40.29848	-73.03033	40.24528	-73.03188	41	11	S	<2	B3	>5	Clear	Slight	4.6	180	Full Power	N/A
2022-08-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:42	00:00	40.24528	-73.03188	40.22671	-73.03242	41	10	S	<2	B3	>5	Clear	None	4.6	180	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:04	40.22386	-73.03253	40.21886	-73.03264	44.5	9.8	S	<2	B3	2-5	Clear	None	4.3	171	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:04	00:06	40.21886	-73.03264	40.21640	-73.03270	44.5	9.8	S	<2	B3	1-2	Clear	None	4.3	171	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:06	00:23	40.21640	-73.03270	40.20380	-73.04011	44.5	9.8	S	<2	B3	1-2	Clear	None	4.3	171	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:23	00:30	40.20380	-73.04011	40.21187	-73.03997	44.5	9.8	S	<2	B3	0.5-1	Clear	None	4.3	333	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:30	00:39	40.21187	-73.03997	40.22025	-73.03967	44.5	9.8	S	<2	B3	0.5-1	Clear	None	4.3	333	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:39	01:00	40.22025	-73.03967	40.24581	-73.03894	44	7	SSE	<2	B3	0.5-1	Clear	None	3.1	2	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:53	40.24581	-73.03894	40.31417	-73.03702	42.7	8.8	SSE	<2	B3	0.5-1	Clear	None	4.6	3	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:53	02:00	40.31417	-73.03702	40.32054	-73.03696	42.7	8.8	SSE	<2	B3	0.5-1	Clear	None	4.6	3	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:32	40.32054	-73.03696	40.30507	-73.02993	42.7	10.2	SSW	<2	B3	0.5-1	Clear	None	4.3	350	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:32	02:52	40.30507	-73.02993	40.32092	-73.04012	42.7	10.2	SSW	<2	B3	0.5-1	Clear	None	4.8	230	Soft Start	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:52	03:00	40.32092	-73.04012	40.32013	-73.03004	42.7	10.2	SSW	<2	B3	0.5-1	Clear	None	4.8	230	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:02	40.32013	-73.03004	40.31771	-73.02945	42	10	SSW	<2	B3	0.5-1	Clear	None	4	154	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:02	03:05	40.31771	-73.02945	40.31384	-73.02952	42	9	SSW	<2	B3	0.5-1	Clear	None	4.6	177	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:05	04:00	40.31384	-73.02952	40.24463	-73.03152	42	9	SSW	<2	B3	0.5-1	Clear	None	4.6	177	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:19	40.24463	-73.03152	40.21936	-73.03228	42	6	SSE	<2	B3	0.5-1	Clear	None	4.8	176	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:19	04:21	40.21936	-73.03228	40.21672	-73.03231	42	6	SSE	<2	B3	0.5-1	Clear	None	4.8	176	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:21	04:46	40.21672	-73.03231	40.21580	-73.03955	42	6	SSE	<2	B3	0.5-1	Clear	None	4.8	176	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:46	04:49	40.21580	-73.03955	40.21962	-73.03936	45	4	SSE	<2	B2	0.5-1	Clear	None	4.4	6	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:49	05:00	40.21962	-73.03936	40.23387	-73.03897	45	4	SSE	<2	B2	0.5-1	Clear	None	4.7	5	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.23387	-73.03897	40.31178	-73.03675	45	6	SSE	<2	B2	0.5-1	Clear	None	4.7	5	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:02	40.31178	-73.03675	40.31440	-73.03666	40	8	SSE	<2	B2	0.5-1	Clear	None	4.6	3	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:02	06:03	40.31440	-73.03666	40.31571	-73.03659	40	8	SSE	<2	B2	0.5-1	Clear	None	4.6	3	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:03	06:27	40.31571	-73.03659	40.31838	-73.02876	40	8	SSE	<2	B2	0.5-1	Clear	None	4.6	3	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:27	06:32	40.31838	-73.02876	40.31325	-73.02923	42	5	SSE	<2	B2	0.5-1	Clear	None	3.2	177	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:32	07:00	40.31325	-73.02923	40.27804	-73.03025	42	5	SSE	<2	B2	0.5-1	Clear	None	3.2	178	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:46	40.27804	-73.03025	40.21896	-73.03194	43	7.6	SE	<2	B2	0.5-1	Clear	None	4.3	178	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:46	07:48	40.21896	-73.03194	40.21641	-73.03203	44	7	SE	<2	B2	0.5-1	Clear	None	4.5	178	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:48	08:00	40.21641	-73.03203	40.20350	-73.03394	44	7	SE	<2	B2	0.5-1	Clear	None	4.5	178	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:12	40.20350	-73.03394	40.21463	-73.03937	44	5	SE	<2	B2	0.5-1	Clear	None	4.5	343	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:12	08:16	40.21463	-73.03937	40.21967	-73.03899	44	5	SE	<2	B2	0.5-1	Clear	None	4.5	343	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:16	09:00	40.21967	-73.03899	40.27479	-73.03738	44	4.5	SE	<2	B2	0.5-1	Clear	None	4.5	0	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:32	40.27479	-73.03738	40.31412	-73.03628	43	6	SE	<2	B2	0.5-1	Clear	None	4.7	359	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:32	09:34	40.31412	-73.03628	40.31667	-73.03639	44	6	SE	<2	B2	1-2	Clear	None	4.5	356	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:34	09:36	40.31667	-73.03639	40.31922	-73.03671	44	6	SE	<2	B2	1-2	Clear	None	4.6	356	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:36	09:57	40.31922	-73.03671	40.31863	-73.02809	44	6	SE	<2	B2	1-2	Clear	None	4.6	356	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:57	10:00	40.31863	-73.02809	40.31493	-73.02864	44	6	ESE	<2	B2	>5	Clear	Slight	4.6	183	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:01	40.31493	-73.02864	40.31366	-73.02871	44	6	ESE	<2	B2	>5	Clear	Severe	4.8	183	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:01	11:00	40.31366	-73.02871	40.23690	-73.03102	44	6	ESE	<2	B2	>5	Clear	Severe	4.8	182	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:14	40.23690	-73.03102	40.21907	-73.03164	44	5	ESE	<2	B2	>5	Clear	Severe	4.8	182	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:14	11:16	40.21907	-73.03164	40.21653	-73.03168	44	6	ESE	<2	B2	>5	Clear	Severe	4.7	182	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:16	11:25	40.21653	-73.03168	40.21565	-73.03858	44	6	ESE	<2	B2	>5	Clear	Severe	4.7	182	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:25	11:28	40.21565	-73.03858	40.21954	-73.03848	44	5	ESE	<2	B2	>5	Clear	Severe	4.2	353	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:28	11:32	40.21954	-73.03848	40.22447	-73.03843	44	5	ESE	<2	B2	>5	Clear	Severe	4.2	358	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	11:32	11:45	40.22447	-73.03843	40.24114	-73.03795	44	10	ESE	<2	B3	>5	Cloudy	Slight	2.9	105	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:45	12:00	40.24114	-73.03795	40.26045	-73.03749	44	5	ESE	<2	B2	>5	Clear	Severe	4.5	358	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:43	40.26045	-73.03749	40.31399	-73.03592	42	6	SE	<2	B2	>5	Clear	Severe	4.6	0	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:43	12:45	40.31399	-73.03592	40.31651	-73.03577	39	7	SE	<2	B2	>5	Clear	Severe	4.4	5	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:45	12:55	40.31651	-73.03577	40.31815	-73.02691	39	7	SE	<2	B2	>5	Clear	Severe	4.4	5	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:55	12:59	40.31815	-73.02691	40.31284	-73.02742	40	8	SE	<2	B2	>5	Clear	Severe	4.9	182	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:59	13:30	40.31284	-73.02742	40.27255	-73.02862	40	8	SE	<2	B2	>5	Clear	Severe	4.6	182	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:30	14:00	40.27255	-73.02862	40.23338	-73.02969	42	7	ESE	<2	B2	>5	Clear	Severe	4.7	179	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:11	40.23338	-73.02969	40.21893	-73.03019	45	10	ESE	<2	B3	>5	Clear	Severe	4.7	180	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:11	14:20	40.21893	-73.03019	40.20927	-73.03459	45	10	ESE	<2	B3	>5	Clear	Severe	4.7	180	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:20	14:56	40.20927	-73.03459	40.22169	-73.06784	44	10	ESE	<2	B3	>5	Clear	Severe	3.4	289	Deploying/Retrieving	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:56	15:00	40.22169	-73.06784	40.22118	-73.06731	44	13	ESE	<2	B3	>5	Cloudy	Moderate	1.5	80	Standby	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:57	40.22118	-73.06731	40.20069	-73.00631	44	13	ESE	<2	B3	>5	Cloudy	Moderate	3.5	106	Standby	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:57	16:00	40.20069	-73.00631	40.19880	-73.00468	44	10	ESE	<2	B3	>5	Cloudy	Slight	2.9	135	Deploying/Retrieving	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.19880	-73.00468	40.19824	-73.02593	44	11	E	<2	B3	>5	Cloudy	None	2.9	135	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:42	40.19824	-73.02593	40.18563	-73.03650	44	9	ESE	<2	B3	>5	Cloudy	None	3.8	167	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:42	18:00	40.18563	-73.03650	40.19996	-73.03814	44	8	SE	<2	B3	>5	Cloudy	None	4	2	Soft Start	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:02	40.19996	-73.03814	40.20729	-73.03794	46.2	8.5	ESE	<2	B3	>5	Cloudy	None	4	1.2	Soft Start	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:02	18:12	40.20729	-73.03794	40.21984	-73.03760	46.2	8.5	ESE	<2	B3	>5	Cloudy	None	4	1.2	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:12	19:00	40.21984	-73.03760	40.27931	-73.03578	46.2	8.5	ESE	<2	B3	>5	Cloudy	None	4	1.2	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:20	40.27931	-73.03578	40.30537	-73.03505	42.6	8.1	SE	<2	B3	>5	Cloudy	None	4.8	357	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:20	19:27	40.30537	-73.03505	40.31428	-73.03479	42.6	8.1	SE	<2	B3	>5	Cloudy	None	4.8	357	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:27	19:28	40.31428	-73.03479	40.31554	-73.03474	39.3	9.5	ESE	<2	B3	>5	Cloudy	None	4.5	1.7	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:28	19:38	40.31554	-73.03474	40.31813	-73.02713	39.3	9.5	ESE	<2	B3	>5	Cloudy	None	4.5	1.7	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:38	19:41	40.31813	-73.02713	40.31394	-73.02703	39.3	9.5	ESE	<2	B3	>5	Cloudy	None	4.5	1.7	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:41	19:42	40.31394	-73.02703	40.31314	-73.02707	39.3	9.5	ESE	<2	B3	>5	Cloudy	None	4.5	1.7	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:42	20:00	40.31314	-73.02707	40.29039	-73.02771	39.3	9.5	ESE	<2	B3	>5	Cloudy	None	4.5	1.7	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:58	40.29039	-73.02771	40.21854	-73.02976	43.1	10.1	ESE	<2	B3	>5	Cloudy	None	4.4	182	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:58	20:59	40.21854	-73.02976	40.21633	-73.02988	44.2	9.5	ESE	<2	B3	>5	Cloudy	None	4.6	191	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:59	21:00	40.21633	-73.02988	40.21602	-73.02993	44.2	9.5	ESE	<2	B3	>5	Cloudy	None	4.6	191	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:08	40.21602	-73.02993	40.21526	-73.03769	44.2	9.5	ESE	<2	B3	>5	Cloudy	None	4.6	191	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:08	21:12	40.21526	-73.03769	40.22038	-73.03717	44.2	9.5	ESE	<2	B3	>5	Cloudy	None	4.6	191	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:12	22:00	40.22038	-73.03717	40.27958	-73.03548	44.2	9.5	ESE	<2	B3	>5	Cloudy	None	4.6	191	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:27	40.27958	-73.03548	40.31416	-73.03453	42	9	E	<2	B3	>5	Cloudy	Slight	4.5	3	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:27	22:29	40.31416	-73.03453	40.31711	-73.03440	42	9	E	<2	B3	>5	Cloudy	Slight	4.5	3	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:29	22:39	40.31711	-73.03440	40.31796	-73.02653	42	9	E	<2	B3	>5	Cloudy	Slight	4.5	3	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:39	22:43	40.31796	-73.02653	40.31329	-73.02669	42	9	E	<2	B3	>5	Cloudy	Slight	4.5	178	Silent	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:43	23:00	40.31329	-73.02669	40.29253	-73.02733	42	11	ESE	<2	B3	>5	Cloudy	Slight	4.5	178	Full Power	N/A
2022-08-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.29253	-73.02733	40.22814	-73.02917	42	11	ESE	<2	B3	>5	Cloudy	Slight	4.5	178	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:02	40.22186	-73.02937	40.21952	-73.02944	43.6	10.3	ESE	<2	B3	2-5	Cloudy	None	4.6	181	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:02	00:04	40.21952	-73.02944	40.21715	-73.02952	43.6	10.3	ESE	<2	B3	2-5	Cloudy	None	4.6	181	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:04	00:17	40.21715	-73.02952	40.21959	-73.03682	43.6	10.3	ESE	<2	B3	2-5	Cloudy	None	4.6	181	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:17	00:19	40.21959	-73.03682	40.22160	-73.03678	43.6	10.3	ESE	<2	B3	2-5	Cloudy	None	4.6	181	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:19	00:25	40.22160	-73.03678	40.22746	-73.03651	43.6	10.3	ESE	<2	B3	1-2	Cloudy	None	4.6	181	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:25	00:45	40.22746	-73.03651	40.21341	-73.03012	43.6	10.3	ESE	<2	B3	0.5-1	Cloudy	None	4.6	47	Soft Start	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:45	00:51	40.21341	-73.03012	40.21475	-73.03715	43	12	E	<2	B3	0.5-1	Cloudy	None	4.2	234	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:51	01:00	40.21475	-73.03715	40.22389	-73.03668	43	12	E	<2	B3	0.5-1	Cloudy	None	4.2	234	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:26	40.22389	-73.03668	40.21972	-73.02820	44.2	11	ESE	<2	B3	0.5-1	Clear	None	3.2	357	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:26	01:46	40.21972	-73.02820	40.20961	-73.03678	44.2	11	ESE	<2	B3	0.5-1	Clear	None	3.2	180	Soft Start	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:46	01:56	40.20961	-73.03678	40.22026	-73.03683	44.2	11	ESE	<2	B3	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:56	02:00	40.22026	-73.03683	40.22377	-73.03676	44.2	8.4	ESE	<2	B3	0.5-1	Clear	None	3.1	354	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.22377	-73.03676	40.30254	-73.03447	44	8.9	ESE	<2	B3	0.5-1	Clear	None	4.1	353	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:09	40.30254	-73.03447	40.31435	-73.03414	44	9	ESE	<2	B3	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:09	03:10	40.31435	-73.03414	40.31567	-73.03408	44	9	ESE	<2	B3	0.5-1	Clear	None	4.6	359	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:10	03:21	40.31567	-73.03408	40.31705	-73.02628	44	9	ESE	<2	B3	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:21	03:24	40.31705	-73.02628	40.31336	-73.02642	44	9	ESE	<2	B3	0.5-1	Clear	None	4.9	179	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:24	04:00	40.31336	-73.02642	40.26879	-73.02769	40	9	ESE	<2	B3	0.5-1	Clear	None	4.9	179	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:39	40.26879	-73.02769	40.21869	-73.02913	42.8	9	E	<2	B3	0.5-1	Clear	None	4.5	180	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:39	04:40	40.21869	-73.02913	40.21748	-73.02918	42	8	ENE	<2	B3	0.5-1	Clear	None	4.6	179	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:40	04:51	40.21748	-73.02918	40.21576	-73.03720	42	8	ENE	<2	B3	0.5-1	Clear	None	4.6	179	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:51	04:56	40.21576	-73.03720	40.22002	-73.03660	43	8	E	<2	B3	0.5-1	Clear	None	2.9	3	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:56	05:00	40.22002	-73.03660	40.22361	-73.03645	43	8	E	<2	B3	0.5-1	Clear	None	3.5	2	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.22361	-73.03645	40.30097	-73.03417	43	8	ENE	<2	B3	0.5-1	Cloudy	None	4	1	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:10	40.30097	-73.03417	40.31407	-73.03381	44	9	E	<2	B3	0.5-1	Cloudy	None	4.7	1	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:10	06:11	40.31407	-73.03381	40.31535	-73.03377	44	8	E	<2	B3	0.5-1	Cloudy	None	4.7	3	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:11	06:21	40.31535	-73.03377	40.31804	-73.02555	44	9	E	<2	B3	0.5-1	Cloudy	None	4.7	3	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:21	06:25	40.31804	-73.02555	40.31280	-73.02602	43	9	E	<2	B3	0.5-1	Cloudy	None	4.8	186	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:25	07:00	40.31280	-73.02602	40.26716	-73.02738	43	9	E	<2	B3	0.5-1	Cloudy	None	4.8	181	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:37	40.26716	-73.02738	40.21870	-73.02876	42.7	7.2	ENE	<2	B3	0.5-1	Cloudy	None	5	179	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:37	07:52	40.21870	-73.02876	40.20719	-73.03753	44	7	NE	<2	B3	0.5-1	Cloudy	None	4.4	175	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:52	07:59	40.20719	-73.03753	40.21556	-73.03657	43	6	ENE	<2	B3	0.5-1	Cloudy	None	4.2	2	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:59	08:03	40.21556	-73.03657	40.21958	-73.03621	44	8	ENE	<2	B3	0.5-1	Cloudy	None	3.7	8	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:03	09:00	40.21958	-73.03621	40.29129	-73.03407	44	8	ENE	<2	B3	0.5-1	Cloudy	None	3.7	4	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:18	40.29129	-73.03407	40.31429	-73.03344	42	8	ENE	<2	B3	0.5-1	Cloudy	None	4.7	3	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:18	09:20	40.31429	-73.03344	40.31677	-73.03329	42	8	ENE	<2	B3	0.5-1	Cloudy	None	4.7	3	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:20	09:29	40.31677	-73.03329	40.31773	-73.02525	42	8	ENE	<2	B3	0.5-1	Cloudy	None	4.7	3	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:29	09:33	40.31773	-73.02525	40.31278	-73.02567	42	8	ENE	<2	B3	0.5-1	Cloudy	None	4.7	177	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:33	09:39	40.31278	-73.02567	40.30437	-73.02584	42	8	ENE	<2	B3	0.5-1	Cloudy	None	4.7	176	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:39	10:00	40.30437	-73.02584	40.27786	-73.02663	42	8	ENE	<2	B3	1-2	Cloudy	None	4.7	176	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:46	40.27786	-73.02663	40.21845	-73.02840	42.7	6	NE	<2	B3	2-5	Cloudy	None	4.7	177	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:46	10:47	40.21845	-73.02840	40.21717	-73.02844	43	6	NE	<2	B3	2-5	Precipitation	None	4.8	175	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:47	11:00	40.21717	-73.02844	40.21571	-73.03675	43	6	NE	<2	B3	2-5	Precipitation	None	4.8	175	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:03	40.21571	-73.03675	40.21943	-73.03600	43	5	NE	<2	B3	>5	Cloudy	None	4.8	16	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:03	11:28	40.21943	-73.03600	40.24875	-73.03485	43	5	ENE	<2	B3	>5	Cloudy	None	4.3	7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:28	12:00	40.24875	-73.03485	40.29064	-73.03369	43	5	ENE	<2	B3	>5	Cloudy	None	4.7	8	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:18	40.29064	-73.03369	40.31378	-73.03304	40	9	ENE	<2	B3	>5	Precipitation	None	4.6	9	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:18	12:20	40.31378	-73.03304	40.31630	-73.03299	39	13	ENE	<2	B3	>5	Precipitation	None	4.3	12	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:20	12:32	40.31630	-73.03299	40.31791	-73.02520	39	13	ENE	<2	B3	>5	Precipitation	None	4.3	12	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:32	12:36	40.31791	-73.02520	40.31280	-73.02531	40	12	ENE	<2	B3	>5	Precipitation	None	4	167	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:36	13:00	40.31280	-73.02531	40.28162	-73.02617	40	11	ENE	<2	B3	>5	Precipitation	None	5.1	170	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:48	40.28162	-73.02617	40.21907	-73.02799	43	5	ESE	<2	B3	>5	Precipitation	None	4.6	175	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:48	13:49	40.21907	-73.02799	40.21780	-73.02801	44	2	ESE	<2	B3	>5	Precipitation	None	4.3	171	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:49	14:00	40.21780	-73.02801	40.21617	-73.03616	44	2	ESE	<2	B3	>5	Precipitation	None	4.3	171	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:03	40.21617	-73.03616	40.21962	-73.03560	44	4	ENE	<2	B3	>5	Precipitation	None	4.4	21	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:03	15:00	40.21962	-73.03560	40.29057	-73.03335	44	4	ENE	<2	B3	>5	Precipitation	None	4.8	7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:18	40.29057	-73.03335	40.31428	-73.03266	40	5	ENE	<2	B3	>5	Precipitation	None	4.7	7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:18	15:19	40.31428	-73.03266	40.31558	-73.03264	39	6	ENE	<2	B3	>5	Precipitation	None	4.7	11	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:19	15:30	40.31558	-73.03264	40.31757	-73.02493	39	6	ENE	<2	B3	>5	Precipitation	None	4.7	11	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	15:33	40.31757	-73.02493	40.31378	-73.02491	39	6	ESE	<2	B3	>5	Precipitation	None	4.7	173	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:33	16:00	40.31378	-73.02491	40.27917	-73.02585	39	7	E	<2	B3	>5	Precipitation	None	4.5	171	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:48	40.27917	-73.02585	40.21882	-73.02762	43	8	ESE	<2	B3	>5	Precipitation	None	4.5	171	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:48	16:49	40.21882	-73.02762	40.21688	-73.02767	43	8	ESE	<2	B3	>5	Cloudy	None	4.5	171	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:49	17:00	40.21688	-73.02767	40.21585	-73.03510	43	8	ESE	<2	B3	>5	Cloudy	None	4.5	171	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:03	40.21585	-73.03510	40.22097	-73.03469	43	7	ESE	<2	B3	>5	Cloudy	None	4.5	8	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:03	18:00	40.22097	-73.03469	40.28617	-73.03279	43	7	ESE	<2	B3	>5	Cloudy	None	4.5	8	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	18:17	40.28617	-73.03279	40.31379	-73.03200	43.5	8.8	SSE	<2	B3	>5	Cloudy	None	4.7	6.7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:17	18:19	40.31379	-73.03200	40.31640	-73.03192	43.5	8.8	SSE	<2	B3	>5	Cloudy	None	4.7	6.7	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:19	18:29	40.31640	-73.03192	40.31729	-73.02473	43.5	8.8	SSE	<2	B3	>5	Cloudy	None	4.7	6.7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:29	18:32	40.31729	-73.02473	40.31380	-73.02461	43.5	8.8	SSE	<2	B3	>5	Cloudy	None	4.7	6.7	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:32	19:00	40.31380	-73.02461	40.28005	-73.02548	43.5	8.8	SSE	<2	B3	>5	Cloudy	None	4.7	6.7	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:44	40.28005	-73.02548	40.22739	-73.02702	42.7	8.1	SSE	<2	B4	>5	Cloudy	None	4.6	183	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:44	19:51	40.22739	-73.02702	40.21909	-73.02727	42.7	8.1	SSE	<2	B4	>5	Cloudy	None	4.6	183	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:51	19:53	40.21909	-73.02727	40.21674	-73.02732	42.7	8.1	SSE	<2	B4	>5	Cloudy	None	4.6	183	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:53	20:00	40.21674	-73.02732	40.21498	-73.02730	42.7	8.1	SSE	<2	B4	>5	Cloudy	None	4.6	183	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:03	40.21498	-73.02730	40.21508	-73.03425	43.7	7.1	SSW	<2	B4	>5	Cloudy	Slight	4.7	172	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:03	20:05	40.21508	-73.03425	40.21770	-73.03446	43.7	7.1	SSW	<2	B4	>5	Cloudy	Slight	4.7	1.8	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:05	20:06	40.21770	-73.03446	40.21901	-73.03441	43.7	7.1	SSW	<2	B4	>5	Cloudy	Slight	4.7	1.8	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:06	21:00	40.21901	-73.03441	40.28334	-73.03259	43.7	7.1	SSW	<2	B4	>5	Cloudy	Slight	4.7	1.8	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	21:24	40.28334	-73.03259	40.31418	-73.03169	44.1	5.7	SW	<2	B4	>5	Cloudy	Severe	4.2	0.2	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:24	21:25	40.31418	-73.03169	40.31539	-73.03165	44.1	5.7	SW	<2	B4	>5	Cloudy	Severe	4.2	353	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:25	21:37	40.31539	-73.03165	40.31736	-73.02414	44.1	5.7	SW	<2	B4	>5	Cloudy	Severe	4.2	353	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:37	21:40	40.31736	-73.02414	40.31374	-73.02425	39.6	5.7	SW	<2	B4	>5	Cloudy	Severe	4.5	169	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:40	22:00	40.31374	-73.02425	40.28909	-73.02493	39.6	5.7	SW	<2	B4	>5	Cloudy	Severe	4.5	169	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:48	40.28909	-73.02493	40.22918	-73.02674	42	10	S	<2	B2	>5	Cloudy	Moderate	4.5	185	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:48	23:00	40.22918	-73.02674	40.22329	-73.03406	42	10	S	<2	B2	>5	Cloudy	None	4.5	180	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:21	40.22329	-73.03406	40.25106	-73.03319	42	10	S	<2	B2	>5	Cloudy	None	4.5	354	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:21	23:41	40.25106	-73.03319	40.24445	-73.02625	42	10	S	<2	B2	>5	Cloudy	None	4.5	352	Soft Start	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:41	23:48	40.24445	-73.02625	40.23676	-73.02656	42	10	S	<2	B2	>5	Cloudy	None	4.5	352	Full Power	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	23:54	40.23676	-73.02656	40.23143	-73.02675	42	10	S	<2	B2	>5	Cloudy	None	4.5	352	Silent	N/A
2022-08-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.23143	-73.02675	40.23018	-73.02679	42	10	S	<2	B2	>5	Cloudy	None	3.1	352	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:06	40.22086	-73.02701	40.21876	-73.02712	44.2	10.4	SSW	<2	B4	1-2	Cloudy	None	4.5	172	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:06	00:08	40.21876	-73.02712	40.21622	-73.02721	44.2	10.4	SSW	<2	B4	1-2	Cloudy	None	4.5	187	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:08	00:16	40.21622	-73.02721	40.21474	-73.03422	44.2	10.4	SSW	<2	B4	1-2	Cloudy	None	4.5	193	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:16	00:20	40.21474	-73.03422	40.21997	-73.03404	44.2	10.4	SSW	<2	B4	0.5-1	Cloudy	None	4.5	193	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:20	01:00	40.21997	-73.03404	40.27100	-73.03266	44.2	10.4	SSW	<2	B4	0.5-1	Cloudy	None	4.5	193	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:34	40.27100	-73.03266	40.31326	-73.03148	42	10.5	S	<2	B3	0.5-1	Cloudy	None	4.4	352	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:34	01:36	40.31326	-73.03148	40.31572	-73.03136	42	10.5	S	<2	B3	0.5-1	Cloudy	None	4.4	352	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:36	01:49	40.31572	-73.03136	40.31760	-73.02338	42	10.5	S	<2	B3	0.5-1	Cloudy	None	4.4	352	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:49	01:52	40.31760	-73.02338	40.31378	-73.02392	42	10.5	S	<2	B3	0.5-1	Cloudy	None	4.4	352	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:52	02:00	40.31378	-73.02392	40.30344	-73.02421	42	10.5	S	<2	B3	0.5-1	Cloudy	None	4.4	352	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.30344	-73.02421	40.22576	-73.02654	40.7	9.6	SSW	<2	B3	0.5-1	Cloudy	None	4.7	181	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:06	40.22576	-73.02654	40.21912	-73.02670	42	13	SSE	<2	B3	0.5-1	Cloudy	None	3.7	184	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:06	03:08	40.21912	-73.02670	40.21655	-73.02677	42	12	SSE	<2	B3	0.5-1	Cloudy	None	4.7	185	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:08	03:16	40.21655	-73.02677	40.21399	-73.03380	42	12	SSE	<2	B3	0.5-1	Cloudy	None	4.6	189	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:16	03:20	40.21399	-73.03380	40.21908	-73.03364	42	12	SSE	<2	B3	0.5-1	Cloudy	None	4.7	355	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:20	04:00	40.21908	-73.03364	40.27072	-73.03229	42	12	SSE	<2	B3	0.5-1	Cloudy	None	4.7	355	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:33	40.27072	-73.03229	40.31374	-73.03104	42.3	8	SSW	<2	B3	0.5-1	Clear	None	4.7	359	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:33	04:35	40.31374	-73.03104	40.31634	-73.03097	42.3	8	SSW	<2	B3	0.5-1	Clear	None	4.7	359	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:35	04:46	40.31634	-73.03097	40.31897	-73.02265	42.3	8	SSW	<2	B3	0.5-1	Clear	None	4.7	359	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:46	04:50	40.31897	-73.02265	40.31404	-73.02344	42.3	8	SSW	<2	B3	0.5-1	Clear	None	4.7	182	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:50	05:00	40.31404	-73.02344	40.30109	-73.02390	42.3	8	SSW	<2	B3	0.5-1	Clear	None	4.7	182	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.30109	-73.02390	40.22663	-73.02606	42	10	SSW	<2	B3	0.5-1	Clear	None	4.7	181	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:06	40.22663	-73.02606	40.21898	-73.02626	44	8	S	<2	B3	0.5-1	Clear	None	4.3	177	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:06	06:07	40.21898	-73.02626	40.21777	-73.02628	44	8	S	<2	B3	0.5-1	Clear	None	4.6	178	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:07	06:27	40.21777	-73.02628	40.21964	-73.03342	44	8	S	<2	B3	0.5-1	Clear	None	4.6	178	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:27	07:00	40.21964	-73.03342	40.26277	-73.03220	43	7	SSE	<2	B3	0.5-1	Clear	None	4.9	4	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:39	40.26277	-73.03220	40.31432	-73.03063	43	7	SSE	<2	B3	0.5-1	Clear	None	4.9	5	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:39	07:56	40.31432	-73.03063	40.31955	-73.02295	40	7	SSE	<2	B3	0.5-1	Clear	None	4.6	6	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:56	08:01	40.31955	-73.02295	40.31326	-73.02319	40	8	S	<2	B3	0.5-1	Clear	None	4.5	180	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:01	09:00	40.31326	-73.02319	40.23962	-73.02524	40	7	S	<2	B3	0.5-1	Clear	None	4.7	176	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:19	40.23962	-73.02524	40.21846	-73.02590	40	8	SSE	<2	B3	0.5-1	Clear	None	4.4	178	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:19	09:39	40.21846	-73.02590	40.21308	-73.03332	40	8	SSE	<2	B3	0.5-1	Clear	None	4.4	178	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:39	09:44	40.21308	-73.03332	40.21955	-73.03299	42	8	SSE	<2	B3	1-2	Cloudy	None	4.6	4	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	10:00	40.21955	-73.03299	40.24079	-73.03233	42	7	SSE	<2	B3	1-2	Cloudy	None	4.8	5	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:57	40.24079	-73.03233	40.31431	-73.03028	42	7	S	<2	B3	>5	Clear	None	4.7	5	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:57	10:58	40.31431	-73.03028	40.31559	-73.03021	42	8	SSW	<2	B3	>5	Clear	Slight	4.6	7	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:58	11:00	40.31559	-73.03021	40.31811	-73.02994	42	8	SSW	<2	B3	>5	Clear	Slight	4.6	7	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:27	40.31811	-73.02994	40.32785	-73.00796	42	8	SSW	<2	B3	>5	Clear	Slight	4.7	25	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:27	11:30	40.32785	-73.00796	40.32518	-73.00806	43	11	SSW	<2	B3	>5	Clear	Slight	4.2	179	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:30	12:00	40.32518	-73.00806	40.28929	-73.00915	43	11	SSW	<2	B3	>5	Clear	Slight	4.2	179	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:43	40.28929	-73.00915	40.24088	-73.01052	43	10	SW	<2	B3	>5	Clear	Moderate	4.3	181	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:43	12:44	40.24088	-73.01052	40.23965	-73.01055	43	8	WSW	<2	B3	>5	Cloudy	Slight	4.4	179	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:44	13:00	40.23965	-73.01055	40.22102	-73.01180	43	8	WSW	<2	B3	>5	Cloudy	Slight	4.4	179	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:13	40.22102	-73.01180	40.22576	-73.02542	44	9	SW	<2	B3	>5	Cloudy	Moderate	4.7	264	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:13	13:16	40.22576	-73.02542	40.22967	-73.02530	44	7	SW	<2	B3	>5	Cloudy	Moderate	4.7	0	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:16	14:00	40.22967	-73.02530	40.28613	-73.02366	44	7	SW	<2	B3	>5	Cloudy	Moderate	4.6	2	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:22	40.28613	-73.02366	40.31418	-73.02287	40	7	WSW	<2	B3	>5	Cloudy	Severe	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:22	14:23	40.31418	-73.02287	40.31548	-73.02280	40	7	WSW	<2	B3	>5	Clear	Severe	4.6	0	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:23	14:27	40.31548	-73.02280	40.32061	-73.02219	40	7	WSW	<2	B3	>5	Clear	Severe	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:27	14:50	40.32061	-73.02219	40.32880	-73.00743	40	7	WSW	<2	B3	>5	Clear	Severe	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:50	14:54	40.32880	-73.00743	40.32394	-73.00772	40	9	SW	<2	B3	>5	Clear	Severe	4.1	184	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:54	15:00	40.32394	-73.00772	40.31656	-73.00787	40	9	SW	<2	B3	>5	Clear	Severe	4.1	184	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.31656	-73.00787	40.24454	-73.01001	41	10	SW	<2	B3	>5	Clear	Severe	4.3	182	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:04	40.24454	-73.01001	40.23994	-73.01014	41	10	SW	<2	B3	>5	Clear	Moderate	4.3	182	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:04	16:05	40.23994	-73.01014	40.23781	-73.01025	41	11	SW	<2	B3	>5	Clear	Moderate	4.6	181	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:05	16:33	40.23781	-73.01025	40.22690	-73.02502	41	11	SW	<2	B3	>5	Clear	Moderate	4.6	181	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:33	16:37	40.22690	-73.02502	40.23178	-73.02490	41	11	SW	<2	B3	>5	Clear	Moderate	4.6	0	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:37	17:00	40.23178	-73.02490	40.26141	-73.02399	41	10	SSW	<2	B3	>5	Clear	Moderate	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:41	40.26141	-73.02399	40.31368	-73.02250	43	10	SSW	<2	B3	>5	Clear	Moderate	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:41	17:42	40.31368	-73.02250	40.31497	-73.02247	43	10	SSW	<2	B3	>5	Clear	Moderate	4.6	0	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:42	17:57	40.31497	-73.02247	40.31752	-73.01459	43	10	SSW	<2	B3	>5	Clear	Moderate	4.6	0	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:57	18:00	40.31752	-73.01459	40.31378	-73.01470	40.1	13.5	SW	<2	B3	>5	Clear	Slight	4.4	173	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.31378	-73.01470	40.23952	-73.01693	40.1	13.5	SW	<2	B3	>5	Clear	Slight	4.4	173	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:08	40.23952	-73.01693	40.22927	-73.01720	43.2	12.3	SW	<2	B3	>5	Clear	Moderate	4.8	177	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:08	19:09	40.22927	-73.01720	40.22800	-73.01722	43.2	12.3	SW	<2	B3	>5	Clear	Moderate	4.8	177	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:09	19:22	40.22800	-73.01722	40.22638	-73.02463	43.2	12.3	SW	<2	B3	>5	Clear	Moderate	4.8	177	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:22	19:25	40.22638	-73.02463	40.23008	-73.02464	43.2	12.3	SW	<2	B3	>5	Clear	Moderate	4.5	2.1	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:25	20:00	40.23008	-73.02464	40.26760	-73.02364	43.2	12.3	SW	<2	B3	>5	Clear	Moderate	4.5	2.1	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:31	40.26760	-73.02364	40.31327	-73.02215	42.7	13.1	SW	<2	B3	>5	Clear	Moderate	4.6	2.9	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:31	20:33	40.31327	-73.02215	40.31577	-73.02208	42.7	13.1	SW	<2	B3	>5	Clear	Moderate	4.6	2.9	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:33	20:44	40.31577	-73.02208	40.31783	-73.01441	42.7	13.1	SW	<2	B3	>5	Clear	Moderate	4.6	2.9	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:44	20:48	40.31783	-73.01441	40.31291	-73.01438	40	15	SW	<2	B3	>5	Clear	Moderate	4.4	184	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:48	21:00	40.31291	-73.01438	40.29798	-73.01480	40	15	SW	<2	B3	>5	Clear	Moderate	4.4	184	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.29798	-73.01480	40.31483	-73.01653	39.8	14.4	SSW	<2	B3	>5	Clear	Severe	3.9	336	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:07	40.31483	-73.01653	40.31685	-73.02428	40	16	SW	<2	B3	>5	Clear	Severe	4	260	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:07	22:18	40.31685	-73.02428	40.32859	-73.02544	40	16	SW	<2	B3	>5	Clear	Severe	4	260	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:18	22:30	40.32859	-73.02544	40.33892	-73.01381	40	16	SW	<2	B3	>5	Clear	Severe	4	260	Deploying/Retrieving	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:30	22:34	40.33892	-73.01381	40.34245	-73.00982	40	16	SW	<2	B3	>5	Clear	Severe	4	260	Deploying/Retrieving	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:34	23:00	40.34245	-73.00982	40.32812	-73.01420	40	16	SW	<2	B3	>5	Clear	Slight	4	260	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:06	40.32812	-73.01420	40.32013	-73.01425	40	16	SW	<2	B3	>5	Clear	None	4	260	Full Power	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:06	23:14	40.32013	-73.01425	40.30998	-73.01453	40	16	SW	<2	B3	>5	Clear	Severe	4	260	Silent	N/A
2022-08-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:14	00:00	40.30998	-73.01453	40.25643	-73.01610	40	16	SW	<2	B3	>5	Clear	Severe	4	230	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:16	40.25122	-73.01624	40.23290	-73.01676	43.3	11.8	SSW	<2	B4	2-5	Clear	None	4.4	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:16	00:19	40.23290	-73.01676	40.22907	-73.01686	43.3	11.8	SSW	<2	B4	1-2	Clear	None	4.4	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:19	00:21	40.22907	-73.01686	40.22644	-73.01693	43.3	11.8	SSW	<2	B4	0.5-1	Clear	None	4.4	184	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:21	00:37	40.22644	-73.01693	40.22365	-73.02442	43.3	11.8	SSW	<2	B4	0.5-1	Clear	None	4.4	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:37	00:42	40.22365	-73.02442	40.23018	-73.02421	43.3	11.8	SSW	<2	B4	0.5-1	Clear	None	4.4	184	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:42	01:00	40.23018	-73.02421	40.25363	-73.02359	43.3	11.8	SSW	<2	B4	0.5-1	Clear	None	4.4	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:46	40.25363	-73.02359	40.31420	-73.02183	42.7	10.8	SW	<2	B4	0.5-1	Clear	None	4.8	358	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:46	01:47	40.31420	-73.02183	40.31550	-73.02179	42.7	10.8	SW	<2	B4	0.5-1	Clear	None	4.8	358	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:47	02:00	40.31550	-73.02179	40.32505	-73.01610	42.7	10.8	SW	<2	B4	0.5-1	Clear	None	4.8	358	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	02:03	40.32505	-73.01610	40.31968	-73.01339	40.1	12.8	SW	<2	B4	0.5-1	Clear	None	4.8	124	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:03	02:08	40.31968	-73.01339	40.31341	-73.01398	40.1	12.8	SW	<2	B4	0.5-1	Clear	None	4.8	124	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:08	03:00	40.31341	-73.01398	40.24956	-73.01590	40.1	12.8	SW	<2	B4	0.5-1	Clear	None	4.8	195	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:19	40.24956	-73.01590	40.22916	-73.01653	42	14	WSW	<2	B4	0.5-1	Clear	None	4.6	179	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:19	03:41	40.22916	-73.01653	40.23086	-73.02386	42	14	WSW	<2	B4	0.5-1	Clear	None	4.6	179	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:41	04:00	40.23086	-73.02386	40.25581	-73.02313	42	12	WSW	<2	B4	0.5-1	Clear	None	4.6	179	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:46	40.25581	-73.02313	40.31410	-73.02145	42	12	WSW	<2	B4	0.5-1	Clear	None	4.7	1	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:46	04:47	40.31410	-73.02145	40.31536	-73.02142	42	14	W	<2	B4	0.5-1	Clear	None	4.4	355	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:47	05:00	40.31536	-73.02142	40.32384	-73.01407	42	14	W	<2	B4	0.5-1	Clear	None	4.4	347	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:03	40.32384	-73.01407	40.32039	-73.01317	41	14	WNW	<2	B4	0.5-1	Clear	None	4.2	173	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:03	05:09	40.32039	-73.01317	40.31294	-73.01364	41	14	WNW	<2	B4	0.5-1	Clear	None	4.2	185	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:09	06:00	40.31294	-73.01364	40.25119	-73.01546	41	14	WNW	<2	B4	0.5-1	Clear	None	4.2	182	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:20	40.25119	-73.01546	40.22942	-73.01614	41	14	WNW	<2	B4	0.5-1	Clear	None	4.8	178	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:20	06:22	40.22942	-73.01614	40.22705	-73.01597	41	9	WNW	<2	B4	0.5-1	Clear	None	3.5	166	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:22	06:44	40.22705	-73.01597	40.23066	-73.02352	41	9	WNW	<2	B4	0.5-1	Clear	None	4.4	171	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:44	07:00	40.23066	-73.02352	40.25132	-73.02294	41	11	WNW	<2	B4	0.5-1	Clear	None	4.7	1	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:48	40.25132	-73.02294	40.31353	-73.02109	43	11	WNW	<2	B4	0.5-1	Clear	None	4.7	1	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:48	07:50	40.31353	-73.02109	40.31610	-73.02107	43	11	WNW	<2	B4	0.5-1	Clear	None	4.7	1	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:50	08:00	40.31610	-73.02107	40.32544	-73.01710	43	11	WNW	<2	B4	0.5-1	Clear	None	4.7	1	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:05	40.32544	-73.01710	40.32106	-73.01293	40	13.6	WSW	<2	B4	0.5-1	Clear	None	4.5	175	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:05	08:12	40.32106	-73.01293	40.31269	-73.01335	40	13.6	WSW	<2	B4	0.5-1	Clear	None	4.5	175	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:12	09:00	40.31269	-73.01335	40.25350	-73.01502	40	13.6	WSW	<2	B4	0.5-1	Clear	None	4.5	180	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:21	40.25350	-73.01502	40.22943	-73.01571	40	14	W	<2	B4	0.5-1	Clear	None	4	183	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:21	09:23	40.22943	-73.01571	40.22695	-73.01573	41	14	W	<2	B4	1-2	Clear	None	4.5	177	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:23	09:37	40.22695	-73.01573	40.22178	-73.02353	41	14	W	<2	B4	1-2	Clear	None	4.5	171	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:37	09:41	40.22178	-73.02353	40.22576	-73.02314	41	14	W	<2	B4	1-2	Clear	None	4.5	0	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:41	09:45	40.22576	-73.02314	40.23081	-73.02306	42	15	W	<2	B4	2-5	Clear	None	4.5	359	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:45	10:00	40.23081	-73.02306	40.25026	-73.02252	42	15	W	<2	B4	2-5	Clear	None	4.5	350	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:49	40.25026	-73.02252	40.31343	-73.02075	42	15	W	<2	B4	>5	Clear	Slight	4.5	350	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:49	11:00	40.31343	-73.02075	40.31986	-73.01284	42	12	WNW	<2	B4	>5	Clear	Severe	4.7	359	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.31986	-73.01284	40.30750	-72.97913	42	12	WNW	<2	B4	>5	Clear	Severe	3.2	115	Deploying/Retrieving	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:14	40.30750	-72.97913	40.30882	-72.99072	42	14	NW	<2	B4	>5	Clear	Severe	2.3	300	Deploying/Retrieving	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:14	12:27	40.30882	-72.99072	40.30159	-73.00176	42	14	NW	<2	B4	>5	Clear	Severe	2.7	258	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:27	12:47	40.30159	-73.00176	40.31919	-73.02287	42	14	NW	<2	B4	>5	Clear	Severe	4.3	280	Soft Start	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:47	12:58	40.31919	-73.02287	40.31709	-73.01282	42	13	WNW	<2	B4	>5	Clear	Severe	4.6	14	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:58	13:01	40.31709	-73.01282	40.31312	-73.01297	40	10	NW	<2	B4	>5	Clear	Severe	4.7	184	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:01	14:00	40.31312	-73.01297	40.23838	-73.01516	40	10	NW	<2	B4	>5	Clear	Severe	4.8	186	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:07	40.23838	-73.01516	40.22916	-73.01543	45	11	WNW	<2	B4	>5	Clear	Severe	4.8	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:07	14:08	40.22916	-73.01543	40.22787	-73.01550	45	11	WNW	<2	B4	>5	Clear	Severe	4.8	184	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:08	14:28	40.22787	-73.01550	40.22597	-73.02289	45	11	WNW	<2	B4	>5	Clear	Severe	4.8	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:28	14:32	40.22597	-73.02289	40.23086	-73.02282	45	11	WNW	<2	B4	>5	Clear	Severe	4.4	357	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:32	15:00	40.23086	-73.02282	40.26513	-73.02187	45	11	WNW	<2	B4	>5	Clear	Severe	4.4	357	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:39	40.26513	-73.02187	40.31352	-73.02039	43	13	W	<2	B4	>5	Clear	Severe	4.4	0	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:39	15:40	40.31352	-73.02039	40.31479	-73.02035	40	12	W	<2	B4	>5	Clear	Severe	4.5	359	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:40	15:58	40.31479	-73.02035	40.31721	-73.01246	40	12	W	<2	B4	>5	Clear	Severe	4.5	359	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:58	16:01	40.31721	-73.01246	40.31324	-73.01264	40	15	WSW	<2	B4	>5	Clear	Severe	4.4	186	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:01	16:02	40.31324	-73.01264	40.31199	-73.01271	40	15	WSW	<2	B4	>5	Clear	Severe	4.4	186	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:02	17:00	40.31199	-73.01271	40.23907	-73.01484	40	15	WSW	<2	B4	>5	Clear	Severe	4.4	186	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:08	40.23907	-73.01484	40.22899	-73.01509	40	12	SSW	<2	B4	>5	Clear	Moderate	4.4	175	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:08	17:09	40.22899	-73.01509	40.22725	-73.01509	40	12	SSW	<2	B4	>5	Clear	Moderate	4.4	175	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:09	17:35	40.22725	-73.01509	40.21703	-73.03790	40	12	SSW	<2	B4	>5	Clear	Moderate	4.4	175	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:35	17:38	40.21703	-73.03790	40.22011	-73.03796	40	12	SSW	<2	B4	>5	Clear	Moderate	4.4	358	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:45	40.22011	-73.03796	40.22898	-73.03776	40	11	SW	<2	B4	>5	Clear	Moderate	4.4	358	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:45	17:47	40.22898	-73.03776	40.23126	-73.03766	40	11	SW	<2	B4	>5	Clear	Moderate	4.4	358	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:47	18:00	40.23126	-73.03766	40.22849	-73.02657	40	11	SW	<2	B4	>5	Clear	Moderate	4.4	25	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	18:00	19:00	40.22849	-73.02657	40.28201	-73.03075	44.7	12.1	WSW	<2	B4	>5	Clear	Slight	4.2	164	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:00	19:46	40.28201	-73.03075	40.31782	-73.02294	43.3	11.9	SW	<2	B4	>5	Clear	Moderate	4.8	2.2	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:46	19:49	40.31782	-73.02294	40.31384	-73.02306	43.3	15.7	SW	<2	B4	>5	Clear	Moderate	4.6	176	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	19:49	20:00	40.31384	-73.02306	40.30134	-73.02348	39.7	15.7	SW	<2	B4	>5	Clear	Moderate	4.6	176	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:00	20:56	40.30134	-73.02348	40.23034	-73.02536	40.2	15.1	SW	<2	B4	>5	Clear	Severe	4.3	185	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:56	20:57	40.23034	-73.02536	40.22913	-73.02537	40.2	16	SW	<2	B4	>5	Clear	Severe	4.2	184	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	20:57	21:00	40.22913	-73.02537	40.22689	-73.02578	40.2	16	SW	<2	B4	>5	Clear	Severe	4.2	184	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Ashcraft, Caylin	RPS	21:00	22:00	40.22689	-73.02578	40.27365	-73.02669	40.2	16	SW	<2	B4	>5	Clear	Severe	4.4	210	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:53	40.27365	-73.02669	40.22460	-73.02323	42	17	SW	<2	B4	>5	Clear	Severe	4.2	186	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	22:58	40.22460	-73.02323	40.23120	-73.02236	42	17	SW	<2	B4	>5	Clear	Severe	4.2	186	Silent	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:58	23:00	40.23120	-73.02236	40.23236	-73.02234	42	17	SW	<2	B4	>5	Clear	Severe	4.2	350	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:36	40.23236	-73.02234	40.28016	-73.02107	42	17	SW	<2	B4	>5	Clear	Severe	4.2	356	Full Power	N/A
2022-08-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:36	00:00	40.28016	-73.02107	40.30487	-73.02031	42	15	SW	<2	B4	>5	Clear	None	4.2	356	Full Power	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:00	00:03	40.31002	-73.02010	40.31378	-73.02006	45.2	16.9	SW	<2	B4	2-5	Clear	None	4.6	2.5	Full Power	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:03	00:18	40.31378	-73.02006	40.32088	-73.00825	45.2	16.9	SW	<2	B4	2-5	Clear	None	4.5	5.4	Silent	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Simancas, Jorge	RPS	00:18	01:00	40.32088	-73.00825	40.30147	-73.02398	45.2	16.9	SW	<2	B4	1-2	Clear	None	3.5	172	Deploying/Retrieving	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:00	01:45	40.30147	-73.02398	40.29569	-73.02758	45.2	15.7	SSW	<2	B4	0.5-1	Clear	None	2	237	Deploying/Retrieving	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:45	01:52	40.29569	-73.02758	40.29752	-73.02690	45.2	16.4	SSW	<2	B4	0.5-1	Clear	None	1.4	16.6	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	01:52	02:00	40.29752	-73.02690	40.29358	-73.04151	41.2	16.4	SSW	<2	B4	0.5-1	Clear	None	6.2	249	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Ashcraft, Caylin; Metheny, Nicholas	RPS	02:00	03:00	40.29358	-73.04151	40.25469	-73.20336	38.1	16.6	SSW	<2	B4	0.5-1	Clear	None	5.2	255	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.25469	-73.20336	40.29888	-73.37358	39.3	17	SSW	<2	B4	0.5-1	Clear	None	8.1	274	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.29888	-73.37358	40.33592	-73.55273	31	14	SSW	<2	B4	0.5-1	Clear	None	8.4	282	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.33592	-73.55273	40.38170	-73.73220	25.9	12	WSW	<2	B4	0.5-1	Clear	None	8.5	287	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.38170	-73.73220	40.43867	-73.88624	21	12	WNW	<2	B3	0.5-1	Clear	None	8.6	283	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.43867	-73.88624	40.49700	-73.93369	14.4	10	WNW	<2	B3	0.5-1	Clear	None	8.6	353	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.49700	-73.93369	40.56392	-74.02861	22.5	9	W	<2	B3	0.5-1	Clear	None	6	299	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:44	40.56392	-74.02861	40.64815	-74.06364	14.9	8	WSW	<2	B3	0.5-1	Clear	None	6.3	348	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	10:00	40.64815	-74.06364	40.66085	-74.07156	14.9	7	W	<2	B2	1-2	Clear	None	8	297	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:02	40.66085	-74.07156	40.66094	-74.07140	5.1	7	W	<2	B2	>5	Clear	None	0	299	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.66094	-74.07144	40.57588	-74.03564	5.1	10	SW	<2	B3	>5	Cloudy	Moderate	0.1	299	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:38	40.57588	-74.03564	40.51442	-73.98748	15.2	14	S	<2	B3	>5	Cloudy	None	6.7	169	Transit	N/A
2022-08-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:38	00:00	40.51442	-73.98748	40.49584	-73.93926	19.8	13	S	<2	B3	>5	Cloudy	None	6.7	120	Transit	N/A
8/26/2022	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.47504	-73.90415	40.39591	-73.79982	14	15	S	<2	B3	0.5-1	Cloudy	None	9	142	Transit	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.39591	-73.79982	40.34921	-73.60061	33.5	13.3	S	<2	B4	0.5-1	Cloudy	None	9.6	107	Transit	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.34921	-73.60061	40.30219	-73.40239	19.6	10.3	SSW	<2	B3	0.5-1	Cloudy	None	9.3	105	Transit	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.30219	-73.40239	40.25493	-73.20395	24	12.9	S	<2	B3	0.5-1	Cloudy	None	9.6	109	Transit	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.25493	-73.20395	40.32868	-73.04462	24	11.6	SSW	<2	B3	0.5-1	Cloudy	None	9.5	107	Transit	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:14	40.32868	-73.04462	40.32796	-73.03001	39.6	12	SSW	<2	B3	0.5-1	Cloudy	None	5.8	65	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:14	06:00	40.32796	-73.03001	40.31061	-73.02460	39.9	11	SW	<2	B4	0.5-1	Cloudy	None	0.8	149	Deploying/Retrieving	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:44	40.31061	-73.02460	40.27517	-73.01837	45.1	13	SW	<2	B4	0.5-1	Cloudy	None	2.8	176	Deploying/Retrieving	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:44	07:00	40.27517	-73.01837	40.25997	-73.01609	43	13	SW	<2	B4	0.5-1	Cloudy	None	3	175	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:15	40.25997	-73.01609	40.25348	-73.02513	43	14	SW	<2	B4	0.5-1	Cloudy	None	3.7	175	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:15	07:35	40.25348	-73.02513	40.27901	-73.02776	42	13	SW	<2	B4	0.5-1	Cloudy	None	4.6	356	Soft Start	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:35	08:00	40.27901	-73.02776	40.31130	-73.02251	43	12	SW	<2	B4	0.5-1	Cloudy	None	4.7	2	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:24	40.31130	-73.02251	40.32142	-73.01224	40	11	SW	<2	B4	0.5-1	Cloudy	None	4.4	359	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:24	08:30	40.32142	-73.01224	40.31377	-73.01227	40	14	SW	<2	B4	0.5-1	Cloudy	None	4.5	180	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:30	09:00	40.31377	-73.01227	40.27692	-73.01339	41	14	SW	<2	B4	0.5-1	Cloudy	None	4.7	179	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:37	40.27692	-73.01339	40.22935	-73.01463	41	11	WSW	<2	B4	0.5-1	Cloudy	None	4.8	180	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:37	09:39	40.22935	-73.01463	40.22687	-73.01475	41	11	WSW	<2	B4	1-2	Cloudy	None	4.6	178	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:39	09:43	40.22687	-73.01475	40.22184	-73.01561	41	9	WSW	<2	B3	1-2	Cloudy	None	4.6	185	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:43	10:00	40.22184	-73.01561	40.22689	-73.02832	41	9	WSW	<2	B3	2-5	Cloudy	None	4.6	185	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:48	40.22689	-73.02832	40.25180	-72.97540	41	9	WSW	<2	B3	>5	Cloudy	None	3.8	60	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:48	10:59	40.25180	-72.97540	40.26199	-72.98199	41	9	WSW	<2	B3	>5	Cloudy	Severe	4.8	300	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:59	11:00	40.26199	-72.98199	40.26327	-72.98195	42	8	WSW	<2	B3	>5	Cloudy	Severe	4.7	4	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:35	40.26327	-72.98195	40.30643	-72.98062	42	8	WSW	<2	B3	>5	Cloudy	Severe	4.7	4	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:35	11:49	40.30643	-72.98062	40.32456	-72.98011	43	8	WSW	<2	B3	>5	Cloudy	Severe	4.6	4	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:49	11:50	40.32456	-72.98011	40.32583	-72.98003	43	8	WSW	<2	B3	>5	Clear	Severe	4.4	4	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:50	12:00	40.32583	-72.98003	40.33625	-72.97643	43	8	WSW	<2	B3	>5	Clear	Severe	4.4	2	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:03	40.33625	-72.97643	40.33454	-72.97241	41	5	SW	<2	B3	>5	Clear	Severe	4.8	73	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:03	12:12	40.33454	-72.97241	40.32322	-72.97244	41	8	SW	<2	B3	>5	Clear	Severe	3.8	179	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	13:00	40.32322	-72.97244	40.26121	-72.97429	42	9	SW	<2	B3	>5	Clear	Severe	4.4	182	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:01	40.26121	-72.97429	40.25988	-72.97432	44	9	SSW	<2	B3	>5	Clear	Severe	4.8	181	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:01	13:09	40.25988	-72.97432	40.24950	-72.97322	44	9	SSW	<2	B3	>5	Clear	Severe	4.8	181	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:09	13:15	40.24950	-72.97322	40.25001	-72.98179	44	8	SSW	<2	B3	>5	Clear	Severe	4.6	225	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:15	13:24	40.25001	-72.98179	40.26169	-72.98164	44	7	SSW	<2	B3	>5	Clear	Severe	4.7	3	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:24	14:00	40.26169	-72.98164	40.30835	-72.98028	44	7	SSW	<2	B3	>5	Clear	Severe	4.7	358	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:12	40.30835	-72.98028	40.32382	-72.97984	42	10	S	<2	B3	>5	Clear	Severe	4.6	358	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:12	14:14	40.32382	-72.97984	40.32689	-72.97975	41	10	S	<2	B3	>5	Clear	Severe	4.5	357	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:14	14:27	40.32689	-72.97975	40.33367	-72.97153	41	10	S	<2	B3	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:27	14:35	40.33367	-72.97153	40.32345	-72.97208	41	11	S	<2	B3	>5	Clear	Severe	4.5	190	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:35	15:00	40.32345	-72.97208	40.29463	-72.97291	42	13	SSW	<2	B3	>5	Clear	Severe	4.7	185	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:27	40.29463	-72.97291	40.26167	-72.97390	45	17	SSW	<2	B4	>5	Clear	Severe	3.8	186	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:27	15:29	40.26167	-72.97390	40.25913	-72.97399	44	15	SSW	<2	B4	>5	Clear	Severe	4.6	184	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:29	15:43	40.25913	-72.97399	40.25225	-72.98142	44	15	SSW	<2	B4	>5	Clear	Severe	4.6	184	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:43	15:50	40.25225	-72.98142	40.26154	-72.98131	44	15	SSW	<2	B4	>5	Clear	Severe	4.9	1	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:50	16:00	40.26154	-72.98131	40.27478	-72.98093	43	15	SSW	<2	B4	>5	Clear	Severe	4.7	358	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:38	40.27478	-72.98093	40.32375	-72.97949	43	14	SSW	<2	B4	>5	Clear	Severe	4.7	356	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:38	16:40	40.32375	-72.97949	40.32694	-72.97957	43	14	SSW	<2	B4	>5	Clear	Severe	4.7	356	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:40	16:53	40.32694	-72.97957	40.33186	-72.97150	43	14	SSW	<2	B4	>5	Clear	Severe	4.7	356	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:53	17:00	40.33186	-72.97150	40.32354	-72.97171	43	14	SSW	<2	B4	>5	Clear	Severe	4.7	356	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:01	40.32354	-72.97171	40.32259	-72.97176	4.5	18	SSW	<2	B4	>5	Clear	Severe	4.8	185	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:01	17:29	40.32259	-72.97176	40.28727	-72.97279	4.5	18	SSW	<2	B4	>5	Clear	Severe	4.8	185	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:29	17:50	40.28727	-72.97279	40.26137	-72.97355	4.5	18	SSW	<2	B4	>5	Clear	Severe	4.8	185	Full Power	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:50	17:55	40.26137	-72.97355	40.25468	-72.97355	4.5	18	WSW	<2	B4	>5	Clear	Severe	4.8	185	Silent	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:55	18:00	40.25468	-72.97355	40.25012	-72.97364	4.5	18	WSW	<2	B4	>5	Clear	Severe	4.8	185	Deploying/Retrieving	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:50	40.25012	-72.97364	40.27820	-72.95954	45	18	S	<2	B4	>5	Clear	Severe	3.9	267	Deploying/Retrieving	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:50	19:00	40.27820	-72.95954	40.28995	-72.95719	45	21	N	<2	B4	>5	Clear	Severe	4.2	1	Deploying/Retrieving	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:33	40.28995	-72.95719	40.32993	-72.94709	45	21	N	<2	B4	>5	Clear	Severe	3.9	1	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:33	20:00	40.32993	-72.94709	40.30291	-72.95198	44	22	S	<2	B4	>5	Clear	Severe	3.9	192	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:05	40.30291	-72.95198	40.29770	-72.95294	42	25	S	<2	B5	>5	Clear	Severe	3.9	194	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:05	21:08	40.29770	-72.95294	40.24262	-72.96563	42	27	S	<2	B5	>5	Clear	Severe	3.9	194	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:08	22:00	40.24262	-72.96563	40.18163	-72.98054	45	22	SSW	<2	B5	>5	Clear	Severe	3.3	192	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.18163	-72.98054	40.19334	-72.95849	45	24	SSW	<2	B5	>5	Clear	Severe	4	194	Standby	N/A
2022-08-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.19334	-72.95849	40.26883	-72.91604	45	24	SSW	<2	B5	>5	Clear	Severe	4	20	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.27359	-72.91344	40.31914	-72.89353	46	23	SSW	<2	B4	1-2	Cloudy	None	5.1	14	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.31914	-72.89353	40.26180	-72.92495	48	22.4	SSW	<2	B5	0.5-1	Cloudy	None	3.9	220	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.26180	-72.92495	40.19983	-72.96173	48	22.5	SW	2-4	B5	0.5-1	Clear	None	3	212	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.19983	-72.96173	40.14060	-72.99692	48	21	SSW	2-4	B5	0.5-1	Clear	None	4.1	209	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.14060	-72.99692	40.20352	-72.95424	46	20.6	SW	2-4	B5	0.5-1	Clear	None	4.3	19	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.20352	-72.95424	40.26657	-72.91632	46	18	SW	2-4	B5	0.5-1	Clear	None	4.1	21	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.26657	-72.91632	40.30846	-72.89687	46	19	SW	2-4	B5	0.5-1	Clear	None	4.4	15	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.30846	-72.89687	40.25240	-72.92766	46	19	WSW	2-4	B5	0.5-1	Clear	None	3.7	207	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.25240	-72.92766	40.19392	-72.96385	47	19	WSW	2-4	B5	0.5-1	Clear	None	3.8	208	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:45	40.19392	-72.96385	40.14829	-72.99083	47	16	WSW	2-4	B5	0.5-1	Clear	None	3.1	200	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:45	10:00	40.14829	-72.99083	40.13319	-73.00202	46	14	WSW	<2	B4	1-2	Clear	None	4.8	224	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.13319	-73.00202	40.18730	-72.96518	46	14	WSW	<2	B4	>5	Clear	None	4.2	38	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.18730	-72.96518	40.25056	-72.92643	46	10	WSW	<2	B4	>5	Clear	Severe	4.5	32	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.25056	-72.92643	40.31754	-72.89934	47	9	W	<2	B3	>5	Clear	Severe	4.3	14	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:47	40.31754	-72.89934	40.31607	-72.93295	46	12	N	<2	B3	>5	Clear	Severe	4.2	11	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:47	14:00	40.31607	-72.93295	40.30798	-72.94892	44	11	N	<2	B3	>5	Clear	Severe	4.5	252	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.30798	-72.94892	40.27505	-72.99051	43	12	NNE	<2	B3	>5	Clear	Severe	3.9	225	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.27505	-72.99051	40.29777	-72.99028	44	12	NNE	<2	B3	>5	Clear	Severe	3.9	352	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:25	40.29777	-72.99028	40.27640	-72.99264	43	12	ENE	<2	B3	>5	Clear	Moderate	3.9	185	Deploying/Retrieving	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:25	16:34	40.27640	-72.99264	40.26825	-72.99389	43	12	ENE	<2	B3	>5	Clear	Moderate	3.9	185	Deploying/Retrieving	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:34	16:42	40.26825	-72.99389	40.26331	-72.99951	43	12	ENE	<2	B3	>5	Clear	Moderate	3.9	185	Deploying/Retrieving	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:42	16:45	40.26331	-72.99951	40.26563	-73.00315	43	12	ENE	<2	B3	>5	Clear	Moderate	3.9	293	Standby	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:45	17:00	40.26563	-73.00315	40.28557	-72.99735	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Soft Start	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:05	40.28557	-72.99735	40.29196	-72.99539	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Soft Start	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:05	17:09	40.29196	-72.99539	40.29702	-72.99381	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:09	17:41	40.29702	-72.99381	40.32934	-72.97401	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:41	17:46	40.32934	-72.97401	40.32325	-72.97386	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:46	18:00	40.32325	-72.97386	40.30794	-72.97429	43	10	NE	<2	B3	>5	Clear	Moderate	3.9	359	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:38	40.30794	-72.97429	40.26135	-72.97567	43	8	NE	<2	B3	>5	Clear	Moderate	3.2	147	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:38	18:40	40.26135	-72.97567	40.25881	-72.97566	43	8	NE	<2	B3	>5	Clear	Moderate	3.2	147	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:40	18:51	40.25881	-72.97566	40.25288	-72.98006	43	8	NE	<2	B3	>5	Clear	Moderate	3.2	147	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:51	18:59	40.25288	-72.98006	40.26230	-72.98094	44	10	E	<2	B3	>5	Clear	Moderate	4.3	357	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:59	19:00	40.26230	-72.98094	40.26354	-72.98094	44	12	E	<2	B3	>5	Clear	Moderate	4.3	6	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:47	40.26354	-72.98094	40.32340	-72.97913	44	12	E	<2	B3	>5	Clear	Moderate	4.3	6	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:47	19:49	40.32340	-72.97913	40.32597	-72.97911	44	12	E	<2	B3	>5	Clear	Moderate	4.3	6	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:49	20:00	40.32597	-72.97911	40.33359	-72.97288	44	12	E	<2	B3	>5	Clear	Moderate	4.3	6	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:09	40.33359	-72.97288	40.32289	-72.97135	41	11	SE	<2	B3	>5	Clear	Moderate	4.3	182	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:09	21:00	40.32289	-72.97135	40.26044	-72.97314	41	11	SE	<2	B3	>5	Clear	Moderate	4.3	182	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:01	40.26044	-72.97314	40.26035	-72.97314	44	12	ESE	<2	B3	>5	Clear	Moderate	4.4	151	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:01	21:12	40.26035	-72.97314	40.25064	-72.97753	44	12	ESE	<2	B3	>5	Clear	Moderate	4.4	151	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:12	21:22	40.25064	-72.97753	40.26190	-72.98060	44	12	ESE	<2	B3	>5	Clear	Moderate	4.4	151	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:22	22:00	40.26190	-72.98060	40.31081	-72.97908	44	12	ESE	<2	B3	>5	Clear	Moderate	4.4	151	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:10	40.31081	-72.97908	40.32351	-72.97871	43	12	ESE	<2	B3	>5	Clear	Severe	4.4	6	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:10	22:13	40.32351	-72.97871	40.32771	-72.97860	43	12	ESE	<2	B3	>5	Clear	Severe	4.4	6	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:13	22:25	40.32771	-72.97860	40.32950	-72.97096	43	10	ESE	<2	B3	>5	Clear	Severe	4.4	4	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:25	22:31	40.32950	-72.97096	40.32274	-72.97102	43	10	ESE	<2	B3	>5	Clear	Severe	4.4	176	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:31	23:00	40.32274	-72.97102	40.28875	-72.97205	43	10	ESE	<2	B3	>5	Clear	Severe	4.4	177	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:23	40.28875	-72.97205	40.26078	-72.97290	43	11	SE	<2	B3	>5	Clear	Severe	4.4	178	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:23	23:26	40.26078	-72.97290	40.25702	-72.97281	43	11	SE	<2	B3	>5	Clear	Slight	4.4	178	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:26	23:31	40.25702	-72.97281	40.25414	-72.97908	43	11	SE	<2	B3	>5	Clear	None	4.4	204	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:31	23:34	40.25414	-72.97908	40.25807	-72.98023	43	11	SE	<2	B3	>5	Clear	None	4.4	312	Full Power	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:34	23:38	40.25807	-72.98023	40.26208	-72.98020	43	11	SE	<2	B3	>5	Clear	None	4.4	358	Silent	N/A
2022-08-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:38	00:00	40.26208	-72.98020	40.29066	-72.97932	43	8	ESE	<2	B3	>5	Clear	None	4.4	0	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:19	40.29460	-72.97923	40.31551	-72.97867	43	9	E	<2	B3	1-2	Clear	None	3.9	359	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:19	00:27	40.31551	-72.97867	40.32328	-72.97846	43	9	E	<2	B3	0.5-1	Clear	None	3.9	359	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:27	00:29	40.32328	-72.97846	40.32594	-72.97835	43	9	E	<2	B3	0.5-1	Clear	None	3.9	359	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:29	00:40	40.32594	-72.97835	40.32875	-72.97042	43	9	E	<2	B3	0.5-1	Clear	None	4.9	14	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:40	00:45	40.32875	-72.97042	40.32279	-72.97065	43	9	E	<2	B3	0.5-1	Clear	None	4.9	185	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:45	01:00	40.32279	-72.97065	40.30476	-72.97118	43	9	E	<2	B3	0.5-1	Clear	None	4.9	185	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:35	40.30476	-72.97118	40.26086	-72.97254	42	8.8	E	<2	B3	0.5-1	Clear	None	4.6	185	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:35	01:40	40.26086	-72.97254	40.25455	-72.97225	42	8.8	E	<2	B3	0.5-1	Clear	None	4.6	185	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:40	01:49	40.25455	-72.97225	40.25873	-72.97988	42	8.8	E	<2	B3	0.5-1	Clear	None	4.6	185	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:49	01:52	40.25873	-72.97988	40.26246	-72.97990	42	8.8	E	<2	B3	0.5-1	Clear	None	4.6	0	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:52	01:59	40.26246	-72.97990	40.27127	-72.97955	43.2	8.2	ENE	<2	B3	0.5-1	Clear	None	4.4	356	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:59	03:00	40.27127	-72.97955	40.26358	-72.97243	43.2	8.2	ENE	<2	B3	0.5-1	Clear	None	4.4	356	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:11	40.26358	-72.97243	40.25087	-72.97265	43	9	ENE	<2	B3	0.5-1	Clear	None	5.4	189	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:11	03:12	40.25087	-72.97265	40.24988	-72.97261	43	8	ENE	<2	B3	0.5-1	Clear	None	3.5	221	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:12	03:25	40.24988	-72.97261	40.25775	-72.98005	43	8	ENE	<2	B3	0.5-1	Clear	None	3.9	223	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:25	03:28	40.25775	-72.98005	40.26147	-72.97995	43	8	ENE	<2	B3	0.5-1	Clear	None	3.9	223	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:28	04:00	40.26147	-72.97995	40.29814	-72.97883	43	8	ENE	<2	B3	0.5-1	Clear	None	3.9	356	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:20	40.29814	-72.97883	40.32341	-72.97806	42.5	12	ENE	<2	B3	0.5-1	Clear	None	3.9	356	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:20	04:22	40.32341	-72.97806	40.32592	-72.97798	42.5	12	ENE	<2	B3	0.5-1	Clear	None	3.9	356	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:22	04:55	40.32592	-72.97798	40.32337	-72.97034	42.5	12	ENE	<2	B3	0.5-1	Clear	None	3.9	356	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:55	05:00	40.32337	-72.97034	40.31678	-72.97049	42	14	E	<2	B3	0.5-1	Clear	None	4.6	185	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:43	40.31678	-72.97049	40.26070	-72.97217	42	14	E	<2	B4	0.5-1	Clear	None	4.6	185	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:43	05:44	40.26070	-72.97217	40.25942	-72.97217	44	14	E	<2	B4	0.5-1	Clear	None	4.5	178	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:44	05:56	40.25942	-72.97217	40.25758	-72.97963	44	16	E	<2	B4	0.5-1	Clear	None	4.5	164	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:56	06:00	40.25758	-72.97963	40.26235	-72.97953	43	17	E	<2	B4	0.5-1	Clear	None	4.4	1	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:53	40.26235	-72.97953	40.32335	-72.97775	43	17	E	<2	B4	0.5-1	Cloudy	None	4.4	1	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:53	07:00	40.32335	-72.97775	40.33130	-72.97699	43	17	E	<2	B4	0.5-1	Cloudy	None	4.4	1	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:12	40.33130	-72.97699	40.32262	-72.96999	40	14.8	ENE	<2	B4	0.5-1	Cloudy	None	4.8	180	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:12	08:00	40.32262	-72.96999	40.26153	-72.97186	42	15	ENE	<2	B4	0.5-1	Cloudy	None	4.4	176	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:02	40.26153	-72.97186	40.25889	-72.97191	44	14	ENE	<2	B4	0.5-1	Cloudy	None	4.2	158	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:02	08:15	40.25889	-72.97191	40.25724	-72.97979	44	14	ENE	<2	B4	0.5-1	Cloudy	None	4.2	158	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:15	08:19	40.25724	-72.97979	40.26199	-72.97932	44	17	ENE	<2	B4	0.5-1	Cloudy	None	4.3	19	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:19	09:00	40.26199	-72.97932	40.31246	-72.97766	44	16	ENE	<2	B4	0.5-1	Cloudy	None	4.6	7	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:10	40.31246	-72.97766	40.32376	-72.97740	44	17	ENE	<2	B4	0.5-1	Cloudy	None	4.6	8	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:10	09:12	40.32376	-72.97740	40.32621	-72.97741	44	17	ENE	<2	B4	0.5-1	Cloudy	None	4.6	8	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:12	09:27	40.32621	-72.97741	40.32318	-72.96957	44	17	ENE	<2	B4	0.5-1	Cloudy	None	4.6	8	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:27	09:45	40.32318	-72.96957	40.29929	-72.97024	44	17	ENE	<2	B4	0.5-1	Cloudy	None	4.6	170	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:45	10:00	40.29929	-72.97024	40.28206	-72.97083	44	17	ENE	<2	B4	1-2	Cloudy	None	4.8	171	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:17	40.28206	-72.97083	40.26174	-72.97143	44	17	ENE	<2	B4	2-5	Cloudy	None	4.4	172	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:17	10:19	40.26174	-72.97143	40.25942	-72.97147	44	18	ENE	<2	B4	>5	Cloudy	None	4.4	175	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:19	10:32	40.25942	-72.97147	40.25533	-72.97963	44	18	ENE	<2	B4	>5	Cloudy	None	4.4	161	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:32	10:38	40.25533	-72.97963	40.26215	-72.97886	44	18	ENE	<2	B5	>5	Cloudy	None	4.6	33	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:38	11:00	40.26215	-72.97886	40.28974	-72.97799	44	18	ENE	<2	B5	>5	Cloudy	None	4.6	8	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:27	40.28974	-72.97799	40.32381	-72.97695	44	19	ENE	<2	B5	>5	Cloudy	None	4.6	8	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:27	11:28	40.32381	-72.97695	40.32507	-72.97689	44	21	ENE	<2	B5	>5	Cloudy	Moderate	4.6	357	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:28	11:42	40.32507	-72.97689	40.33210	-72.96972	44	21	ENE	<2	B5	>5	Cloudy	Moderate	4.6	357	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:42	11:50	40.33210	-72.96972	40.32297	-72.96922	44	18	ENE	<2	B5	>5	Cloudy	None	4.3	178	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:50	12:00	40.32297	-72.96922	40.31144	-72.96955	44	18	ENE	<2	B5	>5	Cloudy	None	4.4	172	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:43	40.31144	-72.96955	40.26152	-72.97106	43	19	ENE	<2	B5	>5	Cloudy	None	4.7	168	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:43	12:44	40.26152	-72.97106	40.26032	-72.97111	44	17	ENE	2-4	B5	>5	Cloudy	Moderate	4.3	171	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:44	13:00	40.26032	-72.97111	40.25300	-72.97831	44	17	ENE	2-4	B5	>5	Cloudy	Moderate	4.3	171	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:07	40.25300	-72.97831	40.25996	-72.97807	44	17	ENE	2-4	B5	>5	Cloudy	Moderate	3.7	13	Full Power	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:07	13:20	40.25996	-72.97807	40.27101	-72.97882	44	18	ENE	2-4	B5	>5	Cloudy	Slight	3.4	356	Silent	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:20	13:28	40.27101	-72.97882	40.27523	-72.97112	43	19	ENE	2-4	B5	>5	Cloudy	None	3.3	59	Deploying/Retrieving	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:28	14:00	40.27523	-72.97112	40.27587	-72.95461	43	16	ENE	2-4	B5	>5	Cloudy	None	3.5	74	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:43	40.27587	-72.95461	40.26190	-72.98099	44	16	ENE	2-4	B5	>5	Cloudy	None	4.2	270	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:43	15:00	40.26190	-72.98099	40.28321	-72.98033	44	18	ENE	2-4	B5	>5	Cloudy	Moderate	4.8	7	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.28321	-72.98033	40.31183	-72.97174	44	16	E	2-4	B5	>5	Cloudy	Moderate	4.9	4	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:06	40.31183	-72.97174	40.30391	-72.97194	44	14	ENE	2-4	B5	>5	Cloudy	Slight	4.9	178	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:06	17:00	40.30391	-72.97194	40.30701	-72.97429	44	14	ENE	2-4	B5	>5	Cloudy	Slight	4.9	178	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:36	40.30701	-72.97429	40.25875	-72.97579	44	13	ENE	2-4	B5	>5	Cloudy	None	4.9	177	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:36	18:00	40.25875	-72.97579	40.23718	-72.99455	44	11	NE	2-4	B5	>5	Cloudy	None	4.9	174	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.23718	-72.99455	40.26538	-72.94376	44	12	E	2-4	B5	>5	Cloudy	None	4.1	229	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.26538	-72.94376	40.23546	-73.00493	45	15	E	2-4	B5	>5	Cloudy	None	3.9	62	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.23546	-73.00493	40.26184	-72.94347	44	13	E	2-4	B5	>5	Cloudy	None	2.9	60	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.26184	-72.94347	40.23393	-73.00611	44	14	E	<2	B4	>5	Cloudy	None	3.7	63	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.23393	-73.00611	40.26168	-72.95188	44	12	ENE	<2	B4	>5	Cloudy	None	3.2	0	Standby	N/A
2022-08-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	00:00	40.26168	-72.95188	40.23817	-72.99126	45	10	E	<2	B4	>5	Cloudy	None	3.9	55	Standby	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.23646	-72.99474	40.25944	-72.95562	44	13	E	<2	B4	1-2	Clear	None	4.3	235	Standby	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:10	40.25944	-72.95562	40.26357	-72.94695	44	13.5	ESE	<2	B4	0.5-1	Clear	None	2.7	56	Standby	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:10	01:27	40.26357	-72.94695	40.26943	-72.93114	44	13.5	ESE	<2	B4	0.5-1	Clear	None	2.7	56	Deploying/Retrieving	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:27	01:47	40.26943	-72.93114	40.25641	-72.95465	44	13.5	ESE	<2	B4	0.5-1	Clear	None	2.7	182	Soft Start	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:47	02:00	40.25641	-72.95465	40.24951	-72.97327	44	13.5	ESE	<2	B4	0.5-1	Clear	None	2.7	182	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:12	40.24951	-72.97327	40.25965	-72.97848	44.1	13.3	ESE	<2	B4	0.5-1	Clear	None	3.9	335	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:12	02:14	40.25965	-72.97848	40.26168	-72.97841	44.1	13.3	ESE	<2	B4	0.5-1	Clear	None	3.9	335	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:14	03:00	40.26168	-72.97841	40.31755	-72.97691	44.1	13.3	ESE	<2	B4	0.5-1	Clear	None	3.9	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:05	40.31755	-72.97691	40.32397	-72.97667	44	10	ESE	<2	B3	0.5-1	Clear	None	4.6	1	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:05	03:20	40.32397	-72.97667	40.32743	-72.96878	44	10	ESE	<2	B3	0.5-1	Clear	None	4.6	1	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:20	03:23	40.32743	-72.96878	40.32355	-72.96892	44	10	ESE	<2	B3	0.5-1	Clear	None	4.6	1	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:23	04:00	40.32355	-72.96892	40.27523	-72.97035	42.8	12	ESE	<2	B3	0.5-1	Clear	None	4.6	181	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:11	40.27523	-72.97035	40.26071	-72.97080	43	10	ESE	<2	B3	0.5-1	Clear	None	4.7	180	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:11	04:25	40.26071	-72.97080	40.25761	-72.97817	43	10	ESE	<2	B3	0.5-1	Clear	None	4.7	180	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:25	04:28	40.25761	-72.97817	40.26146	-72.97813	43	9	ESE	<2	B3	0.5-1	Clear	None	4.9	358	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:28	05:00	40.26146	-72.97813	40.30297	-72.97688	43	9	ESE	<2	B3	0.5-1	Clear	None	4.9	358	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:18	40.30297	-72.97688	40.32397	-72.97629	42	7	SSE	<2	B3	0.5-1	Clear	None	4.6	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:18	05:19	40.32397	-72.97629	40.32527	-72.97630	43	6	SE	<2	B3	0.5-1	Clear	None	4.8	0	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:19	05:33	40.32527	-72.97630	40.32911	-72.96835	43	6	SE	<2	B3	0.5-1	Clear	None	4.8	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:33	05:37	40.32911	-72.96835	40.32378	-72.96853	42	8	SSE	<2	B3	0.5-1	Clear	None	4.8	181	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:37	06:00	40.32378	-72.96853	40.29345	-72.96944	42	8	SSE	<2	B3	0.5-1	Clear	None	4.8	178	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:25	40.29345	-72.96944	40.26081	-72.97039	43	7	ESE	<2	B3	0.5-1	Clear	None	4.9	179	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:25	06:26	40.26081	-72.97039	40.25950	-72.97043	44	9	SSE	<2	B3	0.5-1	Clear	None	4.7	179	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:26	06:38	40.25950	-72.97043	40.25529	-72.97791	44	9	SSE	<2	B3	0.5-1	Clear	None	4.7	179	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:38	06:43	40.25529	-72.97791	40.26189	-72.97781	44	7	SE	<2	B3	0.5-1	Clear	None	4.6	0	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:43	07:00	40.26189	-72.97781	40.28422	-72.97711	44	6	SSE	<2	B3	0.5-1	Clear	None	4.5	2	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:30	40.28422	-72.97711	40.32390	-72.97594	44	6.5	SE	<2	B3	0.5-1	Clear	None	4.8	1	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:30	07:32	40.32390	-72.97594	40.32661	-72.97580	41	4	SSE	<2	B3	0.5-1	Clear	None	4.8	0	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:32	07:42	40.32661	-72.97580	40.32838	-72.96809	41	4	SSE	<2	B3	0.5-1	Clear	None	4.8	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:42	07:46	40.32838	-72.96809	40.32327	-72.96824	42	5	SSE	<2	B3	0.5-1	Clear	None	4.6	179	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:46	08:00	40.32327	-72.96824	40.30539	-72.96878	42	5	SSE	<2	B3	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:36	40.30539	-72.96878	40.26118	-72.97007	44	5	ESE	<2	B3	0.5-1	Clear	None	4.8	178	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:36	09:00	40.26118	-72.97007	40.24079	-72.97574	44	5	ESE	<2	B3	0.5-1	Clear	None	4.8	178	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:03	40.24079	-72.97574	40.24408	-72.97621	45	4	SSW	<2	B3	0.5-1	Clear	None	4.1	313	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:03	09:12	40.24408	-72.97621	40.25526	-72.97750	45	4	SSW	<2	B3	0.5-1	Clear	None	4.1	313	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:12	09:17	40.25526	-72.97750	40.26172	-72.97742	45	4	SSW	<2	B3	0.5-1	Clear	None	4.6	4	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:17	09:39	40.26172	-72.97742	40.29106	-72.97660	45	4	SSW	<2	B3	0.5-1	Clear	None	4.7	2	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:39	10:00	40.29106	-72.97660	40.31788	-72.97570	45	4	SSW	<2	B3	1-2	Clear	None	4.7	2	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:04	40.31788	-72.97570	40.32315	-72.97556	45	5	SSW	<2	B3	2-5	Clear	None	4.7	3	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:04	10:06	40.32315	-72.97556	40.32577	-72.97550	45	6	SSW	<2	B3	>5	Clear	None	4.6	2	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:06	10:19	40.32577	-72.97550	40.33245	-72.96781	45	6	SSW	<2	B3	>5	Clear	None	4.6	357	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:19	10:26	40.33245	-72.96781	40.32376	-72.96782	45	6	SSW	<2	B3	>5	Clear	Slight	4.8	176	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:26	11:00	40.32376	-72.96782	40.28083	-72.96917	45	6	SSW	<2	B3	>5	Clear	Slight	4.8	176	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:15	40.28083	-72.96917	40.26177	-72.96968	45	6	SE	<2	B3	>5	Clear	Severe	4.6	175	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:15	11:17	40.26177	-72.96968	40.25919	-72.96976	45	6	SE	<2	B3	>5	Clear	Severe	4.6	175	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:17	11:30	40.25919	-72.96976	40.25432	-72.97739	45	6	SE	<2	B3	>5	Clear	Severe	4.6	175	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:30	11:36	40.25432	-72.97739	40.26215	-72.97704	45	5	SSE	<2	B3	>5	Clear	Severe	5	4	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:36	12:00	40.26215	-72.97704	40.29115	-72.97622	45	5	SSE	<2	B3	>5	Clear	Severe	4.8	1	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:25	40.29115	-72.97622	40.32379	-72.97523	45	5	SSE	<2	B3	>5	Clear	Severe	4.8	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:25	12:26	40.32379	-72.97523	40.32506	-72.97521	42	6	SSE	<2	B3	>5	Clear	Severe	4.9	0	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:26	12:37	40.32506	-72.97521	40.33333	-72.96893	42	6	SSE	<2	B3	>5	Clear	Severe	4.9	0	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:37	12:45	40.33333	-72.96893	40.32339	-72.96745	41	7	SSE	<2	B3	>5	Clear	Severe	4.7	169	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:45	13:00	40.32339	-72.96745	40.30414	-72.96804	41	7	SSE	<2	B3	>5	Clear	Severe	4.9	183	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:33	40.30414	-72.96804	40.26126	-72.96931	42	7	SSE	<2	B3	>5	Clear	Severe	4.8	184	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:33	13:34	40.26126	-72.96931	40.26002	-72.96937	44	5	SSE	<2	B3	>5	Clear	Severe	4.2	182	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:34	13:49	40.26002	-72.96937	40.25371	-72.97710	44	5	SSE	<2	B3	>5	Clear	Severe	4.2	182	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:49	13:55	40.25371	-72.97710	40.26135	-72.97674	44	4	SSE	<2	B2	>5	Clear	Severe	4.6	3	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:55	14:00	40.26135	-72.97674	40.26770	-72.97658	44	4	SSE	<2	B2	>5	Clear	Severe	4.5	358	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:46	40.26770	-72.97658	40.32410	-72.97488	44	4	SSE	<2	B2	>5	Clear	Severe	4.5	358	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:46	14:48	40.32410	-72.97488	40.32665	-72.97479	42	4	SSW	<2	B2	>5	Clear	Severe	4.5	357	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:48	15:00	40.32665	-72.97479	40.33048	-72.96650	42	4	SSW	<2	B2	>5	Clear	Severe	4.3	339	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:06	40.33048	-72.96650	40.32263	-72.96715	41	5	SSW	<2	B3	>5	Clear	Severe	4.3	190	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:06	15:53	40.32263	-72.96715	40.26138	-72.96899	42	6	SSW	<2	B3	>5	Clear	Severe	4.5	186	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:53	16:00	40.26138	-72.96899	40.25243	-72.96795	42	7	S	<2	B3	>5	Clear	Severe	4.7	186	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:09	40.25243	-72.96795	40.25455	-72.97647	44	5	SSE	<2	B3	>5	Clear	Severe	4.4	300	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:09	16:15	40.25455	-72.97647	40.26208	-72.97638	44	6	S	<2	B3	>5	Clear	Severe	4.7	354	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:15	16:21	40.26208	-72.97638	40.26979	-72.97618	44	6	S	<2	B3	>5	Clear	Moderate	4.4	357	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:21	17:00	40.26979	-72.97618	40.31913	-72.97464	44	6	S	<2	B3	>5	Clear	Moderate	4.4	3.5	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:05	40.31913	-72.97464	40.32505	-72.97450	44	7	S	<2	B3	>5	Clear	Moderate	4.4	357	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:05	17:06	40.32505	-72.97450	40.32694	-72.97454	44	7	S	<2	B3	>5	Clear	Moderate	4.4	357	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:06	17:18	40.32694	-72.97454	40.33370	-72.96770	44	7	S	<2	B3	>5	Clear	Moderate	4.4	357	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:18	17:27	40.33370	-72.96770	40.32282	-72.96676	41	10	S	<2	B3	>5	Clear	Moderate	4.3	160	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:27	18:00	40.32282	-72.96676	40.28268	-72.96798	42	10	S	<2	B3	>5	Clear	Moderate	4.7	184	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:17	40.28268	-72.96798	40.26086	-72.96865	44	10	S	<2	B3	>5	Clear	Moderate	4.5	184	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:17	18:18	40.26086	-72.96865	40.25848	-72.96844	44	10	S	<2	B3	>5	Clear	Moderate	4.5	184	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:18	18:26	40.25848	-72.96844	40.25137	-72.97235	44	10	S	<2	B3	>5	Clear	Moderate	4.5	184	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:26	19:00	40.25137	-72.97235	40.23772	-72.96667	44	10	S	<2	B3	>5	Clear	Moderate	4.5	184	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:02	40.23772	-72.96667	40.23550	-72.96664	44	11	S	<2	B3	>5	Clear	Moderate	4.5	183	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:02	19:22	40.23550	-72.96664	40.24817	-72.97638	44	11	S	<2	B3	>5	Clear	Moderate	4.5	183	Soft Start	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:22	19:26	40.24817	-72.97638	40.25332	-72.97620	44	12	S	<2	B3	>5	Clear	Moderate	4.5	359	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:26	19:34	40.25332	-72.97620	40.26276	-72.97599	44	12	S	<2	B3	>5	Clear	Moderate	4.5	359	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:34	19:53	40.26276	-72.97599	40.28598	-72.97535	44	12	S	<2	B3	>5	Clear	Moderate	4.5	359	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:53	20:00	40.28598	-72.97535	40.29594	-72.97501	44	11	S	<2	B3	>5	Clear	Moderate	4.7	1	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:22	40.29594	-72.97501	40.32421	-72.97413	43	11	S	<2	B3	>5	Clear	Moderate	4.6	359	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:22	20:24	40.32421	-72.97413	40.32607	-72.97413	41	14	S	<2	B3	>5	Clear	Severe	4.6	348	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:24	20:36	40.32607	-72.97413	40.33111	-72.96647	41	14	S	<2	B3	>5	Clear	Severe	4.6	348	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:36	20:44	40.33111	-72.96647	40.32243	-72.96649	42	13	S	<2	B3	>5	Clear	Severe	3.8	187	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:44	21:00	40.32243	-72.96649	40.30422	-72.96703	42	13	S	<2	B3	>5	Clear	Severe	3.8	187	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:11	40.30422	-72.96703	40.29006	-72.96743	42	14	S	<2	B3	>5	Clear	Severe	4.6	181	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:11	21:34	40.29006	-72.96743	40.26044	-72.96824	44	6	S	<2	B3	>5	Clear	Moderate	4.4	357	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:34	22:00	40.26044	-72.96824	40.23709	-72.98063	42	12	S	<2	B3	>5	Clear	Severe	4.5	177	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:08	40.23709	-72.98063	40.22868	-72.98057	42	12	S	<2	B3	>5	Clear	Severe	4.5	177	Standby	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:08	22:50	40.22868	-72.98057	40.23050	-72.99054	42	12	S	<2	B3	>5	Clear	Severe	3.5	177	Standby	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:50	23:00	40.23050	-72.99054	40.23875	-72.99045	42	14	S	<2	B3	>5	Clear	Severe	3.3	359	Soft Start	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:10	40.23875	-72.99045	40.24697	-72.99016	44	15	S	<2	B3	>5	Clear	Slight	3	4	Soft Start	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:10	23:11	40.24697	-72.99016	40.24764	-72.99017	44	15	S	<2	B3	>5	Clear	Slight	3	4	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:11	23:15	40.24764	-72.99017	40.25154	-72.99005	44	15	S	<2	B3	>5	Clear	Slight	3	4	Silent	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:35	40.25154	-72.99005	40.27671	-72.98926	44	15	S	<2	B3	>5	Clear	Slight	3	4	Full Power	N/A
2022-08-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:35	00:00	40.27671	-72.98926	40.30507	-72.98845	43	15	S	<2	B3	>5	Clear	Slight	4.6	1	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:13	40.30928	-72.98835	40.32355	-72.98797	43	15	S	<2	B3	1-2	Clear	None	4.6	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:13	00:16	40.32355	-72.98797	40.32761	-72.98804	43	15	S	<2	B3	0.5-1	Clear	None	4.6	359	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:16	00:32	40.32761	-72.98804	40.32807	-72.98048	43	15	S	<2	B3	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:32	00:36	40.32807	-72.98048	40.32341	-72.98054	43	15	S	<2	B3	0.5-1	Clear	None	4.6	180	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:36	01:00	40.32341	-72.98054	40.29487	-72.98139	43	15	S	<2	B3	0.5-1	Clear	None	4.6	182	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:38	40.29487	-72.98139	40.25051	-72.98269	42.7	18	S	<2	B4	0.5-1	Clear	None	4.4	180	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:38	01:40	40.25051	-72.98269	40.24818	-72.98260	42.7	18	S	<2	B4	0.5-1	Clear	None	4.4	180	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:40	01:53	40.24818	-72.98260	40.24692	-72.99045	42.7	18	S	<2	B4	0.5-1	Clear	None	4.4	180	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:53	01:56	40.24692	-72.99045	40.25074	-72.99046	42.7	18	S	<2	B4	0.5-1	Clear	None	4.4	180	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:56	02:00	40.25074	-72.99046	40.25588	-72.99030	42.7	18	S	<2	B4	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:55	40.25588	-72.99030	40.32330	-72.98836	42.3	16	S	<2	B4	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:55	02:57	40.32330	-72.98836	40.32593	-72.98834	42.3	16	S	<2	B4	0.5-1	Clear	None	4.6	359	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:57	03:00	40.32593	-72.98834	40.32963	-72.98916	42.3	16	S	<2	B4	0.5-1	Clear	None	4.6	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:16	40.32963	-72.98916	40.32347	-72.98094	42	16	S	<2	B4	0.5-1	Clear	None	4.6	85	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:16	04:00	40.32347	-72.98094	40.27216	-72.98247	42	16	S	<2	B4	0.5-1	Clear	None	4.4	184	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:17	40.27216	-72.98247	40.25105	-72.98308	42	17	SSW	<2	B4	0.5-1	Clear	None	4.4	187	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:17	04:19	40.25105	-72.98308	40.24859	-72.98300	42	17	SSW	<2	B4	0.5-1	Clear	None	4.4	187	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:19	04:56	40.24859	-72.98300	40.24654	-72.99068	42	17	SSW	<2	B4	0.5-1	Clear	None	4.4	187	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:56	05:00	40.24654	-72.99068	40.25172	-72.99068	44	15	SSW	<2	B4	0.5-1	Clear	None	4.6	346	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:57	40.25172	-72.99068	40.32423	-72.98866	44	15	SSW	<2	B4	0.5-1	Clear	None	4.6	352	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:57	05:58	40.32423	-72.98866	40.32560	-72.98861	43	15	SSW	<2	B4	0.5-1	Clear	None	4.6	350	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:58	06:00	40.32560	-72.98861	40.32828	-72.98886	43	13	SSW	<2	B4	0.5-1	Clear	None	4.8	346	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:11	40.32828	-72.98886	40.32845	-72.98101	43	13	SSW	<2	B4	0.5-1	Clear	None	4.8	13	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:11	06:15	40.32845	-72.98101	40.32349	-72.98120	43	13	SSW	<2	B4	0.5-1	Clear	None	4.8	13	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:15	07:00	40.32349	-72.98120	40.26514	-72.98307	43	14	SSW	<2	B4	0.5-1	Clear	None	4.7	186	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:11	40.26514	-72.98307	40.25042	-72.98351	41.2	13	WSW	<2	B4	0.5-1	Clear	None	4.7	190	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:11	07:13	40.25042	-72.98351	40.24781	-72.98359	42	13	WSW	<2	B4	0.5-1	Clear	None	4.6	188	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:13	08:00	40.24781	-72.98359	40.22423	-72.99094	42	13	WSW	<2	B4	0.5-1	Clear	None	4.6	188	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:05	40.22423	-72.99094	40.22969	-72.99089	45	9	SW	<2	B4	0.5-1	Clear	None	3.8	353	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:05	08:06	40.22969	-72.99089	40.23078	-72.99088	45	9	SW	<2	B4	0.5-1	Clear	None	3.8	353	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:06	08:16	40.23078	-72.99088	40.24325	-72.99119	45	9	SW	<2	B4	0.5-1	Clear	None	4.3	353	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:16	08:22	40.24325	-72.99119	40.25108	-72.99118	44	10	SW	<2	B3	0.5-1	Clear	None	4.5	353	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:22	09:00	40.25108	-72.99118	40.30029	-72.98971	44	9	SW	<2	B3	0.5-1	Clear	None	4.6	356	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:20	40.30029	-72.98971	40.32405	-72.98903	44	10	SSW	<2	B3	0.5-1	Clear	None	4.6	2	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:20	09:21	40.32405	-72.98903	40.32533	-72.98898	44	10	SSW	<2	B3	0.5-1	Clear	None	4.6	2	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:21	09:32	40.32533	-72.98898	40.32817	-72.98132	44	10	SSW	<2	B3	0.5-1	Clear	None	4.6	2	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:32	09:36	40.32817	-72.98132	40.32289	-72.98161	44	10	SSW	<2	B3	0.5-1	Clear	None	4.6	185	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:36	09:41	40.32289	-72.98161	40.31622	-72.98178	44	10	SSW	<2	B3	0.5-1	Clear	None	4.6	184	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:41	10:00	40.31622	-72.98178	40.29166	-72.98257	44	13	WSW	<2	B3	1-2	Clear	None	4.6	184	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:31	40.29166	-72.98257	40.25083	-72.98378	44	12	SW	<2	B3	2-5	Clear	None	4.7	185	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:31	10:32	40.25083	-72.98378	40.24951	-72.98380	43	12	SSW	<2	B3	>5	Clear	Slight	4.8	180	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:32	10:43	40.24951	-72.98380	40.24372	-72.99133	43	12	SSW	<2	B3	>5	Clear	Slight	4.8	176	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:43	10:49	40.24372	-72.99133	40.25161	-72.99146	43	12	SSW	<2	B3	>5	Clear	Slight	4.8	358	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:49	11:00	40.25161	-72.99146	40.26588	-72.99110	43	12	SSW	<2	B3	>5	Clear	Moderate	4.8	358	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:45	40.26588	-72.99110	40.32473	-72.98929	43	12	SSW	<2	B3	>5	Clear	Slight	4.6	358	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:45	11:46	40.32473	-72.98929	40.32601	-72.98924	41	9	SSW	<2	B3	>5	Clear	Moderate	4.6	358	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:46	11:56	40.32601	-72.98924	40.33428	-72.98451	41	9	SSW	<2	B3	>5	Clear	Moderate	4.6	358	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:56	12:00	40.33428	-72.98451	40.33000	-72.98159	41	11	SSW	<2	B3	>5	Clear	Severe	4.6	148	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:05	40.33000	-72.98159	40.32347	-72.98196	41	11	SW	<2	B3	>5	Clear	Severe	4.6	183	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:05	13:00	40.32347	-72.98196	40.25403	-72.98398	41	10	SW	<2	B3	>5	Clear	Severe	4.7	180	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:03	40.25403	-72.98398	40.25013	-72.98411	44	12	SSW	<2	B3	>5	Clear	Severe	4.6	180	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:03	13:22	40.25013	-72.98411	40.24721	-72.99218	44	12	SSW	<2	B3	>5	Clear	Severe	4.6	180	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:22	13:27	40.24721	-72.99218	40.25184	-72.99131	43	11	S	<2	B3	>5	Clear	Severe	3.3	6	Deploying/Retrieving	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:27	14:00	40.25184	-72.99131	40.24942	-72.99296	43	11	SSE	<2	B3	>5	Clear	Severe	3.5	7	Standby	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:17	40.24942	-72.99296	40.24393	-72.99612	43	9	SSW	<2	B3	>5	Cloudy	Moderate	2.4	194	Standby	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:17	14:28	40.24393	-72.99612	40.23716	-73.00232	43	11	SSW	<2	B3	>5	Cloudy	Moderate	2.9	222	Deploying/Retrieving	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:28	14:53	40.23716	-73.00232	40.23372	-73.01435	43	10	SW	<2	B3	>5	Cloudy	Moderate	2.7	197	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:53	15:00	40.23372	-73.01435	40.23956	-73.00486	44	11	S	<2	B3	>5	Clear	Severe	4.7	48	Soft Start	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:13	40.23956	-73.00486	40.24947	-72.98671	43	10	SSW	<2	B3	>5	Clear	Severe	4.7	53	Soft Start	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:13	15:23	40.24947	-72.98671	40.24326	-72.98934	44	12	SSW	<2	B3	>5	Clear	Moderate	4.4	123	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:23	15:30	40.24326	-72.98934	40.25186	-72.99181	44	12	SSW	<2	B3	>5	Clear	Moderate	4.7	330	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	15:32	40.25186	-72.99181	40.25439	-72.99174	44	10	SSW	<2	B3	>5	Clear	Severe	4.3	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:32	15:33	40.25439	-72.99174	40.25564	-72.99170	44	10	SSW	<2	B3	>5	Clear	Severe	4.3	359	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:33	16:00	40.25564	-72.99170	40.24314	-72.98422	44	10	SSW	<2	B3	>5	Clear	Severe	4.3	359	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:04	40.24314	-72.98422	40.24358	-72.99009	44	13	SSW	<2	B3	>5	Clear	Severe	4.5	259	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:04	16:10	40.24358	-72.99009	40.25132	-72.99178	44	13	SSW	<2	B3	>5	Clear	Severe	4.8	335	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:10	17:06	40.25132	-72.99178	40.32436	-72.98966	44	13	S	<2	B3	>5	Clear	Moderate	4.8	358	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:06	17:08	40.32436	-72.98966	40.32633	-72.98962	40	13	S	<2	B3	>5	Clear	Moderate	4.8	358	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:08	17:08	40.32633	-72.98962	40.32710	-72.98964	44	13	S	<2	B3	>5	Clear	Moderate	4.8	358	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:08	17:19	40.32710	-72.98964	40.33253	-72.98280	40	11	S	<2	B3	>5	Clear	Moderate	4.8	352	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:19	17:28	40.33253	-72.98280	40.32106	-72.98237	41	11	S	<2	B3	>5	Clear	Moderate	3.6	186	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:28	18:00	40.32106	-72.98237	40.28175	-72.98354	41	13	SSW	<2	B3	>5	Clear	Moderate	4.7	184	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:07	40.28175	-72.98354	40.27274	-72.98377	43	12	S	<2	B3	>5	Clear	Moderate	4.6	185	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:07	18:40	40.27274	-72.98377	40.29375	-72.99185	43	12	S	<2	B3	>5	Clear	Moderate	4.6	185	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:40	19:00	40.29375	-72.99185	40.29142	-72.98331	43	11	S	<2	B3	>5	Clear	Moderate	4.3	351	Soft Start	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:06	40.29142	-72.98331	40.28415	-72.98350	44	16	S	<2	B3	>5	Clear	Moderate	4.3	185	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:06	19:14	40.28415	-72.98350	40.27526	-72.98373	44	16	S	<2	B3	>5	Clear	Moderate	4.3	185	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:14	19:35	40.27526	-72.98373	40.25006	-72.98450	44	15	S	<2	B3	>5	Clear	Moderate	4.3	185	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:35	19:36	40.25006	-72.98450	40.24908	-72.98448	43	16	SSW	<2	B3	>5	Clear	Moderate	4.5	165	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:36	19:46	40.24908	-72.98448	40.24362	-72.99162	43	16	SSW	<2	B3	>5	Clear	Moderate	4.5	165	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:46	19:52	40.24362	-72.99162	40.25207	-72.99222	44	15	S	<2	B3	>5	Clear	Moderate	4.5	355	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:52	20:00	40.25207	-72.99222	40.26171	-72.99185	44	14	S	<2	B3	>5	Clear	Moderate	4.5	356	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:24	40.26171	-72.99185	40.29333	-72.99095	44	14	S	<2	B3	>5	Clear	Moderate	4.5	356	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:24	20:48	40.29333	-72.99095	40.32409	-72.99006	44	14	S	<2	B3	>5	Clear	Moderate	4.5	354	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:48	20:49	40.32409	-72.99006	40.32656	-72.99018	42	14	S	<2	B3	>5	Clear	Moderate	4.4	335	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:49	21:00	40.32656	-72.99018	40.33390	-72.98546	42	14	S	<2	B3	>5	Clear	Moderate	4.5	335	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:03	40.33390	-72.98546	40.33123	-72.98281	41	15	S	<2	B3	>5	Clear	Moderate	4.3	186	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:03	21:10	40.33123	-72.98281	40.32196	-72.98268	41	15	S	<2	B3	>5	Clear	Moderate	4.3	186	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:10	22:00	40.32196	-72.98268	40.26254	-72.98450	41	15	S	<2	B3	>5	Clear	Severe	4.4	185	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:10	40.26254	-72.98450	40.24980	-72.98486	44	15	S	<2	B3	>5	Clear	Severe	4.4	182	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:10	22:12	40.24980	-72.98486	40.24711	-72.98508	44	15	S	<2	B3	>5	Clear	Severe	4.4	182	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:12	22:28	40.24711	-72.98508	40.24638	-72.99269	44	15	S	<2	B3	>5	Clear	Severe	4.5	177	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:28	22:32	40.24638	-72.99269	40.25160	-72.99258	44	15	S	<2	B3	>5	Clear	Severe	4.6	355	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:32	23:00	40.25160	-72.99258	40.28677	-72.99151	43	15	S	<2	B3	>5	Clear	Severe	4.6	355	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:30	40.28677	-72.99151	40.32494	-72.99031	44	15	S	<2	B3	>5	Clear	Slight	4.8	357	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:30	23:31	40.32494	-72.99031	40.32640	-72.99042	44	15	S	<2	B3	>5	Clear	None	4.8	357	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:31	23:34	40.32640	-72.99042	40.33028	-72.99139	44	16	S	<2	B3	>5	Clear	None	4.6	357	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:34	23:44	40.33028	-72.99139	40.32809	-72.98290	44	16	S	<2	B3	>5	Clear	None	4.6	7	Full Power	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:44	23:48	40.32809	-72.98290	40.32236	-72.98310	44	16	S	<2	B3	>5	Clear	None	4.6	185	Silent	N/A
2022-08-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	00:00	40.32236	-72.98310	40.31356	-72.98337	44	16	S	<2	B3	>5	Clear	None	4.6	185	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:47	40.30835	-72.98352	40.25051	-72.98517	42	16	S	<2	B4	1-2	Clear	None	4.4	186	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:47	00:48	40.25051	-72.98517	40.24929	-72.98519	42	19	S	<2	B4	1-2	Clear	None	4.4	179	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:48	00:58	40.24929	-72.98519	40.24836	-72.99291	42	19	S	<2	B4	1-2	Clear	None	4.4	179	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:58	01:00	40.24836	-72.99291	40.25085	-72.99292	42	19	S	<2	B4	1-2	Clear	None	4.4	179	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:58	40.25085	-72.99292	40.32411	-72.99081	44.2	17	S	<2	B5	0.5-1	Clear	None	4.8	355	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:58	01:59	40.32411	-72.99081	40.32547	-72.99076	44.2	17	S	<2	B5	0.5-1	Clear	None	4.8	355	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:59	02:00	40.32547	-72.99076	40.32679	-72.99067	44.2	17	S	<2	B5	0.5-1	Clear	None	4.8	355	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:13	40.32679	-72.99067	40.33145	-72.98329	40	17.2	S	<2	B5	0.5-1	Clear	None	3.6	355	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:13	02:19	40.33145	-72.98329	40.32383	-72.98334	40	17.2	S	<2	B5	0.5-1	Clear	None	3.6	355	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:19	03:00	40.32383	-72.98334	40.27236	-72.98495	40	17.2	S	<2	B5	0.5-1	Clear	None	4.5	187	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:17	40.27236	-72.98495	40.25080	-72.98552	41	16	S	<2	B5	0.5-1	Cloudy	None	4.6	182	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:17	03:19	40.25080	-72.98552	40.24822	-72.98545	41	16	S	<2	B5	0.5-1	Cloudy	None	4.6	182	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:19	03:33	40.24822	-72.98545	40.25182	-72.99288	41	16	S	<2	B5	0.5-1	Cloudy	None	4.6	182	Standby	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:33	03:45	40.25182	-72.99288	40.24457	-72.98554	41	14	SSW	<2	B5	0.5-1	Cloudy	None	4.7	67	Standby	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:45	04:00	40.24457	-72.98554	40.23097	-72.98520	41	14	SSW	<2	B5	0.5-1	Cloudy	None	2.7	189	Deploying/Retrieving	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:09	40.23097	-72.98520	40.22160	-72.98519	45.7	13	SSW	<2	B4	0.5-1	Cloudy	None	2.7	189	Standby	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:09	04:17	40.22160	-72.98519	40.21492	-72.98500	45.7	13	SSW	<2	B4	0.5-1	Cloudy	None	2.7	189	Deploying/Retrieving	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:17	04:30	40.21492	-72.98500	40.20363	-72.98668	45.7	13	SSW	<2	B4	0.5-1	Cloudy	None	2.7	189	Deploying/Retrieving	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:30	04:50	40.20363	-72.98668	40.22371	-72.99224	45.7	13	SSW	<2	B4	0.5-1	Cloudy	None	2.7	189	Soft Start	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:50	05:00	40.22371	-72.99224	40.23597	-72.99280	45	10	SSW	<2	B4	0.5-1	Cloudy	None	4	345	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:05	40.23597	-72.99280	40.24245	-72.99322	45	11	SSW	<2	B4	0.5-1	Cloudy	None	4.7	354	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:05	05:12	40.24245	-72.99322	40.25118	-72.99322	45	10	SSW	<2	B4	0.5-1	Cloudy	None	4.7	351	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:12	06:00	40.25118	-72.99322	40.31155	-72.99147	45	10	SSW	<2	B4	0.5-1	Cloudy	None	3.3	350	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:10	40.31155	-72.99147	40.32465	-72.99106	44	8	NW	<2	B4	0.5-1	Cloudy	None	4.7	357	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:10	06:11	40.32465	-72.99106	40.32591	-72.99103	40	10	NNW	<2	B3	0.5-1	Cloudy	None	4.5	4	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:11	06:25	40.32591	-72.99103	40.32387	-72.98368	40	10	NNW	<2	B3	0.5-1	Cloudy	None	4.5	4	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:25	07:00	40.32387	-72.98368	40.27982	-72.98504	40	7.5	NNW	<2	B3	0.5-1	Cloudy	None	4.5	185	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:19	40.27982	-72.98504	40.25551	-72.98575	43.7	9.8	W	<2	B3	0.5-1	Cloudy	None	4.6	188	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:19	07:23	40.25551	-72.98575	40.25032	-72.98593	43.7	9.8	W	<2	B3	0.5-1	Precipitation	None	4.6	188	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:23	07:24	40.25032	-72.98593	40.24904	-72.98600	44	15	WNW	<2	B3	0.5-1	Precipitation	None	4.5	180	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:24	07:37	40.24904	-72.98600	40.24660	-72.99357	44	15	WNW	<2	B3	0.5-1	Precipitation	None	4.5	180	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:37	07:41	40.24660	-72.99357	40.25170	-72.99355	44	18	NW	<2	B3	0.5-1	Cloudy	None	4.5	352	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:41	08:00	40.25170	-72.99355	40.27618	-72.99283	44	18	NW	<2	B4	0.5-1	Cloudy	None	4.5	352	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:39	40.27618	-72.99283	40.32337	-72.99148	44	14	WNW	<2	B4	0.5-1	Cloudy	None	4.7	357	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:39	08:41	40.32337	-72.99148	40.32589	-72.99136	44	14	WNW	<2	B4	0.5-1	Cloudy	None	4.7	357	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:41	08:54	40.32589	-72.99136	40.32897	-72.98386	44	14	WNW	<2	B4	0.5-1	Cloudy	None	4.7	357	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:54	08:58	40.32897	-72.98386	40.32395	-72.98402	41	10	WNW	<2	B4	0.5-1	Cloudy	None	4.5	183	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:58	09:00	40.32395	-72.98402	40.32145	-72.98406	41	10	WNW	<2	B4	0.5-1	Cloudy	None	4.5	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:45	40.32145	-72.98406	40.26309	-72.98588	41	10	WNW	<2	B4	0.5-1	Cloudy	None	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:45	09:54	40.26309	-72.98588	40.25120	-72.98625	41	10	WNW	<2	B4	1-2	Cloudy	None	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:54	09:56	40.25120	-72.98625	40.24859	-72.98633	41	10	WNW	<2	B4	2-5	Cloudy	None	4.7	183	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:56	10:00	40.24859	-72.98633	40.24342	-72.98648	41	10	WNW	<2	B4	2-5	Cloudy	None	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:07	40.24342	-72.98648	40.24524	-72.99422	41	11	WNW	<2	B4	2-5	Cloudy	None	4.5	192	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:07	10:12	40.24524	-72.99422	40.25162	-72.99393	42	15	WNW	<2	B4	>5	Cloudy	None	4.5	358	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:12	11:00	40.25162	-72.99393	40.31370	-72.99212	42	15	WNW	<2	B4	>5	Cloudy	None	4.6	359	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:08	40.31370	-72.99212	40.32408	-72.99186	43	15	W	<2	B4	>5	Clear	Severe	4.6	2	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:08	11:10	40.32408	-72.99186	40.32667	-72.99181	43	15	W	<2	B4	>5	Clear	Severe	4.6	2	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:10	11:19	40.32667	-72.99181	40.33409	-72.98681	43	15	W	<2	B4	>5	Clear	Severe	4.6	2	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:19	11:28	40.33409	-72.98681	40.32322	-72.98449	43	12	WNW	<2	B4	>5	Clear	Severe	4.6	130	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:28	12:00	40.32322	-72.98449	40.28355	-72.98561	43	12	WNW	<2	B4	>5	Clear	Severe	4.6	180	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:26	40.28355	-72.98561	40.25064	-72.98662	43	12	WNW	<2	B4	>5	Clear	Severe	4.8	182	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:26	12:28	40.25064	-72.98662	40.24812	-72.98652	44	13	WNW	<2	B4	>5	Clear	Severe	4.4	181	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:28	12:36	40.24812	-72.98652	40.24167	-72.99165	44	13	WNW	<2	B4	>5	Clear	Severe	4.4	181	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:36	12:44	40.24167	-72.99165	40.25112	-72.99433	44	17	WNW	<2	B4	>5	Clear	Severe	4.7	327	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:44	13:00	40.25112	-72.99433	40.27148	-72.99373	44	17	WNW	<2	B4	>5	Clear	Severe	4.4	359	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:42	40.27148	-72.99373	40.32503	-72.99216	44	18	NW	<2	B4	>5	Clear	Severe	4.7	358	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:42	13:43	40.32503	-72.99216	40.32627	-72.99212	44	16	NW	<2	B5	>5	Clear	Severe	4.6	357	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:43	13:55	40.32627	-72.99212	40.33192	-72.98405	44	16	NW	<2	B5	>5	Clear	Severe	4.6	357	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:55	14:02	40.33192	-72.98405	40.32312	-72.98479	41	14	WNW	<2	B5	>5	Clear	Severe	4.6	190	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:02	14:25	40.32312	-72.98479	40.29598	-72.98557	41	12	WNW	<2	B4	>5	Clear	Severe	4.7	187	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:25	15:01	40.29598	-72.98557	40.25095	-72.98689	41	12	WNW	<2	B4	>5	Clear	Severe	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:01	15:02	40.25095	-72.98689	40.24966	-72.98692	44	14	NW	<2	B4	>5	Clear	Severe	4.4	188	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:02	15:13	40.24966	-72.98692	40.24124	-72.99252	44	14	NW	<2	B4	>5	Clear	Severe	4.4	188	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:13	15:21	40.24124	-72.99252	40.25094	-72.99465	44	14	WNW	<2	B4	>5	Clear	Severe	4.3	337	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:21	15:33	40.25094	-72.99465	40.26632	-72.99424	43	14	WNW	<2	B4	>5	Clear	Severe	4.4	354	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:33	16:00	40.26632	-72.99424	40.25570	-72.99156	43	13	WNW	<2	B4	>5	Clear	Severe	4.5	353	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:05	40.25570	-72.99156	40.26089	-72.99347	43	15	WSW	<2	B4	>5	Clear	Moderate	4.5	3	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:05	16:25	40.26089	-72.99347	40.24934	-72.99221	43	15	WSW	<2	B4	>5	Clear	Moderate	4.5	3	Soft Start	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:25	16:28	40.24934	-72.99221	40.25320	-72.99370	43	15	WSW	<2	B4	>5	Clear	Moderate	4.5	332	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:28	16:37	40.25320	-72.99370	40.26395	-72.99426	43	15	WSW	<2	B4	>5	Clear	Moderate	4.5	333	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:37	17:00	40.26395	-72.99426	40.29312	-72.99344	44	18	WNW	<2	B5	>5	Clear	Moderate	4.7	352	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:27	40.29312	-72.99344	40.32420	-72.99252	43	19	WNW	<2	B5	>5	Clear	Moderate	4.7	351	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:27	17:28	40.32420	-72.99252	40.32537	-72.99251	41	17	WNW	<2	B5	>5	Clear	Moderate	4.1	343	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:28	17:38	40.32537	-72.99251	40.33215	-72.98662	41	17	WNW	<2	B5	>5	Clear	Moderate	4.1	343	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:46	40.33215	-72.98662	40.32305	-72.98518	41	19	WSW	<2	B5	>5	Clear	Moderate	4	184	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:46	18:00	40.32305	-72.98518	40.30528	-72.98566	41	19	WSW	<2	B5	>5	Clear	Moderate	4	184	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:46	40.30528	-72.98566	40.24964	-72.98737	42	18	W	<2	B5	>5	Clear	Moderate	4.5	190	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:46	18:47	40.24964	-72.98737	40.24906	-72.98738	43	17	WNW	<2	B5	>5	Clear	Moderate	4.3	190	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:47	19:00	40.24906	-72.98738	40.24771	-72.98406	43	17	WNW	<2	B5	>5	Clear	Moderate	4.3	190	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:19	40.24771	-72.98406	40.25129	-72.97806	44	15	W	<2	B4	>5	Clear	Moderate	4.6	80	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:19	19:27	40.25129	-72.97806	40.26212	-72.97792	44	15	W	<2	B4	>5	Clear	Moderate	4.6	350	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:27	20:00	40.26212	-72.97792	40.30449	-72.97666	43	14	W	<2	B4	>5	Clear	Moderate	4.7	352	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:15	40.30449	-72.97666	40.32466	-72.97607	42	13	SW	<2	B4	>5	Clear	Moderate	4.7	352	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:15	20:16	40.32466	-72.97607	40.32537	-72.97605	42	14	SW	<2	B4	>5	Clear	Severe	4.7	336	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:16	20:37	40.32537	-72.97605	40.33347	-72.97038	42	14	SW	<2	B4	>5	Clear	Severe	4.7	336	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:37	20:45	40.33347	-72.97038	40.32337	-72.97030	42	15	SW	<2	B4	>5	Clear	Severe	4.6	186	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:45	21:00	40.32337	-72.97030	40.30601	-72.97087	42	14	SW	<2	B4	>5	Clear	Severe	4.8	186	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:25	40.30601	-72.97087	40.27357	-72.97185	42	15	W	<2	B4	>5	Clear	Severe	4.6	185	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:25	21:28	40.27357	-72.97185	40.27017	-72.97158	42	15	W	<2	B4	>5	Clear	Severe	4.6	185	Silent	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:28	21:46	40.27017	-72.97158	40.28593	-72.97799	43	13	SW	<2	B4	>5	Clear	Severe	3.8	239	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:46	21:52	40.28593	-72.97799	40.29395	-72.97776	45	12	SW	<2	B4	>5	Clear	Severe	4.6	356	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:52	22:00	40.29395	-72.97776	40.29921	-72.96987	45	12	SW	<2	B4	>5	Clear	Severe	4.6	356	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:22	40.29921	-72.96987	40.29586	-72.97458	45	14	SSW	<2	B4	>5	Clear	Severe	4.6	162	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:22	22:29	40.29586	-72.97458	40.30410	-72.97440	45	14	SSW	<2	B4	>5	Clear	Severe	4.6	359.9	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:29	22:44	40.30410	-72.97440	40.32309	-72.97387	45	12	SW	<2	B4	>5	Clear	Severe	4.6	359	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	23:00	40.32309	-72.97387	40.31766	-72.96945	45	12	SW	<2	B4	>5	Clear	Severe	4.6	359	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:10	40.31766	-72.96945	40.30590	-72.96983	42	14	WNW	<2	B4	>5	Clear	Severe	4.5	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:10	23:15	40.30590	-72.96983	40.29885	-72.97002	42	15	WNW	<2	B4	>5	Clear	Severe	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:25	40.29885	-72.97002	40.28617	-72.97198	42	15	WNW	<2	B4	>5	Clear	Severe	4.7	183	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:53	40.28617	-72.97198	40.31500	-72.97323	42	15	WNW	<2	B4	>5	Clear	Severe	4.7	207	Full Power	N/A
2022-08-31	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:53	00:00	40.31500	-72.97323	40.31530	-72.97208	42	15	WNW	<2	B4	1-2	Clear	Severe	4.7	207	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:02	40.31037	-72.96957	40.30808	-72.96959	42	15	WNW	<2	B4	1-2	Clear	None	4	182	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:02	00:09	40.30808	-72.96959	40.30007	-72.96985	42	15	WNW	<2	B4	1-2	Clear	None	4	182	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:09	00:59	40.30007	-72.96985	40.24727	-72.99505	42	17	WSW	<2	B4	0.5-1	Clear	None	4	192	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:59	01:00	40.24727	-72.99505	40.24851	-72.99505	44	16	WNW	<2	B4	0.5-1	Clear	None	4	0	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:02	40.24851	-72.99505	40.25096	-72.99502	44	16	WNW	<2	B4	0.5-1	Clear	None	4	0	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:02	02:00	40.25096	-72.99502	40.32298	-72.99290	44	16	WNW	<2	B4	0.5-1	Clear	None	4	0	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:01	40.32298	-72.99290	40.32425	-72.99290	44	8	NW	<2	B3	0.5-1	Clear	None	5	355	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:01	02:02	40.32425	-72.99290	40.32560	-72.99284	44	8	NW	<2	B3	0.5-1	Clear	None	5	355	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:02	02:11	40.32560	-72.99284	40.32931	-72.98527	44	8	NW	<2	B3	0.5-1	Clear	None	5	355	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:11	02:15	40.32931	-72.98527	40.32400	-72.98544	44	8	NW	<2	B3	0.5-1	Clear	None	5	355	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:15	03:00	40.32400	-72.98544	40.26639	-72.98722	44	8	NW	<2	B3	0.5-1	Clear	None	5	184	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:12	40.26639	-72.98722	40.25089	-72.98769	44	6	WNW	<2	B3	0.5-1	Clear	None	5	183	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:12	03:14	40.25089	-72.98769	40.24829	-72.98768	44	6	WNW	<2	B3	0.5-1	Clear	None	5	183	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:14	03:25	40.24829	-72.98768	40.24647	-72.99545	44	6	WNW	<2	B3	0.5-1	Clear	None	5	183	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:25	03:29	40.24647	-72.99545	40.25143	-72.99538	44	6	WNW	<2	B3	0.5-1	Clear	None	5	183	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:29	04:00	40.25143	-72.99538	40.29090	-72.99427	44	6	WNW	<2	B3	0.5-1	Clear	None	5	354	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:27	40.29090	-72.99427	40.32359	-72.99322	44	6	W	<2	B3	0.5-1	Clear	None	5	355	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:27	04:29	40.32359	-72.99322	40.32604	-72.99332	43	6	W	<2	B3	0.5-1	Clear	None	4	354	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:29	04:40	40.32604	-72.99332	40.32752	-72.98574	43	6	W	<2	B3	0.5-1	Clear	None	4	354	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:40	04:43	40.32752	-72.98574	40.32355	-72.98582	43	6	W	<2	B3	0.5-1	Clear	None	4	354	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:43	05:00	40.32355	-72.98582	40.30140	-72.98648	43	6	W	<2	B3	0.5-1	Clear	None	4	185	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:42	40.30140	-72.98648	40.25069	-72.98801	42	10	W	<2	B3	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:42	05:43	40.25069	-72.98801	40.24970	-72.98805	42	10	W	<2	B3	0.5-1	Clear	None	4	186	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:43	05:57	40.24970	-72.98805	40.24749	-72.99573	42	10	W	<2	B3	0.5-1	Clear	None	4	186	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:57	06:00	40.24749	-72.99573	40.25138	-72.99569	43	12	WSW	<2	B3	0.5-1	Clear	None	5	353	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:58	40.25138	-72.99569	40.32396	-72.99352	43	12	WSW	<2	B3	0.5-1	Clear	None	5	355	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:58	07:00	40.32396	-72.99352	40.32647	-72.99349	40	14	W	<2	B3	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:10	40.32647	-72.99349	40.32831	-72.98594	40	14	W	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:10	07:14	40.32831	-72.98594	40.32326	-72.98621	40	14	W	<2	B3	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:14	08:00	40.32326	-72.98621	40.26767	-72.98789	40	14	W	<2	B3	0.5-1	Clear	None	5	187	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:13	40.26767	-72.98789	40.25101	-72.98836	43	16	WSW	<2	B4	0.5-1	Clear	None	5	183	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:13	08:29	40.25101	-72.98836	40.25121	-72.99605	44	15	W	<2	B4	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:29	09:00	40.25121	-72.99605	40.29218	-72.99492	44	15	W	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:26	40.29218	-72.99492	40.32439	-72.99390	44	14	W	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	09:26	09:27	40.32439	-72.99390	40.32570	-72.99388	44	14	W	<2	B4	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:27	09:36	40.32570	-72.99388	40.33217	-72.98834	44	14	W	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:36	09:39	40.33217	-72.98834	40.32911	-72.98635	44	14	W	<2	B4	1-2	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:39	09:44	40.32911	-72.98635	40.32300	-72.98655	44	16	W	<2	B4	1-2	Clear	None	5	358	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	10:00	40.32300	-72.98655	40.30373	-72.98716	44	16	W	<2	B4	1-2	Clear	None	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:44	40.30373	-72.98716	40.25149	-72.98872	43	18	W	<2	B5	2-5	Clear	None	4	185	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:44	10:46	40.25149	-72.98872	40.24902	-72.98877	43	17	W	<2	B5	>5	Clear	Severe	5	181	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:46	10:56	40.24902	-72.98877	40.24351	-72.99580	43	17	W	<2	B5	>5	Clear	Severe	5	176	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:56	11:00	40.24351	-72.99580	40.24846	-72.99651	43	16	W	<2	B5	>5	Clear	Severe	4	1	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:02	40.24846	-72.99651	40.25100	-72.99640	43	17	W	<2	B5	>5	Clear	Severe	4	1	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:02	11:59	40.25100	-72.99640	40.32463	-72.99429	44	17	W	<2	B5	>5	Clear	Severe	5	1	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:59	12:00	40.32463	-72.99429	40.32599	-72.99424	40	18	WNW	<2	B5	>5	Clear	Severe	5	358	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:18	40.32599	-72.99424	40.33459	-72.99436	40	18	WNW	<2	B5	>5	Clear	Severe	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:18	12:27	40.33459	-72.99436	40.32355	-72.99471	40	15	WNW	<2	B5	>5	Clear	Severe	4	186	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:27	13:00	40.32355	-72.99471	40.28629	-72.99578	40	16	WNW	<2	B5	>5	Clear	Severe	5	186	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:38	40.28629	-72.99578	40.24043	-72.99712	44	16	WNW	<2	B5	>5	Clear	Severe	4	190	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:38	13:40	40.24043	-72.99712	40.23800	-72.99715	44	17	WNW	<2	B5	>5	Clear	Severe	5	187	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:40	13:53	40.23800	-72.99715	40.23028	-73.00499	44	17	WNW	<2	B5	>5	Clear	Severe	5	187	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:53	14:02	40.23028	-73.00499	40.24143	-73.00484	45	15	W	<2	B5	>5	Clear	Severe	4	2	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:02	14:29	40.24143	-73.00484	40.27518	-73.00387	44	14	W	<2	B5	>5	Clear	Severe	4	353	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:29	14:30	40.27518	-73.00387	40.27645	-73.00381	44	14	W	<2	B5	>5	Clear	Severe	4	353	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:30	15:00	40.27645	-73.00381	40.25706	-72.99564	44	14	W	<2	B5	>5	Clear	Severe	4	353	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:01	40.25706	-72.99564	40.25599	-72.99572	43	13	W	<2	B4	>5	Clear	Severe	4	192	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:01	15:21	40.25599	-72.99572	40.26187	-73.00406	43	13	W	<2	B4	>5	Clear	Severe	4	192	Soft Start	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:21	15:23	40.26187	-73.00406	40.26433	-73.00414	44	13	WSW	<2	B4	>5	Clear	Severe	5	353	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:23	15:30	40.26433	-73.00414	40.27316	-73.00395	44	13	WSW	<2	B4	>5	Clear	Severe	5	353	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	16:00	40.27316	-73.00395	40.30891	-73.00284	44	14	WSW	<2	B4	>5	Clear	Severe	5	353	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:13	40.30891	-73.00284	40.32537	-73.00243	44	15	SW	<2	B4	>5	Clear	Severe	5	353	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:13	16:14	40.32537	-73.00243	40.32547	-73.00243	44	15	SW	<2	B4	>5	Clear	Moderate	5	353	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:14	16:23	40.32547	-73.00243	40.33271	-72.99671	44	15	SW	<2	B4	>5	Clear	Moderate	5	353	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:23	16:31	40.33271	-72.99671	40.32383	-72.99504	44	15	SW	<2	B4	>5	Clear	Moderate	5	151	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:31	17:00	40.32383	-72.99504	40.28651	-72.99609	40	18	WNW	<2	B4	>5	Clear	Moderate	5	190	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:37	40.28651	-72.99609	40.23983	-72.99756	44	19	WNW	<2	B5	>5	Clear	Moderate	5	189	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:37	17:38	40.23983	-72.99756	40.23860	-72.99759	45	16	W	<2	B4	>5	Clear	Moderate	5	189	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:46	40.23860	-72.99759	40.23255	-73.00274	45	16	W	<2	B4	>5	Clear	Moderate	5	189	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:46	17:53	40.23255	-73.00274	40.24045	-73.00521	45	16	WSW	<2	B4	>5	Clear	Moderate	5	326	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:53	18:00	40.24045	-73.00521	40.24909	-73.00503	45	15	WSW	<2	B4	>5	Clear	Moderate	5	352	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:26	40.24909	-73.00503	40.28152	-73.00403	42	16	WSW	<2	B4	>5	Clear	Moderate	5	352	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:26	19:00	40.28152	-73.00403	40.32063	-73.00293	42	16	WSW	<2	B4	>5	Clear	Moderate	5	352	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:03	40.32063	-73.00293	40.32377	-73.00284	42	14	SW	<2	B4	>5	Clear	Moderate	5	357	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:03	19:05	40.32377	-73.00284	40.32613	-73.00281	40	14	SW	<2	B4	>5	Clear	Moderate	5	13	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:05	19:14	40.32613	-73.00281	40.32989	-72.99541	40	12	SW	<2	B4	>5	Clear	Moderate	5	13	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:14	19:20	40.32989	-72.99541	40.32252	-72.99545	40	17	W	<2	B4	>5	Clear	Moderate	4	182	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:20	20:00	40.32252	-72.99545	40.27025	-72.99696	40	15	W	<2	B4	>5	Clear	Moderate	4	187	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:25	40.27025	-72.99696	40.23853	-72.99785	43	15	W	<2	B4	>5	Clear	Severe	5	184	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:25	20:26	40.23853	-72.99785	40.23789	-72.99781	44	13	SW	<2	B4	>5	Clear	Severe	5	173	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:26	20:36	40.23789	-72.99781	40.23426	-73.00552	44	13	SW	<2	B4	>5	Clear	Severe	5	173	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:36	20:42	40.23426	-73.00552	40.24147	-73.00557	44	13	SW	<2	B4	>5	Clear	Severe	5	354	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:42	20:48	40.24147	-73.00557	40.24887	-73.00536	44	13	SW	<2	B4	>5	Clear	Severe	5	357	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:48	21:00	40.24887	-73.00536	40.26498	-73.00488	44	13	SW	<2	B4	>5	Clear	Severe	5	357	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:47	40.26498	-73.00488	40.32441	-73.00312	44	14	SW	<2	B4	>5	Clear	Severe	5	0	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:47	21:49	40.32441	-73.00312	40.32693	-73.00302	44	14	SW	<2	B4	>5	Clear	Severe	5	3	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:49	22:00	40.32693	-73.00302	40.33181	-72.99558	44	14	SW	<2	B4	>5	Clear	Severe	5	3	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:07	40.33181	-72.99558	40.32340	-72.99572	44	14	SW	<2	B4	>5	Clear	Severe	5	177	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:07	23:00	40.32340	-72.99572	40.25618	-72.99773	44	16	SW	<2	B4	>5	Clear	Severe	5	179	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:12	40.25618	-72.99773	40.23968	-72.99823	43	14	SW	<2	B4	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:12	23:14	40.23968	-72.99823	40.23741	-72.99820	43	14	SW	<2	B4	>5	Clear	Slight	5	180	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:14	23:25	40.23741	-72.99820	40.23562	-73.00593	43	14	SW	<2	B4	>5	Clear	Slight	5	180	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:25	40.23562	-73.00593	40.23573	-73.00594	43	14	SW	<2	B4	>5	Clear	Slight	5	358	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:29	40.23573	-73.00594	40.24195	-73.00588	43	14	SW	<2	B4	>5	Clear	None	5	359	Silent	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:29	23:49	40.24195	-73.00588	40.26717	-73.00515	43	14	SW	<2	B4	>5	Clear	None	5	359	Full Power	N/A
2022-09-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	00:00	40.26717	-73.00515	40.27508	-73.00495	43	10	SW	<2	B3	1-2	Clear	None	5	359	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:18	40.28117	-73.00473	40.30491	-73.00407	43	8	SW	<2	B3	1-2	Clear	None	5	1	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:18	00:36	40.30491	-73.00407	40.32477	-73.00344	43	8	SW	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:36	00:39	40.32477	-73.00344	40.32868	-73.00345	43	8	SW	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:39	00:48	40.32868	-73.00345	40.32820	-72.99600	43	10	WNW	<2	B3	0.5-1	Clear	None	5	3	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:48	00:52	40.32820	-72.99600	40.32313	-72.99606	43	10	WNW	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:52	01:00	40.32313	-72.99606	40.31309	-72.99638	43	10	WNW	<2	B3	0.5-1	Clear	None	5	3	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:57	40.31309	-72.99638	40.23961	-72.99856	42	13	NW	<2	B3	0.5-1	Clear	None	5	181	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:57	01:58	40.23961	-72.99856	40.23829	-72.99854	42	13	NW	<2	B3	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:58	02:00	40.23829	-72.99854	40.23567	-72.99883	42	13	NW	<2	B3	0.5-1	Clear	None	5	181	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:09	40.23567	-72.99883	40.23580	-73.00635	45	14	NNW	<2	B4	0.5-1	Clear	None	5	193	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:09	02:13	40.23580	-73.00635	40.24103	-73.00626	45	14	NNW	<2	B4	0.5-1	Clear	None	5	193	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:13	03:00	40.24103	-73.00626	40.30121	-73.00450	45	14	NNW	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:20	40.30121	-73.00450	40.32453	-73.00386	43	16	N	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:20	03:21	40.32453	-73.00386	40.32579	-73.00385	43	16	N	<2	B4	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:21	03:31	40.32579	-73.00385	40.32831	-72.99642	43	16	N	<2	B4	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:31	03:35	40.32831	-72.99642	40.32307	-72.99650	43	16	N	<2	B4	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:35	04:00	40.32307	-72.99650	40.29021	-72.99745	43	17	NE	<2	B5	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:38	40.29021	-72.99745	40.24065	-72.99886	44	19	NE	<2	B5	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:38	05:00	40.24065	-72.99886	40.21887	-72.99874	44	22	NE	<2	B5	0.5-1	Clear	None	4	178	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:06	40.21887	-72.99874	40.21279	-72.99963	44	23	NNE	<2	B5	0.5-1	Clear	None	3	173	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:06	05:29	40.21279	-72.99963	40.23470	-73.00677	44	18	NE	<2	B5	0.5-1	Clear	None	4	287	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:29	05:34	40.23470	-73.00677	40.24011	-73.00665	43	24	NNE	<2	B5	0.5-1	Clear	None	4	5	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:34	06:00	40.24011	-73.00665	40.26865	-73.00587	43	24	NNE	<2	B5	0.5-1	Clear	None	5	4	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:54	40.26865	-73.00587	40.32457	-73.00414	43	23	NE	<2	B5	0.5-1	Clear	None	4	4	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:54	06:55	40.32457	-73.00414	40.32558	-73.00414	40	22	NE	<2	B5	0.5-1	Clear	None	4	9	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:55	07:00	40.32558	-73.00414	40.33058	-73.00356	40	22	NE	<2	B5	0.5-1	Clear	None	4	9	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:06	40.33058	-73.00356	40.33005	-72.99678	40	20	NE	2-4	B5	0.5-1	Clear	None	3	22	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:06	07:11	40.33005	-72.99678	40.32331	-72.99687	40	18	NE	2-4	B5	0.5-1	Clear	None	5	172	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:11	08:00	40.32331	-72.99687	40.26054	-72.99860	40	20	NE	2-4	B5	0.5-1	Clear	None	5	170	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:17	40.26054	-72.99860	40.23970	-72.99924	45	18	NE	<2	B5	0.5-1	Clear	None	4	172	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:17	08:18	40.23970	-72.99924	40.23842	-72.99926	44	20	NNE	<2	B5	0.5-1	Clear	None	5	172	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:18	08:29	40.23842	-72.99926	40.23602	-73.00733	44	20	NNE	<2	B5	0.5-1	Clear	None	5	172	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:29	08:33	40.23602	-73.00733	40.24055	-73.00690	44	20	NNE	<2	B5	0.5-1	Clear	None	5	172	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:33	09:00	40.24055	-73.00690	40.26889	-73.00611	44	20	NNE	<2	B5	0.5-1	Clear	None	5	9	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:47	40.26889	-73.00611	40.32456	-73.00448	44	16	NNE	<2	B5	0.5-1	Clear	None	4	10	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:47	09:48	40.32456	-73.00448	40.32572	-73.00449	43	17	NE	<2	B4	1-2	Clear	None	4	12	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:48	09:59	40.32572	-73.00449	40.32882	-72.99672	43	17	NE	<2	B4	1-2	Clear	None	4	15	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:59	10:00	40.32882	-72.99672	40.32742	-72.99703	43	17	NE	<2	B4	2-5	Clear	None	5	178	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:03	40.32742	-72.99703	40.32361	-72.99701	43	17	NE	<2	B4	2-5	Clear	None	5	178	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:03	11:00	40.32361	-72.99701	40.25122	-72.99923	43	17	NE	<2	B4	>5	Clear	None	5	171	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:09	40.25122	-72.99923	40.23996	-72.99963	43	14	NE	<2	B4	>5	Clear	Severe	5	172	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:09	11:10	40.23996	-72.99963	40.23871	-72.99966	43	14	NE	<2	B4	>5	Clear	Severe	5	174	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:10	11:19	40.23871	-72.99966	40.23388	-73.00744	43	14	NE	<2	B4	>5	Clear	Severe	5	173	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:19	11:24	40.23388	-73.00744	40.24035	-73.00731	42	15	NE	<2	B4	>5	Clear	Severe	5	11	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:24	12:00	40.24035	-73.00731	40.28523	-73.00598	43	15	NE	<2	B4	>5	Clear	Severe	5	10	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:30	40.28523	-73.00598	40.32374	-73.00484	43	18	NE	2-4	B5	>5	Clear	Severe	5	13	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:30	12:32	40.32374	-73.00484	40.32620	-73.00476	40	21	NE	2-4	B5	>5	Clear	Severe	5	18	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:32	12:47	40.32620	-73.00476	40.32962	-72.99703	40	21	NE	2-4	B5	>5	Clear	Severe	5	18	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:47	12:52	40.32962	-72.99703	40.32349	-72.99745	40	19	NE	2-4	B5	>5	Clear	Severe	4	176	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:52	13:00	40.32349	-72.99745	40.31387	-72.99776	40	19	NE	2-4	B5	>5	Clear	Severe	4	170	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:31	40.31387	-72.99776	40.27724	-72.99881	41	19	NE	2-4	B5	>5	Clear	Severe	4	170	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:31	14:02	40.27724	-72.99881	40.23964	-72.99998	43	20	NE	2-4	B5	>5	Clear	Severe	4	172	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:02	14:03	40.23964	-72.99998	40.23850	-72.99985	44	21	NE	2-4	B5	>5	Clear	Severe	5	173	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:03	14:15	40.23850	-72.99985	40.23423	-73.00795	44	21	NE	2-4	B5	>5	Clear	Severe	5	173	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:15	14:21	40.23423	-73.00795	40.24085	-73.00770	44	20	NE	2-4	B5	>5	Clear	Moderate	4	20	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:21	15:00	40.24085	-73.00770	40.28441	-73.00632	44	17	NE	2-4	B5	>5	Clear	Moderate	4	13	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:34	40.28441	-73.00632	40.32389	-73.00518	43	21	ENE	2-4	B5	>5	Clear	Moderate	5	16	Full Power	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:34	15:35	40.32389	-73.00518	40.32575	-73.00512	40	20	NE	2-4	B5	>5	Clear	Moderate	5	8	Silent	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:35	16:00	40.32575	-73.00512	40.32040	-73.01966	40	20	NE	2-4	B5	>5	Clear	Moderate	5	8	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.32040	-73.01966	40.29018	-73.08611	40	17	NNE	2-4	B5	>5	Clear	Moderate	4	240	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.29018	-73.08611	40.27032	-73.14781	40	17	ENE	2-4	B5	>5	Clear	Moderate	3	237	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.27032	-73.14781	40.28811	-73.09488	40	13	NE	2-4	B5	>5	Clear	Moderate	3	255	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.28811	-73.09488	40.31051	-73.02202	40	12	NE	2-4	B5	>5	Clear	Moderate	3	67	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:12	40.31051	-73.02202	40.30675	-73.01698	44	15	E	2-4	B5	>5	Clear	Severe	4	62	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:12	20:47	40.30675	-73.01698	40.29837	-73.05311	44	15	E	2-4	B5	>5	Clear	Severe	4	62	Deploying/Retrieving	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:47	21:00	40.29837	-73.05311	40.30113	-73.04437	42	15	E	2-4	B5	>5	Clear	Severe	2	260	Deploying/Retrieving	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.30113	-73.04437	40.31960	-72.98256	43	15	NE	<2	B4	>5	Clear	Severe	3	73	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.31960	-72.98256	40.33178	-72.97423	43	13	E	<2	B4	>5	Clear	Severe	4	52	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:19	40.33178	-72.97423	40.33874	-72.96106	43	13	E	<2	B3	>5	Clear	Severe	4	61	Standby	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:19	23:25	40.33874	-72.96106	40.34067	-72.95737	41	10	E	<2	B3	>5	Clear	Slight	2	61	Deploying/Retrieving	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:35	40.34067	-72.95737	40.34426	-72.95067	41	10	E	<2	B3	>5	Clear	None	2	61	Deploying/Retrieving	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:35	23:54	40.34426	-72.95067	40.35089	-72.93959	41	10	E	<2	B3	>5	Clear	None	2	61	Deploying/Retrieving	N/A
2022-09-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.35089	-72.93959	40.35157	-72.93843	41	10	E	<2	B3	>5	Clear	None	2	61	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:10	40.35111	-72.93440	40.34543	-72.94456	42	11	SE	<2	B3	1-2	Clear	None	3	158	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:10	00:27	40.34543	-72.94456	40.33925	-72.96371	42	11	SE	<2	B3	0.5-1	Clear	None	3	190	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:27	00:47	40.33925	-72.96371	40.33339	-72.98722	42	9	ENE	<2	B3	0.5-1	Clear	None	3	224	Soft Start	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:47	01:00	40.33339	-72.98722	40.33345	-73.00458	42	9	ENE	<2	B3	0.5-1	Clear	None	3	269	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:18	40.33345	-73.00458	40.33150	-72.99779	40	9	ESE	<2	B3	0.5-1	Clear	None	4	269	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:18	01:24	40.33150	-72.99779	40.32368	-72.99781	40	9	E	<2	B3	0.5-1	Clear	None	4	170	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:24	02:00	40.32368	-72.99781	40.28685	-72.99889	40	9	E	<2	B3	0.5-1	Clear	None	4	170	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:38	40.28685	-72.99889	40.23994	-73.00030	40	7	ESE	<2	B3	0.5-1	Clear	None	4	174	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:38	02:40	40.23994	-73.00030	40.23740	-73.00016	40	7	ESE	<2	B3	0.5-1	Clear	None	4	168	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:40	02:56	40.23740	-73.00016	40.23458	-73.00820	45	8	ESE	<2	B3	0.5-1	Clear	None	5	168	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:56	03:00	40.23458	-73.00820	40.23977	-73.00809	44	9	E	<2	B3	0.5-1	Clear	None	5	11	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:01	40.23977	-73.00809	40.24106	-73.00807	44	9	E	<2	B3	0.5-1	Clear	None	5	1	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:01	04:00	40.24106	-73.00807	40.31595	-73.00587	44	9	E	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:06	40.31595	-73.00587	40.32371	-73.00559	44	7	E	<2	B3	0.5-1	Clear	None	5	3	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:06	04:07	40.32371	-73.00559	40.32498	-73.00551	44	7	E	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:07	04:27	40.32498	-73.00551	40.32792	-72.99807	44	7	E	<2	B3	0.5-1	Clear	None	5	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:27	04:36	40.32792	-72.99807	40.32192	-73.00542	44	7	E	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:36	05:00	40.32192	-73.00542	40.34248	-73.00479	44	7	E	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:07	40.34248	-73.00479	40.34193	-72.99581	43	7	ESE	<2	B3	0.5-1	Clear	None	4	96	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:07	05:27	40.34193	-72.99581	40.33022	-72.99628	43	7	ESE	<2	B3	0.5-1	Clear	None	4	96	Soft Start	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:27	05:48	40.33022	-72.99628	40.32892	-72.99813	43	7	ESE	<2	B3	0.5-1	Clear	None	4	220	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:48	05:53	40.32892	-72.99813	40.32337	-72.99817	43	7	ESE	<2	B3	0.5-1	Clear	None	4	178	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:53	06:00	40.32337	-72.99817	40.31621	-72.99842	43	7	ESE	<2	B3	0.5-1	Clear	None	4	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:59	40.31621	-72.99842	40.24088	-73.00068	43	8	ESE	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:59	07:00	40.24088	-73.00068	40.23962	-73.00063	44	7	SE	<2	B3	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:17	40.23962	-73.00063	40.24103	-73.00837	43	8	ESE	<2	B3	0.5-1	Clear	None	5	175	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:17	08:00	40.24103	-73.00837	40.29419	-73.00680	43	10	E	<2	B3	0.5-1	Clear	None	5	5	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:24	40.29419	-73.00680	40.32520	-73.00587	44	9	ESE	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:24	08:25	40.32520	-73.00587	40.32648	-73.00588	40	7	ESE	<2	B3	0.5-1	Clear	None	5	350	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:25	08:37	40.32648	-73.00588	40.32809	-72.99840	40	7	ESE	<2	B3	0.5-1	Clear	None	5	355	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:37	08:40	40.32809	-72.99840	40.32417	-72.99853	40	7	ESE	<2	B3	0.5-1	Clear	None	5	355	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:40	09:00	40.32417	-72.99853	40.29853	-72.99930	40	7	ESE	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:46	40.29853	-72.99930	40.24014	-73.00097	42	7	ESE	<2	B3	0.5-1	Clear	None	4	176	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:46	10:00	40.24014	-73.00097	40.23699	-73.00885	42	7	ESE	<2	B3	1-2	Clear	None	4	176	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:03	40.23699	-73.00885	40.24094	-73.00875	42	7	ESE	<2	B3	2-5	Clear	None	4	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:03	11:00	40.24094	-73.00875	40.31408	-73.00656	43	5	E	<2	B3	>5	Clear	None	4	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:08	40.31408	-73.00656	40.32430	-73.00623	44	5	E	<2	B3	>5	Clear	Severe	5	5	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:08	11:10	40.32430	-73.00623	40.32684	-73.00623	44	5	E	<2	B3	>5	Clear	Severe	5	5	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:10	11:19	40.32684	-73.00623	40.33148	-72.99940	44	5	E	<2	B3	>5	Clear	Severe	5	354	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:19	11:25	40.33148	-72.99940	40.32365	-72.99893	44	5	E	<2	B3	>5	Clear	Severe	4	178	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:25	12:00	40.32365	-72.99893	40.28062	-73.00015	44	5	E	<2	B3	>5	Clear	Severe	4	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:12	40.28062	-73.00015	40.26582	-73.00060	43	5	ENE	<2	B2	>5	Clear	Severe	3	168	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	12:32	40.26582	-73.00060	40.23969	-73.00131	43	6	ENE	<2	B2	>5	Clear	Severe	5	175	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:32	12:33	40.23969	-73.00131	40.23843	-73.00136	44	6	ENE	<2	B2	>5	Clear	Severe	5	173	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:33	12:42	40.23843	-73.00136	40.23365	-73.00889	44	6	ENE	<2	B2	>5	Clear	Severe	5	173	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:42	12:48	40.23365	-73.00889	40.24134	-73.00909	44	6	ENE	<2	B2	>5	Clear	Severe	5	2	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:48	13:00	40.24134	-73.00909	40.25692	-73.00862	44	7	ENE	<2	B3	>5	Clear	Severe	5	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:52	40.25692	-73.00862	40.32399	-73.00667	43	7	ENE	<2	B3	>5	Clear	Severe	5	6	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:52	13:53	40.32399	-73.00667	40.32528	-73.00663	40	7	ENE	<2	B3	>5	Clear	Severe	4	9	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:53	14:00	40.32528	-73.00663	40.33392	-73.00658	40	7	ENE	<2	B3	>5	Clear	Severe	4	9	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:07	40.33392	-73.00658	40.33110	-72.99925	40	7	ENE	<2	B3	>5	Clear	Severe	4	90	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:07	14:13	40.33110	-72.99925	40.32320	-72.99929	40	7	NE	<2	B3	>5	Clear	Severe	5	175	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:13	15:00	40.32320	-72.99929	40.26215	-73.00102	40	7	NE	<2	B3	>5	Clear	Severe	5	175	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:19	40.26215	-73.00102	40.23958	-73.00172	43	7	NE	<2	B3	>5	Clear	Severe	5	177	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:19	15:20	40.23958	-73.00172	40.23828	-73.00175	44	7	ENE	<2	B3	>5	Clear	Severe	4	178	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:20	15:28	40.23828	-73.00175	40.23162	-73.00703	44	7	ENE	<2	B3	>5	Clear	Severe	4	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:28	15:36	40.23162	-73.00703	40.24119	-73.00945	43	8	ENE	<2	B3	>5	Clear	Severe	5	175	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:36	16:00	40.24119	-73.00945	40.27325	-73.00851	43	8	ENE	<2	B3	>5	Clear	Severe	5	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:39	40.27325	-73.00851	40.32448	-73.00698	43	6	ENE	<2	B2	>5	Clear	Moderate	5	2	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:39	16:41	40.32448	-73.00698	40.32686	-73.00708	43	6	ENE	<2	B2	>5	Clear	Moderate	5	2	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:41	16:51	40.32686	-73.00708	40.32972	-72.99953	43	5	ESE	<2	B2	>5	Cloudy	Moderate	5	350	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:51	16:56	40.32972	-72.99953	40.32386	-72.99963	43	5	ESE	<2	B2	>5	Cloudy	Moderate	5	175	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:56	17:00	40.32386	-72.99963	40.31825	-72.99976	43	6	NE	<2	B2	>5	Cloudy	Moderate	5	180	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.31825	-72.99976	40.24055	-73.00207	43	6	NE	<2	B2	>5	Cloudy	Moderate	5	180	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:01	40.24055	-73.00207	40.23932	-73.00212	43	8	E	<2	B2	>5	Cloudy	Moderate	5	182	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:01	18:02	40.23932	-73.00212	40.23761	-73.00217	43	8	E	<2	B2	>5	Cloudy	Moderate	5	182	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:02	18:13	40.23761	-73.00217	40.23590	-73.00973	43	8	E	<2	B2	>5	Cloudy	Moderate	5	182	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:13	18:18	40.23590	-73.00973	40.24188	-73.00972	44	6	E	<2	B2	>5	Cloudy	Moderate	5	355	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:18	19:00	40.24188	-73.00972	40.29393	-73.00826	44	6	SE	<2	B2	>5	Cloudy	Moderate	5	0	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:24	40.29393	-73.00826	40.32461	-73.00733	44	8	SE	<2	B2	>5	Cloudy	Moderate	5	2	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:24	19:25	40.32461	-73.00733	40.32600	-73.00735	40	5	SE	<2	B2	>5	Cloudy	Moderate	5	349	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:25	19:35	40.32600	-73.00735	40.32977	-72.99980	40	5	SE	<2	B2	>5	Cloudy	Moderate	5	349	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:35	19:40	40.32977	-72.99980	40.32372	-73.00003	40	5	SE	<2	B2	>5	Cloudy	Moderate	5	192	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:40	20:00	40.32372	-73.00003	40.29725	-73.00072	40	5	SE	<2	B2	>5	Cloudy	Moderate	5	192	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:44	40.29725	-73.00072	40.23952	-73.00238	42	7	SE	<2	B2	>5	Cloudy	Severe	5	179	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:44	20:45	40.23952	-73.00238	40.23740	-73.00236	42	7	SE	<2	B2	>5	Cloudy	Severe	5	179	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:45	20:54	40.23740	-73.00236	40.23503	-73.01068	42	7	SE	<2	B2	>5	Cloudy	Severe	5	179	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:54	20:59	40.23503	-73.01068	40.24079	-73.01085	42	5	SE	<2	B2	>5	Cloudy	Moderate	5	0	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:59	21:00	40.24079	-73.01085	40.24165	-73.01081	43	5	SE	<2	B2	>5	Cloudy	Moderate	5	0	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:54	40.24165	-73.01081	40.31162	-73.00875	43	5	SE	<2	B2	>5	Cloudy	Moderate	5	0	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:54	21:56	40.31162	-73.00875	40.31461	-73.00866	43	6	SE	<2	B2	>5	Cloudy	Slight	5	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:56	21:57	40.31461	-73.00866	40.31635	-73.00869	40	6	SE	<2	B2	>5	Cloudy	Slight	5	3	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:57	22:00	40.31635	-73.00869	40.31957	-73.00856	40	6	SE	<2	B2	>5	Cloudy	Moderate	5	3	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:16	40.31957	-73.00856	40.32780	-73.00022	40	6	ESE	<2	B2	>5	Cloudy	Severe	5	355	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:16	22:20	40.32780	-73.00022	40.32265	-73.00030	40	6	ESE	<2	B2	>5	Cloudy	Severe	5	177	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:20	23:00	40.32265	-73.00030	40.27105	-73.00188	40	8	ESE	<2	B3	>5	Cloudy	Severe	5	177	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:24	40.27105	-73.00188	40.24093	-73.00278	43	10	SE	<2	B3	>5	Cloudy	None	5	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:24	23:25	40.24093	-73.00278	40.23985	-73.00280	43	6	SW	<2	B2	>5	Clear	None	5	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:26	40.23985	-73.00280	40.23758	-73.00287	43	6	SW	<2	B2	>5	Clear	None	5	178	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:26	23:45	40.23758	-73.00287	40.22551	-73.01784	43	6	SW	<2	B2	>5	Clear	None	5	178	Full Power	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:45	23:49	40.22551	-73.01784	40.23090	-73.01784	43	6	SW	<2	B2	>5	Clear	None	5	2	Silent	N/A
2022-09-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	00:00	40.23090	-73.01784	40.23858	-73.01762	43	6	SE	<2	B2	1-2	Clear	None	5	2	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:55	40.24487	-73.01751	40.31314	-73.01551	43	8	SE	<2	B2	0.5-1	Cloudy	None	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:55	00:57	40.31314	-73.01551	40.31578	-73.01541	43	8	SE	<2	B2	0.5-1	Cloudy	None	5	4	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:57	01:00	40.31578	-73.01541	40.31927	-73.01370	43	8	SE	<2	B2	0.5-1	Cloudy	None	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:17	40.31927	-73.01370	40.32798	-73.00069	40	6	SSE	<2	B2	0.5-1	Cloudy	None	5	24	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:17	01:20	40.32798	-73.00069	40.32423	-73.00070	40	8	S	<2	B2	0.5-1	Cloudy	None	5	177	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:20	02:00	40.32423	-73.00070	40.27423	-73.00210	40	8	S	<2	B2	0.5-1	Cloudy	None	5	177	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:27	40.27423	-73.00210	40.24060	-73.00312	43	10	SSE	<2	B2	0.5-1	Cloudy	None	5	177	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:27	02:29	40.24060	-73.00312	40.23814	-73.00330	43	9	SSE	<2	B2	0.5-1	Cloudy	None	5	190	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:29	02:49	40.23814	-73.00330	40.22603	-73.01822	43	9	SSE	<2	B2	0.5-1	Cloudy	None	5	190	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:49	02:52	40.22603	-73.01822	40.22998	-73.01821	43	9	SSE	<2	B2	0.5-1	Cloudy	None	5	190	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:52	03:00	40.22998	-73.01821	40.24025	-73.01795	43	7	SSE	<2	B2	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:57	40.24025	-73.01795	40.31320	-73.01584	43	7	SSE	<2	B2	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:57	04:00	40.31320	-73.01584	40.31712	-73.01573	43	7	SSE	<2	B2	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:24	40.31712	-73.01573	40.32408	-73.00103	44	7	SSE	<2	B2	0.5-1	Cloudy	None	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:24	05:00	40.32408	-73.00103	40.27912	-73.00231	43	7	SSW	<2	B2	0.5-1	Cloudy	None	5	181	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:31	40.27912	-73.00231	40.23975	-73.00351	43	6	SSW	<2	B2	0.5-1	Cloudy	None	5	181	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:31	05:32	40.23975	-73.00351	40.23847	-73.00356	43	6	SSW	<2	B2	0.5-1	Cloudy	None	5	184	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:32	05:54	40.23847	-73.00356	40.24126	-73.00767	43	6	SSW	<2	B2	0.5-1	Cloudy	None	5	184	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:54	06:59	40.24126	-73.00767	40.32342	-73.00534	44	5	SW	<2	B2	0.5-1	Cloudy	None	5	357	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:59	07:00	40.32342	-73.00534	40.32471	-73.00533	40	5	SSW	<2	B2	0.5-1	Cloudy	None	5	0	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:01	40.32471	-73.00533	40.32599	-73.00531	40	5	SSW	<2	B2	0.5-1	Cloudy	None	5	0	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:01	07:18	40.32599	-73.00531	40.32763	-72.98466	40	5	SSW	<2	B2	0.5-1	Cloudy	None	5	0	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:18	07:21	40.32763	-72.98466	40.32362	-72.98477	41	8	WSW	<2	B2	0.5-1	Cloudy	None	5	184	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:21	08:00	40.32362	-72.98477	40.27263	-72.98624	41	8	WSW	<2	B2	0.5-1	Cloudy	None	5	184	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:16	40.27263	-72.98624	40.25129	-72.98683	43	7	WSW	<2	B2	0.5-1	Cloudy	None	5	183	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:16	08:43	40.25129	-72.98683	40.24053	-73.00664	43	8	SW	<2	B2	0.5-1	Cloudy	None	5	185	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:43	09:00	40.24053	-73.00664	40.25997	-73.00616	43	7	SW	<2	B2	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:44	40.25997	-73.00616	40.31678	-73.00447	43	7	SW	<2	B2	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	09:49	40.31678	-73.00447	40.32336	-73.00426	43	7	SW	<2	B2	1-2	Cloudy	None	5	359	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:49	09:51	40.32336	-73.00426	40.32596	-73.00418	43	7	SW	<2	B2	1-2	Cloudy	None	5	6	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:51	10:00	40.32596	-73.00418	40.33145	-72.99229	43	7	SW	<2	B2	1-2	Cloudy	None	5	6	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:04	40.33145	-72.99229	40.33072	-72.98635	40	8	WSW	<2	B2	2-5	Cloudy	None	5	79	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:04	10:09	40.33072	-72.98635	40.32412	-72.98644	40	8	WSW	<2	B2	2-5	Cloudy	None	5	178	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:09	11:00	40.32412	-72.98644	40.25819	-72.98850	42	8	SW	<2	B3	>5	Cloudy	None	5	182	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:05	40.25819	-72.98850	40.25180	-72.98868	42	8	SW	<2	B3	>5	Cloudy	Severe	5	182	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:05	11:07	40.25180	-72.98868	40.24926	-72.98875	42	8	SW	<2	B3	>5	Cloudy	Severe	5	182	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:07	12:00	40.24926	-72.98875	40.30207	-72.97663	42	8	SW	<2	B3	>5	Cloudy	Severe	5	182	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:45	40.30207	-72.97663	40.33134	-72.98200	42	8	SW	<2	B3	>5	Cloudy	Moderate	5	353	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:45	12:51	40.33134	-72.98200	40.32381	-72.98021	41	9	SW	<2	B3	>5	Cloudy	Moderate	5	166	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:51	13:00	40.32381	-72.98021	40.31321	-72.98046	41	9	SW	<2	B3	>5	Cloudy	Moderate	5	178	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:39	40.31321	-72.98046	40.26220	-72.98198	42	10	SW	<2	B3	>5	Cloudy	Slight	5	177	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:39	13:41	40.26220	-72.98198	40.25964	-72.98207	43	10	WSW	<2	B3	>5	Cloudy	Slight	5	178	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:41	13:51	40.25964	-72.98207	40.25021	-72.99262	43	10	WSW	<2	B3	>5	Cloudy	Slight	5	178	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:51	14:00	40.25021	-72.99262	40.25771	-72.99865	43	9	SW	<2	B3	>5	Cloudy	Slight	5	315	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:01	40.25771	-72.99865	40.26006	-72.99853	43	8	SW	<2	B3	>5	Cloudy	Slight	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:01	14:20	40.26006	-72.99853	40.28373	-72.99774	43	8	SW	<2	B3	>5	Cloudy	Slight	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:20	14:43	40.28373	-72.99774	40.31442	-72.99677	43	10	SW	<2	B3	>5	Cloudy	Slight	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:43	15:00	40.31442	-72.99677	40.32684	-72.98887	43	10	SW	<2	B3	>5	Cloudy	Slight	5	4	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:30	40.32684	-72.98887	40.31239	-72.99299	43	13	SW	<2	B3	>5	Cloudy	Moderate	5	179	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	15:39	40.31239	-72.99299	40.32435	-72.99257	43	13	SW	<2	B3	>5	Cloudy	Moderate	5	179	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:39	15:54	40.32435	-72.99257	40.32106	-72.98380	43	13	SW	<2	B3	>5	Cloudy	Moderate	5	179	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:54	16:00	40.32106	-72.98380	40.31357	-72.98152	43	13	SW	<2	B3	>5	Clear	Moderate	5	181	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:27	40.31357	-72.98152	40.32648	-72.98932	43	13	SW	<2	B3	>5	Clear	Severe	5	181	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:27	16:47	40.32648	-72.98932	40.31614	-72.98147	43	13	SW	<2	B3	>5	Clear	Moderate	5	0	Soft Start	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:47	16:51	40.31614	-72.98147	40.31115	-72.98160	43	14	SW	<2	B4	>5	Clear	Moderate	5	181	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:51	16:58	40.31115	-72.98160	40.30210	-72.98190	42	15	SW	<2	B4	>5	Clear	Moderate	5	183	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:58	17:00	40.30210	-72.98190	40.29953	-72.98196	42	15	SW	<2	B4	>5	Clear	Moderate	5	183	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:14	40.29953	-72.98196	40.28290	-72.98249	42	15	SW	<2	B4	>5	Clear	Moderate	3	185	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:14	17:15	40.28290	-72.98249	40.28160	-72.98252	44	14	SW	<2	B4	>5	Clear	Moderate	5	183	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:15	17:17	40.28160	-72.98252	40.27918	-72.98195	44	13	SW	<2	B4	>5	Clear	Moderate	5	163	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:17	17:25	40.27918	-72.98195	40.26906	-72.98254	44	13	SW	<2	B4	>5	Clear	Moderate	4	189	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:25	17:28	40.26906	-72.98254	40.26519	-72.98267	43	14	SW	<2	B4	>5	Clear	Moderate	5	183	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:28	17:30	40.26519	-72.98267	40.26262	-72.98275	43	15	SW	<2	B4	>5	Clear	Moderate	5	185	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:30	17:48	40.26262	-72.98275	40.24580	-72.99557	43	15	SW	<2	B4	>5	Clear	Moderate	5	185	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:48	17:52	40.24580	-72.99557	40.25083	-72.99673	43	12	SSW	<2	B4	>5	Clear	Moderate	5	340	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:52	18:00	40.25083	-72.99673	40.26123	-72.99655	43	13	SSW	<2	B4	>5	Clear	Moderate	4	355	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:40	40.26123	-72.99655	40.31455	-72.99495	43	13	SSW	<2	B4	>5	Clear	Moderate	4	355	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:40	18:47	40.31455	-72.99495	40.32416	-72.99468	43	13	SSW	<2	B4	>5	Clear	Moderate	4	355	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:47	18:49	40.32416	-72.99468	40.32637	-72.99471	40	11	S	<2	B4	>5	Clear	Moderate	5	340	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:49	19:00	40.32637	-72.99471	40.33752	-73.00025	40	11	S	<2	B4	>5	Clear	Moderate	5	340	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:09	40.33752	-73.00025	40.33170	-72.99398	41	12	SSW	<2	B4	>5	Clear	Moderate	4	55	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:09	19:16	40.33170	-72.99398	40.32242	-72.99468	41	12	SSW	<2	B4	>5	Clear	Moderate	4	184	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:16	20:00	40.32242	-72.99468	40.26788	-72.99624	41	15	SW	<2	B4	>5	Clear	Moderate	4	187	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:09	40.26788	-72.99624	40.25698	-72.99653	40	13	SW	<2	B4	>5	Cloudy	Moderate	4	188	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:09	20:20	40.25698	-72.99653	40.24307	-72.99697	40	15	SW	<2	B4	>5	Cloudy	Severe	4	188	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:20	20:22	40.24307	-72.99697	40.24033	-72.99701	40	15	SW	<2	B4	>5	Cloudy	Severe	4	188	Full Power	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:22	20:38	40.24033	-72.99701	40.24190	-73.00804	40	15	SW	<2	B4	>5	Cloudy	Severe	4	188	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:38	21:00	40.24190	-73.00804	40.26985	-73.00727	40	15	SW	<2	B4	>5	Cloudy	Severe	4	356	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:23	40.26985	-73.00727	40.29981	-73.00638	40	14	SW	<2	B4	>5	Cloudy	Severe	4	356	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:23	21:43	40.29981	-73.00638	40.32556	-73.00556	40	14	SW	<2	B4	>5	Cloudy	Severe	5	353	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:43	22:00	40.32556	-73.00556	40.32357	-72.99797	40	14	SW	<2	B4	>5	Cloudy	Severe	5	353	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.32357	-72.99797	40.24628	-73.00030	42	14	SW	<2	B4	>5	Cloudy	Moderate	5	187	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:05	40.24628	-73.00030	40.23991	-73.00051	43	16	SW	<2	B4	>5	Cloudy	Slight	4	189	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:05	23:14	40.23991	-73.00051	40.22959	-72.99386	43	16	SW	<2	B4	>5	Cloudy	Slight	4	189	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:14	23:34	40.22959	-72.99386	40.24127	-73.00062	43	16	SW	<2	B4	>5	Cloudy	None	4	173	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:34	23:46	40.24127	-73.00062	40.25683	-73.00025	43	12	SSW	<2	B4	2-5	Clear	None	4	354	Silent	N/A
2022-09-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:46	00:00	40.25683	-73.00025	40.26852	-72.99984	43	12	SSW	<2	B4	1-2	Clear	None	4	354	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:38	40.27434	-72.99968	40.32433	-72.99818	43	13	SSW	<2	B4	0.5-1	Clear	None	5	357	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:38	01:00	40.32433	-72.99818	40.31117	-73.00626	43	9	SSW	<2	B3	0.5-1	Clear	None	5	357	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:07	40.31117	-73.00626	40.30272	-73.00670	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:07	01:17	40.30272	-73.00670	40.29001	-73.00709	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:17	01:37	40.29001	-73.00709	40.26467	-73.00784	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:37	01:56	40.26467	-73.00784	40.24056	-73.00857	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Soft Start	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:56	01:57	40.24056	-73.00857	40.23929	-73.00858	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Soft Start	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:57	02:00	40.23929	-73.00858	40.23558	-73.00929	44	11	SSW	<2	B3	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:18	40.23558	-73.00929	40.22535	-73.02231	44	11	SSW	<2	B3	0.5-1	Clear	None	4	192	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:18	02:22	40.22535	-73.02231	40.23054	-73.02216	44	11	SSW	<2	B3	0.5-1	Clear	None	4	192	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:22	03:00	40.23054	-73.02216	40.27699	-73.02071	45	9	SSW	<2	B3	0.5-1	Clear	None	5	359	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:29	40.27699	-73.02071	40.31360	-73.01967	44	9	SSW	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:29	03:30	40.31360	-73.01967	40.31486	-73.01965	44	9	SSW	<2	B3	0.5-1	Clear	None	5	2	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:30	03:40	40.31486	-73.01965	40.31844	-73.01180	44	9	SSW	<2	B3	0.5-1	Clear	None	5	14	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:40	03:44	40.31844	-73.01180	40.31323	-73.01194	44	10	SW	<2	B3	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:44	03:46	40.31323	-73.01194	40.31055	-73.01200	44	10	SW	<2	B3	0.5-1	Clear	None	5	181	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:46	03:48	40.31055	-73.01200	40.30783	-73.01208	44	10	SW	<2	B3	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:48	04:22	40.30783	-73.01208	40.31822	-73.01182	44	10	SW	<2	B3	0.5-1	Clear	None	5	201	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:22	04:26	40.31822	-73.01182	40.31303	-73.01189	44	10	SW	<2	B3	0.5-1	Clear	None	5	201	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:26	05:00	40.31303	-73.01189	40.26856	-73.01321	44	12	SSW	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:32	40.26856	-73.01321	40.23015	-73.01435	43	12	SW	<2	B3	0.5-1	Cloudy	None	5	183	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:32	05:44	40.23015	-73.01435	40.22603	-73.02188	45	11	SW	<2	B3	0.5-1	Cloudy	None	5	181	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:44	05:47	40.22603	-73.02188	40.22980	-73.02175	45	9	SW	<2	B3	0.5-1	Cloudy	None	5	358	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:47	06:00	40.22980	-73.02175	40.24641	-73.02131	45	9	SW	<2	B3	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:52	40.24641	-73.02131	40.31408	-73.01928	43	8	SW	<2	B3	0.5-1	Cloudy	None	5	0	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:52	06:53	40.31408	-73.01928	40.31540	-73.01930	44	9	SSW	<2	B3	0.5-1	Cloudy	None	5	1	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:53	07:00	40.31540	-73.01930	40.32070	-73.01275	44	9	SSW	<2	B3	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:02	40.32070	-73.01275	40.31861	-73.01133	40	6	SSW	<2	B3	0.5-1	Cloudy	None	4	102	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:02	07:06	40.31861	-73.01133	40.31337	-73.01161	40	9	SW	<2	B3	0.5-1	Cloudy	None	5	185	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:06	08:00	40.31337	-73.01161	40.24353	-73.01360	40	9	SW	<2	B3	0.5-1	Cloudy	None	5	184	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:11	40.24353	-73.01360	40.22907	-73.01405	44	11	SW	<2	B3	0.5-1	Clear	None	5	183	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:11	08:12	40.22907	-73.01405	40.22774	-73.01414	44	11	SW	<2	B3	0.5-1	Clear	None	4	197	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:12	08:22	40.22774	-73.01414	40.22535	-73.02153	44	11	SW	<2	B3	0.5-1	Clear	None	4	197	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:22	08:26	40.22535	-73.02153	40.23047	-73.02138	45	9	SW	<2	B3	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:26	09:00	40.23047	-73.02138	40.27364	-73.02008	45	9	SW	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:30	40.27364	-73.02008	40.31316	-73.01894	45	9	SW	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:30	09:32	40.31316	-73.01894	40.31579	-73.01892	45	9	SW	<2	B3	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:32	09:42	40.31579	-73.01892	40.31834	-73.01119	45	9	SW	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:42	09:45	40.31834	-73.01119	40.31438	-73.01117	45	9	SW	<2	B3	0.5-1	Clear	None	5	182	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:45	09:46	40.31438	-73.01117	40.31306	-73.01121	45	9	SW	<2	B3	1-2	Clear	None	5	182	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:46	10:00	40.31306	-73.01121	40.29505	-73.01175	45	12	SW	<2	B3	1-2	Cloudy	None	5	180	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:50	40.29505	-73.01175	40.23020	-73.01367	45	12	SW	<2	B3	2-5	Cloudy	None	5	183	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:50	11:00	40.23020	-73.01367	40.21964	-73.01792	45	12	SW	<2	B3	>5	Cloudy	None	5	183	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	11:15	40.21964	-73.01792	40.20777	-73.03089	45	12	SW	<2	B3	>5	Cloudy	Slight	4	217	Standby	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:15	11:18	40.20777	-73.03089	40.20613	-73.03308	45	11	SW	<2	B3	>5	Cloudy	Slight	4	222	Deploying/Retrieving	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:18	11:50	40.20613	-73.03308	40.21422	-73.02539	45	11	SW	<2	B3	>5	Cloudy	Slight	4	222	Deploying/Retrieving	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:50	11:57	40.21422	-73.02539	40.21861	-73.02016	45	11	SW	<2	B3	>5	Cloudy	Slight	3	35	Deploying/Retrieving	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:57	12:00	40.21861	-73.02016	40.22041	-73.01793	45	11	SW	<2	B3	>5	Cloudy	Slight	3	35	Deploying/Retrieving	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:12	40.22041	-73.01793	40.22882	-73.00998	44	11	SW	<2	B3	>5	Cloudy	Slight	3	17	Deploying/Retrieving	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	12:32	40.22882	-73.00998	40.21476	-73.01938	45	13	SW	<2	B3	>5	Cloudy	Slight	4	160	Soft Start	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:32	12:36	40.21476	-73.01938	40.21997	-73.02028	43	10	SW	<2	B3	>5	Cloudy	Slight	5	349	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:36	12:44	40.21997	-73.02028	40.23024	-73.02104	43	10	SW	<2	B3	>5	Cloudy	Slight	5	349	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:44	13:00	40.23024	-73.02104	40.24949	-73.02049	44	9	SW	<2	B3	>5	Cloudy	Moderate	5	4	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:38	40.24949	-73.02049	40.29807	-73.01903	43	9	SW	<2	B3	>5	Cloudy	Moderate	5	3	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:38	13:50	40.29807	-73.01903	40.31327	-73.01862	42	10	SW	<2	B3	>5	Cloudy	Moderate	5	5	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:50	13:52	40.31327	-73.01862	40.31580	-73.01852	41	9	SW	<2	B3	>5	Cloudy	Moderate	5	4	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:52	14:00	40.31580	-73.01852	40.32359	-73.01498	41	9	SW	<2	B3	>5	Cloudy	Moderate	5	4	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:04	40.32359	-73.01498	40.32031	-73.01089	40	9	WSW	<2	B3	>5	Cloudy	Moderate	5	120	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:04	14:10	40.32031	-73.01089	40.31259	-73.01083	40	9	WSW	<2	B3	>5	Cloudy	Moderate	5	175	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:10	14:50	40.31259	-73.01083	40.26100	-73.01235	45	9	WSW	<2	B3	>5	Cloudy	Moderate	5	180	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:50	15:00	40.26100	-73.01235	40.24821	-73.01277	43	10	SW	<2	B3	>5	Cloudy	Moderate	5	180	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:15	40.24821	-73.01277	40.22882	-73.01338	43	10	SW	<2	B3	>5	Cloudy	Moderate	5	180	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:15	15:16	40.22882	-73.01338	40.22751	-73.01342	45	11	SW	<2	B3	>5	Cloudy	Moderate	5	182	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:16	15:26	40.22751	-73.01342	40.22035	-73.01809	45	11	SW	<2	B3	>5	Cloudy	Moderate	5	182	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:26	15:34	40.22035	-73.01809	40.23069	-73.02073	45	10	SW	<2	B3	>5	Cloudy	Moderate	5	335	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:34	16:00	40.23069	-73.02073	40.26314	-73.01975	44	10	SW	<2	B3	>5	Cloudy	Moderate	5	359	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:35	40.26314	-73.01975	40.30826	-73.01840	43	10	SW	<2	B3	>5	Cloudy	Moderate	5	359	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:35	17:06	40.30826	-73.01840	40.29578	-73.01028	43	10	SW	<2	B3	>5	Cloudy	Moderate	5	359	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:06	17:13	40.29578	-73.01028	40.28761	-73.01012	45	11	SW	<2	B3	>5	Cloudy	Moderate	5	181	Soft Start	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:13	17:26	40.28761	-73.01012	40.29949	-73.01861	45	11	SW	<2	B3	>5	Cloudy	Moderate	4	170	Soft Start	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:26	17:27	40.29949	-73.01861	40.30004	-73.01863	45	11	SW	<2	B3	>5	Cloudy	Moderate	5	260	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:27	17:32	40.30004	-73.01863	40.30724	-73.01846	45	11	SW	<2	B3	>5	Cloudy	Moderate	5	0	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:32	17:38	40.30724	-73.01846	40.31518	-73.01823	45	10	WSW	<2	B3	>5	Cloudy	Moderate	5	0	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:39	40.31518	-73.01823	40.31658	-73.01819	45	10	WSW	<2	B3	>5	Cloudy	Moderate	5	0	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:39	17:48	40.31658	-73.01819	40.31858	-73.01035	45	10	WSW	<2	B3	>5	Cloudy	Moderate	5	0	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:48	17:54	40.31858	-73.01035	40.31184	-73.01056	45	10	WSW	<2	B3	>5	Cloudy	Moderate	5	188	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:54	18:00	40.31184	-73.01056	40.30326	-73.01082	45	12	SW	<2	B3	>5	Cloudy	Moderate	5	183	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:38	40.30326	-73.01082	40.25376	-73.01224	41	12	SW	<2	B3	>5	Cloudy	Moderate	5	187	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:38	18:57	40.25376	-73.01224	40.22781	-73.01305	43	13	SW	<2	B3	>5	Cloudy	Moderate	5	185	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:57	18:59	40.22781	-73.01305	40.22585	-73.01314	43	14	SW	<2	B3	>5	Cloudy	Moderate	5	188	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:59	19:00	40.22585	-73.01314	40.22499	-73.01314	43	14	SW	<2	B3	>5	Cloudy	Moderate	5	188	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:07	40.22499	-73.01314	40.22316	-73.01992	43	14	SW	<2	B3	>5	Cloudy	Moderate	5	188	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:07	19:13	40.22316	-73.01992	40.23018	-73.02035	43	14	SW	<2	B3	>5	Cloudy	Moderate	5	188	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:13	19:54	40.23018	-73.02035	40.28182	-73.01887	43	14	SW	<2	B3	>5	Cloudy	Moderate	5	354	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:54	20:00	40.28182	-73.01887	40.28894	-73.01865	43	12	SSW	<2	B3	>5	Cloudy	Slight	5	355	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:19	40.28894	-73.01865	40.31404	-73.01793	42	11	SSW	<2	B3	>5	Cloudy	Slight	5	357	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:19	20:21	40.31404	-73.01793	40.31627	-73.01783	42	11	SSW	<2	B3	>5	Cloudy	Slight	5	357	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:21	20:31	40.31627	-73.01783	40.31869	-73.01016	40	11	SSW	<2	B3	>5	Cloudy	Slight	5	355	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:31	20:36	40.31869	-73.01016	40.31201	-73.01015	40	13	S	<2	B3	>5	Cloudy	Slight	5	188	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:36	20:55	40.31201	-73.01015	40.28759	-73.01098	40	13	S	<2	B3	>5	Cloudy	Slight	5	186	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:55	21:00	40.28759	-73.01098	40.28120	-73.01116	40	13	S	<2	B3	>5	Cloudy	Slight	5	186	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:41	40.28120	-73.01116	40.22830	-73.01272	43	14	S	<2	B3	>5	Cloudy	Slight	5	185	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:41	21:44	40.22830	-73.01272	40.22473	-73.01270	43	14	S	<2	B3	>5	Cloudy	Slight	5	185	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:44	21:54	40.22473	-73.01270	40.22530	-73.01990	43	14	S	<2	B3	>5	Cloudy	Slight	5	185	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:54	21:59	40.22530	-73.01990	40.23096	-73.01997	43	12	S	<2	B3	>5	Cloudy	Slight	4	354	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:59	22:00	40.23096	-73.01997	40.23215	-73.01998	45	12	S	<2	B3	>5	Cloudy	None	4	354	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.23215	-73.01998	40.30551	-73.01779	45	12	S	<2	B3	>5	Cloudy	None	4	354	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:07	40.30551	-73.01779	40.31426	-73.01746	45	11	S	<2	B3	>5	Cloudy	None	5	0	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:07	23:09	40.31426	-73.01746	40.31633	-73.01738	45	11	S	<2	B3	>5	Cloudy	None	5	0	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:09	23:20	40.31633	-73.01738	40.31741	-73.00974	45	11	S	<2	B3	>5	Cloudy	None	5	0	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:20	23:24	40.31741	-73.00974	40.31274	-73.00983	45	12	S	<2	B3	>5	Cloudy	None	5	184	Silent	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:24	23:36	40.31274	-73.00983	40.29678	-73.01032	45	12	S	<2	B3	>5	Cloudy	None	5	182	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:36	23:43	40.29678	-73.01032	40.28788	-73.01058	45	12	S	<2	B3	2-5	Cloudy	None	5	182	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:43	23:49	40.28788	-73.01058	40.28026	-73.01082	45	12	S	<2	B3	1-2	Cloudy	None	5	182	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	23:54	40.28026	-73.01082	40.27377	-73.01100	45	12	S	<2	B3	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.27377	-73.01100	40.27157	-73.01107	45	12	S	<2	B3	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:29	40.26596	-73.01125	40.22989	-73.01221	44	13	S	<2	B3	0.5-1	Cloudy	None	5	185	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:29	00:30	40.22989	-73.01221	40.22861	-73.01224	44	13	S	<2	B3	0.5-1	Cloudy	None	5	185	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:30	00:41	40.22861	-73.01224	40.22572	-73.01962	44	13	S	<2	B3	0.5-1	Cloudy	None	5	185	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:41	00:44	40.22572	-73.01962	40.22963	-73.01966	44	13	S	<2	B3	0.5-1	Cloudy	None	5	0	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:44	01:00	40.22963	-73.01966	40.25048	-73.01902	44	13	S	<2	B3	0.5-1	Cloudy	None	5	0	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:50	40.25048	-73.01902	40.31400	-73.01723	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	0	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:50	01:51	40.31400	-73.01723	40.31524	-73.01721	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	0	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:51	02:00	40.31524	-73.01721	40.32030	-73.00977	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	0	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:02	40.32030	-73.00977	40.31906	-73.00923	43	14	S	<2	B4	0.5-1	Cloudy	None	5	160	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:02	02:07	40.31906	-73.00923	40.31286	-73.00944	43	14	S	<2	B4	0.5-1	Cloudy	None	5	160	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:07	03:00	40.31286	-73.00944	40.24556	-73.01146	43	14	S	<2	B4	0.5-1	Cloudy	None	5	160	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:13	40.24556	-73.01146	40.22920	-73.01189	43	16	S	<2	B4	0.5-1	Cloudy	None	5	179	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:13	03:14	40.22920	-73.01189	40.22795	-73.01197	43	16	S	<2	B4	0.5-1	Cloudy	None	5	179	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:14	03:23	40.22795	-73.01197	40.22536	-73.01754	43	16	S	<2	B4	0.5-1	Cloudy	None	5	179	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:23	03:27	40.22536	-73.01754	40.23073	-73.01754	43	14	S	<2	B4	0.5-1	Cloudy	None	5	358	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:27	04:00	40.23073	-73.01754	40.27335	-73.01626	43	14	S	<2	B4	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:32	40.27335	-73.01626	40.31203	-73.01513	43	14	S	<2	B4	0.5-1	Cloudy	None	5	4	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:32	04:37	40.31203	-73.01513	40.31767	-73.01489	43	16	S	<2	B4	0.5-1	Cloudy	None	5	4	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:37	05:00	40.31767	-73.01489	40.32642	-73.00875	43	16	S	<2	B4	0.5-1	Cloudy	None	5	4	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:06	40.32642	-73.00875	40.31912	-73.00891	40	15	S	<2	B4	0.5-1	Cloudy	None	4	180	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:06	05:11	40.31912	-73.00891	40.31307	-73.00908	42	15	S	<2	B4	0.5-1	Cloudy	None	4	182	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:11	06:00	40.31307	-73.00908	40.25429	-73.01082	42	15	S	<2	B4	0.5-1	Cloudy	None	4	182	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:20	40.25429	-73.01082	40.22986	-73.01155	43	15	S	<2	B4	0.5-1	Cloudy	None	4	181	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:20	06:22	40.22986	-73.01155	40.22742	-73.01162	42	15	S	<2	B4	0.5-1	Cloudy	None	4	182	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:22	06:54	40.22742	-73.01162	40.20361	-73.04066	42	15	S	<2	B4	0.5-1	Cloudy	None	5	186	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:54	06:58	40.20361	-73.04066	40.20907	-73.04033	43	15	S	<2	B4	0.5-1	Cloudy	None	5	357	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:58	07:00	40.20907	-73.04033	40.21171	-73.04027	43	15	S	<2	B4	0.5-1	Cloudy	None	5	358	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.21171	-73.04027	40.28677	-73.03807	44	12	S	<2	B4	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:21	40.28677	-73.03807	40.31374	-73.03727	41	12	S	<2	B4	0.5-1	Cloudy	None	5	358	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:21	08:23	40.31374	-73.03727	40.31628	-73.03722	39	12	S	<2	B4	0.5-1	Cloudy	None	5	359	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:23	08:57	40.31628	-73.03722	40.31825	-73.03786	39	12	S	<2	B4	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:57	09:00	40.31825	-73.03786	40.31449	-73.03801	38	13	SSE	<2	B4	0.5-1	Cloudy	None	4	183	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:01	40.31449	-73.03801	40.31315	-73.03806	38	13	SSE	<2	B4	0.5-1	Cloudy	None	4	183	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:01	09:54	40.31315	-73.03806	40.24555	-73.04002	39	13	SSE	<2	B4	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:54	10:00	40.24555	-73.04002	40.23862	-73.04024	39	13	SSE	<2	B4	1-2	Cloudy	None	5	182	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:24	40.23862	-73.04024	40.20779	-73.04108	39	13	SSE	<2	B4	1-2	Cloudy	None	5	184	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:24	10:25	40.20779	-73.04108	40.20654	-73.04109	39	13	SSE	<2	B4	1-2	Cloudy	None	5	183	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:25	10:34	40.20654	-73.04109	40.20234	-73.04949	39	13	SSE	<2	B4	1-2	Cloudy	None	5	183	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:34	10:39	40.20234	-73.04949	40.20866	-73.04978	39	13	SSE	<2	B4	2-5	Cloudy	None	5	357	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:39	11:00	40.20866	-73.04978	40.23586	-73.04910	39	13	SSE	<2	B4	>5	Cloudy	None	5	357	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.23586	-73.04910	40.31212	-73.04688	39	11	SSE	<2	B4	>5	Cloudy	None	5	359	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:02	40.31212	-73.04688	40.31473	-73.04681	42	12	SSE	<2	B4	>5	Cloudy	None	5	0	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:02	12:03	40.31473	-73.04681	40.31599	-73.04677	42	12	SSE	<2	B4	>5	Cloudy	None	5	0	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:03	12:12	40.31599	-73.04677	40.32024	-73.03873	42	12	SSE	<2	B4	>5	Precipitation	None	5	0	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	12:17	40.32024	-73.03873	40.31373	-73.03835	39	11	SSE	<2	B4	>5	Precipitation	None	5	174	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:17	12:55	40.31373	-73.03835	40.26588	-73.03975	41	11	SSE	<2	B4	>5	Precipitation	None	5	181	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:55	13:03	40.26588	-73.03975	40.25497	-73.04005	41	12	SSE	<2	B4	>5	Precipitation	None	5	181	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:03	13:40	40.25497	-73.04005	40.20878	-73.04141	41	12	SSE	<2	B4	>5	Precipitation	None	5	181	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:40	13:41	40.20878	-73.04141	40.20744	-73.04145	43	12	SSE	<2	B4	>5	Precipitation	None	5	181	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:41	13:51	40.20744	-73.04145	40.20349	-73.05029	43	12	SSE	<2	B4	>5	Precipitation	None	5	181	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:51	13:55	40.20349	-73.05029	40.20866	-73.05019	43	11	SE	<2	B4	>5	Precipitation	None	5	2	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:55	14:00	40.20866	-73.05019	40.21511	-73.05001	43	11	SE	<2	B4	>5	Precipitation	None	5	2	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:17	40.21511	-73.05001	40.31466	-73.04713	45	11	SE	<2	B4	>5	Precipitation	None	5	3	Full Power	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:17	15:31	40.31466	-73.04713	40.31714	-73.03543	38	14	SSE	<2	B4	>5	Precipitation	None	5	9	Silent	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:31	15:44	40.31714	-73.03543	40.31688	-73.04315	40	14	SSE	<2	B4	>5	Precipitation	None	1	144	Deploying/Retrieving	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:44	16:00	40.31688	-73.04315	40.32414	-73.04770	40	12	SSE	<2	B4	>5	Precipitation	None	1	346	Deploying/Retrieving	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:13	40.32414	-73.04770	40.32669	-73.05153	39	13	SE	<2	B4	>5	Precipitation	None	1	74	Deploying/Retrieving	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:13	16:33	40.32669	-73.05153	40.33525	-73.08286	39	13	SE	<2	B4	>5	Precipitation	None	3	337	Standby	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:33	17:00	40.33525	-73.08286	40.31867	-73.16285	39	14	ESE	<2	B4	>5	Precipitation	None	6	245	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.31867	-73.16285	40.31992	-73.37083	35	14	ESE	<2	B4	>5	Precipitation	None	10	269	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:38	40.31992	-73.37083	40.33195	-73.50445	30	18	E	<2	B5	>5	Precipitation	None	10	278	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:38	19:00	40.33195	-73.50445	40.34990	-73.57321	30	14	E	<2	B5	>5	Precipitation	None	10	281	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.34990	-73.57321	40.39009	-73.77443	30	6	SW	<2	B5	>5	Precipitation	None	10	282	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.39009	-73.77443	40.46644	-73.95795	37	7	NE	<2	B5	>5	Precipitation	None	10	280	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:41	40.46644	-73.95795	40.48704	-74.06352	13	9	E	<2	B4	>5	Precipitation	None	10	309	Transit	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:41	21:56	40.48704	-74.06352	40.48803	-74.06686	7	10	NE	<2	B3	>5	Precipitation	None	4	317	Standby	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:56	22:00	40.48803	-74.06686	40.48976	-74.06893	7	13	NE	<2	B3	>5	Precipitation	None	4	323	Standby	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.48976	-74.06893	40.49795	-74.06431	7	13	NE	<2	B3	0.5-1	Fog	None	0	323	Standby	N/A
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:50	40.49795	-74.06431	40.49515	-74.06451	6	11	ENE	<2	B3	0.5-1	Fog	None	0	219	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-06	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:50	00:00	40.49515	-74.06451	40.49441	-74.06412	6	11	ENE	<2	B3	0.5-1	Fog	None	0	311	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.49418	-74.06391	40.49153	-74.06182	6	8	NE	<2	B3	0.5-1	Cloudy	None	0	309	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.49153	-74.06182	40.49876	-74.06682	6	15	ESE	<2	B4	0.5-1	Precipitation	None	0	348	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.49876	-74.06682	40.49428	-74.06862	5	17	E	<2	B4	0.5-1	Precipitation	None	0	1	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.49428	-74.06862	40.49373	-74.06970	6	21	NE	<2	B4	0.5-1	Precipitation	None	1	174	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.49373	-74.06970	40.48936	-74.08087	6	24	NE	<2	B4	0.5-1	Precipitation	None	4	30	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.48936	-74.08087	40.49260	-74.07506	4	23	ENE	<2	B4	0.5-1	Cloudy	None	1	64	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49260	-74.07506	40.50289	-74.14669	8	20	ENE	<2	B4	0.5-1	Cloudy	None	5	268	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.50289	-74.14669	40.49844	-74.06973	5	20	ENE	<2	B4	0.5-1	Cloudy	None	3	90	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.49844	-74.06973	40.49824	-74.13181	9	18	NE	<2	B4	0.5-1	Cloudy	None	4	105	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:54	40.49824	-74.13181	40.50119	-74.13597	9	21	NE	<2	B4	0.5-1	Cloudy	None	4	290	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:54	10:00	40.50119	-74.13597	40.50023	-74.13014	9	20	NE	<2	B4	1-2	Cloudy	None	4	290	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.50023	-74.13014	40.49010	-74.06408	8	21	NE	<2	B4	1-2	Cloudy	None	3	97	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.49010	-74.06408	40.49951	-74.13220	8	20	NE	<2	B4	>5	Cloudy	None	4	91	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.49951	-74.13220	40.49367	-74.09895	10	14	NE	<2	B4	>5	Cloudy	None	3	285	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49367	-74.09895	40.49376	-74.10074	9	18	NE	<2	B4	>5	Cloudy	None	4	100	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.49376	-74.10074	40.50355	-74.15081	9	13	NE	<2	B4	>5	Cloudy	None	3	282	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50355	-74.15081	40.49091	-74.08211	9	18	NE	<2	B4	>5	Cloudy	None	3	99	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.49091	-74.08211	40.49590	-74.12421	5	15	NE	<2	B4	>5	Cloudy	None	3	91	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49590	-74.12421	40.49320	-74.09739	5	15	NE	<2	B4	>5	Cloudy	None	3	293	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:48	40.49320	-74.09739	40.49518	-74.11264	5	14	NE	<2	B4	>5	Cloudy	None	4	98	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:48	19:00	40.49518	-74.11264	40.49788	-74.13107	7	14	NE	<2	B4	>5	Cloudy	None	4	284	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.49788	-74.13107	40.49092	-74.08759	7	10	NE	<2	B4	>5	Cloudy	None	4	291	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.49092	-74.08759	40.49648	-74.11882	6	10	NE	<2	B4	>5	Cloudy	None	3	96	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.49648	-74.11882	40.49866	-74.11290	6	11	NE	<2	B4	>5	Cloudy	None	3	71	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.49866	-74.11290	40.50316	-74.10298	7	10	ENE	<2	B4	>5	Cloudy	None	0	317	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:42	40.50316	-74.10298	40.50172	-74.10927	6	10	NNE	<2	B4	>5	Cloudy	None	0	159	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:42	23:49	40.50172	-74.10927	40.50166	-74.10964	6	12	NNE	<2	B4	2-5	Cloudy	None	0	157	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	23:54	40.50166	-74.10964	40.50162	-74.10983	6	12	NNE	<2	B4	1-2	Cloudy	None	0	157	Standby	N/A
2022-09-07	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.50162	-74.10983	40.50162	-74.10988	6	11	NE	<2	B4	0.5-1	Cloudy	None	0	160	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	00:00	01:00	40.50155	-74.11015	40.50230	-74.10940	5	10	NE	<2	B4	0.5-1	Cloudy	None	0	167	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.50230	-74.10940	40.50390	-74.10746	5	13	NE	<2	B4	0.5-1	Cloudy	None	0	169	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.50390	-74.10746	40.50539	-74.10600	5	11	NE	<2	B4	0.5-1	Cloudy	None	0	175	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.50539	-74.10600	40.50076	-74.09981	5	14	NE	<2	B3	0.5-1	Cloudy	None	0	170	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.50076	-74.09981	40.49897	-74.10267	5	10	NE	<2	B3	0.5-1	Cloudy	None	0	170	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.49897	-74.10267	40.49781	-74.11280	7	14	NE	<2	B3	0.5-1	Cloudy	None	0	162	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49781	-74.11280	40.49880	-74.10766	9	9	NE	<2	B3	0.5-1	Cloudy	None	0	158	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.49880	-74.10766	40.49948	-74.11667	5	9	NE	<2	B3	0.5-1	Cloudy	None	2	36	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.49948	-74.11667	40.50324	-74.11116	9	11	NE	<2	B3	0.5-1	Cloudy	None	1	299	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:44	40.50324	-74.11116	40.49850	-74.12074	8	10	NNE	<2	B3	0.5-1	Cloudy	None	1	286	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:44	10:00	40.49850	-74.12074	40.49730	-74.12454	7	8	N	<2	B3	1-2	Cloudy	None	1	65	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.49730	-74.12454	40.50168	-74.10629	7	8	N	<2	B3	2-5	Cloudy	None	1	72	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	11:00	12:00	40.50168	-74.10629	40.50426	-74.10029	7	8	0.2	<2	B3	>5	Cloudy	None	0	72	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.50426	-74.10029	40.50317	-74.10100	7	13	N	<2	B3	>5	Cloudy	None	0	158	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.50317	-74.10100	40.50058	-74.10023	8	10	N	<2	B3	>5	Clear	Severe	0	140	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.50058	-74.10023	40.50241	-74.09542	8	13	NNE	<2	B3	>5	Clear	Severe	0	147	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50241	-74.09542	40.50017	-74.09427	7	11	NE	<2	B3	>5	Clear	Severe	0	164	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.50017	-74.09427	40.49777	-74.09234	7	11	NNE	<2	B3	>5	Cloudy	None	0	163	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49777	-74.09234	40.50327	-74.07429	7	11	NNE	<2	B3	>5	Cloudy	None	0	152	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:11	40.50327	-74.07429	40.50187	-74.07420	7	5	NE	<2	B3	>5	Cloudy	None	1	105	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:11	19:00	40.50187	-74.07420	40.50233	-74.09612	7	5	NE	<2	B3	>5	Cloudy	None	1	108	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.50233	-74.09612	40.50187	-74.11804	7	5	SE	<2	B3	>5	Cloudy	Slight	3	269	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.50187	-74.11804	40.50031	-74.10551	8	7	SE	<2	B3	>5	Cloudy	Moderate	4	92	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50031	-74.10551	40.50164	-74.11552	8	9	E	<2	B3	>5	Cloudy	Moderate	1	223	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.50164	-74.11552	40.50161	-74.09822	8	11	SE	<2	B3	>5	Clear	Severe	0	209	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:21	40.50161	-74.09822	40.50218	-74.10306	8	11	SE	<2	B3	>5	Clear	None	1	283	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:21	23:30	40.50218	-74.10306	40.50258	-74.10465	8	11	SE	<2	B3	>5	Clear	None	1	283	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:30	23:48	40.50258	-74.10465	40.50332	-74.10686	8	11	SE	<2	B3	2-5	Clear	None	1	283	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	23:55	40.50332	-74.10686	40.50365	-74.10746	8	11	SE	<2	B3	1-2	Clear	None	1	283	Standby	N/A
2022-09-08	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:55	00:00	40.50365	-74.10746	40.50372	-74.10764	8	11	SE	<2	B3	0.5-1	Clear	None	0	283	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.50395	-74.10795	40.50477	-74.13723	5	9	S	<2	B3	0.5-1	Cloudy	None	0	29	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.50477	-74.13723	40.50171	-74.09668	5	5	SSE	<2	B2	0.5-1	Cloudy	None	2	273	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.50171	-74.09668	40.50265	-74.08410	5	2	S	<2	B2	0.5-1	Cloudy	None	0	223	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.50265	-74.08410	40.50286	-74.07218	6	2	NE	<2	B2	0.5-1	Cloudy	None	1	172	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.50286	-74.07218	40.49775	-74.09633	5	7	NW	<2	B2	0.5-1	Cloudy	None	3	260	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.49775	-74.09633	40.49211	-74.09152	5	6	NW	<2	B2	0.5-1	Clear	None	0	248	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49211	-74.09152	40.49962	-74.10156	8	8	NNW	<2	B2	0.5-1	Clear	None	0	248	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.49962	-74.10156	40.50526	-74.11521	4	7	NNW	<2	B2	0.5-1	Clear	None	1	98	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.50526	-74.11521	40.50368	-74.11043	6	9	ENE	<2	B3	0.5-1	Clear	None	1	350	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:43	40.50368	-74.11043	40.50001	-74.12295	6	13	NE	<2	B3	0.5-1	Clear	None	1	349	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:43	10:00	40.50001	-74.12295	40.50470	-74.10754	6	10	NE	<2	B3	1-2	Clear	Moderate	1	306	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.50470	-74.10754	40.49969	-74.12084	6	11	NE	<2	B3	>5	Clear	Severe	0	266	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.49969	-74.12084	40.50384	-74.10398	6	10	NE	<2	B3	>5	Clear	Severe	0	301	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.50384	-74.10398	40.50014	-74.10659	8	11	NNE	<2	B3	>5	Clear	Severe	0	160	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.50014	-74.10659	40.50422	-74.09290	9	9	NE	<2	B3	>5	Clear	Severe	0	40	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.50422	-74.09290	40.50303	-74.08722	8	5	ENE	<2	B3	>5	Clear	Severe	0	337	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50303	-74.08722	40.50290	-74.08164	8	7	ESE	<2	B3	>5	Clear	Severe	0	7	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.50290	-74.08164	40.54248	-74.03676	8	6	ESE	<2	B3	>5	Clear	Severe	0	3	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.54248	-74.03676	40.61742	-74.06416	9	6	ESE	<2	B3	>5	Clear	Severe	7	358	Transit	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:12	40.61742	-74.06416	40.61646	-74.06088	9	4	E	<2	B2	>5	Clear	Severe	0	44	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:12	18:13	40.61646	-74.06088	40.61609	-74.06047	9	4	E	<2	B2	>5	Clear	Severe	0	44	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:13	18:58	40.61609	-74.06047	40.51313	-74.04638	9	7	S	<2	B3	>5	Clear	Severe	9	138	Transit	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:58	19:00	40.51313	-74.04638	40.51213	-74.04888	6	7	SE	<2	B3	>5	Clear	Severe	5	242	Transit	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.51213	-74.04888	40.50384	-74.10816	6	7	SE	<2	B3	>5	Clear	Severe	1	225	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.50384	-74.10816	40.50417	-74.13208	6	8	SE	<2	B3	>5	Clear	Severe	1	61	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50417	-74.13208	40.50599	-74.12196	6	7	SE	<2	B3	>5	Clear	Severe	1	16	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.50599	-74.12196	40.50134	-74.09124	6	12	SE	<2	B3	>5	Clear	Severe	0	16	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:14	40.50134	-74.09124	40.50139	-74.09534	6	12	SE	<2	B3	>5	Clear	Severe	0	16	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:14	23:34	40.50139	-74.09534	40.50153	-74.09954	6	11	SE	<2	B3	>5	Clear	None	1	21	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:34	23:43	40.50153	-74.09954	40.50184	-74.10127	6	11	SE	<2	B3	2-5	Clear	None	0	48	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:43	23:52	40.50184	-74.10127	40.50220	-74.10299	6	11	SE	<2	B3	1-2	Clear	None	0	27	Standby	N/A
2022-09-09	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:52	00:00	40.50220	-74.10299	40.50228	-74.10345	6	7	SSW	<2	B3	0.5-1	Clear	None	0	292	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.50242	-74.10415	40.50228	-74.08871	6	8	SSE	<2	B3	0.5-1	Clear	None	0	37	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.50228	-74.08871	40.49571	-74.06994	6	9	SSE	<2	B3	0.5-1	Clear	None	5	101	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.49571	-74.06994	40.49916	-74.07487	7	6	S	<2	B3	0.5-1	Clear	None	1	30	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.49916	-74.07487	40.49539	-74.08194	6	6	SSW	<2	B3	0.5-1	Clear	None	1	70	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.49539	-74.08194	40.49858	-74.09088	6	7	SSW	<2	B3	0.5-1	Clear	None	1	66	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.49858	-74.09088	40.49669	-74.07995	7	6	WSW	<2	B3	0.5-1	Clear	None	1	106	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49669	-74.07995	40.50012	-74.10351	8	8	W	<2	B3	0.5-1	Clear	None	0	162	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.50012	-74.10351	40.50086	-74.10453	7	6	WNW	<2	B3	0.5-1	Clear	None	4	282	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.50086	-74.10453	40.49915	-74.11466	7	8	W	<2	B3	0.5-1	Clear	None	0	25	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:48	40.49915	-74.11466	40.50292	-74.12030	7	7	WNW	<2	B3	0.5-1	Clear	None	1	67	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:48	10:00	40.50292	-74.12030	40.50392	-74.11375	7	4	NW	<2	B2	1-2	Clear	None	1	230	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.50392	-74.11375	40.50253	-74.10108	7	4	NW	<2	B2	2-5	Clear	None	4	85	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.50253	-74.10108	40.50435	-74.10265	7	3	W	<2	B2	>5	Clear	Severe	0	355	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.50435	-74.10265	40.49986	-74.10631	8	4	WNW	<2	B2	>5	Clear	Severe	0	32	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49986	-74.10631	40.50581	-74.08843	9	3	WSW	<2	B2	>5	Clear	Severe	0	19	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.50581	-74.08843	40.50302	-74.09261	8	1	W	<2	B2	>5	Clear	Severe	0	166	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50302	-74.09261	40.50159	-74.09240	8	2	SW	<2	B2	>5	Clear	Moderate	1	180	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.50159	-74.09240	40.50104	-74.07835	8	1	SW	<2	B1	>5	Clear	Moderate	0	200	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.50104	-74.07835	40.50057	-74.06723	8	1	NE	<2	B1	>5	Clear	Moderate	1	94	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.50057	-74.06723	40.49786	-74.06468	7	7	ESE	<2	B2	>5	Clear	Moderate	0	343	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.49786	-74.06468	40.49668	-74.07600	7	9	SE	<2	B3	>5	Clear	Moderate	1	19	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.49668	-74.07600	40.50053	-74.09870	7	11	SE	<2	B3	>5	Clear	Severe	1	15	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50053	-74.09870	40.50266	-74.12213	7	12	E	<2	B3	>5	Clear	Severe	2	37	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.50266	-74.12213	40.50139	-74.08684	8	11	ESE	<2	B3	>5	Cloudy	Slight	0	262	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:40	40.50139	-74.08684	40.50264	-74.09341	8	11	ESE	<2	B3	>5	Cloudy	Slight	0	269	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:40	23:50	40.50264	-74.09341	40.50283	-74.09516	8	11	ESE	<2	B3	1-2	Cloudy	None	0	269	Standby	N/A
2022-09-10	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:50	00:00	40.50283	-74.09516	40.50275	-74.09709	8	11	ESE	<2	B3	0.5-1	Cloudy	None	0	269	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.50285	-74.09735	40.50401	-74.10238	6	10	SSW	<2	B3	0.5-1	Clear	None	1	262	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.50401	-74.10238	40.50335	-74.09532	8	11	SSW	<2	B3	0.5-1	Clear	None	4	147	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.50335	-74.09532	40.49924	-74.08702	6	11	SSW	<2	B3	0.5-1	Clear	None	0	93	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.49924	-74.08702	40.50242	-74.07456	6	7	SSW	<2	B3	0.5-1	Cloudy	None	0	274	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.50242	-74.07456	40.50424	-74.07350	8	13	SW	<2	B3	0.5-1	Cloudy	None	4	262	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.50424	-74.07350	40.49839	-74.07734	8	10	WSW	<2	B3	0.5-1	Cloudy	None	1	353	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.49839	-74.07734	40.50320	-74.08613	7	11	WSW	<2	B3	0.5-1	Cloudy	None	1	143	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:48	40.50320	-74.08613	40.50150	-74.07844	7	11	WSW	<2	B3	0.5-1	Cloudy	None	1	90	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:48	08:00	40.50150	-74.07844	40.48510	-74.06162	7	11	WSW	<2	B3	0.5-1	Cloudy	None	5	142	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.48510	-74.06162	40.44123	-73.91829	9	9	W	<2	B3	0.5-1	Cloudy	None	7	106	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	10:00	40.44123	-73.91829	40.38155	-73.74563	9	6	WSW	<2	B3	0.5-1	Cloudy	None	9	130	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.38155	-73.74563	40.33673	-73.56222	26	7	WNW	<2	B2	1-2	Cloudy	None	9	107	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.33673	-73.56222	40.31605	-73.37852	32	3	WSW	<2	B2	>5	Cloudy	None	8	106	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.31605	-73.37852	40.30666	-73.18851	32	3	WNW	<2	B2	>5	Cloudy	None	8	94	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.30666	-73.18851	40.30061	-72.99874	39	1	SSE	<2	B2	>5	Cloudy	Slight	9	93	Transit	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:13	40.30061	-72.99874	40.29220	-72.99409	43	4	WSW	<2	B2	>5	Cloudy	Slight	5	125	Standby	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:13	15:00	40.29220	-72.99409	40.28453	-72.96701	44	5	WSW	<2	B2	>5	Cloudy	Moderate	0	191	Deploying/Retrieving	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:06	40.28453	-72.96701	40.28242	-72.96064	45	2	WSW	<2	B1	>5	Cloudy	Moderate	3	109	Deploying/Retrieving	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:06	15:21	40.28242	-72.96064	40.27898	-72.94602	45	2	WSW	<2	B1	>5	Cloudy	Moderate	3	109	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:21	15:41	40.27898	-72.94602	40.28238	-72.97593	45	2	WSW	<2	B1	>5	Cloudy	Moderate	4	266	Soft Start	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:41	16:00	40.28238	-72.97593	40.28795	-73.00571	45	2	WSW	<2	B1	>5	Cloudy	Moderate	4	285	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:08	40.28795	-73.00571	40.29070	-72.99921	45	2	WSW	<2	B1	>5	Cloudy	None	4	2	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:08	16:14	40.29070	-72.99921	40.28293	-72.99880	45	2	WSW	<2	B1	>5	Cloudy	None	4	2	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:14	16:50	40.28293	-72.99880	40.24027	-73.00015	45	3	SSW	<2	B1	>5	Cloudy	None	4	182	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:50	17:00	40.24027	-73.00015	40.23186	-73.00487	45	2	SE	<2	B1	>5	Cloudy	None	4	182	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:05	40.23186	-73.00487	40.23554	-73.00932	45	2	SSE	<2	B1	>5	Cloudy	None	4	291	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:05	17:09	40.23554	-73.00932	40.24048	-73.01000	44	2	SSW	<2	B1	>5	Cloudy	None	4	348	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:09	17:28	40.24048	-73.01000	40.26444	-73.00940	43	3	SSW	<2	B1	>5	Cloudy	None	5	359	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:28	17:54	40.26444	-73.00940	40.29689	-73.00847	43	1	SE	<2	B1	>5	Cloudy	None	4	1	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:54	18:00	40.29689	-73.00847	40.30431	-73.00823	43	1	SE	<2	B1	>5	Cloudy	None	4	0	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:32	40.30431	-73.00823	40.27448	-73.00109	43	1	SE	<2	B1	>5	Cloudy	None	4	50	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:32	18:53	40.27448	-73.00109	40.27906	-73.00897	43	2	NE	<2	B1	>5	Cloudy	None	5	180	Soft Start	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:53	18:58	40.27906	-73.00897	40.28546	-73.00875	43	2	ENE	<2	B1	>5	Cloudy	None	5	2	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:58	19:00	40.28546	-73.00875	40.28796	-73.00870	43	2	ENE	<2	B1	>5	Cloudy	None	5	2	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:06	40.28796	-73.00870	40.29620	-73.00849	43	2	ENE	<2	B1	>5	Cloudy	None	5	2	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:06	19:23	40.29620	-73.00849	40.31756	-73.00779	43	2	ENE	<2	B1	>5	Cloudy	Slight	5	4	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:23	19:56	40.31756	-73.00779	40.29467	-72.99934	43	3	ESE	<2	B1	>5	Cloudy	Slight	5	3	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:56	20:00	40.29467	-72.99934	40.28986	-73.00010	43	3	ESE	<2	B1	>5	Cloudy	None	5	175	Soft Start	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:16	40.28986	-73.00010	40.30099	-73.00825	43	3	E	<2	B1	>5	Cloudy	None	5	180	Soft Start	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:16	20:19	40.30099	-73.00825	40.30484	-73.00813	43	4	ESE	<2	B1	>5	Cloudy	None	5	4	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:19	20:27	40.30484	-73.00813	40.31599	-73.00775	43	4	ESE	<2	B1	>5	Cloudy	None	5	4	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:27	20:34	40.31599	-73.00775	40.32510	-73.00750	43	4	SE	<2	B1	>5	Cloudy	None	5	5	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:34	20:35	40.32510	-73.00750	40.32568	-73.00749	43	4	SE	<2	B1	>5	Cloudy	None	5	5	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:35	21:00	40.32568	-73.00749	40.31490	-73.00864	43	4	SE	<2	B1	>5	Cloudy	None	5	5	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:01	40.31490	-73.00864	40.31365	-73.00865	43	6	ESE	<2	B1	>5	Cloudy	None	5	173	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:01	21:59	40.31365	-73.00865	40.23994	-73.01083	43	6	ESE	<2	B1	>5	Cloudy	None	5	173	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:59	22:00	40.23994	-73.01083	40.23921	-73.01084	43	6	ESE	<2	B1	>5	Cloudy	None	5	174	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:01	40.23921	-73.01084	40.23825	-73.01086	43	6	ESE	<2	B2	>5	Cloudy	None	5	174	Silent	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:01	22:44	40.23825	-73.01086	40.28187	-73.01514	43	6	ESE	<2	B2	>5	Cloudy	None	5	174	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	23:00	40.28187	-73.01514	40.30192	-73.01462	44	6	SE	<2	B2	>5	Cloudy	None	5	5	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:09	40.30192	-73.01462	40.31331	-73.01429	44	6	SE	<2	B2	>5	Cloudy	None	5	5	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:09	23:14	40.31331	-73.01429	40.31878	-73.01120	44	6	SE	<2	B2	>5	Cloudy	None	5	5	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:14	23:25	40.31878	-73.01120	40.30671	-73.00941	44	7	SE	<2	B2	2-5	Cloudy	None	5	98	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	23:34	40.30671	-73.00941	40.29472	-73.01072	44	8	SSE	<2	B2	1-2	Cloudy	None	5	180	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:34	23:49	40.29472	-73.01072	40.29896	-73.01846	44	8	SSE	<2	B2	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:49	23:55	40.29896	-73.01846	40.30655	-73.01819	44	7	SE	<2	B2	0.5-1	Cloudy	None	5	5	Full Power	N/A
2022-09-11	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:55	00:00	40.30655	-73.01819	40.30852	-73.01815	44	7	SE	<2	B2	0.5-1	Cloudy	None	5	5	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:22	40.31223	-73.01902	40.31848	-73.02293	40	7	SE	<2	B2	0.5-1	Cloudy	None	5	336	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:22	00:27	40.31848	-73.02293	40.31291	-73.02297	40	7	SE	<2	B2	0.5-1	Cloudy	None	4	176	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:27	00:53	40.31291	-73.02297	40.27895	-73.02400	40	7	SE	<2	B2	0.5-1	Precipitation	None	4	183	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:53	01:00	40.27895	-73.02400	40.27118	-73.02421	40	20	S	<2	B4	0.5-1	Precipitation	None	4	186	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:13	40.27118	-73.02421	40.25463	-73.02463	43	15	S	<2	B4	0.5-1	Precipitation	None	5	179	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:13	01:16	40.25463	-73.02463	40.25105	-73.02576	43	12	S	<2	B4	0.5-1	Precipitation	None	5	205	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:16	02:00	40.25105	-73.02576	40.30199	-73.04552	43	12	S	<2	B4	0.5-1	Precipitation	None	5	238	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:22	40.30199	-73.04552	40.31765	-73.03793	43	6	SE	<2	B3	0.5-1	Cloudy	None	5	357	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:22	02:25	40.31765	-73.03793	40.31409	-73.03792	43	6	SE	<2	B3	0.5-1	Cloudy	None	5	357	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:25	02:53	40.31409	-73.03792	40.27964	-73.03869	43	6	SSE	<2	B3	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:53	03:00	40.27964	-73.03869	40.27103	-73.03891	43	6	SSE	<2	B3	0.5-1	Precipitation	None	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:49	40.27103	-73.03891	40.20828	-73.04074	43	10	SE	<2	B3	0.5-1	Precipitation	None	5	183	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:49	03:50	40.20828	-73.04074	40.20701	-73.04079	43	10	SE	<2	B3	0.5-1	Precipitation	None	5	183	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:50	04:00	40.20701	-73.04079	40.20244	-73.05042	43	10	SE	<2	B3	0.5-1	Precipitation	None	5	183	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:01	40.20244	-73.05042	40.20355	-73.05060	43	13	SSE	<2	B3	0.5-1	Precipitation	None	5	355	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:01	04:05	40.20355	-73.05060	40.20865	-73.05055	43	13	SSE	<2	B3	0.5-1	Precipitation	None	5	355	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:05	04:14	40.20865	-73.05055	40.22060	-73.05028	43	13	SSE	<2	B3	0.5-1	Precipitation	None	5	355	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:14	05:00	40.22060	-73.05028	40.27856	-73.04861	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	355	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:28	40.27856	-73.04861	40.31392	-73.04756	43	12	SSE	<2	B3	0.5-1	Cloudy	None	4	358	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:28	05:30	40.31392	-73.04756	40.31641	-73.04756	43	15	SSE	<2	B3	0.5-1	Cloudy	None	4	2	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:30	05:40	40.31641	-73.04756	40.31902	-73.03860	43	15	SSE	<2	B3	0.5-1	Cloudy	None	5	16	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:40	05:44	40.31902	-73.03860	40.31378	-73.03876	39	15	SSE	<2	B3	0.5-1	Cloudy	None	5	183	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:44	06:00	40.31378	-73.03876	40.29518	-73.03928	41	16	SSE	<2	B3	0.5-1	Cloudy	None	5	183	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.29518	-73.03928	40.22025	-73.04145	41	16	NNE	<2	B4	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:10	40.22025	-73.04145	40.20801	-73.04177	41	15	SSE	<2	B4	0.5-1	Precipitation	None	5	178	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:10	07:11	40.20801	-73.04177	40.20682	-73.04176	41	15	SSE	<2	B4	0.5-1	Precipitation	None	5	178	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:11	07:21	40.20682	-73.04176	40.20356	-73.05096	41	15	SSE	<2	B4	0.5-1	Precipitation	None	5	178	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:21	07:25	40.20356	-73.05096	40.20870	-73.05089	41	15	SSE	<2	B4	0.5-1	Precipitation	None	5	1	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:25	08:00	40.20870	-73.05089	40.25379	-73.04965	44	12	SSE	<2	B4	0.5-1	Cloudy	None	5	1	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:50	40.25379	-73.04965	40.31471	-73.04787	43	11	SSE	<2	B3	0.5-1	Cloudy	None	5	3	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:50	08:51	40.31471	-73.04787	40.31591	-73.04780	39	8	SSE	<2	B3	0.5-1	Cloudy	None	4	6	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:51	09:00	40.31591	-73.04780	40.32130	-73.04025	39	8	SSE	<2	B3	0.5-1	Cloudy	None	4	6	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:02	40.32130	-73.04025	40.31910	-73.03898	39	8	S	<2	B3	0.5-1	Cloudy	None	4	130	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:02	09:06	40.31910	-73.03898	40.31380	-73.03913	39	8	S	<2	B3	0.5-1	Cloudy	None	4	130	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:06	09:56	40.31380	-73.03913	40.24969	-73.04092	39	7	S	<2	B3	0.5-1	Cloudy	None	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:56	10:00	40.24969	-73.04092	40.24455	-73.04109	39	7	S	<2	B3	1-2	Cloudy	None	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:28	40.24455	-73.04109	40.20877	-73.04216	43	3	SSE	<2	B2	1-2	Cloudy	None	5	177	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:28	10:30	40.20877	-73.04216	40.20625	-73.04227	43	3	SSE	<2	B2	>5	Cloudy	None	5	177	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:30	10:39	40.20625	-73.04227	40.20347	-73.05139	43	3	SSW	<2	B2	>5	Cloudy	None	5	199	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:39	10:43	40.20347	-73.05139	40.20873	-73.05124	44	3	SSW	<2	B2	>5	Cloudy	None	5	2	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:43	11:00	40.20873	-73.05124	40.23083	-73.05063	44	3	SSW	<2	B2	>5	Cloudy	None	5	2	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.23083	-73.05063	40.30752	-73.04842	43	3	SSW	<2	B2	>5	Cloudy	Slight	5	3	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:05	40.30752	-73.04842	40.31398	-73.04826	42	7	WSW	<2	B2	>5	Cloudy	Moderate	5	4	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:05	12:07	40.31398	-73.04826	40.31657	-73.04819	42	7	WSW	<2	B2	>5	Cloudy	Moderate	5	5	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:07	12:16	40.31657	-73.04819	40.31998	-73.03960	42	7	WSW	<2	B2	>5	Cloudy	Moderate	5	5	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:16	12:21	40.31998	-73.03960	40.31324	-73.03941	39	8	W	<2	B3	>5	Cloudy	Moderate	5	184	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:21	13:00	40.31324	-73.03941	40.26259	-73.04088	39	8	W	<2	B3	>5	Cloudy	Moderate	5	184	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:41	40.26259	-73.04088	40.20885	-73.04243	43	9	W	<2	B3	>5	Cloudy	Moderate	5	181	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:41	13:42	40.20885	-73.04243	40.20758	-73.04248	43	9	WNW	<2	B3	>5	Cloudy	Slight	5	182	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:42	13:54	40.20758	-73.04248	40.20500	-73.05173	43	9	WNW	<2	B3	>5	Cloudy	Slight	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:54	13:57	40.20500	-73.05173	40.20892	-73.05161	43	10	WNW	<2	B3	>5	Cloudy	Slight	5	356	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:57	14:24	40.20892	-73.05161	40.24362	-73.05063	43	11	WNW	<2	B3	>5	Cloudy	Slight	5	357	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:24	15:00	40.24362	-73.05063	40.28784	-73.04940	43	10	NNW	<2	B3	>5	Cloudy	Moderate	5	358	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:21	40.28784	-73.04940	40.31483	-73.04866	41	7	NW	<2	B3	>5	Cloudy	Slight	4	359	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:21	15:22	40.31483	-73.04866	40.31611	-73.04863	39	10	NW	<2	B3	>5	Cloudy	Slight	4	359	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:22	15:30	40.31611	-73.04863	40.32109	-73.04073	39	10	NW	<2	B3	>5	Cloudy	Slight	4	359	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	15:36	40.32109	-73.04073	40.31347	-73.03977	39	8	NW	<2	B3	>5	Cloudy	Slight	5	166	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:36	16:00	40.31347	-73.03977	40.28236	-73.04067	40	8	NW	<2	B3	>5	Cloudy	Slight	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:57	40.28236	-73.04067	40.20718	-73.04288	40	9	NW	<2	B3	>5	Cloudy	None	5	182	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:57	16:58	40.20718	-73.04288	40.20663	-73.04292	44	6	NW	<2	B3	>5	Cloudy	None	5	180	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:58	17:00	40.20663	-73.04292	40.20366	-73.04300	44	6	NW	<2	B3	>5	Cloudy	None	5	180	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:10	40.20366	-73.04300	40.20385	-73.05200	44	6	NW	<2	B3	>5	Cloudy	None	5	180	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:10	17:16	40.20385	-73.05200	40.20972	-73.05196	44	6	NW	<2	B3	>5	Cloudy	None	5	355	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:16	18:00	40.20972	-73.05196	40.26284	-73.05046	44	9	NW	<2	B3	>5	Cloudy	None	5	0	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:41	40.26284	-73.05046	40.31571	-73.04888	43	7	NNW	<2	B3	>5	Cloudy	None	5	1	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:41	18:42	40.31571	-73.04888	40.31636	-73.04883	39	6	NW	<2	B3	>5	Cloudy	None	5	1	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:42	18:51	40.31636	-73.04883	40.32079	-73.04138	39	6	NW	<2	B3	>5	Cloudy	None	5	5	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:51	18:57	40.32079	-73.04138	40.31278	-73.04021	39	6	WNW	<2	B3	>5	Cloudy	None	5	169	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:57	19:00	40.31278	-73.04021	40.30959	-73.04023	39	5	WNW	<2	B3	>5	Cloudy	None	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.30959	-73.04023	40.23414	-73.04238	39	5	WNW	<2	B3	>5	Cloudy	None	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:20	40.23414	-73.04238	40.20815	-73.04318	39	5	NW	<2	B3	>5	Cloudy	Slight	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:20	20:21	40.20815	-73.04318	40.20711	-73.04321	39	5	NW	<2	B3	>5	Cloudy	Slight	5	175	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:21	20:29	40.20711	-73.04321	40.20184	-73.05057	44	6	NW	<2	B3	>5	Cloudy	Slight	5	175	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:29	20:36	40.20184	-73.05057	40.20965	-73.05232	42	6	NW	<2	B3	>5	Cloudy	Slight	4	352	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:36	21:00	40.20965	-73.05232	40.24070	-73.05136	44	5	NW	<2	B3	>5	Cloudy	Severe	5	7	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:06	40.24070	-73.05136	40.24834	-73.05114	45	3	NNW	<2	B3	>5	Clear	Severe	5	8	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:06	21:57	40.24834	-73.05114	40.31438	-73.04921	45	3	NNW	<2	B3	>5	Clear	Severe	5	8	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:57	21:58	40.31438	-73.04921	40.31652	-73.04921	38	2	SE	<2	B3	>5	Clear	Severe	5	9	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:58	22:00	40.31652	-73.04921	40.31816	-73.04894	38	2	SE	<2	B3	>5	Clear	Severe	5	9	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:10	40.31816	-73.04894	40.31672	-73.04053	38	3	SE	<2	B1	>5	Clear	Severe	4	101	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:10	22:13	40.31672	-73.04053	40.31347	-73.04055	38	3	SE	<2	B1	>5	Clear	Severe	4	169	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:13	22:28	40.31347	-73.04055	40.29408	-73.04108	38	3	SE	<2	B1	>5	Clear	Severe	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:28	22:36	40.29408	-73.04108	40.28464	-73.04135	38	2	SE	<2	B2	>5	Clear	Severe	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:36	22:45	40.28464	-73.04135	40.27355	-73.04168	38	2	SE	<2	B2	>5	Clear	Severe	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:45	23:00	40.27355	-73.04168	40.25605	-73.04218	38	2	SE	<2	B2	>5	Clear	Slight	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:20	40.25605	-73.04218	40.23291	-73.04287	38	2	SE	<2	B2	>5	Clear	None	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:20	23:26	40.23291	-73.04287	40.22444	-73.04315	38	2	SE	<2	B2	2-5	Clear	None	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:26	23:40	40.22444	-73.04315	40.20705	-73.04360	38	4	SE	<2	B2	1-2	Clear	None	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:40	23:41	40.20705	-73.04360	40.20592	-73.04359	38	4	SE	<2	B2	0.5-1	Clear	None	4	173	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:41	23:52	40.20592	-73.04359	40.20395	-73.05274	38	4	SE	<2	B2	0.5-1	Clear	None	4	173	Full Power	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:52	23:56	40.20395	-73.05274	40.21005	-73.05266	38	4	SE	<2	B2	0.5-1	Clear	None	4	7	Silent	N/A
2022-09-12	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:56	00:00	40.21005	-73.05266	40.21188	-73.05263	38	4	SE	<2	B2	0.5-1	Clear	None	4	7	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.21419	-73.05257	40.28980	-73.05029	44	4	SE	<2	B1	0.5-1	Clear	None	5	6	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:19	40.28980	-73.05029	40.31452	-73.04956	40	7	SSE	<2	B2	0.5-1	Clear	None	5	5	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:19	01:20	40.31452	-73.04956	40.31581	-73.04953	40	7	SSE	<2	B2	0.5-1	Clear	None	5	5	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:20	01:39	40.31581	-73.04953	40.31816	-73.04072	40	7	SSE	<2	B2	0.5-1	Clear	None	5	5	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:39	01:43	40.31816	-73.04072	40.31309	-73.04084	40	7	SSE	<2	B2	0.5-1	Clear	None	5	5	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:43	02:00	40.31309	-73.04084	40.29223	-73.04147	40	9	SSE	<2	B2	0.5-1	Clear	None	4	180	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.29223	-73.04147	40.21907	-73.04361	42	8	S	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:10	40.21907	-73.04361	40.20894	-73.04387	43	8	S	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:10	03:13	40.20894	-73.04387	40.20550	-73.04402	42	8	S	<2	B3	0.5-1	Clear	None	5	180	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:13	03:36	40.20550	-73.04402	40.19388	-73.06008	42	8	S	<2	B3	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:36	03:40	40.19388	-73.06008	40.19905	-73.05999	43	7	S	<2	B3	0.5-1	Clear	None	5	351	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:40	04:00	40.19905	-73.05999	40.22451	-73.05927	43	7	S	<2	B3	0.5-1	Clear	None	5	356	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.22451	-73.05927	40.30128	-73.05714	45	9	SSE	<2	B3	0.5-1	Clear	None	5	356	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	05:02	40.30128	-73.05714	40.30382	-73.05701	42	10	S	<2	B3	0.5-1	Clear	None	5	357	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:02	05:03	40.30382	-73.05701	40.30509	-73.05692	42	10	S	<2	B3	0.5-1	Clear	None	5	357	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:03	05:24	40.30509	-73.05692	40.31875	-73.04095	42	10	S	<2	B3	0.5-1	Clear	None	5	357	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:24	05:28	40.31875	-73.04095	40.31387	-73.04122	39	8	SSE	<2	B3	0.5-1	Clear	None	4	184	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:28	06:00	40.31387	-73.04122	40.27261	-73.04244	39	8	SSE	<2	B3	0.5-1	Clear	None	4	184	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:51	40.27261	-73.04244	40.20882	-73.04428	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	184	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:51	06:53	40.20882	-73.04428	40.20622	-73.04435	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	182	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:53	07:00	40.20622	-73.04435	40.19814	-73.04877	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	182	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:12	40.19814	-73.04877	40.19358	-73.05968	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	210	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:12	07:16	40.19358	-73.05968	40.19870	-73.05964	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	210	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:16	08:00	40.19870	-73.05964	40.25495	-73.05811	42	10	SSE	<2	B3	0.5-1	Cloudy	None	5	359	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	08:38	40.25495	-73.05811	40.30402	-73.05673	43	10	SSE	<2	B3	0.5-1	Cloudy	None	5	2	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:38	08:39	40.30402	-73.05673	40.30530	-73.05666	43	10	SSE	<2	B3	0.5-1	Cloudy	None	5	2	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:39	08:58	40.30530	-73.05666	40.31961	-73.04161	43	10	SSE	<2	B3	0.5-1	Cloudy	None	5	2	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:58	09:00	40.31961	-73.04161	40.31707	-73.04160	43	10	SSE	<2	B3	0.5-1	Cloudy	None	5	175	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:03	40.31707	-73.04160	40.31313	-73.04159	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	174	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:03	09:51	40.31313	-73.04159	40.25053	-73.04340	43	13	SSE	<2	B3	0.5-1	Cloudy	None	5	174	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:51	10:00	40.25053	-73.04340	40.23991	-73.04376	43	13	SSE	<2	B3	1-2	Cloudy	None	5	174	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	10:24	40.23991	-73.04376	40.20900	-73.04461	43	15	SSE	<2	B4	1-2	Cloudy	None	5	174	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:24	10:26	40.20900	-73.04461	40.20642	-73.04471	44	17	SSE	<2	B4	>5	Cloudy	None	5	174	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:26	10:44	40.20642	-73.04471	40.19290	-73.05951	44	17	SSE	<2	B4	>5	Cloudy	None	5	180	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:44	10:48	40.19290	-73.05951	40.19814	-73.05936	44	17	SSE	<2	B4	>5	Cloudy	None	5	3	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:48	11:00	40.19814	-73.05936	40.21373	-73.05888	44	17	SSE	<2	B4	>5	Cloudy	None	5	4	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.21373	-73.05888	40.28992	-73.05661	44	14	SSE	<2	B4	>5	Cloudy	None	5	4	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:11	40.28992	-73.05661	40.30415	-73.05625	42	10	SSW	<2	B3	>5	Cloudy	None	5	6	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:11	12:12	40.30415	-73.05625	40.30547	-73.05621	44	10	SSW	<2	B3	>5	Cloudy	None	5	7	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:12	12:31	40.30547	-73.05621	40.31992	-73.04199	44	10	SSW	<2	B3	>5	Cloudy	None	5	7	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:31	12:36	40.31992	-73.04199	40.31376	-73.04191	39	11	S	<2	B3	>5	Cloudy	Moderate	4	176	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:36	13:00	40.31376	-73.04191	40.28262	-73.04279	39	12	S	<2	B3	>5	Cloudy	Moderate	5	178	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:58	40.28262	-73.04279	40.20836	-73.04495	42	11	S	<2	B3	>5	Cloudy	Slight	5	176	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:58	13:59	40.20836	-73.04495	40.20706	-73.04498	43	10	SSW	<2	B3	>5	Cloudy	Moderate	5	178	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:59	14:05	40.20706	-73.04498	40.20089	-73.04918	43	10	SSW	<2	B3	>5	Cloudy	Moderate	5	178	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:05	14:08	40.20089	-73.04918	40.20293	-73.05298	43	10	SSW	<2	B3	>5	Cloudy	Moderate	5	178	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:08	14:13	40.20293	-73.05298	40.20936	-73.05304	43	8	SSW	<2	B3	>5	Cloudy	Moderate	5	4	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:13	15:00	40.20936	-73.05304	40.26864	-73.05138	43	8	SSW	<2	B3	>5	Cloudy	Moderate	5	1	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:36	40.26864	-73.05138	40.31459	-73.04998	42	9	SSW	<2	B3	>5	Cloudy	Slight	5	1	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:36	15:37	40.31459	-73.04998	40.31594	-73.04995	40	7	SSW	<2	B3	>5	Cloudy	Severe	5	1	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:37	16:00	40.31594	-73.04995	40.32453	-73.04202	40	7	SSW	<2	B3	>5	Cloudy	Severe	5	1	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:01	40.32453	-73.04202	40.32320	-73.04201	39	8	SSW	<2	B3	>5	Cloudy	Severe	4	182	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:01	16:08	40.32320	-73.04201	40.31410	-73.04221	39	8	SSW	<2	B3	>5	Cloudy	Severe	4	182	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:08	16:13	40.31410	-73.04221	40.30779	-73.04240	39	8	SSW	<2	B3	>5	Cloudy	Moderate	4	182	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:13	17:00	40.30779	-73.04240	40.26607	-73.04882	39	8	SSW	<2	B3	>5	Cloudy	Moderate	4	182	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:08	40.26607	-73.04882	40.27456	-73.05079	42	9	SSW	<2	B3	>5	Clear	Moderate	4	331	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:08	17:24	40.27456	-73.05079	40.29223	-73.05111	42	9	SSW	<2	B3	>5	Clear	Moderate	4	356	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:24	18:00	40.29223	-73.05111	40.32612	-73.05924	42	9	SSW	<2	B3	>5	Clear	Moderate	4	356	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.32612	-73.05924	40.32312	-73.05699	39	9	SW	<2	B3	>5	Clear	Moderate	4	25	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:01	40.32312	-73.05699	40.32375	-73.05783	39	13	WSW	<2	B3	>5	Clear	Moderate	4	337	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:01	19:21	40.32375	-73.05783	40.32107	-73.03870	39	13	WSW	<2	B3	>5	Clear	Moderate	4	337	Soft Start	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:21	19:24	40.32107	-73.03870	40.31753	-73.03732	39	14	SW	<2	B3	>5	Clear	Moderate	5	157	Soft Start	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:24	19:27	40.31753	-73.03732	40.31281	-73.03741	39	14	SW	<2	B3	>5	Clear	Moderate	5	181	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:27	20:00	40.31281	-73.03741	40.27089	-73.03860	40	14	SW	<2	B3	>5	Clear	Moderate	5	181	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:48	40.27089	-73.03860	40.20900	-73.04038	40	14	SW	<2	B3	>5	Clear	Moderate	5	184	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:48	20:49	40.20900	-73.04038	40.20824	-73.04036	40	14	SW	<2	B3	>5	Clear	Severe	5	184	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:49	21:00	40.20824	-73.04036	40.20318	-73.04876	40	14	SW	<2	B3	>5	Clear	Severe	5	182	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:05	40.20318	-73.04876	40.21000	-73.04873	40	13	SSW	<2	B3	>5	Clear	Severe	5	6	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:05	22:00	40.21000	-73.04873	40.27966	-73.04678	44	13	SSW	<2	B3	>5	Clear	Severe	5	1	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:27	40.27966	-73.04678	40.31397	-73.04574	43	15	SSW	<2	B3	>5	Clear	Severe	5	3	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:27	22:28	40.31397	-73.04574	40.31524	-73.04572	43	15	SSW	<2	B3	>5	Clear	Severe	5	3	Silent	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:28	22:44	40.31524	-73.04572	40.33266	-73.03890	43	15	SSW	<2	B3	>5	Clear	Severe	5	3	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	22:54	40.33266	-73.03890	40.33590	-73.02595	43	15	SSW	<2	B3	>5	Clear	Moderate	4	77	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:54	23:00	40.33590	-73.02595	40.33769	-73.01924	43	13	SSW	<2	B3	>5	Clear	Slight	4	74	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:04	40.33769	-73.01924	40.33946	-73.01287	43	13	SSW	<2	B3	>5	Clear	Slight	4	74	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:04	23:19	40.33946	-73.01287	40.33464	-73.01479	43	13	SSW	<2	B3	>5	Clear	None	4	74	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:19	23:27	40.33464	-73.01479	40.33169	-73.02535	43	20	SSW	<2	B4	2-5	Clear	None	4	243	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:27	23:42	40.33169	-73.02535	40.32650	-73.04541	43	18	SSW	<2	B4	1-2	Clear	None	4	243	Full Power	N/A
2022-09-13	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:42	00:00	40.32650	-73.04541	40.32461	-73.04192	43	18	SW	<2	B4	0.5-1	Clear	None	4	281	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:03	40.31603	-73.04217	40.31603	-73.04217	39	19	SW	<2	B4	0.5-1	Clear	None	5	189	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:03	00:09	40.31603	-73.04217	40.31319	-73.04226	39	19	SW	<2	B4	0.5-1	Clear	None	5	185	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:09	01:00	40.31319	-73.04226	40.25172	-73.04397	39	19	SW	<2	B4	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	01:34	40.25172	-73.04397	40.20951	-73.04522	42	22	WSW	<2	B5	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:34	01:36	40.20951	-73.04522	40.20697	-73.04527	42	22	WSW	<2	B5	0.5-1	Clear	None	5	185	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:36	01:48	40.20697	-73.04527	40.20464	-73.05338	42	22	WSW	<2	B5	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:48	01:52	40.20464	-73.05338	40.20982	-73.05335	42	22	WSW	<2	B5	0.5-1	Clear	None	5	354	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:52	02:00	40.20982	-73.05335	40.22009	-73.05307	42	20	W	<2	B5	0.5-1	Clear	None	5	354	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	03:00	40.22009	-73.05307	40.29429	-73.05098	45	17	W	<2	B5	0.5-1	Clear	None	5	354	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	03:19	40.29429	-73.05098	40.31373	-73.05043	45	18	W	<2	B5	0.5-1	Clear	None	5	350	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:19	03:21	40.31373	-73.05043	40.31620	-73.05037	45	18	W	<2	B5	0.5-1	Clear	None	5	350	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:21	03:33	40.31620	-73.05037	40.31888	-73.04244	45	18	W	<2	B5	0.5-1	Clear	None	5	350	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:33	03:37	40.31888	-73.04244	40.31365	-73.04260	44	17	W	<2	B5	0.5-1	Clear	None	5	186	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:37	04:00	40.31365	-73.04260	40.28463	-73.04344	44	17	W	<2	B5	0.5-1	Clear	None	5	186	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	04:24	40.28463	-73.04344	40.25610	-73.04433	44	17	W	<2	B5	0.5-1	Clear	None	5	186	Full Power	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:24	05:00	40.25610	-73.04433	40.21134	-73.04362	45	18	W	<2	B5	0.5-1	Clear	None	4	191	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.21134	-73.04362	40.18096	-73.04762	45	18	W	<2	B5	0.5-1	Clear	None	5	183	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	07:00	40.18096	-73.04762	40.22108	-73.04651	45	18	W	<2	B5	0.5-1	Clear	None	5	183	Silent	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	07:13	40.22108	-73.04651	40.23285	-73.04726	44	15	NW	<2	B5	0.5-1	Clear	None	4	350	Deploying/Retrieving	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:13	08:00	40.23285	-73.04726	40.25453	-73.04835	44	15	NW	<2	B5	0.5-1	Clear	None	4	350	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.25453	-73.04835	40.30860	-73.04446	43	17	WNW	<2	B5	0.5-1	Clear	None	5	2	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:53	40.30860	-73.04446	40.24122	-73.04674	43	22	WNW	<2	B5	0.5-1	Clear	None	4	180	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:53	10:00	40.24122	-73.04674	40.23237	-73.04682	43	22	WNW	<2	B5	1-2	Clear	None	4	176	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	10:00	11:00	40.23237	-73.04682	40.24061	-73.08651	43	19	WNW	<2	B5	1-2	Clear	None	4	152	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Fisher, John	RPS	11:00	12:00	40.24061	-73.08651	40.24777	-73.10934	44	20	NNW	<2	B5	>5	Clear	Severe	4	295	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.24777	-73.10934	40.22510	-73.02910	44	15	WNW	<2	B5	>5	Clear	Severe	4	111	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.22510	-73.02910	40.25310	-73.12453	45	18	WNW	<2	B5	>5	Clear	Severe	5	290	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.25310	-73.12453	40.23934	-73.06035	42	15	WNW	<2	B5	>5	Clear	Severe	4	288	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.23934	-73.06035	40.24674	-73.07407	45	15	W	<2	B5	>5	Clear	Severe	5	106	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:36	40.24674	-73.07407	40.26168	-73.12554	45	18	W	<2	B5	>5	Clear	Severe	5	294	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:36	17:00	40.26168	-73.12554	40.26258	-73.14030	45	22	W	<2	B5	>5	Clear	Moderate	4	285	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.26258	-73.14030	40.23740	-73.03762	45	20	WNW	<2	B5	>5	Clear	Moderate	5	106	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.23740	-73.03762	40.23675	-73.02043	45	16	W	<2	B5	>5	Clear	Moderate	5	108	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.23675	-73.02043	40.25769	-73.09637	45	19	W	<2	B5	>5	Clear	Moderate	5	287	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.25769	-73.09637	40.26629	-73.19410	45	17	W	<2	B5	>5	Clear	Moderate	4	287	Standby	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.26629	-73.19410	40.26916	-73.33115	40	14	W	<2	B4	>5	Clear	Moderate	8	268	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:45	40.26916	-73.33115	40.28382	-73.43399	40	11	W	<2	B4	>5	Clear	Severe	6	278	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:45	22:49	40.28382	-73.43399	40.28532	-73.44467	40	11	W	<2	B4	>5	Clear	Moderate	6	278	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:49	23:00	40.28532	-73.44467	40.28858	-73.46869	40	12	NW	<2	B4	>5	Clear	Slight	6	278	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:05	40.28858	-73.46869	40.29019	-73.48066	35	11	WNW	<2	B4	>5	Clear	None	7	276	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:05	23:17	40.29019	-73.48066	40.29397	-73.51009	35	11	WNW	<2	B4	>5	Clear	None	7	276	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:17	23:31	40.29397	-73.51009	40.29668	-73.54175	35	11	WNW	<2	B4	2-5	Clear	None	7	276	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:31	23:38	40.29668	-73.54175	40.29713	-73.55905	35	11	WNW	<2	B4	1-2	Clear	None	7	276	Transit	N/A
2022-09-14	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:38	00:00	40.29713	-73.55905	40.29860	-73.60171	35	11	NW	<2	B4	0.5-1	Clear	None	7	272	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.29905	-73.61164	40.30773	-73.75665	25	10	NW	<2	B3	0.5-1	Clear	None	7	274	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	01:00	02:00	40.30773	-73.75665	40.30298	-73.87394	29	9	W	<2	B3	0.5-1	Clear	None	7	276	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:00	02:27	40.30298	-73.87394	40.30040	-73.91385	22	11	WSW	<2	B3	0.5-1	Clear	None	5	265	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Metheny, Nicholas; Sandoval, Maria	RPS	02:27	03:00	40.30040	-73.91385	40.30412	-73.90983	20	12	W	<2	B3	0.5-1	Clear	None	0	191	Standby	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	03:00	04:00	40.30412	-73.90983	40.31379	-73.89893	22	13	WSW	<2	B3	0.5-1	Clear	None	1	150	Standby	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	04:00	05:00	40.31379	-73.89893	40.33745	-73.89156	23	16	WSW	<2	B4	0.5-1	Clear	None	1	153	Standby	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	05:00	06:00	40.33745	-73.89156	40.34248	-73.87531	22	15	W	<2	B4	0.5-1	Clear	None	1	336	Standby	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:00	06:15	40.34248	-73.87531	40.34518	-73.87100	22	15	WNW	<2	B3	0.5-1	Clear	None	1	359	Standby	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Fisher, John	RPS	06:15	07:00	40.34518	-73.87100	40.42486	-73.88351	23	17	NW	<2	B3	0.5-1	Clear	None	5	346	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	07:00	08:00	40.42486	-73.88351	40.50501	-73.95356	17	15	NW	<2	B3	0.5-1	Clear	None	7	357	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Metheny, Nicholas	RPS	08:00	09:00	40.50501	-73.95356	40.58562	-74.03450	23	21	NNW	<2	B3	0.5-1	Clear	None	7	297	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:00	09:53	40.58562	-74.03450	40.66087	-74.07135	15	23	NNW	<2	B3	0.5-1	Clear	None	7	342	Transit	N/A
2022-09-15	*GO Discovery*	HRG	Visual	Fisher, John; Metheny, Nicholas	RPS	09:53	09:53	40.66087	-74.07135	40.66087	-74.07135	15	16	NNW	<2	B3	1-2	Clear	None	0	297	Standby	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:50	15:00	40.66095	-74.07140	40.66274	-74.06558	12	11	N	<2	B3	>5	Clear	Moderate	0	310	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.66274	-74.06558	40.56615	-74.03156	18	11	NNW	<2	B3	>5	Clear	Moderate	6	133	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.56615	-74.03156	40.49832	-73.94562	18	11	NNW	<2	B3	>5	Clear	Moderate	6	169	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49832	-73.94562	40.45093	-73.79741	26	11	NW	<2	B3	>5	Clear	Moderate	8	115	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:08	40.45093	-73.79741	40.44654	-73.78004	26	11	NW	<2	B3	>5	Clear	Moderate	5	105	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:08	19:00	40.44654	-73.78004	40.42335	-73.63098	26	11	NW	<2	B3	>5	Clear	Moderate	5	105	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:33	40.42335	-73.63098	40.40587	-73.52697	23	11	NW	<2	B3	>5	Clear	Moderate	9	101	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:33	20:00	40.40587	-73.52697	40.39238	-73.45034	23	11	NW	<2	B3	>5	Clear	Moderate	9	101	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:04	40.39238	-73.45034	40.39094	-73.44061	23	11	NW	<2	B3	>5	Clear	Moderate	8	96	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:04	20:45	40.39094	-73.44061	40.37207	-73.32463	23	11	NW	<2	B3	>5	Clear	Moderate	8	96	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:45	21:00	40.37207	-73.32463	40.36560	-73.28090	23	11	NW	<2	B3	>5	Fog	Severe	8	101	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.36560	-73.28090	40.33212	-73.10661	23	11	NW	<2	B3	>5	Fog	Severe	8	100	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:14	40.33212	-73.10661	40.32309	-73.07007	38	11	NW	<2	B3	>5	Clear	Severe	9	104	Transit	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:14	22:30	40.32309	-73.07007	40.31768	-73.05147	38	11	NW	<2	B3	>5	Clear	Moderate	9	104	Standby	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:30	22:53	40.31768	-73.05147	40.31619	-73.05080	39	11	NW	<2	B3	>5	Clear	Slight	0	154	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	22:58	40.31619	-73.05080	40.31599	-73.05085	39	11	NW	<2	B3	>5	Clear	None	0	180	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:58	23:00	40.31599	-73.05085	40.31598	-73.05079	39	11	NW	<2	B3	>5	Clear	None	0	180	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:15	40.31598	-73.05079	40.31389	-73.04125	39	11	NW	<2	B3	>5	Clear	None	2	180	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:22	40.31389	-73.04125	40.31283	-73.03560	39	11	NW	<2	B3	2-5	Clear	None	2	108	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:22	23:27	40.31283	-73.03560	40.31163	-73.02895	39	11	NW	<2	B3	2-5	Clear	None	2	108	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:27	23:29	40.31163	-73.02895	40.31121	-73.02663	39	11	NW	<2	B3	2-5	Clear	None	2	108	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:29	23:32	40.31121	-73.02663	40.31083	-73.02402	39	11	NW	<2	B3	1-2	Clear	None	2	108	Deploying/Retrieving	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:32	23:35	40.31083	-73.02402	40.31023	-73.02006	44	11	NW	<2	B3	1-2	Clear	None	4	100	Soft Start	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:35	23:52	40.31023	-73.02006	40.30426	-73.02542	44	11	NW	<2	B3	1-2	Clear	None	4	100	Soft Start	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:52	23:54	40.30426	-73.02542	40.30495	-73.02841	44	11	NW	<2	B3	1-2	Clear	None	4	284	Full Power	N/A
2022-09-16	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:54	00:00	40.30495	-73.02841	40.30610	-73.03245	44	11	NW	<2	B3	1-2	Clear	None	4	284	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:01	40.30733	-73.03526	40.30800	-73.03650	43	11	N	<2	B3	0.5-1	Clear	None	4	305	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	00:01	00:33	40.30800	-73.03650	40.31575	-73.04258	40	11	N	<2	B3	0.5-1	Clear	None	5	178.4	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:33	00:37	40.31575	-73.04258	40.31146	-73.04272	43	11	N	<2	B3	0.5-1	Clear	None	4	176	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:37	01:59	40.31146	-73.04272	40.20807	-73.04567	43	11	N	<2	B3	0.5-1	Clear	None	4	176	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:59	02:00	40.20807	-73.04567	40.20683	-73.04569	40	11	N	<2	B3	0.5-1	Clear	None	5	180	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:12	40.20683	-73.04569	40.20380	-73.05385	40	11	N	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:12	02:16	40.20380	-73.05385	40.20892	-73.05378	40	11	N	<2	B3	0.5-1	Clear	None	5	358	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:16	03:00	40.20892	-73.05378	40.26525	-73.05204	40	11	N	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:40	40.26525	-73.05204	40.31415	-73.05068	44	11	N	<2	B3	0.5-1	Clear	None	5	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:40	03:41	40.31415	-73.05068	40.31504	-73.05062	38	11	N	<2	B3	0.5-1	Clear	None	4	3	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:41	03:58	40.31504	-73.05062	40.32028	-73.04283	38	11	N	<2	B3	0.5-1	Clear	None	4	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:58	04:03	40.32028	-73.04283	40.31391	-73.04297	41	11	N	<2	B3	0.5-1	Clear	None	4	3	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:03	04:59	40.31391	-73.04297	40.24169	-73.04509	41	11	N	<2	B3	0.5-1	Clear	None	4	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	04:59	05:25	40.24169	-73.04509	40.20813	-73.04602	44	11	NNW	<2	B3	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:25	05:27	40.20813	-73.04602	40.20485	-73.04609	44	11	NNW	<2	B3	0.5-1	Clear	None	5	189	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:27	06:00	40.20485	-73.04609	40.23579	-73.05672	44	11	NNW	<2	B3	0.5-1	Clear	None	5	190	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.23579	-73.05672	40.30251	-73.05910	44	11	N	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	07:06	40.30251	-73.05910	40.30689	-73.05134	42	11	N	<2	B3	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:06	07:09	40.30689	-73.05134	40.30302	-73.05140	43	11	N	<2	B3	0.5-1	Clear	None	5	179	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:09	08:00	40.30302	-73.05140	40.23849	-73.05321	43	11	N	<2	B3	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:23	40.23849	-73.05321	40.20901	-73.05400	43	11	N	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:23	08:44	40.20901	-73.05400	40.19343	-73.06060	43	11	N	<2	B3	0.5-1	Clear	None	4	166	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:44	08:48	40.19343	-73.06060	40.19830	-73.06032	45	11	N	<2	B3	0.5-1	Clear	None	4	6	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:48	09:00	40.19830	-73.06032	40.21384	-73.05995	45	11	N	<2	B3	0.5-1	Clear	None	4	6	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.21384	-73.05995	40.28779	-73.05774	44	12	NE	<2	B3	0.5-1	Clear	None	5	4	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:00	10:12	40.28779	-73.05774	40.30302	-73.05739	41	12	NE	<2	B3	0.5-1	Cloudy	None	4	8	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:12	10:14	40.30302	-73.05739	40.30555	-73.05728	43	14	ENE	<2	B3	0.5-1	Cloudy	None	5	8	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:14	10:29	40.30555	-73.05728	40.31212	-73.05140	43	14	ENE	<2	B4	0.5-1	Cloudy	None	5	8	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:29	10:36	40.31212	-73.05140	40.30301	-73.05177	41	12	NE	<2	B4	1-2	Cloudy	Slight	5	8	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:36	11:25	40.30301	-73.05177	40.24165	-73.05351	41	12	NE	<2	B4	2-5	Cloudy	Moderate	5	174	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:25	12:00	40.24165	-73.05351	40.19756	-73.05476	41	13	NE	<2	B4	>5	Cloudy	Moderate	4	172	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:01	40.19756	-73.05476	40.19526	-73.05478	45	13	ENE	<2	B4	>5	Clear	Severe	5	174	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:01	12:16	40.19526	-73.05478	40.18964	-73.06112	45	13	ENE	<2	B4	>5	Clear	Severe	5	174	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:16	12:23	40.18964	-73.06112	40.19843	-73.06065	45	14	ENE	<2	B4	>5	Clear	Severe	4	10	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:23	13:00	40.19843	-73.06065	40.24590	-73.05927	45	16	ENE	<2	B4	>5	Clear	Severe	5	7	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:47	40.24590	-73.05927	40.30389	-73.05767	43	14	E	<2	B4	>5	Clear	Severe	3	13	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:47	13:48	40.30389	-73.05767	40.30512	-73.05766	42	16	ENE	<2	B4	>5	Clear	Severe	5	12	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:48	14:03	40.30512	-73.05766	40.31077	-73.05232	42	16	ENE	<2	B4	>5	Clear	Severe	5	12	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:03	14:09	40.31077	-73.05232	40.30283	-73.05211	42	13	ENE	<2	B4	>5	Clear	Moderate	5	170	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:09	14:12	40.30283	-73.05211	40.29896	-73.05219	42	14	ENE	<2	B4	>5	Clear	Moderate	5	173	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:12	15:00	40.29896	-73.05219	40.23798	-73.05397	42	14	ENE	<2	B4	>5	Clear	Moderate	5	172	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:14	40.23798	-73.05397	40.22039	-73.05450	44	12	ENE	<2	B4	>5	Cloudy	Slight	4	175	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:14	15:49	40.22039	-73.05450	40.24387	-73.06128	44	13	ENE	<2	B4	>5	Cloudy	Slight	5	176	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:49	16:00	40.24387	-73.06128	40.24443	-73.05421	44	11	ESE	<2	B4	>5	Cloudy	Severe	5	7	Soft Start	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:09	40.24443	-73.05421	40.23388	-73.05412	44	10	SSE	<2	B3	>5	Clear	Severe	4	173	Soft Start	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:09	16:12	40.23388	-73.05412	40.22997	-73.05426	44	10	SSE	<2	B3	>5	Clear	Severe	4	173	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:12	16:18	40.22997	-73.05426	40.22205	-73.05441	44	10	SSE	<2	B3	>5	Clear	Moderate	4	178	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:18	16:25	40.22205	-73.05441	40.21277	-73.05462	44	10	SSE	<2	B3	>5	Clear	Moderate	4	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:25	16:57	40.21277	-73.05462	40.22937	-73.06215	44	10	SSE	<2	B3	>5	Clear	Moderate	4	178	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:57	17:00	40.22937	-73.06215	40.23420	-73.06197	44	10	SSE	<2	B3	>5	Clear	Moderate	4	3	Soft Start	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:17	40.23420	-73.06197	40.22452	-73.05430	44	10	SSE	<2	B3	>5	Clear	Moderate	4	3	Soft Start	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:17	17:19	40.22452	-73.05430	40.22097	-73.05441	44	9	E	<2	B3	>5	Clear	Moderate	4	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:19	17:24	40.22097	-73.05441	40.21522	-73.05459	44	9	E	<2	B3	>5	Clear	Moderate	4	178	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:24	17:37	40.21522	-73.05459	40.19655	-73.05513	44	9	E	<2	B3	>5	Clear	Moderate	4	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:37	17:38	40.19655	-73.05513	40.19545	-73.05514	44	9	E	<2	B3	>5	Clear	Moderate	4	178	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:38	17:49	40.19545	-73.05514	40.19433	-73.06535	44	9	E	<2	B3	>5	Clear	Moderate	4	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:49	17:53	40.19433	-73.06535	40.19819	-73.06503	44	9	E	<2	B3	>5	Clear	Moderate	4	2	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:53	18:00	40.19819	-73.06503	40.20713	-73.06476	44	9	E	<2	B3	>5	Clear	Moderate	4	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:20	40.20713	-73.06476	40.23169	-73.06403	43	6	SE	<2	B3	>5	Clear	Moderate	4	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:20	19:05	40.23169	-73.06403	40.28967	-73.06235	43	6	SE	<2	B3	>5	Clear	Moderate	4	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:05	19:06	40.28967	-73.06235	40.29198	-73.06230	43	7	SE	<2	B3	>5	Clear	Moderate	5	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:06	19:14	40.29198	-73.06230	40.30186	-73.06209	43	7	SE	<2	B3	>5	Clear	Moderate	5	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:14	19:16	40.30186	-73.06209	40.30390	-73.06204	43	7	SE	<2	B3	>5	Clear	Moderate	5	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:16	19:17	40.30390	-73.06204	40.30540	-73.06198	43	7	SE	<2	B3	>5	Clear	Moderate	5	3	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:17	19:29	40.30540	-73.06198	40.30953	-73.05224	43	7	SE	<2	B3	>5	Clear	Moderate	5	3	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:29	19:35	40.30953	-73.05224	40.30129	-73.05244	42	6	SE	<2	B3	>5	Clear	Moderate	5	180	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:35	20:00	40.30129	-73.05244	40.26836	-73.05341	42	6	SE	<2	B3	>5	Clear	Moderate	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:43	40.26836	-73.05341	40.21248	-73.05499	42	6	SE	<2	B3	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:43	20:46	40.21248	-73.05499	40.20863	-73.05508	42	6	SE	<2	B3	>5	Clear	Severe	5	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:46	20:54	40.20863	-73.05508	40.19729	-73.05539	42	6	SE	<2	B3	>5	Clear	Severe	5	178	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:54	20:56	40.19729	-73.05539	40.19555	-73.05543	42	6	SE	<2	B3	>5	Clear	Severe	5	178	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:56	21:00	40.19555	-73.05543	40.19071	-73.05894	42	7	SE	<2	B3	>5	Clear	Severe	5	203	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:05	40.19071	-73.05894	40.19210	-73.06517	42	6	SE	<2	B3	>5	Clear	Severe	5	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:05	21:10	40.19210	-73.06517	40.19948	-73.06528	42	6	SE	<2	B3	>5	Clear	Severe	5	2	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:10	22:00	40.19948	-73.06528	40.26349	-73.06353	42	6	SE	<2	B3	>5	Clear	Severe	5	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:31	40.26349	-73.06353	40.30304	-73.06229	42	7	SE	<2	B3	>5	Clear	Severe	5	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:31	22:32	40.30304	-73.06229	40.30481	-73.06223	42	7	SE	<2	B3	>5	Clear	Moderate	5	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:32	22:34	40.30481	-73.06223	40.30616	-73.06222	42	7	SE	<2	B3	>5	Clear	Moderate	5	2	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:34	22:44	40.30616	-73.06222	40.31286	-73.05345	42	7	SE	<2	B3	>5	Clear	Moderate	5	2	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	22:46	40.31286	-73.05345	40.31005	-73.05270	42	7	SE	<2	B3	>5	Clear	Slight	5	158	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:46	22:52	40.31005	-73.05270	40.30211	-73.05284	42	7	SE	<2	B3	>5	Clear	Slight	5	158	Silent	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:52	22:55	40.30211	-73.05284	40.29761	-73.05299	42	9	SE	<2	B3	>5	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:55	23:00	40.29761	-73.05299	40.29149	-73.05315	42	9	SE	<2	B3	>5	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:11	40.29149	-73.05315	40.27776	-73.05353	42	9	SE	<2	B3	>5	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:11	23:23	40.27776	-73.05353	40.26322	-73.05400	42	9	SE	<2	B3	2-5	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:23	23:32	40.26322	-73.05400	40.25196	-73.05421	42	9	SE	<2	B3	1-2	Clear	None	5	180	Full Power	N/A
2022-09-17	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:32	00:00	40.25196	-73.05421	40.22277	-73.05510	42	9	SE	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:16	40.21768	-73.05522	40.19799	-73.05581	44	10	S	<2	B3	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:16	00:18	40.19799	-73.05581	40.19445	-73.05591	44	10	S	<2	B3	0.5-1	Clear	None	5	179	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:18	00:28	40.19445	-73.05591	40.19315	-73.06585	44	10	S	<2	B3	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:28	00:32	40.19315	-73.06585	40.19819	-73.06573	44	10	SSW	<2	B3	0.5-1	Clear	None	5	6	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:32	01:00	40.19819	-73.06573	40.23115	-73.06477	44	8	S	<2	B3	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	01:58	40.23115	-73.06477	40.30389	-73.06264	43	10	S	<2	B3	0.5-1	Clear	None	5	2	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:58	02:00	40.30389	-73.06264	40.30627	-73.06256	43	11	S	<2	B3	0.5-1	Clear	None	5	2	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:13	40.30627	-73.06256	40.30781	-73.05306	43	11	S	<2	B3	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:13	02:17	40.30781	-73.05306	40.30245	-73.05319	43	13	S	<2	B3	0.5-1	Clear	None	4	2	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:17	03:00	40.30245	-73.05319	40.24936	-73.05475	43	13	S	<2	B3	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:42	40.24936	-73.05475	40.19820	-73.05613	43	12	SE	<2	B3	0.5-1	Clear	None	5	177	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:42	03:44	40.19820	-73.05613	40.19563	-73.05622	45	14	SW	<2	B3	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:44	03:54	40.19563	-73.05622	40.19382	-73.06621	45	14	SW	<2	B3	0.5-1	Clear	None	5	217	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:54	03:58	40.19382	-73.06621	40.19892	-73.06608	45	13	NE	<2	B3	0.5-1	Clear	None	5	1	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:58	04:00	40.19892	-73.06608	40.20145	-73.06603	44	13	NE	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.20145	-73.06603	40.27670	-73.06377	44	13	NE	<2	B3	0.5-1	Clear	None	5	1	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	05:22	40.27670	-73.06377	40.30363	-73.06305	42	15	SW	<2	B4	0.5-1	Clear	None	4	3	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:22	05:30	40.30363	-73.06305	40.31174	-73.06290	42	17	SSW	<2	B4	0.5-1	Clear	None	4	2	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:30	05:32	40.31174	-73.06290	40.31356	-73.06276	42	17	SSW	<2	B4	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:32	05:33	40.31356	-73.06276	40.31465	-73.06233	42	17	SSW	<2	B4	0.5-1	Clear	None	4	2	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:33	05:44	40.31465	-73.06233	40.30830	-73.05329	42	17	SSW	<2	B4	0.5-1	Clear	None	4	63	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:44	05:48	40.30830	-73.05329	40.30318	-73.05349	43	19	SW	<2	B4	0.5-1	Clear	None	5	184	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:48	06:00	40.30318	-73.05349	40.28827	-73.05397	43	19	SW	<2	B4	0.5-1	Clear	None	5	184	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.28827	-73.05397	40.22097	-73.05591	43	18	SW	<2	B4	0.5-1	Clear	None	4	183	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	07:18	40.22097	-73.05591	40.19787	-73.05651	44	19	SW	<2	B5	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:18	07:20	40.19787	-73.05651	40.19550	-73.05638	44	16	SW	<2	B5	0.5-1	Clear	None	4	177	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:20	07:32	40.19550	-73.05638	40.19467	-73.06645	44	16	SW	<2	B5	0.5-1	Clear	None	4	181	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:32	07:35	40.19467	-73.06645	40.19850	-73.06637	44	17	SW	<2	B5	0.5-1	Clear	None	4	359	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:35	08:00	40.19850	-73.06637	40.23065	-73.06550	44	15	SW	<2	B5	0.5-1	Clear	None	5	357	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:59	40.23065	-73.06550	40.30341	-73.06341	44	17	SW	<2	B5	0.5-1	Clear	None	5	358	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:59	09:00	40.30341	-73.06341	40.30461	-73.06334	42	14	SW	<2	B5	0.5-1	Clear	None	4	356	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:01	40.30461	-73.06334	40.30577	-73.06329	42	14	SW	<2	B5	0.5-1	Clear	None	4	356	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:01	09:12	40.30577	-73.06329	40.30756	-73.05352	42	16	SW	<2	B5	0.5-1	Clear	None	4	356	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:12	09:15	40.30756	-73.05352	40.30366	-73.05381	42	16	SW	<2	B5	0.5-1	Clear	None	5	189	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:15	10:00	40.30366	-73.05381	40.25246	-73.05535	42	16	SW	<2	B5	0.5-1	Clear	None	5	187	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:15	40.25246	-73.05535	40.23444	-73.05587	43	16	SW	<2	B5	0.5-1	Clear	None	4	187	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:15	10:45	40.23444	-73.05587	40.19770	-73.05687	45	17	SW	<2	B5	1-2	Clear	None	4	183	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:45	10:46	40.19770	-73.05687	40.19641	-73.05689	45	18	SW	<2	B5	>5	Clear	None	5	184	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:46	10:59	40.19641	-73.05689	40.19252	-73.06684	45	18	SW	<2	B5	>5	Clear	None	5	184	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:59	11:00	40.19252	-73.06684	40.19371	-73.06685	45	16	SW	<2	B5	>5	Clear	Slight	4	359	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:04	40.19371	-73.06685	40.19864	-73.06668	45	16	SW	<2	B5	>5	Clear	Slight	4	359	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:04	12:00	40.19864	-73.06668	40.26705	-73.06477	44	14	SW	<2	B5	>5	Clear	Moderate	4	359	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:33	40.26705	-73.06477	40.30346	-73.06371	43	16	SW	<2	B5	>5	Clear	Severe	4	359	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:33	12:35	40.30346	-73.06371	40.30568	-73.06367	42	19	SW	<2	B5	>5	Clear	Severe	4	358	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:35	12:47	40.30568	-73.06367	40.30622	-73.05430	42	19	SW	<2	B5	>5	Clear	Severe	4	358	Full Power	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:47	13:00	40.30622	-73.05430	40.31107	-73.05662	43	16	WSW	<2	B5	>5	Clear	Severe	5	235	Silent	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:08	40.31107	-73.05662	40.31510	-73.04981	41	18	SW	<2	B5	>5	Clear	Severe	3	48	Deploying/Retrieving	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:08	14:00	40.31510	-73.04981	40.33416	-73.00937	39	17	SW	<2	B5	>5	Clear	Severe	3	48	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.33416	-73.00937	40.31665	-72.99985	42	20	WSW	2-4	B5	>5	Clear	Severe	4	33	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.31665	-72.99985	40.27646	-73.04885	41	22	WSW	2-4	B5	>5	Clear	Severe	3	227	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.27646	-73.04885	40.23606	-73.09763	42	18	WSW	2-4	B5	>5	Clear	Severe	3	227	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:51	40.23606	-73.09763	40.20353	-73.14236	42	20	SW	2-4	B5	>5	Clear	Moderate	3	218	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:51	18:00	40.20353	-73.14236	40.19749	-73.14956	42	18	SW	2-4	B5	>5	Clear	Moderate	3	238	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.19749	-73.14956	40.17820	-73.17585	42	16	SW	2-4	B5	>5	Clear	Moderate	3	225	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.17820	-73.17585	40.23121	-73.10863	42	17	S	2-4	B5	>5	Clear	Moderate	5	43	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.23121	-73.10863	40.28445	-73.04164	42	17	S	2-4	B5	>5	Clear	Severe	5	46	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.28445	-73.04164	40.33794	-72.97476	42	18	SSW	2-4	B5	>5	Clear	Severe	5	40	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:44	40.33794	-72.97476	40.31113	-73.00127	42	20	SSW	2-4	B5	>5	Clear	Severe	4	48	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	23:00	40.31113	-73.00127	40.29899	-73.01490	42	23	SW	2-4	B5	>5	Clear	Slight	4	215	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:15	40.29899	-73.01490	40.28712	-73.02833	42	21	SW	2-4	B5	>5	Clear	None	4	236	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:21	40.28712	-73.02833	40.28272	-73.03333	42	21	SW	2-4	B5	2-5	Clear	None	4	236	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:21	23:27	40.28272	-73.03333	40.27840	-73.03821	42	21	SW	2-4	B5	1-2	Clear	None	4	236	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:27	00:00	40.27840	-73.03821	40.25831	-73.06121	42	21	SW	2-4	B5	0.5-1	Clear	None	4	210	Standby	N/A
2022-09-18	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:59	00:00	40.25831	-73.06121	40.25831	-73.06121	42	19	SW	2-4	B5	0.5-1	Clear	None	4	224	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.25505	-73.06499	40.21174	-73.11951	44	23	SW	2-4	B5	0.5-1	Clear	None	3	225	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.21174	-73.11951	40.16402	-73.18094	42	19	SW	2-4	B5	0.5-1	Clear	None	4	225	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.16402	-73.18094	40.21360	-73.12207	42	19	SW	2-4	B5	0.5-1	Clear	None	4	231	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.21360	-73.12207	40.26224	-73.05593	42	17	W	2-4	B5	0.5-1	Clear	None	4	45	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.26224	-73.05593	40.31439	-72.99846	44	15	W	2-4	B4	0.5-1	Clear	None	4	53	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.31439	-72.99846	40.31285	-73.00042	45	15	WSW	<2	B4	0.5-1	Clear	None	4	38	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.31285	-73.00042	40.25299	-73.06383	43	15	WSW	<2	B4	0.5-1	Clear	None	5	225	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.25299	-73.06383	40.19868	-73.13456	43	17	WSW	<2	B4	0.5-1	Clear	None	5	216	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.19868	-73.13456	40.18526	-73.15423	43	16	WSW	<2	B4	0.5-1	Clear	None	3	234	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:09	40.18526	-73.15423	40.19257	-73.14518	43	13	W	<2	B4	0.5-1	Clear	None	4	38	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:09	09:17	40.19257	-73.14518	40.19884	-73.13731	43	13	W	<2	B4	0.5-1	Clear	None	4	38	Deploying/Retrieving	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:17	10:00	40.19884	-73.13731	40.19874	-73.07357	43	12	W	<2	B4	0.5-1	Clear	None	5	96	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:13	40.19874	-73.07357	40.20100	-73.05440	42	13	WSW	<2	B4	0.5-1	Clear	None	5	101	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:13	10:20	40.20100	-73.05440	40.20980	-73.05337	44	12	SW	<2	B4	1-2	Clear	Slight	4	12	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:20	11:00	40.20980	-73.05337	40.25884	-73.05186	44	12	SW	<2	B4	2-5	Clear	Slight	4	12	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:30	40.25884	-73.05186	40.29630	-73.05084	43	12	SW	<2	B4	>5	Clear	Severe	5	0	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:30	11:55	40.29630	-73.05084	40.31715	-73.03993	43	12	SW	<2	B4	>5	Clear	Severe	5	0	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	11:55	13:00	40.31715	-73.03993	40.23917	-73.04235	39	13	WSW	<2	B4	>5	Clear	Severe	4	183	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:48	40.23917	-73.04235	40.21533	-73.05226	45	13	WSW	<2	B4	>5	Cloudy	Moderate	4	178	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:48	13:59	40.21533	-73.05226	40.22870	-73.05162	44	11	SW	<2	B3	>5	Clear	Severe	4	1	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:59	15:00	40.22870	-73.05162	40.30255	-73.04803	45	10	SW	<2	B3	>5	Clear	Severe	4	3	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.30255	-73.04803	40.27085	-73.04164	43	10	SW	<2	B3	>5	Clear	Severe	5	6	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:26	40.27085	-73.04164	40.23960	-73.04254	43	16	SW	<2	B4	>5	Clear	Severe	4	182	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:26	16:54	40.23960	-73.04254	40.20875	-73.04350	43	16	SW	<2	B4	>5	Clear	Moderate	4	182	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:54	17:00	40.20875	-73.04350	40.20287	-73.04181	43	16	SW	<2	B4	>5	Clear	Moderate	4	182	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:14	40.20287	-73.04181	40.20916	-73.04525	46	19	SW	<2	B4	>5	Clear	Moderate	4	180	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:14	18:00	40.20916	-73.04525	40.26864	-73.04348	46	16	SSW	<2	B4	>5	Clear	Moderate	5	359	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:37	40.26864	-73.04348	40.31415	-73.04217	46	18	SE	<2	B4	>5	Clear	Moderate	5	0	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:37	18:56	40.31415	-73.04217	40.31275	-73.03888	46	18	SE	<2	B4	>5	Clear	Moderate	5	0	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:56	19:00	40.31275	-73.03888	40.30770	-73.03902	41	23	SW	<2	B5	>5	Clear	Moderate	5	180	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:13	40.30770	-73.03902	40.29101	-73.03963	41	23	SW	<2	B5	>5	Clear	Moderate	5	180	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:13	19:21	40.29101	-73.03963	40.28954	-73.04718	41	23	SW	<2	B5	>5	Clear	Moderate	5	180	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:21	19:37	40.28954	-73.04718	40.31090	-73.04668	41	20	SW	<2	B5	>5	Clear	Moderate	5	355	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:37	20:00	40.31090	-73.04668	40.30375	-73.04123	41	20	SW	<2	B5	>5	Clear	Moderate	5	342	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:39	40.30375	-73.04123	40.25804	-73.04253	41	22	SW	<2	B5	>5	Clear	Severe	5	186	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:39	20:40	40.25804	-73.04253	40.25690	-73.04258	41	22	SW	<2	B5	>5	Cloudy	Severe	5	186	Silent	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:40	21:00	40.25690	-73.04258	40.23947	-73.03964	41	22	SW	<2	B5	>5	Cloudy	Severe	5	186	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.23947	-73.03964	40.30994	-73.01030	41	22	SW	<2	B5	>5	Cloudy	Moderate	4	13	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:07	40.30994	-73.01030	40.31822	-73.00693	43	22	SW	<2	B5	>5	Cloudy	None	4	13	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:07	22:30	40.31822	-73.00693	40.34152	-72.99182	43	22	SW	<2	B5	>5	Cloudy	None	4	13	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:30	22:49	40.34152	-72.99182	40.32565	-72.99932	43	22	SW	<2	B5	>5	Cloudy	None	4	20	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:49	23:00	40.32565	-72.99932	40.31497	-73.00451	43	21	SW	<2	B5	>5	Cloudy	None	3	210	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:10	40.31497	-73.00451	40.30533	-73.00847	43	20	SW	<2	B5	>5	Cloudy	None	4	210	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:10	23:30	40.30533	-73.00847	40.28398	-73.01650	43	20	SW	<2	B5	1-2	Cloudy	None	4	210	Standby	N/A
2022-09-19	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:30	00:00	40.28398	-73.01650	40.25664	-73.02703	42	18	W	<2	B5	0.5-1	Cloudy	None	4	193	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:24	40.25095	-73.02930	40.22538	-73.03970	43	14	W	<2	B5	0.5-1	Cloudy	None	4	205	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:24	01:00	40.22538	-73.03970	40.19769	-73.05121	44	9	W	2-4	B4	0.5-1	Cloudy	None	4	200	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.19769	-73.05121	40.23353	-73.03763	44	7	W	2-4	B4	0.5-1	Cloudy	None	4	203	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.23353	-73.03763	40.28418	-73.01743	43	7	W	2-4	B4	0.5-1	Cloudy	None	4	10	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.28418	-73.01743	40.33473	-72.99893	41	10	SW	2-4	B4	0.5-1	Cloudy	None	3	13	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.33473	-72.99893	40.27883	-73.02248	40	9	WSW	<2	B4	0.5-1	Cloudy	None	3	21	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.27883	-73.02248	40.21333	-73.04995	44	9	WSW	<2	B3	0.5-1	Cloudy	None	4	193	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.21333	-73.04995	40.22084	-73.04203	45	10	WSW	<2	B3	0.5-1	Cloudy	None	4	191	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.22084	-73.04203	40.28160	-73.02326	44	9	WSW	<2	B3	0.5-1	Cloudy	None	4	21	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:22	40.28160	-73.02326	40.30290	-73.01546	44	9	WSW	<2	B3	0.5-1	Clear	None	4	17	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:22	08:23	40.30290	-73.01546	40.30347	-73.01525	41	11	SW	<2	B3	0.5-1	Clear	None	3	24	Deploying/Retrieving	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:23	09:00	40.30347	-73.01525	40.27957	-73.03073	41	11	SW	<2	B3	0.5-1	Clear	None	3	24	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:18	40.27957	-73.03073	40.26054	-73.04231	44	11	WSW	<2	B3	0.5-1	Clear	None	4	212	Standby	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:18	09:59	40.26054	-73.04231	40.20880	-73.04389	44	11	WSW	<2	B3	0.5-1	Clear	None	4	212	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:59	10:00	40.20880	-73.04389	40.20748	-73.04394	44	11	WSW	<2	B3	0.5-1	Clear	None	4	212	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:18	40.20748	-73.04394	40.20559	-73.03830	42	13	WSW	<2	B3	1-2	Clear	None	5	178	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:18	10:32	40.20559	-73.03830	40.20959	-73.04417	46	13	W	<2	B3	1-2	Clear	Slight	4	184	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:32	11:00	40.20959	-73.04417	40.24324	-73.04318	46	13	W	<2	B3	2-5	Clear	Slight	4	184	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.24324	-73.04318	40.31446	-73.04114	44	13	WSW	<2	B3	>5	Clear	Severe	4	3	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.31446	-73.04114	40.25486	-73.04356	39	13	WNW	<2	B3	>5	Clear	Severe	4	1	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:17	40.25486	-73.04356	40.27061	-73.04589	42	13	NW	<2	B4	>5	Clear	Severe	5	206	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:17	14:00	40.27061	-73.04589	40.22428	-73.04512	42	12	WNW	<2	B4	>5	Clear	Severe	5	153	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:36	40.22428	-73.04512	40.20360	-73.07408	44	16	WNW	<2	B4	>5	Clear	Severe	3	220	Deploying/Retrieving	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:36	14:52	40.20360	-73.07408	40.19348	-73.08495	43	16	WNW	<2	B4	>5	Clear	Severe	3	231	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:52	15:00	40.19348	-73.08495	40.18499	-73.08185	43	15	NW	<2	B4	>5	Clear	Severe	4	182	Soft Start	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:12	40.18499	-73.08185	40.18250	-73.06370	46	14	WNW	<2	B4	>5	Clear	Severe	4	86	Soft Start	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:12	15:27	40.18250	-73.06370	40.19729	-73.05381	45	13	WNW	<2	B4	>5	Clear	Severe	4	53	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:27	15:29	40.19729	-73.05381	40.19969	-73.05405	45	13	NW	<2	B4	>5	Clear	Severe	4	352	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:29	15:37	40.19969	-73.05405	40.20927	-73.05403	45	13	NW	<2	B4	>5	Clear	Severe	4	352	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:37	16:00	40.20927	-73.05403	40.23401	-73.05338	45	13	NW	<2	B4	>5	Clear	Severe	4	357	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:42	40.23401	-73.05338	40.28407	-73.05200	45	13	WNW	<2	B4	>5	Clear	Severe	4	357	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:42	16:58	40.28407	-73.05200	40.30224	-73.05140	45	14	WNW	<2	B4	>5	Clear	Moderate	4	357	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:58	17:01	40.30224	-73.05140	40.30577	-73.05185	43	13	W	<2	B4	>5	Clear	Moderate	4	350	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:01	17:17	40.30577	-73.05185	40.31180	-73.05400	43	15	WNW	<2	B4	>5	Clear	Moderate	4	337	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:17	17:24	40.31180	-73.05400	40.30285	-73.05420	42	13	WNW	<2	B4	>5	Clear	Moderate	4	181	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:24	18:00	40.30285	-73.05420	40.26086	-73.05536	42	13	WNW	<2	B4	>5	Clear	Moderate	5	181	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:56	40.26086	-73.05536	40.19802	-73.05719	42	15	W	<2	B4	>5	Clear	Moderate	5	184	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:56	18:58	40.19802	-73.05719	40.19569	-73.05722	42	12	NW	<2	B4	>5	Clear	Moderate	5	187	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:58	19:00	40.19569	-73.05722	40.19378	-73.05729	42	12	NW	<2	B4	>5	Clear	Moderate	5	187	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:10	40.19378	-73.05729	40.19149	-73.06693	42	12	NW	<2	B4	>5	Clear	Moderate	5	216	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:10	19:17	40.19149	-73.06693	40.19937	-73.06707	44	14	W	<2	B4	>5	Clear	Moderate	4	353	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:17	20:00	40.19937	-73.06707	40.24687	-73.06571	44	14	W	<2	B4	>5	Clear	Moderate	4	357	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:27	40.24687	-73.06571	40.27863	-73.06479	44	12	W	<2	B4	>5	Clear	Severe	4	351	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:27	20:48	40.27863	-73.06479	40.30400	-73.06411	44	12	W	<2	B4	>5	Clear	Severe	4	0	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:48	20:50	40.30400	-73.06411	40.30610	-73.06403	44	12	SW	<2	B4	>5	Clear	Severe	4	358	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:50	20:59	40.30610	-73.06403	40.30933	-73.05459	44	12	SW	<2	B4	>5	Clear	Severe	4	358	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:59	21:00	40.30933	-73.05459	40.30816	-73.05443	44	12	W	<2	B4	>5	Clear	Severe	4	183	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:04	40.30816	-73.05443	40.30204	-73.05461	44	12	W	<2	B4	>5	Clear	Severe	4	183	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:04	22:00	40.30204	-73.05461	40.23119	-73.05663	42	12	W	<2	B4	>5	Clear	Severe	5	183	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:25	40.23119	-73.05663	40.19895	-73.05761	42	8	W	<2	B4	>5	Cloudy	None	5	181	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:25	22:26	40.19895	-73.05761	40.19793	-73.05767	42	8	W	<2	B4	>5	Cloudy	Moderate	5	181	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:26	22:28	40.19793	-73.05767	40.19487	-73.05766	42	8	W	<2	B4	>5	Cloudy	Moderate	5	181	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:28	22:37	40.19487	-73.05766	40.19113	-73.06610	42	11	W	<2	B4	>5	Cloudy	Moderate	5	177	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:37	22:40	40.19113	-73.06610	40.19528	-73.06744	42	11	W	<2	B4	>5	Cloudy	Slight	5	177	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:40	22:43	40.19528	-73.06744	40.19809	-73.06742	42	11	W	<2	B4	>5	Cloudy	Slight	5	177	Silent	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:43	22:53	40.19809	-73.06742	40.21113	-73.06710	42	12	W	<2	B4	>5	Cloudy	Slight	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	23:00	40.21113	-73.06710	40.22043	-73.06690	42	12	W	<2	B4	>5	Clear	None	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:07	40.22043	-73.06690	40.22893	-73.06669	42	12	W	<2	B4	>5	Clear	None	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:07	23:19	40.22893	-73.06669	40.24253	-73.06617	42	12	W	<2	B4	2-5	Clear	None	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:19	23:30	40.24253	-73.06617	40.25711	-73.06580	42	12	W	<2	B4	1-2	Clear	None	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:30	23:45	40.25711	-73.06580	40.27188	-73.06539	42	12	W	<2	B4	0.5-1	Clear	None	5	359	Full Power	N/A
2022-09-20	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:45	00:00	40.27188	-73.06539	40.28622	-73.06499	42	8	W	<2	B4	0.5-1	Cloudy	None	5	2	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:08	40.28977	-73.06483	40.29947	-73.06454	41	9	NW	<2	B4	0.5-1	Cloudy	None	4	2	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:08	00:11	40.29947	-73.06454	40.30311	-73.06445	41	9	NW	<2	B4	0.5-1	Cloudy	None	4	2	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:11	00:13	40.30311	-73.06445	40.30555	-73.06437	41	9	NW	<2	B4	0.5-1	Cloudy	None	4	2	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:13	00:23	40.30555	-73.06437	40.30846	-73.05531	41	9	NW	<2	B4	0.5-1	Cloudy	None	4	2	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:23	00:27	40.30846	-73.05531	40.30333	-73.05499	42	8	NW	<2	B4	0.5-1	Clear	None	5	176	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:27	00:50	40.30333	-73.05499	40.27444	-73.05576	42	8	NW	<2	B4	0.5-1	Clear	None	5	176	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:50	01:00	40.27444	-73.05576	40.26518	-73.05602	42	8	NW	<2	B4	0.5-1	Clear	None	5	176	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	01:50	40.26518	-73.05602	40.19904	-73.05794	42	12	NW	<2	B4	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:50	01:53	40.19904	-73.05794	40.19529	-73.05800	42	18	NW	<2	B4	0.5-1	Clear	None	4	186	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:53	02:00	40.19529	-73.05800	40.19315	-73.05801	42	18	NW	<2	B4	0.5-1	Clear	None	4	186	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:08	40.19315	-73.05801	40.19441	-73.06782	43	16	NW	<2	B4	0.5-1	Clear	None	4	349	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:08	02:12	40.19441	-73.06782	40.19889	-73.06775	43	15	NW	<2	B4	0.5-1	Clear	None	4	357	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:12	03:00	40.19889	-73.06775	40.25478	-73.06619	43	17	NW	<2	B4	0.5-1	Clear	None	5	356	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:41	40.25478	-73.06619	40.30306	-73.06481	44	19	NW	<2	B4	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:41	03:43	40.30306	-73.06481	40.30536	-73.06482	44	16	NW	<2	B4	0.5-1	Clear	None	4	359	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:43	03:54	40.30536	-73.06482	40.30849	-73.05511	44	16	NW	<2	B4	0.5-1	Clear	None	4	8	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:54	03:58	40.30849	-73.05511	40.30286	-73.05533	44	15	NW	<2	B4	0.5-1	Clear	None	5	178	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:58	04:00	40.30286	-73.05533	40.30032	-73.05534	43	14	NW	<2	B4	0.5-1	Clear	None	5	174	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.30032	-73.05534	40.22620	-73.05749	44	16	NW	<2	B4	0.5-1	Clear	None	4	174	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	05:23	40.22620	-73.05749	40.19886	-73.05828	45	10	N	<2	B4	0.5-1	Clear	None	4	175	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:23	05:25	40.19886	-73.05828	40.19655	-73.05826	45	9	N	<2	B3	0.5-1	Clear	None	4	174	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:25	05:55	40.19655	-73.05826	40.19339	-73.06837	45	9	N	<2	B3	0.5-1	Clear	None	4	174	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:55	05:59	40.19339	-73.06837	40.19838	-73.06817	45	10	N	<2	B3	0.5-1	Clear	None	4	4	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:59	06:00	40.19838	-73.06817	40.19969	-73.06815	45	10	N	<2	B3	0.5-1	Clear	None	4	4	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.19969	-73.06815	40.26598	-73.06621	45	10	N	<2	B3	0.5-1	Clear	None	4	4	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	07:25	40.26598	-73.06621	40.30329	-73.06516	42	13	N	<2	B3	0.5-1	Clear	None	4	357	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:25	07:27	40.30329	-73.06516	40.30560	-73.06512	42	14	N	<2	B3	0.5-1	Clear	None	4	4.8	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:27	07:38	40.30560	-73.06512	40.30808	-73.05556	42	14	N	<2	B3	0.5-1	Clear	None	4	350	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:38	07:42	40.30808	-73.05556	40.30276	-73.05562	42	11	NNW	<2	B3	0.5-1	Clear	None	5	180	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:42	08:00	40.30276	-73.05562	40.27977	-73.05621	42	14	NNW	<2	B3	0.5-1	Clear	None	4	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.27977	-73.05621	40.20736	-73.05834	42	10	NNW	<2	B3	0.5-1	Clear	None	4	183	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:07	40.20736	-73.05834	40.19848	-73.05855	43	12	NW	<2	B3	0.5-1	Clear	None	4	178	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:07	09:09	40.19848	-73.05855	40.19606	-73.05866	43	12	NW	<2	B3	0.5-1	Clear	None	5	173	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:09	09:21	40.19606	-73.05866	40.19587	-73.06848	43	11	NW	<2	B3	0.5-1	Clear	None	5	191	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:21	09:24	40.19587	-73.06848	40.19860	-73.06847	43	12	NW	<2	B3	0.5-1	Clear	None	4	305	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:24	10:00	40.19860	-73.06847	40.24278	-73.06728	43	13	NW	<2	B3	0.5-1	Clear	None	5	359	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:21	40.24278	-73.06728	40.26881	-73.06651	44	12	N	<2	B3	1-2	Clear	None	4	2.6	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:21	10:49	40.26881	-73.06651	40.30365	-73.06548	43	12	N	<2	B3	2-5	Clear	Slight	5	4	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:49	10:50	40.30365	-73.06548	40.30491	-73.06542	43	12	N	<2	B3	2-5	Clear	Severe	4	2.5	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:50	11:00	40.30491	-73.06542	40.31113	-73.05691	43	12	N	<2	B3	2-5	Clear	Severe	5	2.5	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:02	40.31113	-73.05691	40.30879	-73.05574	43	10	N	<2	B3	>5	Clear	Severe	5	90	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:02	11:07	40.30879	-73.05574	40.30258	-73.05589	43	10	N	<2	B3	>5	Clear	Severe	4	180	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:07	12:00	40.30258	-73.05589	40.23706	-73.05789	41	12	NNE	<2	B3	>5	Clear	Severe	4	179	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:31	40.23706	-73.05789	40.19736	-73.05895	44	12	N	<2	B3	>5	Clear	Severe	5	179	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:31	12:32	40.19736	-73.05895	40.19609	-73.05899	45	12	N	<2	B3	>5	Clear	Severe	5	180	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:32	12:52	40.19609	-73.05899	40.18073	-73.07543	45	12	N	<2	B3	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:52	12:58	40.18073	-73.07543	40.18799	-73.07549	46	11	N	<2	B3	>5	Clear	Severe	5	0	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:58	13:00	40.18799	-73.07549	40.19043	-73.07542	44	12	N	<2	B3	>5	Clear	Severe	4	1	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.19043	-73.07542	40.26407	-73.07332	44	12	N	<2	B3	>5	Clear	Severe	4	1	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:32	40.26407	-73.07332	40.30354	-73.07221	42	11	N	<2	B3	>5	Clear	Severe	4	3	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:32	14:34	40.30354	-73.07221	40.30598	-73.07217	43	7	N	<2	B3	>5	Clear	Severe	4	5	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:34	14:46	40.30598	-73.07217	40.30989	-73.06569	43	7	N	<2	B3	>5	Clear	Severe	4	5	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:46	14:51	40.30989	-73.06569	40.30244	-73.06593	42	5	NNW	<2	B3	>5	Clear	Severe	5	177	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:51	15:00	40.30244	-73.06593	40.29298	-73.06618	42	5	NNW	<2	B3	>5	Clear	Severe	5	177	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.29298	-73.06618	40.21925	-73.06820	41	5	NNW	<2	B3	>5	Clear	Severe	4	175	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:25	40.21925	-73.06820	40.18745	-73.06912	44	2	WNW	<2	B3	>5	Clear	Moderate	4	175	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:25	16:26	40.18745	-73.06912	40.18618	-73.06912	44	2	WNW	<2	B3	>5	Clear	Moderate	4	175	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:26	16:36	40.18618	-73.06912	40.18440	-73.07598	44	1	NE	<2	B2	>5	Clear	Moderate	4	175	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:36	16:39	40.18440	-73.07598	40.18753	-73.07591	44	1	NE	<2	B2	>5	Clear	Moderate	4	4	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:39	16:44	40.18753	-73.07591	40.19391	-73.07558	44	1	NE	<2	B2	>5	Clear	Moderate	4	5	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:44	17:00	40.19391	-73.07558	40.21432	-73.07502	44	1	NE	<2	B2	>5	Clear	Moderate	4	5	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.21432	-73.07502	40.29212	-73.07278	44	1	NE	<2	B2	>5	Clear	Moderate	4	5	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:09	40.29212	-73.07278	40.30408	-73.07245	44	7	S	<2	B2	>5	Clear	Moderate	4	6	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:09	18:10	40.30408	-73.07245	40.30499	-73.07244	44	7	S	<2	B2	>5	Clear	Moderate	4	6	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:10	18:25	40.30499	-73.07244	40.31093	-73.06597	44	7	S	<2	B2	>5	Clear	Moderate	4	7	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:25	18:28	40.31093	-73.06597	40.30626	-73.06612	44	9	SW	<2	B2	>5	Clear	Moderate	5	176	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:28	18:31	40.30626	-73.06612	40.30251	-73.06617	44	9	SW	<2	B2	>5	Clear	Moderate	5	176	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:31	19:00	40.30251	-73.06617	40.26675	-73.06730	43	9	SW	<2	B2	>5	Clear	Moderate	5	176	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.26675	-73.06730	40.19259	-73.06935	43	9	SW	<2	B2	>5	Clear	Moderate	5	176	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:05	40.19259	-73.06935	40.18709	-73.06953	43	8	SSW	<2	B2	>5	Clear	Severe	5	179	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:05	20:06	40.18709	-73.06953	40.18492	-73.06961	43	8	SSW	<2	B2	>5	Clear	Severe	5	179	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:06	20:18	40.18492	-73.06961	40.18079	-73.07630	43	8	SSW	<2	B2	>5	Clear	Severe	5	179	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:18	20:24	40.18079	-73.07630	40.18875	-73.07618	43	8	S	<2	B2	>5	Clear	Severe	5	2	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:24	20:32	40.18875	-73.07618	40.19906	-73.07590	44	8	S	<2	B2	>5	Clear	Severe	5	1	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:32	21:00	40.19906	-73.07590	40.23457	-73.07486	44	8	S	<2	B2	>5	Clear	Severe	5	1	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:36	40.23457	-73.07486	40.28361	-73.07345	44	8	S	<2	B2	>5	Clear	Severe	5	1	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:36	21:52	40.28361	-73.07345	40.30462	-73.07291	44	8	S	<2	B2	>5	Clear	Severe	5	1	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:52	21:54	40.30462	-73.07291	40.30688	-73.07286	44	12	SSW	<2	B3	>5	Clear	Severe	5	359	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:54	22:00	40.30688	-73.07286	40.31428	-73.07343	44	12	SSW	<2	B3	>5	Clear	Severe	5	359	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:12	40.31428	-73.07343	40.30660	-73.06653	42	14	SSW	<2	B3	>5	Clear	Severe	5	38	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:12	22:15	40.30660	-73.06653	40.30368	-73.06658	42	14	SSW	<2	B3	>5	Clear	Severe	5	184	Silent	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:15	22:38	40.30368	-73.06658	40.27654	-73.06736	42	15	SW	<2	B3	>5	Clear	Severe	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:38	22:51	40.27654	-73.06736	40.25962	-73.06781	42	15	SW	<2	B3	>5	Clear	Slight	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:51	23:00	40.25962	-73.06781	40.24841	-73.06814	42	15	SW	<2	B3	>5	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:04	40.24841	-73.06814	40.24323	-73.06828	42	15	SW	<2	B3	>5	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:04	23:11	40.24323	-73.06828	40.23352	-73.06852	42	15	SSW	<2	B3	>5	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:11	23:20	40.23352	-73.06852	40.22190	-73.06885	42	15	SSW	<2	B3	2-5	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:20	23:32	40.22190	-73.06885	40.20603	-73.06930	42	15	SSW	<2	B3	1-2	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:32	23:48	40.20603	-73.06930	40.18589	-73.06991	42	15	SSW	<2	B3	0.5-1	Clear	None	5	184	Full Power	N/A
2022-09-21	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:48	00:00	40.18589	-73.06991	40.17807	-73.07132	42	17	SSW	<2	B3	0.5-1	Clear	None	4	184	Silent	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:46	40.17053	-73.07295	40.16409	-73.07305	46	17	S	<2	B3	0.5-1	Clear	None	3	195	Deploying/Retrieving	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:46	00:56	40.16409	-73.07305	40.17125	-73.07972	46	19	SW	<2	B3	0.5-1	Clear	None	1	357	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:56	01:00	40.17125	-73.07972	40.17399	-73.08459	46	16	S	<2	B4	0.5-1	Clear	None	5	209	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.17399	-73.08459	40.21799	-73.21423	46	16	S	<2	B4	0.5-1	Clear	None	6	305	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.21799	-73.21423	40.24269	-73.35461	46	18	S	<2	B4	0.5-1	Clear	None	7	286	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.24269	-73.35461	40.25900	-73.49211	37	19	SW	<2	B4	0.5-1	Clear	None	7	280	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.25900	-73.49211	40.26941	-73.62649	34	20	SSW	<2	B4	0.5-1	Clear	None	7	270	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.26941	-73.62649	40.21419	-73.74339	27	19	SW	<2	B4	0.5-1	Clear	None	7	270	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.21419	-73.74339	40.24633	-73.88112	41	18	SSW	<2	B4	0.5-1	Clear	None	8	230	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.24633	-73.88112	40.40069	-73.90262	41	17	SSW	<2	B4	0.5-1	Clear	None	9	3.7	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.40069	-73.90262	40.47651	-74.03044	22	17	SSW	<2	B3	0.5-1	Clear	None	9	331	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:30	40.47651	-74.03044	40.49465	-74.07043	19	14	SSW	<2	B3	0.5-1	Clear	None	7	245	Transit	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:30	10:00	40.49465	-74.07043	40.49847	-74.06830	9	13	SW	<2	B3	0.5-1	Clear	None	1	292	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:23	40.49847	-74.06830	40.50160	-74.06536	9	18	S	<2	B3	0.5-1	Clear	None	1	318	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:23	11:00	40.50160	-74.06536	40.49709	-74.07062	9	19	SW	<2	B3	1-2	Clear	None	3	220	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:52	40.49709	-74.07062	40.49923	-74.07229	9	13	SW	<2	B3	2-5	Cloudy	Slight	1	115	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:52	12:00	40.49923	-74.07229	40.49951	-74.07042	9	9	WSW	<2	B3	>5	Cloudy	None	0	8	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	12:31	40.49951	-74.07042	40.50062	-74.06294	9	6	WSW	<2	B2	>5	Precipitation	None	1	7	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:31	13:00	40.50062	-74.06294	40.50263	-74.05598	8	6	SSW	<2	B2	>5	Cloudy	None	1	350	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.50263	-74.05598	40.50222	-74.06080	8	7	SSW	<2	B2	>5	Cloudy	Slight	1	314	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.50222	-74.06080	40.50306	-74.05486	7	6	SSW	<2	B2	>5	Cloudy	Slight	1	9	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:28	40.50306	-74.05486	40.49715	-74.05885	7	12	WSW	<2	B2	>5	Cloudy	Slight	1	357	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:28	16:00	40.49715	-74.05885	40.49989	-74.06954	7	20	W	<2	B3	1-2	Precipitation	None	1	357	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.49989	-74.06954	40.49698	-74.08412	7	17	W	<2	B3	0.5-1	Precipitation	None	2	298	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49698	-74.08412	40.50279	-74.08140	7	24	NW	<2	B3	2-5	Precipitation	None	1	123	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.50279	-74.08140	40.49397	-74.08213	7	19	NW	<2	B4	2-5	Precipitation	None	1	37	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.49397	-74.08213	40.49860	-74.07057	8	12	W	<2	B4	2-5	Precipitation	None	2	60	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.49860	-74.07057	40.50161	-74.07304	8	8	W	<2	B3	>5	Cloudy	Severe	0	58	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50161	-74.07304	40.49340	-74.07095	8	14	W	<2	B3	>5	Cloudy	Severe	0	356	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.49340	-74.07095	40.49967	-74.06870	8	18	W	<2	B4	>5	Clear	Severe	1	141	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:13	40.49967	-74.06870	40.49819	-74.06667	8	15	W	<2	B4	>5	Clear	None	1	131	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:13	23:22	40.49819	-74.06667	40.49689	-74.06491	8	15	W	<2	B4	2-5	Clear	None	1	131	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:22	23:29	40.49689	-74.06491	40.49675	-74.06588	8	15	W	<2	B4	1-2	Clear	None	1	131	Standby	N/A
2022-09-22	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:29	00:00	40.49675	-74.06588	40.49740	-74.07587	8	15	W	<2	B4	0.5-1	Clear	None	1	273	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.49678	-74.07576	40.50441	-74.07333	6	26	NW	<2	B5	0.5-1	Clear	None	1	81	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.50441	-74.07333	40.50287	-74.08152	6	16	W	<2	B4	0.5-1	Clear	None	1	148	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.50287	-74.08152	40.49871	-74.07415	6	23	NW	<2	B5	0.5-1	Clear	None	1	216	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.49871	-74.07415	40.49608	-74.06511	8	26	NW	<2	B5	0.5-1	Clear	None	3	290	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49608	-74.06511	40.49920	-74.07284	8	23	NW	<2	B5	0.5-1	Clear	None	1	202	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.49920	-74.07284	40.50287	-74.08386	7	25	NW	<2	B5	0.5-1	Clear	None	1	210	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.50287	-74.08386	40.49687	-74.07876	7	19	NW	<2	B5	0.5-1	Clear	None	0	211	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.49687	-74.07876	40.49069	-74.07833	7	19	NW	<2	B5	0.5-1	Clear	None	0	180	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.49069	-74.07833	40.49659	-74.08293	7	25	NW	<2	B5	0.5-1	Clear	None	2	328	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.49659	-74.08293	40.50399	-74.07976	7	20	WNW	<2	B5	0.5-1	Clear	None	1	59	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:25	40.50399	-74.07976	40.50018	-74.07633	7	27	WNW	<2	B5	0.5-1	Clear	None	4	349	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:25	11:00	40.50018	-74.07633	40.49136	-74.07129	4	22	WNW	<2	B5	1-2	Clear	None	1	49	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.49136	-74.07129	40.50125	-74.07168	4	26	WNW	<2	B5	2-5	Clear	Slight	1	68	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.50125	-74.07168	40.50701	-74.07397	8	23	WNW	<2	B5	>5	Clear	Severe	1	86	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.50701	-74.07397	40.50023	-74.07005	8	25	WNW	<2	B5	>5	Clear	Severe	1	66	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.50023	-74.07005	40.49609	-74.06625	8	23	NW	<2	B5	>5	Clear	Severe	4	316	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.49609	-74.06625	40.50315	-74.07567	8	23	NW	<2	B5	>5	Clear	Severe	1	58	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:45	40.50315	-74.07567	40.49474	-74.06430	8	18	W	<2	B5	>5	Clear	Severe	1	154	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:45	17:00	40.49474	-74.06430	40.51220	-74.04338	8	18	W	<2	B5	>5	Clear	Severe	6	80	Transit	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.51220	-74.04338	40.61812	-74.06302	8	23	NW	<2	B5	>5	Clear	Severe	8	11	Transit	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:13	40.61812	-74.06302	40.61738	-74.06413	8	23	NW	<2	B5	>5	Clear	Severe	8	326	Transit	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:22	20:00	40.61734	-74.06410	40.55750	-74.03156	8	13	NW	<2	B4	>5	Clear	Severe	0	44	Transit	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:41	40.55750	-74.03156	40.50132	-74.06987	10	20	NW	<2	B5	>5	Clear	Severe	7	189	Transit	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:41	21:00	40.50132	-74.06987	40.49774	-74.06750	7	29	NW	<2	B5	>5	Clear	Severe	1	235	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.49774	-74.06750	40.49811	-74.07907	7	26	N	<2	B5	>5	Clear	Severe	1	223	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.49811	-74.07907	40.49047	-74.06421	8	26	NNW	<2	B5	>5	Clear	Severe	1	126	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:24	40.49047	-74.06421	40.50473	-74.08507	8	28	NW	<2	B5	2-5	Clear	None	4	312	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:24	23:31	40.50473	-74.08507	40.50375	-74.08416	8	21	NW	<2	B5	1-2	Clear	None	0	109	Standby	N/A
2022-09-23	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:31	00:00	40.50375	-74.08416	40.49871	-74.07960	8	20	WNW	<2	B5	0.5-1	Clear	None	1	153	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.49832	-74.07920	40.49973	-74.07361	7	20	NW	<2	B5	0.5-1	Clear	None	1	49	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.49973	-74.07361	40.49555	-74.06238	7	28	NW	<2	B5	0.5-1	Clear	None	4	323	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.49555	-74.06238	40.50312	-74.06289	7	24	NW	<2	B5	0.5-1	Clear	None	1	127	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.50312	-74.06289	40.49807	-74.06891	7	26	NNW	<2	B5	0.5-1	Clear	None	1	217	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49807	-74.06891	40.50203	-74.08049	8	25	NNW	<2	B5	0.5-1	Clear	None	1	212	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.50203	-74.08049	40.49693	-74.06933	7	22	NW	<2	B5	0.5-1	Clear	None	1	203	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.49693	-74.06933	40.49121	-74.06548	7	14	NW	<2	B5	0.5-1	Clear	None	0	196	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.49121	-74.06548	40.50131	-74.08308	7	12	NW	<2	B4	0.5-1	Clear	None	0	165	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.50131	-74.08308	40.50517	-74.07804	7	15	W	<2	B4	0.5-1	Clear	None	0	183	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.50517	-74.07804	40.49754	-74.07215	8	14	W	<2	B4	0.5-1	Clear	None	4	29	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:24	40.49754	-74.07215	40.49754	-74.06961	9	15	WNW	<2	B4	1-2	Clear	None	0	164	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:24	11:00	40.49754	-74.06961	40.49836	-74.06539	9	12	WNW	<2	B4	2-5	Clear	Slight	0	170	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.49836	-74.06539	40.49531	-74.07649	12	12	W	<2	B4	>5	Clear	Severe	1	216	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.49531	-74.07649	40.49562	-74.05933	9	11	WNW	<2	B4	>5	Clear	Moderate	1	266	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49562	-74.05933	40.49712	-74.06639	9	12	WNW	<2	B4	>5	Cloudy	Moderate	4	263	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.49712	-74.06639	40.49501	-74.07063	9	11	WNW	<2	B4	>5	Cloudy	Moderate	1	165	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.49501	-74.07063	40.49463	-74.06104	8	12	WNW	<2	B4	>5	Cloudy	Moderate	1	165	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:20	40.49463	-74.06104	40.48928	-74.04595	8	11	SW	<2	B4	>5	Clear	Moderate	1	78	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:20	17:00	40.48928	-74.04595	40.48504	-74.00092	8	11	SW	<2	B4	>5	Clear	Moderate	1	78	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.48504	-74.00092	40.42549	-73.79732	8	12	SW	<2	B4	>5	Clear	Moderate	8	91	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:30	40.42549	-73.79732	40.41138	-73.69531	8	15	W	<2	B4	>5	Clear	Moderate	10	99	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:30	19:00	40.41138	-73.69531	40.39700	-73.60812	8	15	W	<2	B4	>5	Clear	Moderate	10	99	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.39700	-73.60812	40.36455	-73.43255	8	15	W	<2	B4	>5	Clear	Moderate	10	103	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.36455	-73.43255	40.33232	-73.26311	31	14	W	<2	B4	>5	Clear	Severe	10	102	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.33232	-73.26311	40.30729	-73.09146	35	17	W	<2	B4	>5	Clear	Severe	8	103	Transit	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:20	40.30729	-73.09146	40.30535	-73.05949	42	15	SW	<2	B4	>5	Clear	Severe	8	99	Standby	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:20	22:34	40.30535	-73.05949	40.30725	-73.05964	42	16	W	<2	B4	>5	Clear	Severe	0	12	Deploying/Retrieving	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:34	22:35	40.30725	-73.05964	40.30725	-73.05981	42	16	W	<2	B4	>5	Clear	Moderate	0	12	Deploying/Retrieving	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:35	22:43	40.30725	-73.05981	40.30745	-73.06957	42	16	W	<2	B4	>5	Clear	Moderate	3	267	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:43	22:46	40.30745	-73.06957	40.31059	-73.07190	42	16	W	<2	B4	>5	Clear	Slight	3	267	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:46	23:00	40.31059	-73.07190	40.30848	-73.05406	42	16	W	<2	B4	>5	Clear	None	3	267	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:05	40.30848	-73.05406	40.30335	-73.05410	42	13	WSW	<2	B4	>5	Clear	None	4	134	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:05	23:15	40.30335	-73.05410	40.29010	-73.05470	42	13	WSW	<2	B4	2-5	Clear	None	4	185	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:23	40.29010	-73.05470	40.28025	-73.05503	42	15	WSW	<2	B4	1-2	Clear	None	4	177	Silent	N/A
2022-09-24	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:23	00:00	40.28025	-73.05503	40.23714	-73.05629	42	15	WSW	<2	B4	0.5-1	Clear	None	4	177	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:26	40.23256	-73.05641	40.19926	-73.05740	45	16	W	<2	B4	0.5-1	Clear	None	5	186	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:26	00:42	40.19926	-73.05740	40.19888	-73.06780	45	17	WSW	<2	B4	0.5-1	Clear	None	5	186	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:42	01:00	40.19888	-73.06780	40.22072	-73.06734	45	14	SW	<2	B4	0.5-1	Clear	None	4	1	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.22072	-73.06734	40.29191	-73.06534	45	12	SW	<2	B4	0.5-1	Clear	None	4	2	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:08	40.29191	-73.06534	40.30307	-73.06499	45	17	W	<2	B4	0.5-1	Clear	None	4	358	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:08	02:27	40.30307	-73.06499	40.30352	-73.05490	42	17	W	<2	B4	0.5-1	Clear	None	4	358	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:27	03:00	40.30352	-73.05490	40.26214	-73.05632	43	18	W	<2	B4	0.5-1	Clear	None	4	184	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:53	40.26214	-73.05632	40.19784	-73.05815	42	18	W	<2	B4	0.5-1	Clear	None	5	188	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:53	04:00	40.19784	-73.05815	40.19027	-73.05320	42	20	W	<2	B4	0.5-1	Clear	None	4	190	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:15	40.19027	-73.05320	40.19790	-73.05939	45	20	W	<2	B4	0.5-1	Clear	None	4	185	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:15	04:42	40.19790	-73.05939	40.23231	-73.05842	45	18	W	<2	B4	0.5-1	Clear	None	5	5	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:42	05:00	40.23231	-73.05842	40.25195	-73.05695	45	17	W	<2	B4	0.5-1	Clear	None	4	355	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	05:17	40.25195	-73.05695	40.25170	-73.04268	44	19	W	<2	B4	0.5-1	Clear	None	4	346	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:17	05:41	40.25170	-73.04268	40.22286	-73.04364	43	18	W	<2	B4	0.5-1	Clear	None	4	190	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:41	06:00	40.22286	-73.04364	40.20133	-73.04825	43	22	W	<2	B4	0.5-1	Clear	None	4	193	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	06:20	40.20133	-73.04825	40.19800	-73.05830	46	21	W	<2	B4	0.5-1	Cloudy	None	4	200	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:20	07:00	40.19800	-73.05830	40.24631	-73.05689	45	20	W	<2	B4	0.5-1	Cloudy	None	5	352	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	07:40	40.24631	-73.05689	40.30336	-73.05529	45	17	SW	<2	B4	0.5-1	Cloudy	None	5	350	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:40	08:00	40.30336	-73.05529	40.30474	-73.05376	42	16	WSW	<2	B4	0.5-1	Cloudy	None	4	345	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:07	40.30474	-73.05376	40.29666	-73.05477	42	17	WSW	<2	B4	0.5-1	Cloudy	None	4	189	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:07	09:00	40.29666	-73.05477	40.23554	-73.05653	42	18	WSW	<2	B4	0.5-1	Cloudy	None	4	178	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:05	40.23554	-73.05653	40.22967	-73.05673	43	13	WSW	<2	B4	0.5-1	Cloudy	None	4	183	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:05	09:44	40.22967	-73.05673	40.26900	-73.05480	43	13	WSW	<2	B4	0.5-1	Cloudy	None	4	183	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:44	10:00	40.26900	-73.05480	40.29040	-73.05417	43	12	SW	<2	B4	0.5-1	Cloudy	None	5	353	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:10	40.29040	-73.05417	40.30387	-73.05376	44	15	SW	<2	B4	0.5-1	Clear	None	5	355	Silent	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:10	10:12	40.30387	-73.05376	40.30656	-73.05372	44	15	SW	<2	B4	1-2	Clear	None	4	355	Deploying/Retrieving	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:12	10:22	40.30656	-73.05372	40.31638	-73.05602	44	15	SW	<2	B4	1-2	Clear	None	4	355	Deploying/Retrieving	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:22	10:47	40.31638	-73.05602	40.31476	-73.06214	42	17	SW	<2	B4	2-5	Cloudy	Slight	4	232	Deploying/Retrieving	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:47	11:00	40.31476	-73.06214	40.31904	-73.05724	40	13	WSW	<2	B4	>5	Cloudy	Slight	2	136	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.31904	-73.05724	40.33841	-73.20358	40	15	WSW	<2	B4	>5	Cloudy	Severe	6	290	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.33841	-73.20358	40.36151	-73.36124	37	11	SW	<2	B4	>5	Cloudy	Moderate	7	278	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.36151	-73.36124	40.38169	-73.51916	32	15	S	<2	B4	>5	Cloudy	Moderate	7	273	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.38169	-73.51916	40.40444	-73.66963	27	21	S	<2	B5	>5	Cloudy	Moderate	7	280	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.40444	-73.66963	40.42942	-73.82107	26	19	SSW	<2	B5	>5	Cloudy	Moderate	7	282	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.42942	-73.82107	40.47079	-73.96454	26	16	S	<2	B4	>5	Cloudy	None	8	282	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.47079	-73.96454	40.49875	-74.07157	15	11	S	<2	B4	>5	Cloudy	None	6	309	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:09	40.49875	-74.07157	40.50445	-74.07726	15	8	NW	<2	B3	>5	Cloudy	Slight	4	319	Transit	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:09	19:00	40.50445	-74.07726	40.50208	-74.07478	15	8	NW	<2	B3	>5	Cloudy	Slight	0	336	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.50208	-74.07478	40.49994	-74.07427	7	4	W	<2	B3	>5	Cloudy	None	0	43	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:16	40.49994	-74.07427	40.49938	-74.06818	7	15	W	<2	B3	2-5	Precipitation	None	0	93	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:16	21:00	40.49938	-74.06818	40.50137	-74.07899	7	15	W	<2	B3	0.5-1	Precipitation	None	0	93	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50137	-74.07899	40.49965	-74.08110	7	10	SE	<2	B3	>5	Cloudy	None	0	285	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:50	40.49965	-74.08110	40.49990	-74.06381	7	9	S	<2	B3	>5	Clear	None	1	280	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:50	23:00	40.49990	-74.06381	40.50068	-74.06513	7	6	SSW	<2	B3	>5	Clear	None	0	317	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:10	40.50068	-74.06513	40.50140	-74.06659	7	6	SSW	<2	B3	>5	Clear	None	0	317	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:10	23:19	40.50140	-74.06659	40.50202	-74.06776	7	6	SSW	<2	B3	2-5	Clear	None	0	313	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:19	23:23	40.50202	-74.06776	40.50231	-74.06832	7	6	SSW	<2	B3	1-2	Clear	None	0	313	Standby	N/A
2022-09-25	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:23	00:00	40.50231	-74.06832	40.50488	-74.07243	7	6	SSW	<2	B3	0.5-1	Clear	None	0	313	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	00:00	00:31	40.50493	-74.07266	40.49592	-74.06493	6	6	S	<2	B3	0.5-1	Cloudy	None	0	46	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	00:31	01:00	40.49592	-74.06493	40.49329	-74.07487	8	6	S	<2	B3	0.5-1	Cloudy	None	3	144	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.49329	-74.07487	40.49284	-74.06805	8	5	SSW	<2	B3	0.5-1	Cloudy	None	0	289	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.49284	-74.06805	40.49788	-74.07814	8	11	N	<2	B3	0.5-1	Cloudy	None	0	232	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.49788	-74.07814	40.49843	-74.07268	9	13	W	<2	B3	0.5-1	Precipitation	None	1	37	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:19	40.49843	-74.07268	40.50178	-74.08186	9	14	SSW	<2	B3	0.5-1	Cloudy	None	4	280	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:19	05:00	40.50178	-74.08186	40.50264	-74.06621	9	14	SSW	<2	B3	0.5-1	Cloudy	None	1	280	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.50264	-74.06621	40.49965	-74.08623	8	16	W	<2	B3	0.5-1	Clear	None	1	359	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.49965	-74.08623	40.49715	-74.06828	8	18	WSW	<2	B3	0.5-1	Clear	None	1	15	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.49715	-74.06828	40.50351	-74.08183	8	17	WSW	<2	B3	0.5-1	Clear	None	1	100	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.50351	-74.08183	40.50396	-74.07688	8	16	WSW	<2	B3	0.5-1	Clear	None	0	92	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.50396	-74.07688	40.50267	-74.08075	8	13	SW	<2	B3	0.5-1	Clear	None	1	358	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:29	40.50267	-74.08075	40.50178	-74.08250	9	15	SW	<2	B3	0.5-1	Clear	None	0	353	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:29	11:00	40.50178	-74.08250	40.50124	-74.08301	9	14	SW	<2	B3	1-2	Clear	Slight	0	343	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.50124	-74.08301	40.49948	-74.08157	9	14	SW	<2	B3	>5	Clear	Severe	0	353	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.49948	-74.08157	40.49823	-74.07500	9	12	SW	<2	B3	>5	Clear	Severe	0	357	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49823	-74.07500	40.49945	-74.06073	9	12	SW	<2	B3	>5	Clear	Severe	0	346	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.49945	-74.06073	40.50022	-74.07753	8	9	WSW	<2	B3	>5	Clear	Severe	1	350	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.50022	-74.07753	40.50005	-74.07283	8	8	WSW	<2	B3	>5	Clear	Severe	1	40	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.50005	-74.07283	40.49980	-74.07233	8	9	SW	<2	B3	>5	Cloudy	Moderate	1	90	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.49980	-74.07233	40.49759	-74.07718	8	16	SW	<2	B3	>5	Cloudy	Slight	2	107	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.49759	-74.07718	40.50061	-74.07722	8	15	SW	<2	B3	>5	Cloudy	Moderate	1	355	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.50061	-74.07722	40.50346	-74.07115	8	13	SW	<2	B3	>5	Cloudy	Slight	4	291	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.50346	-74.07115	40.50574	-74.07090	8	16	S	<2	B3	>5	Cloudy	Severe	4	342	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.50574	-74.07090	40.50107	-74.07087	6	19	S	<2	B3	>5	Cloudy	Severe	1	329	Standby	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:45	40.50107	-74.07087	40.49901	-74.06218	8	10	SSW	<2	B3	>5	Cloudy	Slight	3	102	Transit	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:45	23:00	40.49901	-74.06218	40.49901	-74.06218	8	10	SSW	<2	B3	>5	Cloudy	Slight	5	102	Transit	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:15	40.49901	-74.06218	40.49901	-74.06218	15	14	SSW	<2	B4	2-5	Clear	Slight	6	102	Transit	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:15	23:25	40.49901	-74.06218	40.49901	-74.06218	15	14	SSW	<2	B4	1-2	Clear	Slight	6	102	Transit	N/A
2022-09-26	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:25	00:00	40.49901	-74.06218	40.49901	-74.06218	15	14	SSW	<2	B4	0.5-1	Clear	Slight	7	102	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:48	40.39177	-73.83017	40.34579	-73.67913	11	14	SW	2-4	B4	0.5-1	Clear	None	9	119	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:48	01:00	40.34579	-73.67913	40.33647	-73.64423	26	14	SW	2-4	B4	0.5-1	Clear	None	9	110	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.33647	-73.64423	40.29794	-73.44944	26	19	WSW	2-4	B4	0.5-1	Clear	None	9	101	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.29794	-73.44944	40.27022	-73.24813	23	15	WSW	2-4	B4	0.5-1	Clear	None	9	94	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.27022	-73.24813	40.24173	-73.06003	24	14	WSW	2-4	B4	0.5-1	Cloudy	None	9	100	Transit	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.24173	-73.06003	40.21488	-73.05866	43	13	WSW	2-4	B4	0.5-1	Cloudy	None	5	185	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.21488	-73.05866	40.29355	-73.05752	44	17	W	2-4	B4	0.5-1	Cloudy	None	5	354	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.29355	-73.05752	40.26617	-73.05395	41	18	W	2-4	B4	0.5-1	Cloudy	None	5	358	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.26617	-73.05395	40.18484	-73.05664	40	14	W	2-4	B4	0.5-1	Cloudy	None	6	173	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.18484	-73.05664	40.24532	-73.06046	43	15	W	2-4	B4	0.5-1	Cloudy	None	5	184	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.24532	-73.06046	40.31181	-73.06154	45	15	W	2-4	B4	0.5-1	Cloudy	None	5	3	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:30	40.31181	-73.06154	40.27519	-73.06421	45	15	W	2-4	B4	0.5-1	Clear	None	4	175	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:30	11:00	40.27519	-73.06421	40.23919	-73.06630	45	14	W	<2	B4	1-2	Cloudy	Slight	4	180	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.23919	-73.06630	40.19401	-73.06206	44	13	W	<2	B4	>5	Cloudy	Severe	5	179	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.19401	-73.06206	40.25793	-73.01419	46	9	W	<2	B4	>5	Cloudy	None	4	34	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:55	40.25793	-73.01419	40.29731	-73.00300	45	11	WNW	<2	B3	>5	Cloudy	None	4	29	Standby	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:55	14:00	40.29731	-73.00300	40.29812	-73.00192	42	14	W	<2	B4	>5	Cloudy	None	1	191	Deploying/Retrieving	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.29812	-73.00192	40.29305	-73.03417	42	11	WSW	<2	B4	>5	Cloudy	Slight	1	164	Deploying/Retrieving	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:32	40.29305	-73.03417	40.28586	-73.05718	40	13	WSW	<2	B4	>5	Clear	Severe	2	247	Deploying/Retrieving	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:32	16:00	40.28586	-73.05718	40.27949	-73.08174	42	14	W	<2	B4	>5	Clear	Severe	2	247	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:20	40.27949	-73.08174	40.30174	-73.06864	41	15	WSW	<2	B4	>5	Clear	Severe	4	308	Soft Start	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:20	16:28	40.30174	-73.06864	40.30289	-73.06050	41	15	SW	<2	B4	>5	Clear	Severe	4	32	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:28	16:34	40.30289	-73.06050	40.29494	-73.06042	41	15	SW	<2	B4	>5	Clear	Severe	4	189	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:34	17:00	40.29494	-73.06042	40.26511	-73.06133	41	14	WSW	<2	B4	>5	Clear	Severe	4	186	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:55	40.26511	-73.06133	40.19863	-73.06323	41	15	SSW	<2	B4	>5	Clear	Moderate	4	186	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:55	17:56	40.19863	-73.06323	40.19740	-73.06321	41	16	SSW	<2	B4	>5	Clear	Moderate	4	186	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:56	18:00	40.19740	-73.06321	40.19237	-73.06310	41	16	SSW	<2	B4	>5	Clear	Moderate	4	186	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:12	40.19237	-73.06310	40.19077	-73.06873	45	14	SW	<2	B4	>5	Clear	Severe	5	173	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:12	18:19	40.19077	-73.06873	40.19929	-73.06881	45	14	SW	<2	B4	>5	Clear	Severe	5	173	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:19	19:00	40.19929	-73.06881	40.25260	-73.06740	45	15	SW	<2	B4	>5	Clear	Severe	5	353	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	19:39	40.25260	-73.06740	40.30317	-73.06592	45	15	SW	<2	B4	>5	Clear	Severe	5	354	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:39	19:40	40.30317	-73.06592	40.30540	-73.06594	45	15	SW	<2	B4	>5	Clear	Severe	5	354	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:40	20:00	40.30540	-73.06594	40.30665	-73.06441	45	15	SW	<2	B4	>5	Clear	Severe	5	350	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:04	40.30665	-73.06441	40.30178	-73.06455	45	15	SW	<2	B4	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:04	20:54	40.30178	-73.06455	40.24265	-73.06623	45	15	SW	<2	B4	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:54	21:00	40.24265	-73.06623	40.23485	-73.06483	45	15	SW	<2	B4	>5	Clear	Severe	5	180	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	21:44	40.23485	-73.06483	40.19297	-73.06103	45	15	SW	<2	B4	>5	Clear	Severe	5	167	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:44	21:48	40.19297	-73.06103	40.19839	-73.06122	45	17	SW	<2	B4	>5	Clear	Severe	5	356	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:48	21:58	40.19839	-73.06122	40.21110	-73.06100	45	17	SW	<2	B4	>5	Clear	Severe	5	356	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:58	21:59	40.21110	-73.06100	40.21224	-73.06095	45	17	SW	<2	B4	>5	Clear	None	5	354	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:59	22:00	40.21224	-73.06095	40.21226	-73.06095	45	17	SW	<2	B4	>5	Clear	None	5	354	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:41	40.21226	-73.06095	40.17984	-73.07211	45	22	SW	<2	B5	>5	Clear	None	3	350	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:41	22:46	40.17984	-73.07211	40.18461	-73.07662	45	19	SW	<2	B5	>5	Clear	None	5	257	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:46	22:49	40.18461	-73.07662	40.18744	-73.07654	45	19	SW	<2	B5	>5	Clear	None	5	2.5	Silent	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:49	23:00	40.18744	-73.07654	40.20232	-73.07618	45	18	SW	<2	B5	>5	Clear	None	5	1	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:11	40.20232	-73.07618	40.21520	-73.07581	45	18	SW	<2	B5	2-5	Clear	None	5	1	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:11	23:22	40.21520	-73.07581	40.22887	-73.07544	45	18	SW	<2	B5	1-2	Clear	None	5	1	Full Power	N/A
2022-09-27	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:22	00:00	40.22887	-73.07544	40.27064	-73.07419	45	12	NW	<2	B4	0.5-1	Clear	None	5	357	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:20	40.27739	-73.07399	40.30374	-73.07328	41	12	NW	<2	B4	0.5-1	Clear	None	4	358	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:20	00:22	40.30374	-73.07328	40.30638	-73.07321	41	13	NW	<2	B4	0.5-1	Clear	None	5	349	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:22	00:36	40.30638	-73.07321	40.30861	-73.06673	41	13	NW	<2	B4	0.5-1	Clear	None	5	349	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:36	00:40	40.30861	-73.06673	40.30355	-73.06688	41	11	WNW	<2	B4	0.5-1	Clear	None	5	180	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:40	01:00	40.30355	-73.06688	40.28091	-73.06752	42	10	WNW	<2	B4	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.28091	-73.06752	40.20583	-73.06968	42	18	W	<2	B4	0.5-1	Clear	None	4	172	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:14	40.20583	-73.06968	40.18694	-73.07023	42	22	W	<2	B4	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:14	02:15	40.18694	-73.07023	40.18567	-73.07026	42	22	W	<2	B4	0.5-1	Clear	None	5	178	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:15	02:29	40.18567	-73.07026	40.18488	-73.07867	43	20	W	2-4	B4	0.5-1	Clear	None	5	185	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:29	02:51	40.18488	-73.07867	40.20936	-73.07705	43	17	W	2-4	B4	0.5-1	Clear	None	4	9	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:51	02:57	40.20936	-73.07705	40.21588	-73.07664	44	20	W	2-4	B4	0.5-1	Clear	None	4	17	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:57	03:00	40.21588	-73.07664	40.21917	-73.07651	44	19	W	2-4	B4	0.5-1	Clear	None	3	5	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:21	40.21917	-73.07651	40.24179	-73.07610	43	20	W	2-4	B4	0.5-1	Clear	None	4	351	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:21	03:25	40.24179	-73.07610	40.24624	-73.07602	43	20	W	2-4	B4	0.5-1	Clear	None	4	350	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:25	03:51	40.24624	-73.07602	40.22703	-73.06846	43	20	W	2-4	B4	0.5-1	Clear	None	4	350	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:51	04:00	40.22703	-73.06846	40.21707	-73.06868	43	22	W	2-4	B4	0.5-1	Clear	None	4	192	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:38	40.21707	-73.06868	40.18399	-73.07702	43	21	W	2-4	B4	0.5-1	Clear	None	4	184	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:38	04:42	40.18399	-73.07702	40.18831	-73.07693	44	22	W	2-4	B4	0.5-1	Clear	None	4	1.3	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:42	05:00	40.18831	-73.07693	40.20693	-73.07638	44	21	W	2-4	B4	0.5-1	Clear	None	4	1	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	05:04	40.20693	-73.07638	40.21040	-73.07630	43	24	WNW	2-4	B5	0.5-1	Clear	None	3	351	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:04	06:00	40.21040	-73.07630	40.27426	-73.07450	43	22	WNW	2-4	B5	0.5-1	Clear	None	4	353	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.27426	-73.07450	40.28375	-73.06356	41	21	W	2-4	B5	0.5-1	Clear	None	4	355	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.28375	-73.06356	40.21036	-73.06557	44	20	W	2-4	B5	0.5-1	Clear	None	4	180	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:18	40.21036	-73.06557	40.19552	-73.07203	44	13	W	2-4	B5	0.5-1	Clear	None	4	164	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:18	09:00	40.19552	-73.07203	40.19661	-73.11585	45	20	WNW	2-4	B5	0.5-1	Clear	None	3	274	Deploying/Retrieving	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.19661	-73.11585	40.20454	-73.18782	45	19	WNW	2-4	B5	0.5-1	Clear	None	3	280	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:29	40.20454	-73.18782	40.20810	-73.22425	41	17	WNW	2-4	B5	0.5-1	Clear	None	3	280	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:29	11:00	40.20810	-73.22425	40.21213	-73.26193	41	18	NW	2-4	B5	1-2	Clear	None	3	282	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.21213	-73.26193	40.20268	-73.19355	41	19	WNW	2-4	B5	>5	Clear	Severe	4	283	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.20268	-73.19355	40.19435	-73.10911	41	15	WNW	2-4	B4	>5	Clear	Severe	4	98	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:14	40.19435	-73.10911	40.19322	-73.08867	43	13	WNW	2-4	B4	>5	Clear	Severe	4	95	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:14	14:00	40.19322	-73.08867	40.19451	-73.04935	43	12	WNW	<2	B4	>5	Clear	Severe	4	95	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.19451	-73.04935	40.21909	-73.11003	45	14	WNW	<2	B4	>5	Clear	Severe	3	290	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.21909	-73.11003	40.24497	-73.04067	43	12	WNW	<2	B4	>5	Clear	Severe	5	356	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:20	40.24497	-73.04067	40.24491	-73.05990	43	13	W	<2	B4	>5	Clear	Severe	3	236	Standby	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:20	17:00	40.24491	-73.05990	40.23401	-73.09003	43	13	W	<2	B4	>5	Clear	Severe	3	236	Deploying/Retrieving	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:12	40.23401	-73.09003	40.23134	-73.10201	43	13	W	<2	B4	>5	Clear	Severe	3	250	Deploying/Retrieving	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:12	17:32	40.23134	-73.10201	40.23959	-73.07488	43	15	W	<2	B4	>5	Clear	Moderate	5	353	Soft Start	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:32	17:44	40.23959	-73.07488	40.23731	-73.07531	43	13	W	<2	B4	>5	Clear	Moderate	5	74	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:44	17:47	40.23731	-73.07531	40.24055	-73.07460	43	12	W	<2	B4	>5	Clear	Moderate	5	352	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:47	18:00	40.24055	-73.07460	40.23442	-73.06721	43	12	W	<2	B4	>5	Clear	Moderate	5	6	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:46	40.23442	-73.06721	40.18122	-73.07653	43	13	W	<2	B4	>5	Clear	Moderate	5	189	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:46	18:52	40.18122	-73.07653	40.18939	-73.07688	43	12	SW	<2	B4	>5	Clear	Moderate	5	336	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:52	19:00	40.18939	-73.07688	40.19947	-73.07660	43	11	W	<2	B4	>5	Clear	Moderate	5	354	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:02	40.19947	-73.07660	40.27748	-73.07439	43	11	W	<2	B4	>5	Clear	Moderate	5	355	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:02	20:04	40.27748	-73.07439	40.28023	-73.07432	41	13	W	<2	B4	>5	Clear	Severe	5	357	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:04	20:23	40.28023	-73.07432	40.30472	-73.07362	41	13	W	<2	B4	>5	Clear	Severe	5	357	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:23	20:24	40.30472	-73.07362	40.30597	-73.07366	41	13	W	<2	B4	>5	Clear	Severe	5	358	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:24	20:35	40.30597	-73.07366	40.31119	-73.06742	41	13	W	<2	B4	>5	Cloudy	Severe	5	358	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:35	20:41	40.31119	-73.06742	40.30234	-73.06728	42	15	W	<2	B4	>5	Cloudy	Severe	5	181	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:41	21:00	40.30234	-73.06728	40.27821	-73.06797	42	15	SW	<2	B4	>5	Cloudy	Severe	4	181	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	21:00	22:00	40.27821	-73.06797	40.20188	-73.07014	42	14	W	<2	B4	>5	Cloudy	Severe	5	181	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:12	40.20188	-73.07014	40.18630	-73.07056	42	12	SW	<2	B3	>5	Cloudy	Severe	5	180	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:12	22:14	40.18630	-73.07056	40.18378	-73.07066	42	12	SW	<2	B3	>5	Cloudy	Severe	5	180	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:14	22:18	40.18378	-73.07066	40.17963	-73.07367	42	12	SW	<2	B3	>5	Cloudy	Severe	5	180	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:18	22:23	40.17963	-73.07367	40.18226	-73.07845	42	12	SW	<2	B3	>5	Cloudy	Slight	4	264	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:23	22:27	40.18226	-73.07845	40.18749	-73.07839	42	12	SW	<2	B3	>5	Cloudy	Slight	5	0	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:27	22:39	40.18749	-73.07839	40.20335	-73.07793	42	11	SW	<2	B3	>5	Cloudy	Slight	5	0	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:39	22:49	40.20335	-73.07793	40.21698	-73.07746	42	11	SW	<2	B3	>5	Clear	None	5	0	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:49	23:00	40.21698	-73.07746	40.23046	-73.07716	42	11	SW	<2	B3	2-5	Clear	None	5	0	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:00	23:21	40.23046	-73.07716	40.25741	-73.07639	42	12	SW	<2	B3	1-2	Clear	None	5	0	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:21	23:57	40.25741	-73.07639	40.30478	-73.07496	42	12	SW	<2	B3	0.5-1	Clear	None	5	0	Full Power	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:57	23:58	40.30478	-73.07496	40.30522	-73.07495	42	12	SW	<2	B3	0.5-1	Clear	None	5	0	Silent	N/A
2022-09-28	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	23:58	00:00	40.30522	-73.07495	40.30551	-73.07494	42	12	SW	<2	B3	0.5-1	Clear	None	5	3.4	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:10	40.30769	-73.07504	40.30970	-73.06752	39	9	W	<2	B3	0.5-1	Clear	None	5	0	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:10	00:15	40.30970	-73.06752	40.30324	-73.06759	43	11	W	<2	B3	0.5-1	Clear	None	5	175	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:15	01:00	40.30324	-73.06759	40.25093	-73.06911	43	11	W	<2	B3	0.5-1	Clear	None	5	180	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	01:46	40.25093	-73.06911	40.18741	-73.07091	44	11	W	<2	B3	0.5-1	Clear	None	5	181	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:46	01:48	40.18741	-73.07091	40.18478	-73.07096	44	7	W	<2	B3	0.5-1	Clear	None	5	178	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:48	02:00	40.18478	-73.07096	40.18320	-73.07875	44	9	NW	<2	B3	0.5-1	Clear	None	5	183	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:04	40.18320	-73.07875	40.18839	-73.07863	43	8	NW	<2	B3	0.5-1	Clear	None	5	1.7	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:04	03:00	40.18839	-73.07863	40.26037	-73.07661	43	9	NW	<2	B3	0.5-1	Clear	None	5	3.2	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:36	40.26037	-73.07661	40.30425	-73.07542	43	9	NW	<2	B3	0.5-1	Clear	None	5	359	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:36	03:37	40.30425	-73.07542	40.30542	-73.07537	43	18	NW	<2	B3	0.5-1	Clear	None	4	3.1	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:37	03:46	40.30542	-73.07537	40.30941	-73.06789	43	18	NW	<2	B3	0.5-1	Clear	None	4	14.4	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:46	03:51	40.30941	-73.06789	40.30290	-73.06803	43	14	N	<2	B3	0.5-1	Clear	None	5	182	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:51	04:00	40.30290	-73.06803	40.29136	-73.06829	44	16	N	<2	B3	0.5-1	Clear	None	5	179	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.29136	-73.06829	40.21570	-73.07044	44	18	WNW	<2	B3	0.5-1	Clear	None	5	178	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	05:22	40.21570	-73.07044	40.18775	-73.07122	44	16	N	<2	B4	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:22	05:24	40.18775	-73.07122	40.18514	-73.07131	45	19	N	<2	B4	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:24	05:35	40.18514	-73.07131	40.18420	-73.07914	45	19	N	<2	B4	0.5-1	Clear	None	5	181	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:35	05:38	40.18420	-73.07914	40.18769	-73.07904	45	21	NNE	<2	B4	0.5-1	Clear	None	4	2	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:38	06:00	40.18769	-73.07904	40.21148	-73.07830	45	21	NNE	<2	B4	0.5-1	Clear	None	4	2	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.21148	-73.07830	40.27255	-73.07664	43	21	NNE	<2	B5	0.5-1	Clear	None	4	359	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	07:28	40.27255	-73.07664	40.30423	-73.07568	43	22	NNE	<2	B5	0.5-1	Clear	None	4	359	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:28	07:30	40.30423	-73.07568	40.30644	-73.07550	43	25	NNE	<2	B5	0.5-1	Clear	None	4	7	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:30	08:00	40.30644	-73.07550	40.31286	-73.06821	44	24	NNE	<2	B5	0.5-1	Clear	None	4	359	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:03	40.31286	-73.06821	40.30904	-73.06814	40	23	N	<2	B5	0.5-1	Clear	None	5	173	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:03	08:07	40.30904	-73.06814	40.30387	-73.06829	40	23	N	<2	B5	0.5-1	Clear	None	5	173	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:07	09:00	40.30387	-73.06829	40.23868	-73.07016	42	22	N	<2	B5	0.5-1	Clear	None	5	171	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:42	40.23868	-73.07016	40.18799	-73.07155	42	23	N	<2	B5	0.5-1	Clear	None	5	175	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:42	09:44	40.18799	-73.07155	40.18547	-73.07162	43	21	N	<2	B5	0.5-1	Clear	None	5	195	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:44	09:55	40.18547	-73.07162	40.18299	-73.07944	43	21	N	<2	B5	0.5-1	Clear	None	5	199	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:55	10:00	40.18299	-73.07944	40.18755	-73.07931	43	23	N	<2	B5	0.5-1	Clear	None	3	6.2	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:01	40.18755	-73.07931	40.18852	-73.07926	43	23	N	<2	B5	0.5-1	Clear	None	3	6.2	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:01	10:06	40.18852	-73.07926	40.19331	-73.07912	43	25	N	<2	B5	0.5-1	Clear	None	3	9.3	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:06	10:30	40.19331	-73.07912	40.21660	-73.07944	44	25	N	<2	B5	0.5-1	Clear	None	4	8	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:30	10:45	40.21660	-73.07944	40.23137	-73.08035	44	26	N	2-4	B5	1-2	Clear	None	3	7.9	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:45	11:00	40.23137	-73.08035	40.24186	-73.08701	44	26	N	2-4	B5	1-2	Clear	None	3	7.9	Deploying/Retrieving	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:26	40.24186	-73.08701	40.24138	-73.08705	44	23	N	2-4	B5	>5	Clear	Severe	3	0.4	Deploying/Retrieving	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:26	12:00	40.24138	-73.08705	40.20063	-73.09904	43	23	NNE	2-4	B5	>5	Clear	Severe	2	184	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.20063	-73.09904	40.20606	-73.10086	43	25	NNE	2-4	B6	>5	Clear	Severe	4	180	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.20606	-73.10086	40.24498	-73.09753	43	24	NNE	2-4	B6	>5	Clear	Severe	2	16	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.24498	-73.09753	40.28712	-73.08867	43	23	NNE	2-4	B5	>5	Clear	Severe	2	16	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	15:38	40.28712	-73.08867	40.30976	-73.08525	41	25	NNE	2-4	B5	>5	Clear	Severe	3	18	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:38	16:00	40.30976	-73.08525	40.28741	-73.10549	40	19	NNE	2-4	B5	>5	Clear	Severe	4	213	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.28741	-73.10549	40.22575	-73.15688	40	17	N	2-4	B5	>5	Clear	Moderate	4	213	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.22575	-73.15688	40.26529	-73.12331	40	19	N	2-4	B5	>5	Cloudy	Slight	4	26	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.26529	-73.12331	40.29768	-73.07275	40	16	NE	2-4	B5	>5	Cloudy	Moderate	4	44	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.29768	-73.07275	40.24660	-73.07906	40	15	N	2-4	B5	>5	Cloudy	Moderate	4	48	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.24660	-73.07906	40.18915	-73.08545	40	11	NE	2-4	B5	>5	Cloudy	Slight	4	195	Standby	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	21:34	40.18915	-73.08545	40.19366	-73.06830	43	16	NE	<2	B4	>5	Cloudy	Slight	3	43	Deploying/Retrieving	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:34	21:54	40.19366	-73.06830	40.17873	-73.07945	43	13	NW	<2	B4	>5	Cloudy	Slight	4	187	Soft Start	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:54	21:56	40.17873	-73.07945	40.18051	-73.07971	43	15	NE	<2	B4	>5	Cloudy	Slight	5	5	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:56	22:02	40.18051	-73.07971	40.18762	-73.07931	43	15	NE	<2	B4	>5	Cloudy	None	5	5	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:02	22:44	40.18762	-73.07931	40.23746	-73.07790	43	18	NE	<2	B4	>5	Cloudy	None	4	12	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:44	22:53	40.23746	-73.07790	40.24957	-73.07756	43	16	NE	<2	B4	>5	Cloudy	None	4	7	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:53	23:00	40.24957	-73.07756	40.25780	-73.07732	43	16	NE	<2	B4	2-5	Cloudy	None	4	7	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	23:03	40.25780	-73.07732	40.26162	-73.07718	43	13	N	<2	B4	2-5	Cloudy	None	4	9	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:03	23:16	40.26162	-73.07718	40.27877	-73.07675	43	13	N	<2	B4	1-2	Cloudy	None	4	9	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:16	23:36	40.27877	-73.07675	40.30379	-73.07600	43	13	N	<2	B4	0.5-1	Cloudy	None	4	9	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:36	23:38	40.30379	-73.07600	40.30677	-73.07589	43	13	N	<2	B4	0.5-1	Cloudy	None	4	9	Silent	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:38	23:55	40.30677	-73.07589	40.30678	-73.06861	43	13	N	<2	B4	0.5-1	Cloudy	None	4	9	Full Power	N/A
2022-09-29	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:55	00:00	40.30678	-73.06861	40.30614	-73.06862	43	13	N	<2	B4	0.5-1	Cloudy	None	4	165	Silent	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	00:01	40.30347	-73.06863	40.30260	-73.06862	42	12	NE	<2	B4	0.5-1	Cloudy	None	4	183	Silent	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:01	01:00	40.30260	-73.06862	40.22932	-73.07080	42	12	NE	<2	B4	0.5-1	Cloudy	None	4	183	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	01:30	40.22932	-73.07080	40.18789	-73.07199	42	12	NE	<2	B3	0.5-1	Cloudy	None	5	185	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:30	01:32	40.18789	-73.07199	40.18529	-73.07208	42	12	NE	<2	B3	0.5-1	Clear	None	5	181	Silent	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:32	01:43	40.18529	-73.07208	40.18275	-73.07983	44	14	NE	<2	B3	0.5-1	Clear	None	5	182	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:43	01:47	40.18275	-73.07983	40.18890	-73.07971	43	17	NE	<2	B3	0.5-1	Clear	None	5	3	Silent	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:47	02:00	40.18890	-73.07971	40.20166	-73.07934	43	13	NE	<2	B3	0.5-1	Clear	None	4	357	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.20166	-73.07934	40.27898	-73.07723	43	17	NE	<2	B3	0.5-1	Clear	None	5	7	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	03:20	40.27898	-73.07723	40.30418	-73.07646	42	18	NE	<2	B3	0.5-1	Clear	None	5	6.5	Full Power	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:20	03:33	40.30418	-73.07646	40.31233	-73.06625	42	16	ENE	<2	B4	0.5-1	Clear	None	4	6	Silent	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:33	04:00	40.31233	-73.06625	40.32253	-73.03773	40	16	NE	<2	B4	0.5-1	Cloudy	None	3	59.2	Deploying/Retrieving	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:28	40.32253	-73.03773	40.33320	-73.02694	40	20	NE	<2	B4	0.5-1	Cloudy	None	4	59.2	Deploying/Retrieving	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:28	05:00	40.33320	-73.02694	40.30676	-73.05561	42	18	NNE	<2	B4	0.5-1	Cloudy	None	4	99	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.30676	-73.05561	40.24641	-73.13195	44	17	NE	<2	B4	0.5-1	Cloudy	None	5	225	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.24641	-73.13195	40.23681	-73.14703	44	20	NNE	<2	B4	0.5-1	Cloudy	None	5	225	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.23681	-73.14703	40.28127	-73.09400	44	19	ENE	<2	B4	0.5-1	Cloudy	None	3	40	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.28127	-73.09400	40.31855	-73.04264	44	20	ENE	2-4	B5	0.5-1	Cloudy	None	3	51	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.31855	-73.04264	40.26768	-73.11669	44	25	ENE	2-4	B5	0.5-1	Cloudy	None	4	52	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:17	40.26768	-73.11669	40.25300	-73.14128	44	26	ENE	2-4	B5	0.5-1	Cloudy	None	5	224	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:17	10:31	40.25300	-73.14128	40.25997	-73.17210	44	23	ENE	2-4	B5	0.5-1	Cloudy	None	5	281	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:31	10:59	40.25997	-73.17210	40.27543	-73.23691	44	22	ENE	2-4	B5	1-2	Cloudy	None	7	291	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:59	12:00	40.27543	-73.23691	40.30803	-73.38012	38	25	ENE	2-4	B6	>5	Cloudy	None	7	291	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.30803	-73.38012	40.34026	-73.51875	33	20	NE	2-4	B6	>5	Cloudy	None	7	291	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:30	40.34026	-73.51875	40.35815	-73.58747	27	15	NE	<2	B5	>5	Cloudy	Slight	7	292	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:30	14:00	40.35815	-73.58747	40.37814	-73.65432	26	15	NE	<2	B5	>5	Cloudy	Slight	6	292	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.37814	-73.65432	40.41894	-73.78346	27	18	NE	<2	B5	>5	Cloudy	Slight	7	295	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.41894	-73.78346	40.44024	-73.91915	36	15	NNE	<2	B4	>5	Cloudy	Slight	7	294	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.44024	-73.91915	40.47514	-74.03976	20	13	NE	<2	B4	>5	Cloudy	Slight	6	316	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:15	40.47514	-74.03976	40.49298	-74.06695	20	13	NE	<2	B4	>5	Cloudy	Slight	6	302	Transit	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:15	18:00	40.49298	-74.06695	40.50003	-74.07002	8	11	NE	<2	B3	>5	Cloudy	Slight	0	67	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:32	40.50003	-74.07002	40.50162	-74.06837	8	11	NE	<2	B3	>5	Cloudy	Slight	0	171	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:32	18:42	40.50162	-74.06837	40.50189	-74.06781	8	11	NE	<2	B3	>5	Cloudy	Slight	0	171	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:42	19:00	40.50189	-74.06781	40.50190	-74.06690	8	11	NE	<2	B3	>5	Cloudy	Slight	0	171	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.50190	-74.06690	40.49939	-74.06428	8	12	NE	<2	B3	>5	Cloudy	Slight	0	164	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.49939	-74.06428	40.49740	-74.06276	8	10	NE	<2	B3	>5	Cloudy	Slight	0	165	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.49740	-74.06276	40.49435	-74.07424	8	10	NNE	<2	B3	>5	Cloudy	None	1	162	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:54	40.49435	-74.07424	40.50600	-74.07739	8	10	ENE	<2	B3	>5	Cloudy	None	0	207	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:54	23:00	40.50600	-74.07739	40.50565	-74.07796	8	8	NE	<2	B3	2-5	Cloudy	None	1	314	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	23:13	40.50565	-74.07796	40.50565	-74.07796	8	10	NE	<2	B3	1-2	Cloudy	None	0	209	Standby	N/A
2022-09-30	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:13	00:00	40.50565	-74.07796	40.50565	-74.07796	8	10	NE	<2	B3	0.5-1	Cloudy	None	0	209	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.50207	-74.07640	40.49793	-74.06966	7	16	NE	<2	B3	0.5-1	Cloudy	None	0.3	172	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.49793	-74.06966	40.49467	-74.06300	7	19	NE	<2	B3	0.5-1	Cloudy	None	0.6	243	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	02:35	40.49467	-74.06300	40.49218	-74.07540	7	15	NE	<2	B3	0.5-1	Cloudy	None	1.1	259	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:35	03:00	40.49218	-74.07540	40.49858	-74.07215	7	18	NE	<2	B3	0.5-1	Precipitation	None	1.1	250	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.49858	-74.07215	40.50489	-74.07324	9	21	ENE	<2	B3	0.5-1	Precipitation	None	3.3	45	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.50489	-74.07324	40.50001	-74.08618	9	24	ENE	<2	B3	0.5-1	Cloudy	None	3.5	40	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.50001	-74.08618	40.49362	-74.09201	5	14	ENE	<2	B3	0.5-1	Cloudy	None	0.1	328	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.49362	-74.09201	40.49969	-74.07605	9	17	NE	<2	B4	0.5-1	Precipitation	None	3.7	36	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.49969	-74.07605	40.49553	-74.08184	9	21	NE	<2	B4	0.5-1	Precipitation	None	1	258	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	08:17	40.49553	-74.08184	40.49385	-74.08286	9	18	NE	<2	B4	0.5-1	Precipitation	None	0.6	232	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:17	09:00	40.49385	-74.08286	40.49920	-74.07794	9	22	NE	<2	B5	0.5-1	Precipitation	None	1.2	90	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.49920	-74.07794	40.50226	-74.08005	9	20	NE	<2	B5	0.5-1	Precipitation	None	0.6	291	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:45	40.50226	-74.08005	40.50255	-74.07919	8	24	NE	<2	B5	0.5-1	Precipitation	None	0.4	330	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:45	11:00	40.50255	-74.07919	40.50152	-74.07949	8	19	NNE	<2	B5	1-2	Precipitation	None	0.3	138	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.50152	-74.07949	40.49786	-74.07483	8	24	NNE	<2	B5	1-2	Precipitation	None	4.4	53	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.49786	-74.07483	40.49844	-74.07499	8	25	NE	<2	B5	2-5	Precipitation	None	4.6	64	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.49844	-74.07499	40.49882	-74.07840	8	26	NE	<2	B5	>5	Precipitation	None	6	55	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	14:30	40.49882	-74.07840	40.50386	-74.06813	9	25	NE	<2	B5	>5	Cloudy	None	3.6	66	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:30	15:00	40.50386	-74.06813	40.49972	-74.08031	9	22	NNE	<2	B5	1-2	Precipitation	None	1	141	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.49972	-74.08031	40.50009	-74.06759	9	24	NNE	<2	B5	2-5	Precipitation	None	1.2	147	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.50009	-74.06759	40.49788	-74.08472	9	24	NNE	<2	B5	>5	Cloudy	None	0.5	159	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	17:14	40.49788	-74.08472	40.49888	-74.07999	9	24	NNE	<2	B5	>5	Cloudy	None	0.4	159	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:14	18:00	40.49888	-74.07999	40.57795	-74.02925	9	24	NNE	<2	B5	2-5	Fog	None	0.5	159	Transit	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	18:09	40.57795	-74.02925	40.59288	-74.02245	9	23	NE	<2	B5	>5	Cloudy	None	8.6	32	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:09	19:00	40.59288	-74.02245	40.59261	-74.02450	8	18	NE	<2	B5	>5	Cloudy	None	0.8	358	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.59261	-74.02450	40.59372	-74.02264	8	18	NE	<2	B5	>5	Cloudy	None	1.1	57	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:50	40.59372	-74.02264	40.59412	-74.02000	8	18	NE	<2	B5	>5	Cloudy	None	1.1	297	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:50	21:00	40.59412	-74.02000	40.59119	-74.02026	8	18	NE	<2	B5	2-5	Precipitation	None	1.2	176	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.59119	-74.02026	40.59247	-74.01989	8	14	NE	<2	B4	1-2	Precipitation	None	1.4	178	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:40	40.59247	-74.01989	40.59610	-74.02222	8	11	ENE	<2	B4	1-2	Fog	None	0.6	170	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:40	22:51	40.59610	-74.02222	40.59368	-74.02180	8	8	N	<2	B3	1-2	Precipitation	None	0.3	197	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:51	23:00	40.59368	-74.02180	40.59109	-74.02071	8	10	ENE	<2	B3	1-2	Precipitation	None	0.3	153	Standby	N/A
2022-10-01	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	00:00	40.59109	-74.02071	40.59456	-74.02111	8	13	ENE	<2	B3	0.5-1	Precipitation	None	1.2	157	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.59801	-74.02365	40.58219	-74.01697	8	8	NE	<2	B3	0.5-1	Precipitation	None	2.9	332	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.58219	-74.01697	40.59578	-74.02245	8	14	NNE	<2	B3	0.5-1	Cloudy	None	2	18	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.59578	-74.02245	40.59614	-74.02112	8	15	NNE	<2	B3	0.5-1	Cloudy	None	0.9	153	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.59614	-74.02112	40.59605	-74.02245	9	10	NE	<2	B3	0.5-1	Precipitation	None	1.2	310	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.59605	-74.02245	40.59785	-74.02568	9	10	NNE	<2	B3	0.5-1	Cloudy	None	1.5	223	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.59785	-74.02568	40.60021	-74.02625	11	11	NNE	<2	B3	0.5-1	Cloudy	None	0.6	283	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.60021	-74.02625	40.59636	-74.02258	11	10	NNE	<2	B3	0.5-1	Cloudy	None	2.3	100	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.59636	-74.02258	40.58164	-74.02484	11	14	NE	<2	B3	0.5-1	Cloudy	None	0.2	195	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.58164	-74.02484	40.59626	-74.02249	10	22	NE	<2	B3	0.5-1	Cloudy	None	3.3	16	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.59626	-74.02249	40.58742	-74.02166	9	19	NE	<2	B3	0.5-1	Cloudy	None	1.2	298	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:38	40.58742	-74.02166	40.59008	-74.02004	9	23	NE	<2	B3	0.5-1	Cloudy	None	3.6	347	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:38	10:59	40.59008	-74.02004	40.59240	-74.02285	9	17	NE	<2	B3	1-2	Cloudy	None	1.5	182	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:59	12:00	40.59240	-74.02285	40.59068	-74.02383	9	19	NE	<2	B3	>5	Cloudy	None	2.5	333	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.59068	-74.02383	40.59373	-74.02171	9	28	NNE	<2	B4	>5	Precipitation	None	1.6	160	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:40	40.59373	-74.02171	40.59844	-74.02292	10	34	NE	<2	B5	2-5	Precipitation	None	3.3	5	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:40	14:00	40.59844	-74.02292	40.59792	-74.02296	10	14	NE	<2	B4	1-2	Precipitation	None	0.5	54	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.59792	-74.02296	40.59246	-74.02450	10	20	NNE	<2	B4	2-5	Precipitation	None	1.2	115	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.59246	-74.02450	40.59525	-74.02484	10	15	NNE	<2	B3	2-5	Precipitation	None	4.7	45	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.59525	-74.02484	40.59428	-74.02387	10	15	NNE	<2	B3	2-5	Precipitation	None	0.4	262	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.59428	-74.02387	40.59382	-74.02235	10	17	N	<2	B4	2-5	Precipitation	None	0.2	127	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.59382	-74.02235	40.59481	-74.02272	10	22	NE	<2	B4	2-5	Precipitation	None	3.2	352	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.59481	-74.02272	40.59481	-74.02272	10	20	NE	<2	B4	2-5	Precipitation	None	0.9	352	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.59481	-74.02272	40.59481	-74.02272	10	20	NE	<2	B4	2-5	Precipitation	None	0.9	352	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.59481	-74.02272	40.59481	-74.02272	10	15	N	<2	B4	2-5	Precipitation	None	0.4	250	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	23:00	40.59481	-74.02272	40.59481	-74.02272	10	14	NE	<2	B3	2-5	Cloudy	None	0.4	270	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	23:55	40.59481	-74.02272	40.59481	-74.02272	10	25	NE	<2	B3	0.5-1	Precipitation	None	0.3	240	Standby	N/A
2022-10-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:55	00:00	40.59481	-74.02272	40.59481	-74.02272	10	23	NE	<2	B3	0.5-1	Precipitation	None	0.9	315	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.58200	-74.01863	40.59813	-74.02338	7	25	NE	<2	B4	0.5-1	Precipitation	None	2.1	355	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.59813	-74.02338	40.59013	-74.02295	7	14	NE	<2	B4	0.5-1	Precipitation	None	1.0	350	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.59013	-74.02295	40.59018	-74.02319	7	22	NE	<2	B4	0.5-1	Precipitation	None	2.5	154	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.59018	-74.02319	40.60139	-74.02500	7	22	NE	<2	B4	0.5-1	Precipitation	None	0.9	143	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.60139	-74.02500	40.60048	-74.02406	9	17	NE	<2	B4	0.5-1	Precipitation	None	3.3	7	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.60048	-74.02406	40.60054	-74.03029	10	14	NNE	<2	B4	0.5-1	Precipitation	None	1.5	100	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.60054	-74.03029	40.59409	-74.02076	11	13	NNE	<2	B4	0.5-1	Precipitation	None	3.0	90	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.59409	-74.02076	40.58990	-74.01540	11	16	NNE	<2	B4	0.5-1	Precipitation	None	0.6	277	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.58990	-74.01540	40.59665	-74.01696	10	13	NNE	<2	B4	0.5-1	Precipitation	None	0.8	184	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.59665	-74.01696	40.58577	-74.02098	10	20	NNE	<2	B4	0.5-1	Precipitation	None	1.0	287	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:47	40.58577	-74.02098	40.59047	-74.01843	11	22	NNE	<2	B4	0.5-1	Precipitation	None	1.0	286	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:47	11:00	40.59047	-74.01843	40.59757	-74.01948	11	24	NNE	<2	B4	1-2	Precipitation	None	2.4	350	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.59757	-74.01948	40.59000	-74.01746	10	13	NNE	<2	B4	2-5	Precipitation	None	1.2	309	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.59000	-74.01746	40.59372	-74.02116	10	19	NNE	<2	B4	2-5	Precipitation	None	3.5	341	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.59372	-74.02116	40.59340	-74.02136	10	17	NNE	<2	B4	2-5	Precipitation	None	2.9	349	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.59340	-74.02136	40.59833	-74.02282	10	20	NNE	<2	B4	2-5	Precipitation	None	3.6	360	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.59833	-74.02282	40.59593	-74.02186	10	23	NNE	<2	B4	>5	Cloudy	None	0.9	295	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	16:28	40.59593	-74.02186	40.59174	-74.01970	10	20	NNE	<2	B4	>5	Cloudy	None	1.4	128	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:28	17:00	40.59174	-74.01970	40.59195	-74.02840	10	18	NNE	<2	B4	>5	Precipitation	None	0.5	246	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.59195	-74.02840	40.59852	-74.02097	10	20	NE	<2	B4	>5	Precipitation	None	3.1	98	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.59852	-74.02097	40.59685	-74.02183	8	18	NE	<2	B4	>5	Precipitation	None	0.4	134	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.59685	-74.02183	40.59568	-74.02027	8	15	N	<2	B4	>5	Precipitation	None	1.3	8	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.59568	-74.02027	40.58513	-74.01760	8	16	N	<2	B4	>5	Precipitation	None	0.6	196	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.58513	-74.01760	40.58496	-74.01633	8	20	NNE	<2	B4	>5	Precipitation	None	2.5	10	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:38	40.58496	-74.01633	40.59271	-74.01543	8	17	NNE	<2	B4	>5	Precipitation	None	0.8	57	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:38	23:00	40.59271	-74.01543	40.59575	-74.01904	8	13	NNE	<2	B3	2-5	Precipitation	None	1.1	143	Standby	N/A
2022-10-03	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	00:00	40.59575	-74.01904	40.58269	-74.01640	8	18	NE	<2	B4	0.5-1	Precipitation	None	0.4	288	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.58087	-74.01672	40.58759	-74.01514	7	19	N	<2	B4	0.5-1	Precipitation	None	2.0	123	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.58759	-74.01514	40.59580	-74.02020	7	14	NNE	<2	B4	0.5-1	Precipitation	None	1.2	159	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.59580	-74.02020	40.59962	-74.02519	7	16	NNE	<2	B4	0.5-1	Precipitation	None	1.6	309	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.59962	-74.02519	40.59869	-74.02113	10	15	NNE	<2	B4	0.5-1	Precipitation	None	0.6	103	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.59869	-74.02113	40.59956	-74.02819	9	13	NNE	<2	B4	0.5-1	Precipitation	None	1.2	230	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.59956	-74.02819	40.59915	-74.02378	9	15	NNE	<2	B4	0.5-1	Precipitation	None	1.5	100	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.59915	-74.02378	40.59877	-74.01897	11	14	NNE	<2	B4	0.5-1	Precipitation	None	3.4	26	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.59877	-74.01897	40.59886	-74.02075	11	10	N	<2	B4	0.5-1	Precipitation	None	0.5	51	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.59886	-74.02075	40.59943	-74.01953	11	13	N	<2	B4	0.5-1	Precipitation	None	0.3	138	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.59943	-74.01953	40.59936	-74.02085	11	12	N	<2	B4	0.5-1	Precipitation	None	0.8	199	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:45	40.59936	-74.02085	40.60018	-74.02234	11	14	N	<2	B4	0.5-1	Precipitation	None	2.7	302	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:45	11:00	40.60018	-74.02234	40.59717	-74.01998	10	15	N	<2	B4	1-2	Precipitation	None	0.7	300	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:25	40.59717	-74.01998	40.60039	-74.02363	10	15	N	<2	B4	1-2	Precipitation	None	1.0	244	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:25	12:00	40.60039	-74.02363	40.59922	-74.02167	10	15	N	<2	B3	1-2	Precipitation	None	1.0	244	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.59922	-74.02167	40.59922	-74.02559	9	13	NNE	<2	B3	1-2	Precipitation	None	1.4	75	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	14:00	40.59922	-74.02559	40.59955	-74.02655	9	11	NNE	<2	B3	2-5	Precipitation	None	1.0	75	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:00	40.59955	-74.02655	40.60109	-74.02612	11	14	NNE	<2	B3	2-5	Precipitation	None	1.4	75	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:00	16:00	40.60109	-74.02612	40.58339	-74.02128	11	11	NNE	<2	B3	2-5	Precipitation	None	0.8	291	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.58339	-74.02128	40.59885	-74.03408	11	18	N	<2	B4	2-5	Precipitation	None	0.7	240	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.59885	-74.03408	40.60004	-74.02838	11	16	N	<2	B4	2-5	Precipitation	None	1.0	116	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.60004	-74.02838	40.59883	-74.02374	6	16	N	<2	B4	2-5	Precipitation	None	0.3	154	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.59883	-74.02374	40.59812	-74.02224	6	15	N	<2	B4	1-2	Precipitation	None	3.5	102	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	21:00	40.59812	-74.02224	40.59850	-74.02288	7	15	N	<2	B4	2-5	Precipitation	None	0.4	160	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.59850	-74.02288	40.59395	-74.02425	7	11	NNE	<2	B4	2-5	Precipitation	None	1.2	180	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:52	40.59395	-74.02425	40.58694	-74.02200	8	14	ENE	<2	B4	2-5	Cloudy	None	0.2	194	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:52	23:00	40.58694	-74.02200	40.58518	-74.02102	8	15	N	<2	B4	1-2	Precipitation	None	0.6	243	Standby	N/A
2022-10-04	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	00:00	40.58518	-74.02102	40.59641	-74.01930	8	21	N	<2	B4	0.5-1	Precipitation	None	0.7	191	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.59498	-74.01859	40.59716	-74.02012	7	15	NE	<2	B3	0.5-1	Precipitation	None	0.7	153	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.59716	-74.02012	40.59547	-74.01796	7	18	NNE	<2	B3	0.5-1	Precipitation	None	0.9	337	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.59547	-74.01796	40.58384	-74.01464	7	14	NNE	<2	B3	0.5-1	Precipitation	None	0.3	229	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.58384	-74.01464	40.59965	-74.02286	11	16	NNE	<2	B3	0.5-1	Precipitation	None	0.9	292	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.59965	-74.02286	40.59919	-74.02106	10	13	NNE	<2	B3	0.5-1	Precipitation	None	0.8	128	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.59919	-74.02106	40.59871	-74.02626	9	9	NNE	<2	B3	0.5-1	Precipitation	None	0.5	107	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.59871	-74.02626	40.59911	-74.01982	11	10	N	<2	B3	0.5-1	Precipitation	None	1.1	108	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.59911	-74.01982	40.59734	-74.01878	11	10	N	<2	B3	0.5-1	Precipitation	None	1.0	198	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.59734	-74.01878	40.59861	-74.01856	11	13	NNE	<2	B3	0.5-1	Precipitation	None	0.3	259	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	10:00	40.59861	-74.01856	40.59582	-74.02266	10	12	NNE	<2	B3	0.5-1	Precipitation	None	0.4	202	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:43	40.59582	-74.02266	40.58732	-74.02258	10	13	NNE	<2	B3	0.5-1	Precipitation	None	1.8	266	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:43	11:00	40.58732	-74.02258	40.58289	-74.02065	9	16	NNE	<2	B3	1-2	Precipitation	None	1.1	249	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.58289	-74.02065	40.59670	-74.02248	9	15	NNE	<2	B3	2-5	Precipitation	None	1.4	259	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	12:00	13:00	40.59670	-74.02248	40.58989	-74.02324	10	13	NE	<2	B2	2-5	Precipitation	None	0.6	289	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:00	13:42	40.58989	-74.02324	40.58683	-74.02158	9	15	NNE	<2	B2	>5	Precipitation	None	1.4	346	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	13:42	14:00	40.58683	-74.02158	40.60345	-74.04686	14	15	NNE	<2	B2	>5	Precipitation	None	5.3	263	Transit	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	14:00	15:05	40.60345	-74.04686	40.61733	-74.06426	23	15	NNE	<2	B2	>5	Cloudy	None	6.0	263	Transit	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:05	15:30	40.61729	-74.06424	40.59954	-74.02528	6	16	NNE	<2	B2	>5	Cloudy	None	0.9	40	Transit	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Cowan, Malcolm	RPS	15:30	16:00	40.59954	-74.02528	40.59155	-74.02442	10	8	NNE	<2	B2	>5	Cloudy	None	0.8	357	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	16:00	17:00	40.59155	-74.02442	40.59481	-74.02536	10	11	N	<2	B3	>5	Cloudy	None	1.4	234	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	17:00	18:00	40.59481	-74.02536	40.58617	-74.01779	10	10	N	<2	B3	>5	Cloudy	None	0.9	235	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	18:00	19:00	40.58617	-74.01779	40.58700	-74.02295	10	13	N	<2	B3	>5	Cloudy	None	0.1	133	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	19:00	20:00	40.58700	-74.02295	40.59077	-74.02234	14	10	N	<2	B3	>5	Cloudy	None	0.5	322	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:00	20:23	40.59077	-74.02234	40.59026	-74.02254	10	13	N	<2	B3	>5	Cloudy	None	1.1	247	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:23	20:46	40.59026	-74.02254	40.58984	-74.02201	10	13	N	<2	B3	>5	Precipitation	None	0.3	133	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	20:46	21:00	40.58984	-74.02201	40.58900	-74.02061	10	12	NW	<2	B3	2-5	Precipitation	None	0.7	155	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	21:00	22:00	40.58900	-74.02061	40.59843	-74.02586	10	13	NW	<2	B3	2-5	Precipitation	None	0.5	123	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:00	22:40	40.59843	-74.02586	40.59270	-74.02257	10	10	NNW	<2	B3	2-5	Precipitation	None	0.9	78	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Simancas, Jorge	RPS	22:40	23:00	40.59270	-74.02257	40.58939	-74.02146	10	10	NW	<2	B3	2-5	Cloudy	None	1.0	107	Standby	N/A
2022-10-05	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	23:00	00:00	40.58939	-74.02146	40.59257	-74.02243	10	10	NW	<2	B3	2-5	Cloudy	None	0.3	158	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Sandoval, Maria; Simancas, Jorge	RPS	00:00	01:00	40.59926	-74.02230	40.58302	-74.01534	10	13	NE	<2	B3	0.5-1	Cloudy	None	1.2	110	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	01:00	02:00	40.58302	-74.01534	40.58787	-74.01947	10	6	N	<2	B3	0.5-1	Cloudy	None	2.2	189	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Sandoval, Maria	RPS	02:00	03:00	40.58787	-74.01947	40.59446	-74.02169	10	2	N	<2	B3	0.5-1	Cloudy	None	1.3	146	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	03:00	04:00	40.59446	-74.02169	40.59817	-74.02444	9	4	NW	<2	B3	0.5-1	Cloudy	None	1.7	152	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.59817	-74.02444	40.59513	-74.02154	9	7	NNW	<2	B3	0.5-1	Cloudy	None	0.3	126	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	05:00	06:00	40.59513	-74.02154	40.59393	-74.01554	9	8	NNW	<2	B3	0.5-1	Cloudy	None	0.1	41	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Jackson, Alicia	RPS	06:00	07:00	40.59393	-74.01554	40.59653	-74.02044	8	7	NW	<2	B3	0.5-1	Cloudy	None	2.2	83	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	07:00	08:00	40.59653	-74.02044	40.59834	-74.01889	8	6	NW	<2	B3	0.5-1	Cloudy	None	0.2	309	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Cowan, Malcolm; Rangel, Zuemy	RPS	08:00	09:00	40.59834	-74.01889	40.59808	-74.02052	9	6	NW	<2	B3	0.5-1	Clear	None	0.1	235	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:00	09:14	40.59808	-74.02052	40.59694	-74.02157	10	9	NW	<2	B3	0.5-1	Clear	None	0.2	215	Standby	N/A
2022-10-06	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:14	10:00	40.59694	-74.02157	40.66092	-74.07141	10	9	NW	<2	B3	0.5-1	Clear	None	6.8	263	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:04	15:30	40.66093	-74.07144	40.61880	-74.05327	10	8	W	<2	B2	>5	Clear	Severe	1.6	305	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:30	16:00	40.61880	-74.05327	40.53648	-74.02342	24	8	W	<2	B2	>5	Clear	Severe	10	157	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:30	40.53648	-74.02342	40.49177	-73.93133	16	8	W	<2	B3	>5	Clear	Severe	9.6	145	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:30	16:56	40.49177	-73.93133	40.43683	-73.87840	16	8	W	<2	B3	>5	Clear	Severe	9.8	141	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:56	17:30	40.43683	-73.87840	40.41126	-73.76753	18	8	W	<2	B2	>5	Clear	Severe	9.2	130	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:30	17:58	40.41126	-73.76753	40.38976	-73.67929	31	8	W	<2	B2	>5	Clear	Severe	8.9	105	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:36	40.38976	-73.67929	40.35759	-73.56636	24	9	W	<2	B2	>5	Clear	Severe	8.7	109	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:36	18:58	40.35759	-73.56636	40.33708	-73.49951	23	12	WSW	<2	B3	>5	Clear	Severe	9	112	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	19:28	40.33708	-73.49951	40.31547	-73.41016	28	12	WSW	<2	B3	>5	Clear	Severe	8.7	111	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:28	20:00	40.31547	-73.41016	40.29179	-73.30921	31	12	WSW	<2	B3	>5	Clear	Severe	9.0	110	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:30	40.29179	-73.30921	40.25670	-73.22904	37	15	SW	<2	B3	>5	Clear	Severe	8.6	109	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:30	21:00	40.25670	-73.22904	40.21777	-73.15291	40	15	SW	<2	B3	>5	Clear	Severe	8.5	129	Transit	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:30	40.21777	-73.15291	40.22023	-73.14889	40	15	SW	<2	B3	>5	Clear	Severe	4.3	101	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:30	21:55	40.22023	-73.14889	40.21954	-73.14930	42	13	SW	<2	B3	>5	Clear	Severe	0.6	278	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:55	22:04	40.21954	-73.14930	40.22066	-73.14990	42	13	SW	<2	B3	>5	Clear	Moderate	0.6	352	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:04	22:13	40.22066	-73.14990	40.21502	-73.14878	42	13	SW	<2	B3	>5	Clear	Moderate	2.8	161	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:13	22:37	40.21502	-73.14878	40.20646	-73.14798	43	13	SW	<2	B3	2-5	Clear	Slight	1.3	190	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:37	23:02	40.20646	-73.14798	40.19116	-73.15338	42	13	SW	<2	B3	1-2	Clear	None	2.4	199	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:02	23:27	40.19116	-73.15338	40.17463	-73.15838	42	13	SW	<2	B3	0.5-1	Clear	None	2.4	187	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:27	23:33	40.17463	-73.15838	40.17041	-73.16141	44	13	SW	<2	B3	0.5-1	Clear	None	2.5	190	Deploying/Retrieving	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:33	23:55	40.17041	-73.16141	40.18712	-73.16552	44	13	SW	<2	B3	0.5-1	Clear	None	3.2	290	Soft Start	N/A
2022-10-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:55	00:00	40.18712	-73.16552	40.19092	-73.16281	41	13	SW	<2	B3	0.5-1	Clear	None	3.6	35	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:32	40.19411	-73.16031	40.21306	-73.13072	43	13	SW	<2	B3	0.5-1	Clear	None	4.0	51	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:32	00:59	40.21306	-73.13072	40.21949	-73.10234	43	13	SW	<2	B3	0.5-1	Clear	None	4.3	54	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:59	01:04	40.21949	-73.10234	40.21620	-73.10531	43	13	SW	<2	B3	0.5-1	Clear	None	3.3	210	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:04	01:13	40.21620	-73.10531	40.21563	-73.11533	43	13	SW	<2	B3	0.5-1	Clear	None	3.3	210	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:13	01:15	40.21563	-73.11533	40.21586	-73.11786	43	13	SW	<2	B3	0.5-1	Clear	None	3.3	270	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:15	01:26	40.21586	-73.11786	40.21697	-73.13077	43	13	SW	<2	B3	0.5-1	Clear	None	3.3	270	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:26	01:33	40.21697	-73.13077	40.21856	-73.13791	43	13	SW	<2	B3	0.5-1	Clear	None	3.3	270	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:33	01:55	40.21856	-73.13791	40.23447	-73.12519	42	13	SW	<2	B3	0.5-1	Clear	None	3.2	312	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:55	01:59	40.23447	-73.12519	40.23667	-73.12148	42	10	SW	<2	B3	0.5-1	Clear	None	4.1	64	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:59	01:59	40.23667	-73.12148	40.23720	-73.12061	42	10	SW	<2	B3	0.5-1	Clear	None	4.1	45	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:59	02:00	40.23720	-73.12061	40.23735	-73.12037	42	10	SW	<2	B3	0.5-1	Clear	None	4.1	64	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:32	40.23735	-73.12037	40.22090	-73.11839	42	10	SW	<2	B3	0.5-1	Clear	None	4.2	45	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:32	02:35	40.22090	-73.11839	40.21855	-73.12080	42	5.4	NW	<2	B3	0.5-1	Clear	None	3.6	214	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:35	02:43	40.21855	-73.12080	40.21378	-73.12890	42	5.4	NW	<2	B3	0.5-1	Clear	None	3.6	214	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:43	03:00	40.21378	-73.12890	40.20355	-73.14647	42	6	NW	<2	B3	0.5-1	Clear	None	3.7	237	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:04	40.20355	-73.14647	40.20117	-73.15056	42	10	NW	<2	B3	0.5-1	Clear	None	3.3	227	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:04	03:07	40.20117	-73.15056	40.19939	-73.15383	42	7	NW	<2	B3	0.5-1	Clear	None	3.7	239	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:07	03:30	40.19939	-73.15383	40.20858	-73.15414	42	7	NW	<2	B3	0.5-1	Clear	None	3.7	245	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:30	04:00	40.20858	-73.15414	40.18963	-73.15709	42	15	NW	<2	B3	0.5-1	Clear	None	3.4	138	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:10	40.18963	-73.15709	40.19788	-73.15650	42	21	N	<2	B3	0.5-1	Clear	None	3.1	289	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:10	04:16	40.19788	-73.15650	40.20164	-73.15045	42	19	N	<2	B3	0.5-1	Clear	None	3.7	59	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:16	04:30	40.20164	-73.15045	40.20938	-73.13730	42	21	N	<2	B3	0.5-1	Clear	None	3.6	57	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:30	04:39	40.20938	-73.13730	40.21436	-73.12845	42	20	N	<2	B3	0.5-1	Clear	None	3.4	49	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:39	04:43	40.21436	-73.12845	40.21664	-73.12480	42	22	N	<2	B3	0.5-1	Clear	None	3.1	42	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:43	05:00	40.21664	-73.12480	40.20879	-73.11552	42	22	N	<2	B3	0.5-1	Clear	None	3.0	44	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:30	40.20879	-73.11552	40.20299	-73.15341	42	21	N	<2	B3	0.5-1	Clear	None	3.1	268	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:30	05:47	40.20299	-73.15341	40.21376	-73.15057	42	19	NNW	<2	B3	0.5-1	Cloudy	None	3.7	290	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:47	05:54	40.21376	-73.15057	40.21215	-73.14199	42	17	NW	<2	B4	0.5-1	Cloudy	None	3.8	94	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:54	06:00	40.21215	-73.14199	40.21079	-73.13502	42	17	NW	<2	B4	0.5-1	Cloudy	None	2.9	100	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:17	40.21079	-73.13502	40.20676	-73.11507	42	17	NW	<2	B4	0.5-1	Cloudy	None	2.9	100	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:17	06:20	40.20676	-73.11507	40.20601	-73.11161	42	16	NNW	<2	B4	0.5-1	Cloudy	None	3.5	95	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:20	06:30	40.20601	-73.11161	40.19918	-73.10589	42	17	NNW	<2	B4	0.5-1	Cloudy	None	3.4	98	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:30	07:00	40.19918	-73.10589	40.21514	-73.12165	43	17	NNW	<2	B4	0.5-1	Cloudy	None	4.1	205	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:24	40.21514	-73.12165	40.21600	-73.11005	43	20	NNW	<2	B4	0.5-1	Cloudy	None	3.7	354	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:24	07:29	40.21600	-73.11005	40.21361	-73.11633	43	15	NNW	<2	B4	0.5-1	Cloudy	None	4.2	248	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:29	07:30	40.21361	-73.11633	40.21316	-73.11752	43	15	NNW	<2	B4	0.5-1	Cloudy	None	4.1	305	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:30	07:58	40.21316	-73.11752	40.21550	-73.11076	43	15	NNW	<2	B4	0.5-1	Cloudy	None	4.1	305	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:58	07:59	40.21550	-73.11076	40.21527	-73.11108	43	15	NNW	<2	B4	0.5-1	Cloudy	None	4.1	305	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:59	08:00	40.21527	-73.11108	40.21459	-73.11230	43	15	NNW	<2	B4	0.5-1	Cloudy	None	3.9	237	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	08:04	40.21459	-73.11230	40.21188	-73.11683	43	14	NNW	<2	B4	0.5-1	Cloudy	None	3.6	228	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:04	08:25	40.21188	-73.11683	40.19863	-73.13956	43	14	NNW	<2	B4	0.5-1	Cloudy	None	3.7	246	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:25	08:28	40.19863	-73.13956	40.19667	-73.14297	43	15	N	<2	B4	0.5-1	Precipitation	None	3.7	227	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:28	08:30	40.19667	-73.14297	40.19539	-73.14533	43	15	N	<2	B4	0.5-1	Precipitation	None	3.7	227	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:30	08:52	40.19539	-73.14533	40.20395	-73.16806	42	19	NW	<2	B4	0.5-1	Precipitation	None	3.7	265	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:52	09:00	40.20395	-73.16806	40.20835	-73.16175	42	20	NW	<2	B4	0.5-1	Precipitation	None	2.9	34	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:01	40.20835	-73.16175	40.20842	-73.16052	42	21	NW	<2	B4	0.5-1	Precipitation	None	3.6	105	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:01	09:09	40.20842	-73.16052	40.20661	-73.15120	42	19	NW	<2	B4	0.5-1	Precipitation	None	3.6	105	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:09	09:30	40.20661	-73.15120	40.20164	-73.12664	43	14	NW	<2	B4	0.5-1	Precipitation	None	3.4	102	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:30	09:34	40.20164	-73.12664	40.20069	-73.12212	42	12	NW	<2	B4	0.5-1	Precipitation	None	3.2	102	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:34	10:00	40.20069	-73.12212	40.19181	-73.13452	42	15	NW	<2	B4	0.5-1	Cloudy	None	3.2	108	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:30	40.19181	-73.13452	40.19976	-73.17691	42	18	NNW	<2	B4	0.5-1	Cloudy	None	3.9	295	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:30	10:46	40.19976	-73.17691	40.20758	-73.19317	43	20	NNW	<2	B4	0.5-1	Cloudy	None	3.9	288	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:46	10:51	40.20758	-73.19317	40.21159	-73.19053	43	17	NNW	<2	B5	1-2	Precipitation	None	3.4	23	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:51	10:58	40.21159	-73.19053	40.21571	-73.18372	43	17	NNW	<2	B5	1-2	Precipitation	None	3.2	61	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:58	11:00	40.21571	-73.18372	40.21685	-73.18175	42	16	NNW	<2	B5	2-5	Precipitation	None	3.1	48	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:30	40.21685	-73.18175	40.23338	-73.15325	42	16	NNW	<2	B5	2-5	Cloudy	None	3.1	48	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:30	12:00	40.23338	-73.15325	40.25198	-73.12116	41	18	NNW	<2	B5	>5	Cloudy	None	3.6	46	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:25	40.25198	-73.12116	40.26827	-73.09320	41	18	NNW	<2	B5	>5	Cloudy	None	3.1	48	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:25	13:00	40.26827	-73.09320	40.28940	-73.05672	42	17	NNW	<2	B5	>5	Precipitation	None	4.0	47	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:30	40.28940	-73.05672	40.30807	-73.02457	42	18	NNW	<2	B4	>5	Cloudy	Slight	3.3	46	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:30	13:36	40.30807	-73.02457	40.31181	-73.01806	45	14	NNW	<2	B4	>5	Cloudy	Moderate	3.5	48	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:36	13:38	40.31181	-73.01806	40.31305	-73.01595	45	12	NNW	<2	B4	>5	Cloudy	Moderate	3.7	48	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:38	14:00	40.31305	-73.01595	40.30837	-72.99470	45	12	NNW	<2	B4	>5	Cloudy	Moderate	3.7	48	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:36	40.30837	-72.99470	40.27859	-72.95942	42	9	NW	<2	B4	>5	Cloudy	Moderate	3.9	133	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:36	14:43	40.27859	-72.95942	40.27463	-72.96657	42	9	NW	<2	B4	>5	Cloudy	Moderate	3.4	133	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:43	15:00	40.27463	-72.96657	40.26395	-72.98510	44	9.1	NW	<2	B4	>5	Cloudy	Moderate	3.5	234	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:52	40.26395	-72.98510	40.22983	-73.04383	43	10	NW	<2	B4	>5	Cloudy	Severe	3.9	228	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:52	16:57	40.22983	-73.04383	40.18693	-73.11775	46	10	NW	<2	B4	>5	Cloudy	Severe	3.9	228	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:32	40.18693	-73.11775	40.16336	-73.15834	44	10	NW	<2	B3	>5	Cloudy	Moderate	3.9	230	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:32	17:34	40.16336	-73.15834	40.16196	-73.16137	42	10	NW	<2	B3	>5	Cloudy	Moderate	3.9	230	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:34	17:59	40.16196	-73.16137	40.17057	-73.19314	42	10	NW	<2	B3	>5	Cloudy	Moderate	3.5	257	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:59	18:09	40.17057	-73.19314	40.17921	-73.18872	42	10	NW	<2	B3	>5	Cloudy	Moderate	3.7	337	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:09	18:13	40.17921	-73.18872	40.18153	-73.18482	42	10	NW	<2	B3	>5	Cloudy	Moderate	3.5	58	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:13	18:59	40.18153	-73.18482	40.20907	-73.13738	43	10	NW	<2	B3	>5	Cloudy	Moderate	3.5	58	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	20:00	40.20907	-73.13738	40.24130	-73.08200	43	10	NW	<2	B3	>5	Cloudy	Slight	3.7	50	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:59	40.24130	-73.08200	40.28426	-73.00758	43	9.1	NW	<2	B4	>5	Cloudy	Moderate	3.8	50	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:59	21:40	40.28426	-73.00758	40.31066	-72.96228	43	12	NW	<2	B4	>5	Cloudy	Severe	3.9	45	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	21:42	40.31066	-72.96228	40.31235	-72.95937	43	12	NW	<2	B4	>5	Cloudy	Moderate	3.9	45	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:42	21:55	40.31235	-72.95937	40.30684	-72.94852	43	12.5	WNW	<2	B4	>5	Clear	Moderate	3.0	90	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:55	22:38	40.30684	-72.94852	40.31009	-73.00212	43	12.5	WNW	<2	B3	>5	Clear	Severe	3.7	193	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:38	22:43	40.31009	-73.00212	40.31138	-73.00949	43	12.5	WNW	<2	B3	2-5	Clear	Severe	3.7	280	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:43	23:03	40.31138	-73.00949	40.32202	-73.00674	43	13.6	WNW	<2	B3	0.5-1	Cloudy	None	3.5	283	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:03	23:08	40.32202	-73.00674	40.32076	-73.00016	40	13	WNW	<2	B3	0.5-1	Cloudy	None	3.6	150	Silent	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:08	23:39	40.32076	-73.00016	40.31295	-72.96087	40	13	WNW	<2	B3	0.5-1	Cloudy	None	3.6	150	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:39	23:41	40.31295	-72.96087	40.31235	-72.95799	43	15.8	WNW	<2	B3	0.5-1	Cloudy	None	3.6	120	Full Power	N/A
2022-10-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:41	00:00	40.31235	-72.95799	40.29543	-72.94636	43	15.8	WNW	<2	B3	0.5-1	Cloudy	None	3.6	129	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:13	40.29446	-72.94640	40.28924	-72.95710	45	15.6	NW	<2	B3	0.5-1	Clear	None	3.2	213	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:13	00:18	40.28924	-72.95710	40.29036	-72.96281	45	15	NW	<2	B3	0.5-1	Cloudy	None	3.2	285	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:18	00:59	40.29036	-72.96281	40.29962	-73.00912	45	13	NW	<2	B3	0.5-1	Cloudy	None	3.2	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:59	01:40	40.29962	-73.00912	40.30892	-73.05631	40	13	NW	<2	B3	0.5-1	Cloudy	None	3.3	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:40	01:42	40.30892	-73.05631	40.30932	-73.05863	42	21	NNW	<2	B3	0.5-1	Clear	None	3.2	280	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:42	02:00	40.30932	-73.05863	40.31955	-73.05384	42	21	NNW	<2	B3	0.5-1	Clear	None	3.2	280	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:24	40.31955	-73.05384	40.31338	-73.02031	42	15	NW	<2	B3	0.5-1	Clear	None	3.2	280	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:24	02:29	40.31338	-73.02031	40.31199	-73.01316	40	17	NW	<2	B3	0.5-1	Clear	None	4.0	106	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:29	03:00	40.31199	-73.01316	40.30311	-72.96837	40	18	NW	<2	B3	0.5-1	Clear	None	4.0	102	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:04	40.30311	-72.96837	40.30191	-72.96267	41	17	NW	<2	B3	0.5-1	Clear	None	4.0	99	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:04	03:06	40.30191	-72.96267	40.30140	-72.95981	41	17	NW	<2	B3	0.5-1	Clear	None	4.0	108	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:06	03:47	40.30140	-72.95981	40.26640	-72.95691	41	17	NW	<2	B3	0.5-1	Clear	None	3.9	105	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:47	03:52	40.26640	-72.95691	40.26771	-72.96299	44	21	NW	<2	B3	0.5-1	Clear	None	3.4	285	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:52	04:00	40.26771	-72.96299	40.26964	-72.97233	44	19	NW	<2	B3	0.5-1	Clear	None	3.5	288	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.26964	-72.97233	40.28442	-73.04723	44	15	NNW	<2	B3	0.5-1	Clear	None	3.9	288	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:28	40.28442	-73.04723	40.29176	-73.08433	43	15	NNW	<2	B4	0.5-1	Clear	None	3.5	288	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:28	05:30	40.29176	-73.08433	40.29231	-73.08703	43	10	WNW	<2	B4	0.5-1	Clear	None	3.8	287	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:30	05:52	40.29231	-73.08703	40.30177	-73.07699	43	13	WNW	<2	B4	0.5-1	Clear	None	3.8	290	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:52	05:57	40.30177	-73.07699	40.30052	-73.07010	43	12	WNW	<2	B4	0.5-1	Clear	None	3.7	101	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:57	06:00	40.30052	-73.07010	40.29976	-73.06602	42	12	WNW	<2	B4	0.5-1	Clear	None	3.8	103	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.29976	-73.06602	40.28576	-72.99521	42	12	WNW	<2	B4	0.5-1	Clear	None	3.8	103	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:28	40.28576	-72.99521	40.27933	-72.96272	44	16	NW	<2	B3	0.5-1	Clear	None	3.2	101	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:28	07:30	40.27933	-72.96272	40.27892	-72.96043	44	13	NW	<2	B3	0.5-1	Clear	None	3.2	103	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:30	08:00	40.27892	-72.96043	40.25720	-72.97048	44	13	NW	<2	B3	0.5-1	Clear	None	3.2	103	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	08:12	40.25720	-72.97048	40.24946	-72.98575	44	15	NW	<2	B3	0.5-1	Clear	None	3.8	220	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:12	08:17	40.24946	-72.98575	40.25081	-72.99270	44	13	NW	<2	B3	0.5-1	Clear	None	4.0	289	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:17	09:00	40.25081	-72.99270	40.26280	-73.05301	44	13	NW	<2	B3	0.5-1	Clear	None	4.1	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:48	40.26280	-73.05301	40.27486	-73.11375	44	11	NW	<2	B3	0.5-1	Clear	None	3.7	282	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:48	09:50	40.27486	-73.11375	40.27535	-73.11615	44	15	W	<2	B4	0.5-1	Clear	None	3.4	284	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:50	10:00	40.27535	-73.11615	40.27961	-73.12442	44	15	W	<2	B4	0.5-1	Clear	None	3.5	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:20	40.27961	-73.12442	40.28447	-73.10358	44	17	W	<2	B4	0.5-1	Clear	None	3.6	336	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:20	10:25	40.28447	-73.10358	40.28329	-73.09744	42	13	W	<2	B4	0.5-1	Clear	None	3.4	107	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:25	10:43	40.28329	-73.09744	40.27887	-73.07505	42	17	W	<2	B4	0.5-1	Clear	None	3.4	106	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:43	11:00	40.27887	-73.07505	40.27455	-73.05370	42	14	W	<2	B3	1-2	Clear	None	3.4	110	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.27455	-73.05370	40.25961	-72.97828	42	13	W	<2	B3	>5	Clear	Slight	3.7	104	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:02	40.25961	-72.97828	40.25886	-72.97449	44	10	NW	<2	B3	>5	Clear	Moderate	3.6	106	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:02	12:52	40.25886	-72.97449	40.23209	-73.01243	44	10	NW	<2	B3	>5	Clear	Moderate	3.6	106	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:52	12:56	40.23209	-73.01243	40.23297	-73.01714	45	13	W	<2	B4	>5	Clear	Slight	3.2	278	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:56	13:00	40.23297	-73.01714	40.23384	-73.02164	44	14	W	<2	B4	>5	Clear	Slight	3.0	279	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:19	40.23384	-73.02164	40.23816	-73.04332	44	14	W	<2	B4	>5	Clear	Slight	3.0	279	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:19	13:59	40.23816	-73.04332	40.24658	-73.08566	44	18	WNW	<2	B5	>5	Clear	Slight	3.3	283	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:59	14:49	40.24658	-73.08566	40.25789	-73.14337	43	17	WNW	<2	B5	>5	Clear	Severe	3.3	291	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:49	14:50	40.25789	-73.14337	40.25805	-73.14426	40	19	WNW	<2	B5	>5	Clear	Severe	3.1	300	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:50	15:13	40.25805	-73.14426	40.26733	-73.13200	40	19	WNW	<2	B5	>5	Clear	Severe	3.1	300	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:13	15:17	40.26733	-73.13200	40.26634	-73.12704	40	16	SW	<2	B5	>5	Clear	Severe	3.7	104	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:17	16:00	40.26634	-73.12704	40.25460	-73.06779	40	16	SW	<2	B5	>5	Clear	Severe	3.7	104	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:45	40.25460	-73.06779	40.24243	-73.00615	43	17	W	<2	B5	>5	Clear	Severe	3.7	101	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:45	16:47	40.24243	-73.00615	40.24189	-73.00345	44	14.5	W	<2	B5	>5	Clear	Severe	4.0	124	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:47	16:57	40.24189	-73.00345	40.23318	-73.00073	44	14.5	W	<2	B5	>5	Clear	Severe	4.0	124	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:28	40.23318	-73.00073	40.21296	-73.03087	45	14	W	<2	B5	>5	Clear	Severe	3.5	220	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:28	17:33	40.21296	-73.03087	40.21408	-73.03667	45	14	W	<2	B5	>5	Clear	Severe	3.5	280	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:33	18:04	40.21408	-73.03667	40.22138	-73.07365	45	16	W	<2	B5	>5	Clear	Severe	3.5	280	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:04	19:00	40.22138	-73.07365	40.23587	-73.14727	45	19	W	<2	B5	>5	Clear	Severe	3.5	290	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	19:19	40.23587	-73.14727	40.24072	-73.17157	43	19	W	<2	B5	>5	Clear	Severe	4.0	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:19	19:22	40.24072	-73.17157	40.24163	-73.17497	43	19	W	<2	B5	>5	Clear	Severe	4.0	285	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:22	19:46	40.24163	-73.17497	40.24890	-73.15366	43	19	W	<2	B5	>5	Clear	Severe	4.0	285	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:46	19:52	40.24890	-73.15366	40.24749	-73.14642	41	18	W	<2	B4	>5	Clear	Severe	3.3	100	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:52	19:59	40.24749	-73.14642	40.24640	-73.14095	41	18	W	<2	B4	>5	Clear	Severe	3.3	100	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	19:59	21:00	40.24640	-73.14095	40.23464	-73.08166	41	19	WSW	<2	B5	>5	Clear	Severe	3.5	100	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:45	40.23464	-73.08166	40.22246	-73.02018	41	16	WSW	<2	B5	>5	Clear	Severe	3.1	96	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:45	21:50	40.22246	-73.02018	40.22075	-73.01454	44	18	W	<2	B5	>5	Clear	Severe	3.5	205	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:50	21:59	40.22075	-73.01454	40.21310	-73.02037	44	18	W	<2	B5	>5	Clear	Severe	3.5	205	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:59	22:34	40.21310	-73.02037	40.19554	-73.05729	43	19	WSW	<2	B5	>5	Clear	Severe	3.9	235	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:34	22:39	40.19554	-73.05729	40.19674	-73.06380	43	19	WSW	<2	B5	2-5	Clear	Moderate	3.9	235	Silent	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:39	23:31	40.19674	-73.06380	40.21009	-73.13138	45	19	WSW	<2	B5	0.5-1	Clear	None	3.9	290	Full Power	N/A
2022-10-09	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:31	00:00	40.21009	-73.13138	40.21738	-73.16832	42	19	WSW	<2	B5	0.5-1	Clear	None	3.4	290	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:14	40.21771	-73.16997	40.22082	-73.18589	41	19	WNW	<2	B5	0.5-1	Clear	None	3.7	270	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:14	00:16	40.22082	-73.18589	40.22133	-73.18829	41	17	WNW	<2	B5	0.5-1	Clear	None	3.3	286	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:16	00:36	40.22133	-73.18829	40.23120	-73.17783	41	18	W	<2	B5	0.5-1	Clear	None	2.1	291	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:36	00:42	40.23120	-73.17783	40.22934	-73.17093	41	18	W	<2	B5	0.5-1	Clear	None	2.1	291	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:42	01:00	40.22934	-73.17093	40.22533	-73.14959	41	14	W	<2	B5	0.5-1	Clear	None	3.3	103	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.22533	-73.14959	40.21061	-73.07516	42	15	W	<2	B5	0.5-1	Clear	None	3.3	104	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:16	40.21061	-73.07516	40.20535	-73.04866	42	17	W	<2	B5	0.5-1	Clear	None	4.2	119	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:16	02:18	40.20535	-73.04866	40.20479	-73.04587	43	16	W	<2	B5	0.5-1	Clear	None	3.9	103.5	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:18	03:00	40.20479	-73.04587	40.18203	-73.07370	43	15	W	<2	B5	0.5-1	Clear	None	3.9	106	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:12	40.18203	-73.07370	40.17877	-73.08760	43	17	W	<2	B5	0.5-1	Clear	None	2.9	243	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:12	03:17	40.17877	-73.08760	40.17986	-73.09321	45	17	W	<2	B5	0.5-1	Clear	None	3.2	282	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:17	04:00	40.17986	-73.09321	40.18916	-73.14034	45	16	W	<2	B5	0.5-1	Clear	None	3.2	284	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.18916	-73.14034	40.20320	-73.21143	43	18	W	<2	B5	0.5-1	Clear	None	3.7	282	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:02	40.20320	-73.21143	40.20362	-73.21376	41	16	WNW	<2	B5	0.5-1	Clear	None	3.1	287	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:02	05:05	40.20362	-73.21376	40.20438	-73.21738	41	17	WNW	<2	B5	0.5-1	Clear	None	3.8	286	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:05	05:23	40.20438	-73.21738	40.21383	-73.20641	41	16	WNW	<2	B5	0.5-1	Clear	None	3.8	286	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:23	05:28	40.21383	-73.20641	40.21250	-73.19965	41	13	WNW	<2	B3	0.5-1	Clear	None	4.3	95	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:28	06:00	40.21250	-73.19965	40.20451	-73.15905	41	14	WNW	<2	B4	0.5-1	Clear	None	3.7	100	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.20451	-73.15905	40.19072	-73.08926	42	12.6	W	<2	B4	0.5-1	Clear	None	3.5	104	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:09	40.19072	-73.08926	40.18839	-73.07760	43	13	WNW	<2	B4	0.5-1	Clear	None	3.1	102	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:09	07:11	40.18839	-73.07760	40.18800	-73.07536	44	13	WNW	<2	B4	0.5-1	Clear	None	3.8	106	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:11	07:56	40.18800	-73.07536	40.16131	-73.11429	44	13	WNW	<2	B4	0.5-1	Clear	None	3.7	115	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:56	07:56	40.16131	-73.11429	40.16149	-73.11513	44	12	WNW	<2	B4	0.5-1	Clear	None	4.0	262	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	07:56	08:01	40.16149	-73.11513	40.16264	-73.12107	44	12	WNW	<2	B4	0.5-1	Clear	None	4.0	262	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:01	08:29	40.16264	-73.12107	40.17003	-73.15841	44	14	WNW	<2	B4	0.5-1	Clear	None	4.1	290	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:29	08:31	40.17003	-73.15841	40.17054	-73.16116	43	12	WNW	<2	B3	0.5-1	Clear	None	3.9	279	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:31	09:00	40.17054	-73.16116	40.18110	-73.19577	43	13	WNW	<2	B3	0.5-1	Clear	None	3.6	286	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:09	40.18110	-73.19577	40.18861	-73.19366	43	14	WNW	<2	B3	0.5-1	Clear	None	4.1	295	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:09	09:15	40.18861	-73.19366	40.18687	-73.18507	43	10	WNW	<2	B3	0.5-1	Clear	None	4.3	107	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:15	09:57	40.18687	-73.18507	40.17655	-73.13280	43	11	WNW	<2	B3	0.5-1	Clear	None	4.2	122	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:57	10:29	40.17655	-73.13280	40.16960	-73.09748	45	10	WNW	<2	B3	0.5-1	Clear	None	2.8	106	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:29	10:31	40.16960	-73.09748	40.16915	-73.09518	45	10	WNW	<2	B3	0.5-1	Clear	None	3.5	101	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:31	10:40	40.16915	-73.09518	40.16234	-73.09150	45	12	WNW	<2	B3	0.5-1	Clear	None	3.0	122	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:40	11:00	40.16234	-73.09150	40.16842	-73.10396	45	10	WNW	<2	B3	1-2	Clear	None	3.3	206	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.16842	-73.10396	40.19556	-73.05449	46	12	WNW	<2	B3	2-5	Clear	Slight	3.8	350	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:02	40.19556	-73.05449	40.19545	-73.05716	46	11	WNW	<2	B3	>5	Clear	Severe	3.2	232	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:02	12:07	40.19545	-73.05716	40.19679	-73.06371	46	10	SW	<2	B3	>5	Clear	Severe	3.7	287	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:07	13:00	40.19679	-73.06371	40.20964	-73.12893	46	10	SW	<2	B3	>5	Clear	Severe	3.7	279	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:47	40.20964	-73.12893	40.22090	-73.18591	42	9	WSW	<2	B3	>5	Clear	Severe	3.4	280	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:47	13:49	40.22090	-73.18591	40.22139	-73.18830	41	9	WSW	<2	B3	>5	Clear	Severe	3.5	280	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:49	13:56	40.22139	-73.18830	40.22722	-73.19172	41	9	WSW	<2	B3	>5	Clear	Severe	3.5	280	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:56	14:15	40.22722	-73.19172	40.24231	-73.17650	41	8	SW	<2	B3	>5	Clear	Severe	3.8	27	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:15	14:20	40.24231	-73.17650	40.24077	-73.16993	41	8	SW	<2	B3	>5	Clear	Severe	3.8	27	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:20	15:03	40.24077	-73.16993	40.23002	-73.11548	41	8	SW	<2	B3	>5	Clear	Severe	3.8	90	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:03	16:02	40.23002	-73.11548	40.21502	-73.04002	43	9	SW	<2	B3	>5	Clear	Severe	3.6	105	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:02	16:06	40.21502	-73.04002	40.21384	-73.03431	44	10	SW	<2	B3	>5	Clear	Severe	3.6	109	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:06	16:08	40.21384	-73.03431	40.21332	-73.03161	43	10	SW	<2	B3	>5	Clear	Severe	3.6	140	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:08	17:01	40.21332	-73.03161	40.17987	-73.07660	43	10	SW	<2	B3	>5	Clear	Severe	3.9	141	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:01	17:09	40.17987	-73.07660	40.17874	-73.08721	45	10	SW	<2	B3	>5	Clear	Severe	3.7	233	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:09	17:15	40.17874	-73.08721	40.18021	-73.09442	45	10	SW	<2	B3	>5	Clear	Severe	3.7	233	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:15	17:58	40.18021	-73.09442	40.19016	-73.14568	45	12	SSW	<2	B3	>5	Clear	Severe	3.7	285	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:56	40.19016	-73.14568	40.20406	-73.21602	42	11	SSW	<2	B3	>5	Clear	Severe	3.5	285	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:56	18:58	40.20406	-73.21602	40.20447	-73.21777	44	11	SSW	<2	B3	>5	Clear	Severe	3.5	285	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	19:22	40.20447	-73.21777	40.20962	-73.19243	44	11	SSW	<2	B3	>5	Clear	Severe	3.5	285	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:22	19:57	40.20962	-73.19243	40.19584	-73.22078	44	11	SSW	<2	B3	>5	Clear	Severe	3.8	160	Deploying/Retrieving	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	19:57	21:00	40.19584	-73.22078	40.18211	-73.15714	40	14	WSW	<2	B3	>5	Clear	Severe	2.8	247	Standby	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:20	40.18211	-73.15714	40.17574	-73.14031	44	13	SW	<2	B3	>5	Clear	Severe	4.0	111	Standby	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:20	21:50	40.17574	-73.14031	40.15845	-73.16064	44	13	SW	<2	B3	>5	Clear	Severe	3.9	214	Deploying/Retrieving	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:50	22:11	40.15845	-73.16064	40.16481	-73.14217	43	13	SW	<2	B3	>5	Clear	Severe	3.4	275	Soft Start	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:11	22:42	40.16481	-73.14217	40.16097	-73.12174	43	13	SW	<2	B3	>5	Clear	Moderate	3.8	90	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:42	22:43	40.16097	-73.12174	40.16236	-73.12159	43	14	SW	<2	B3	1-2	Clear	None	4.4	358	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:43	22:47	40.16236	-73.12159	40.16705	-73.12154	43	14	SW	<2	B3	0.5-1	Clear	None	4.4	358	Silent	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:47	23:29	40.16705	-73.12154	40.21604	-73.12017	43	14	SW	<2	B3	0.5-1	Clear	None	4.4	358	Full Power	N/A
2022-10-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:29	00:00	40.21604	-73.12017	40.25159	-73.11919	43	13	SSW	<2	B3	0.5-1	Clear	None	4.2	2.1	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:16	40.25319	-73.11914	40.27089	-73.11874	41	14	SW	<2	B3	0.5-1	Clear	None	4.3	356	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:16	00:18	40.27089	-73.11874	40.27325	-73.11864	41	14	SW	<2	B3	0.5-1	Clear	None	4.3	1.3	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:18	00:33	40.27325	-73.11864	40.27519	-73.10959	41	14	SW	<2	B3	0.5-1	Clear	None	4.3	1.3	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:33	00:37	40.27519	-73.10959	40.27105	-73.10984	40	14	SW	<2	B3	0.5-1	Clear	None	4.1	182	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:37	01:00	40.27105	-73.10984	40.24436	-73.11063	40	14	SW	<2	B3	0.5-1	Clear	None	4.1	182	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.24436	-73.11063	40.17475	-73.11247	42	13	SW	<2	B3	0.5-1	Clear	None	4.1	182	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:04	40.17475	-73.11247	40.16712	-73.11271	42	16	SW	<2	B3	0.5-1	Clear	None	4.2	181	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:04	02:06	40.16712	-73.11271	40.16471	-73.11284	42	16	SW	<2	B3	0.5-1	Clear	None	4.3	180	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:06	02:54	40.16471	-73.11284	40.16251	-73.12138	42	16	SW	<2	B3	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:54	02:58	40.16251	-73.12138	40.16729	-73.12128	44	17	WSW	<2	B3	0.5-1	Clear	None	4.2	357	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:58	03:00	40.16729	-73.12128	40.16964	-73.12124	44	17	WSW	<2	B3	0.5-1	Clear	None	4.3	2	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:22	40.16964	-73.12124	40.19470	-73.12046	44	17	WSW	<2	B3	0.5-1	Clear	None	4.2	3	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:22	04:00	40.19470	-73.12046	40.23678	-73.11936	42	15	WSW	<2	B3	0.5-1	Clear	None	3.4	358	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:28	40.23678	-73.11936	40.27173	-73.11834	42	15	W	<2	B3	0.5-1	Clear	None	4.1	354	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:28	04:29	40.27173	-73.11834	40.27288	-73.11832	42	16	W	<2	B3	0.5-1	Clear	None	3.8	359	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:29	04:47	40.27288	-73.11832	40.27494	-73.10929	42	16	W	<2	B3	0.5-1	Clear	None	3.8	4.1	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:47	04:50	40.27494	-73.10929	40.27144	-73.10942	42	17	W	<2	B3	0.5-1	Clear	None	4.0	177	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:50	05:00	40.27144	-73.10942	40.25932	-73.10981	42	17	W	<2	B3	0.5-1	Clear	None	4.2	176	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.25932	-73.10981	40.18812	-73.11179	43	17	W	<2	B3	0.5-1	Clear	None	4.4	189	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:19	40.18812	-73.11179	40.16666	-73.11240	43	18	W	<2	B3	0.5-1	Clear	None	3.0	182	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:19	06:20	40.16666	-73.11240	40.16543	-73.11244	45	18	W	<2	B3	0.5-1	Clear	None	4.4	181	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:20	06:36	40.16543	-73.11244	40.16375	-73.12086	45	18	W	<2	B3	0.5-1	Clear	None	4.4	181	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:36	06:39	40.16375	-73.12086	40.16710	-73.12084	44	17	W	<2	B3	0.5-1	Clear	None	3.9	353	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:39	07:00	40.16710	-73.12084	40.19108	-73.12023	44	17	W	<2	B3	0.5-1	Clear	None	4.0	355	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:12	40.19108	-73.12023	40.20337	-73.11494	44	14	W	<2	B3	0.5-1	Clear	None	4.3	63	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:12	07:13	40.20337	-73.11494	40.20396	-73.11359	44	14	W	<2	B3	0.5-1	Clear	None	4.3	63	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:13	07:47	40.20396	-73.11359	40.18765	-73.12012	44	14	W	<2	B3	0.5-1	Clear	None	4.1	102	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:47	07:50	40.18765	-73.12012	40.19106	-73.12005	42	14	W	<2	B3	0.5-1	Clear	None	4.1	1	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:50	08:00	40.19106	-73.12005	40.19964	-73.11978	42	14	W	<2	B3	0.5-1	Clear	None	4.1	1	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.19964	-73.11978	40.27153	-73.11795	42	15	W	<2	B3	0.5-1	Clear	None	3.9	11	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:02	40.27153	-73.11795	40.27394	-73.11788	40	13	W	<2	B3	0.5-1	Clear	None	4.3	359	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:02	09:18	40.27394	-73.11788	40.27529	-73.10897	40	13	W	<2	B3	0.5-1	Clear	None	4.3	359	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:18	09:21	40.27529	-73.10897	40.27192	-73.10907	40	13	W	<2	B3	0.5-1	Clear	None	4.2	185	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:21	09:56	40.27192	-73.10907	40.23067	-73.11025	40	13	W	<2	B3	0.5-1	Clear	None	4.2	182	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:56	10:40	40.23067	-73.11025	40.18082	-73.11160	44	11	NNW	<2	B3	0.5-1	Clear	None	4.2	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:40	10:53	40.18082	-73.11160	40.16704	-73.11195	44	11	NNW	<2	B3	1-2	Clear	None	3.8	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:53	10:54	40.16704	-73.11195	40.16598	-73.11199	44	11	NNW	<2	B3	2-5	Clear	Slight	3.8	183	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:54	11:00	40.16598	-73.11199	40.15956	-73.11227	44	11	NNW	<2	B3	2-5	Clear	Slight	3.8	178	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:10	40.15956	-73.11227	40.16194	-73.12051	46	11	NNW	<2	B3	>5	Clear	Moderate	3.7	204	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:10	11:15	40.16194	-73.12051	40.16722	-73.12053	46	13	WNW	<2	B3	>5	Clear	Severe	3.8	0	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:15	12:00	40.16722	-73.12053	40.21637	-73.11919	45	11	WNW	<2	B3	>5	Clear	Severe	3.9	356	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:50	40.21637	-73.11919	40.27218	-73.11763	45	10	WNW	<2	B3	>5	Clear	Severe	4.0	359	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:50	12:51	40.27218	-73.11763	40.27330	-73.11758	40	10	WNW	<2	B3	>5	Clear	Severe	3.9	357	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:51	13:00	40.27330	-73.11758	40.28211	-73.11153	40	10	WNW	<2	B3	>5	Clear	Severe	3.9	357	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:40	40.28211	-73.11153	40.31016	-73.06851	40	11	WNW	<2	B3	>5	Clear	Severe	4.2	39	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:40	13:46	40.31016	-73.06851	40.30341	-73.06894	42	8	NW	<2	B3	>5	Clear	Severe	4.0	187	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:46	13:56	40.30341	-73.06894	40.29084	-73.06938	42	8	NW	<2	B3	>5	Clear	Severe	4.0	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:56	14:59	40.29084	-73.06938	40.22676	-73.07125	42	8	NW	<2	B3	>5	Clear	Severe	4.0	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:59	15:25	40.22676	-73.07125	40.18643	-73.07240	44	6.4	NW	<2	B3	>5	Clear	Severe	4.4	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:25	15:27	40.18643	-73.07240	40.18445	-73.07245	45	6.2	NW	<2	B3	>5	Clear	Severe	4.4	180	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:27	15:40	40.18445	-73.07245	40.18397	-73.08018	46	6.2	NW	<2	B3	>5	Clear	Severe	4.4	180	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:40	15:45	40.18397	-73.08018	40.18930	-73.08010	44	6.2	NW	<2	B3	>5	Clear	Severe	3.7	354	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:45	16:45	40.18930	-73.08010	40.25376	-73.07830	44	6.2	WNW	<2	B3	>5	Clear	Severe	3.7	357	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:45	16:54	40.25376	-73.07830	40.26264	-73.07802	43	8	WNW	<2	B3	>5	Clear	Severe	3.9	358	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:54	17:31	40.26264	-73.07802	40.30435	-73.07685	43	8	WNW	<2	B2	>5	Clear	Severe	3.9	357	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:31	18:01	40.30435	-73.07685	40.31748	-73.04459	42	8	WNW	<2	B2	>5	Clear	Severe	3.9	357	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:01	19:02	40.31748	-73.04459	40.24353	-73.04677	39	8	WNW	<2	B2	>5	Clear	Severe	4.6	184	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:02	20:00	40.24353	-73.04677	40.20989	-73.04848	44	6	WNW	<2	B2	>5	Clear	Severe	4.6	185	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.20989	-73.04848	40.28449	-73.04624	43	6.7	SW	<2	B2	>5	Clear	Severe	4.4	4	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:25	40.28449	-73.04624	40.31660	-73.04530	41	7.7	SW	<2	B2	>5	Clear	Severe	4.6	5.7	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:25	21:47	40.31660	-73.04530	40.32014	-73.02787	39	9	SSW	<2	B2	>5	Clear	Severe	4.5	2.6	Soft Start	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:47	21:53	40.32014	-73.02787	40.31935	-73.02043	39	9	SSW	<2	B2	>5	Clear	Severe	3.8	104	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:53	21:59	40.31935	-73.02043	40.31904	-73.01174	40	9	SSW	<2	B2	>5	Clear	Severe	4.1	93	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:59	22:20	40.31904	-73.01174	40.31857	-72.98073	40	9	SSW	<2	B2	>5	Clear	Severe	4.1	93	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:20	22:34	40.31857	-72.98073	40.31812	-72.96053	40	9	SSW	<2	B2	>5	Clear	None	4.1	93	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:34	22:36	40.31812	-72.96053	40.31808	-72.95765	40	9	SSW	<2	B2	1-2	Clear	None	4.1	93	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:36	23:19	40.31808	-72.95765	40.27848	-72.95670	40	10	SSW	<2	B3	0.5-1	Clear	None	4.1	93	Full Power	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:19	23:23	40.27848	-72.95670	40.27857	-72.96318	43	15	SW	<2	B3	0.5-1	Clear	None	4.5	271	Silent	N/A
2022-10-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:23	00:00	40.27857	-72.96318	40.27946	-73.01727	43	15	SW	<2	B3	0.5-1	Clear	None	4.5	271	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:53	40.27949	-73.01839	40.28080	-73.09949	43	15	SW	<2	B3	0.5-1	Clear	None	4.2	269	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:53	00:55	40.28080	-73.09949	40.28089	-73.10249	43	15	SW	<2	B3	0.5-1	Clear	None	4.1	270	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:55	01:13	40.28089	-73.10249	40.29400	-73.09212	43	15	SW	<2	B3	0.5-1	Clear	None	4.1	270	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:13	01:17	40.29400	-73.09212	40.29377	-73.08580	43	13	SW	<2	B3	0.5-1	Clear	None	4.4	90	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:17	02:00	40.29377	-73.08580	40.29269	-73.01931	43	13	SW	<2	B3	0.5-1	Clear	None	4.5	90	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:33	40.29269	-73.01931	40.29171	-72.96160	43	15	SW	<2	B3	0.5-1	Clear	None	4.5	94	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:33	02:35	40.29171	-72.96160	40.29163	-72.95826	43	13	SW	<2	B3	0.5-1	Clear	None	4.5	94	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:35	03:00	40.29163	-72.95826	40.26806	-72.96912	43	13	SW	<2	B3	0.5-1	Clear	None	4.5	124	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:31	40.26806	-72.96912	40.23958	-73.00048	43	15	SW	<2	B3	0.5-1	Clear	None	4.5	213	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:31	03:35	40.23958	-73.00048	40.23970	-73.00626	43	13	SW	<2	B3	0.5-1	Clear	None	4.0	274	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:35	04:00	40.23970	-73.00626	40.24026	-73.04027	43	13	SW	<2	B3	0.5-1	Clear	None	2.8	269	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.24026	-73.04027	40.24172	-73.12556	44	13	WSW	<2	B3	0.5-1	Clear	None	3.9	268	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:33	40.24172	-73.12556	40.24246	-73.17170	42	14	WSW	<2	B3	0.5-1	Clear	None	3.8	275	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:33	05:34	40.24246	-73.17170	40.24248	-73.17312	42	14	WSW	<2	B3	0.5-1	Clear	None	4.0	273	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:34	06:00	40.24248	-73.17312	40.25531	-73.14855	42	14	WSW	<2	B3	0.5-1	Clear	None	4.0	291	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:01	40.25531	-73.14855	40.25526	-73.14717	40	11	WSW	<2	B3	0.5-1	Clear	None	4.0	93	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:01	06:04	40.25526	-73.14717	40.25519	-73.14276	40	11	WSW	<2	B3	0.5-1	Clear	None	4.0	92	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:04	07:00	40.25519	-73.14276	40.25391	-73.06244	40	12	WSW	<2	B3	0.5-1	Clear	None	4.0	92	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:50	40.25391	-73.06244	40.25272	-72.99157	45	10	W	<2	B3	0.5-1	Clear	None	4.0	89	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:50	07:52	40.25272	-72.99157	40.25265	-72.98877	45	11	W	<2	B3	0.5-1	Clear	None	3.8	89	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:52	08:00	40.25265	-72.98877	40.24836	-72.98290	45	11	W	<2	B3	0.5-1	Clear	None	3.9	90	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.24836	-72.98290	40.20051	-73.05379	45	11	W	<2	B3	0.5-1	Clear	None	3.9	90	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:01	40.20051	-73.05379	40.20069	-73.05784	45	10	W	<2	B3	0.5-1	Clear	None	4.2	268	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:01	09:05	40.20069	-73.05784	40.20097	-73.06360	45	10	W	<2	B3	0.5-1	Clear	None	3.9	273	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:05	10:00	40.20097	-73.06360	40.20243	-73.15137	45	10	W	<2	B3	0.5-1	Clear	None	2.9	269	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:38	40.20243	-73.15137	40.20343	-73.21462	45	10	W	<2	B3	0.5-1	Clear	None	4.5	272	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:38	10:40	40.20343	-73.21462	40.20348	-73.21795	45	10	W	<2	B3	0.5-1	Clear	None	4.6	270	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:40	10:42	40.20348	-73.21795	40.20377	-73.22121	45	10	W	<2	B3	0.5-1	Clear	None	4.5	331	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:42	10:57	40.20377	-73.22121	40.21370	-73.20532	45	8	W	<2	B3	1-2	Clear	None	4.3	331	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	10:57	11:05	40.21370	-73.20532	40.21632	-73.19379	45	8	W	<2	B3	2-5	Clear	Slight	4.3	70	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:05	11:10	40.21632	-73.19379	40.21622	-73.18605	45	8	W	<2	B3	>5	Clear	Moderate	4.3	88	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:10	12:00	40.21622	-73.18605	40.21496	-73.10911	45	9	W	<2	B3	>5	Clear	Severe	4.2	88	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:48	40.21496	-73.10911	40.21369	-73.03431	43	8	W	<2	B3	>5	Clear	Severe	4.2	92	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:48	12:50	40.21369	-73.03431	40.21370	-73.03113	44	8	W	<2	B3	>5	Clear	Severe	4.4	92	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:50	13:00	40.21370	-73.03113	40.20818	-73.02794	44	8	W	<2	B3	>5	Clear	Severe	4.4	92	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.20818	-73.02794	40.25824	-73.04665	44	9	W	<2	B3	>5	Clear	Severe	3.9	233	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.25824	-73.04665	40.31504	-73.03764	44	7.4	W	<2	B3	>5	Clear	Severe	4.1	358	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:37	40.31504	-73.03764	40.30920	-73.06915	39	8.2	SW	<2	B3	>5	Clear	Severe	4.2	229	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:37	15:42	40.30920	-73.06915	40.30344	-73.06943	42	9.2	SSW	<2	B3	>5	Clear	Severe	3.4	177	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:42	16:00	40.30344	-73.06943	40.28252	-73.07001	42	9.2	SSW	<2	B3	>5	Clear	Severe	3.9	182	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.28252	-73.07001	40.20898	-73.07202	42	8	SSW	<2	B3	>5	Clear	Severe	4.4	179	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:00	17:18	40.20898	-73.07202	40.18591	-73.07273	43	8	SSW	<2	B3	>5	Clear	Severe	4.4	181	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:18	17:19	40.18591	-73.07273	40.18484	-73.07277	45	10	S	<2	B3	>5	Clear	Severe	4.4	181	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:19	17:31	40.18484	-73.07277	40.18260	-73.08043	45	10	S	<2	B3	>5	Clear	Severe	4.4	181	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:31	17:36	40.18260	-73.08043	40.18826	-73.08044	44	10	S	<2	B3	>5	Clear	Severe	4.4	5	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:36	18:00	40.18826	-73.08044	40.21762	-73.07969	43	10	S	<2	B3	>5	Clear	Severe	4.4	358	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.21762	-73.07969	40.29088	-73.07764	43	10	S	<2	B3	>5	Clear	Severe	4.3	0	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	19:11	40.29088	-73.07764	40.30496	-73.07721	41	10	S	<2	B3	>5	Clear	Severe	4.3	4	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:11	19:12	40.30496	-73.07721	40.30654	-73.07716	41	10	S	<2	B3	>5	Clear	Severe	4.3	4	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:12	19:23	40.30654	-73.07716	40.30932	-73.06955	41	10	S	<2	B3	>5	Clear	Severe	4.3	4	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:23	19:29	40.30932	-73.06955	40.30318	-73.06969	42	12	S	<2	B3	>5	Clear	Severe	3.3	180	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:29	20:00	40.30318	-73.06969	40.27063	-73.07064	42	12	S	<2	B3	>5	Clear	Severe	4.2	182	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.27063	-73.07064	40.19282	-73.07282	42	10	SSE	<2	B3	>5	Clear	Severe	4.3	183	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:04	40.19282	-73.07282	40.18801	-73.07299	44	13	SE	<2	B3	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:04	21:06	40.18801	-73.07299	40.18560	-73.07306	44	13	SE	<2	B3	>5	Clear	Severe	4.3	181	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:06	21:17	40.18560	-73.07306	40.18226	-73.08090	46	13	SE	<2	B3	>5	Clear	Severe	4.3	186	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:17	21:22	40.18226	-73.08090	40.18843	-73.08084	44	13	SE	<2	B3	>5	Clear	Slight	4.1	3.9	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:22	22:00	40.18843	-73.08084	40.23296	-73.07950	44	13	SE	<2	B3	>5	Clear	Slight	4.2	1.2	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:29	40.23296	-73.07950	40.26670	-73.07861	44	13	SSE	<2	B3	>5	Cloudy	None	4.2	3.6	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:29	22:35	40.26670	-73.07861	40.27378	-73.07836	42	13	SSE	<2	B3	2-5	Cloudy	None	4.2	3.6	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	23:00	40.27378	-73.07836	40.30308	-73.07754	41	15	SSE	<2	B3	1-2	Cloudy	None	4.1	1.6	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:01	40.30308	-73.07754	40.30486	-73.07742	41	13.4	SSE	<2	B3	0.5-1	Cloudy	None	4.2	5.6	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:01	23:02	40.30486	-73.07742	40.30545	-73.07739	41	13.4	SSE	<2	B3	0.5-1	Cloudy	None	4.2	5.6	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:02	23:17	40.30545	-73.07739	40.30567	-73.07001	41	13.4	SSE	<2	B3	0.5-1	Cloudy	None	4.2	5.6	Full Power	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:17	23:20	40.30567	-73.07001	40.30258	-73.06998	42	13	SSE	<2	B3	0.5-1	Cloudy	None	4.0	181	Silent	N/A
2022-10-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:20	00:00	40.30258	-73.06998	40.25706	-73.07136	42	13	SSE	<2	B3	0.5-1	Cloudy	None	4.0	181	Full Power	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:59	40.25589	-73.07140	40.18782	-73.07337	42	14.2	SSE	<2	B3	0.5-1	Clear	None	4.2	181	Full Power	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:59	01:01	40.18782	-73.07337	40.18546	-73.07338	44	14	S	<2	B3	0.5-1	Clear	None	4.1	181	Silent	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:01	01:14	40.18546	-73.07338	40.18420	-73.08124	44	14	S	<2	B3	0.5-1	Clear	None	4.1	181	Full Power	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:14	01:17	40.18420	-73.08124	40.18799	-73.08118	43	14	S	<2	B3	0.5-1	Clear	None	4.6	1	Silent	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:17	02:00	40.18799	-73.08118	40.23868	-73.07975	44	14	S	<2	B3	0.5-1	Clear	None	4.6	1	Full Power	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:53	40.23868	-73.07975	40.30419	-73.07792	43	12	S	<2	B3	0.5-1	Clear	None	4.4	4	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:53	03:00	40.30419	-73.07792	40.31239	-73.07625	43	11	S	<2	B3	0.5-1	Clear	None	4.1	357	Silent	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:20	40.31239	-73.07625	40.29830	-73.07007	42	15	S	<2	B3	0.5-1	Clear	None	3.8	177	Deploying/Retrieving	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:20	04:00	40.29830	-73.07007	40.29596	-73.07219	42	15	S	<2	B3	0.5-1	Clear	None	3.8	177	Deploying/Retrieving	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:05	40.29596	-73.07219	40.29688	-73.07164	39	13	SSE	<2	B3	0.5-1	Clear	None	0.7	268	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:05	05:00	40.29688	-73.07164	40.28788	-73.20035	39	15	SSE	<2	B3	0.5-1	Cloudy	None	6.4	266	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.28788	-73.20035	40.32275	-73.35369	39	14	SE	<2	B3	0.5-1	Cloudy	None	7.3	242	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:23	40.32275	-73.35369	40.33513	-73.41064	39	16	SE	<2	B3	0.5-1	Cloudy	None	7.1	285	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:23	06:55	40.33513	-73.41064	40.35193	-73.49103	30	13	SSW	<2	B3	0.3-0.5	Precipitation	None	7.3	284	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:55	07:00	40.35193	-73.49103	40.35428	-73.50379	30	15	S	<2	B3	0.5-1	Cloudy	None	7.2	285	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.35428	-73.50379	40.38218	-73.64449	30	15	S	<2	B3	0.5-1	Cloudy	None	7.2	285	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.38218	-73.64449	40.40640	-73.82251	30	11	S	<2	B3	0.5-1	Cloudy	None	7.3	283	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:56	40.40640	-73.82251	40.46409	-73.95415	30	13	SE	<2	B3	0.5-1	Cloudy	None	7.6	269	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	09:56	10:37	40.46409	-73.95415	40.48418	-74.05707	15	10	SSE	<2	B3	0.5-1	Cloudy	None	8.0	307	Transit	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:37	11:00	40.48418	-74.05707	40.48632	-74.05935	15	10	SSE	<2	B3	0.5-1	Cloudy	None	0.1	82	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.48632	-74.05935	40.48816	-74.07438	15	7	SSE	<2	B3	1-2	Cloudy	None	0.6	40	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.48816	-74.07438	40.49116	-74.08980	9	10	SSE	<2	B2	>5	Cloudy	Moderate	0.7	43	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.49116	-74.08980	40.49658	-74.10204	9	10	SE	<2	B2	>5	Cloudy	Moderate	0.6	38	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.49658	-74.10204	40.50737	-74.06789	9	12	SE	<2	B2	>5	Cloudy	Slight	2.4	61	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:34	40.50737	-74.06789	40.50789	-74.06859	8	20	S	<2	B2	>5	Cloudy	Slight	0.9	308	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:34	16:00	40.50789	-74.06859	40.49216	-74.06134	8	19	S	<2	B3	>5	Cloudy	Slight	3.9	117	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.49216	-74.06134	40.50869	-74.05761	9	19	SE	<2	B3	>5	Cloudy	Slight	0.9	358	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:00	18:00	40.50869	-74.05761	40.50176	-74.06341	8	16	E	<2	B3	>5	Precipitation	Slight	0.9	15	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.50176	-74.06341	40.50279	-74.06485	8	17	ENE	<2	B3	>5	Precipitation	Slight	0.8	30	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.50279	-74.06485	40.50415	-74.06560	7	16	E	<2	B3	>5	Precipitation	Slight	3.4	222	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.50415	-74.06560	40.50937	-74.06273	7	16	SSE	<2	B3	2-5	Cloudy	None	0.5	35	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:28	40.50937	-74.06273	40.49346	-74.07125	6	11.8	SE	<2	B3	2-5	Precipitation	None	0.8	280	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:28	21:40	40.49346	-74.07125	40.49394	-74.07165	6	16	SE	<2	B3	1-2	Precipitation	None	0.4	237	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	22:00	40.49394	-74.07165	40.49438	-74.07296	7	16	SE	<2	B3	0.5-1	Precipitation	None	0.4	265	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:11	40.49438	-74.07296	40.49493	-74.07454	8	9	ESE	<2	B3	1-2	Precipitation	None	0.1	311	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:11	22:33	40.49493	-74.07454	40.49660	-74.07814	8	9	ESE	<2	B3	2-5	Precipitation	None	0.5	303	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:33	23:00	40.49660	-74.07814	40.49855	-74.08409	8	12	SE	<2	B3	1-2	Precipitation	None	0.4	294	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:09	40.49855	-74.08409	40.49520	-74.07393	8	14	SE	<2	B3	0.5-1	Precipitation	None	4.5	112	Standby	N/A
2022-10-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:09	00:00	40.49520	-74.07393	40.49676	-74.07205	8	14	SE	<2	B3	0.1-0.3	Precipitation	None	4.5	112	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.49686	-74.07223	40.49518	-74.06172	9	15	S	<2	B2	0.3-0.5	Precipitation	None	0.8	306	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.49518	-74.06172	40.50509	-74.07573	9	16	S	<2	B2	0.3-0.5	Precipitation	None	0.5	3.6	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:39	40.50509	-74.07573	40.48534	-74.06101	9	16	S	<2	B2	0.3-0.5	Precipitation	None	0.5	148	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:39	03:00	40.48534	-74.06101	40.48947	-74.07376	9	24	NNW	<2	B2	0.3-0.5	Precipitation	None	0.7	117	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.48947	-74.07376	40.49265	-74.07148	9	24	NW	<2	B2	0.3-0.5	Precipitation	None	3.8	288	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49265	-74.07148	40.49688	-74.06446	9	18	NW	<2	B3	0.3-0.5	Precipitation	None	4.0	357	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:40	40.49688	-74.06446	40.50120	-74.08098	9	14	NNW	<2	B3	0.3-0.5	Precipitation	None	0.5	101	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:40	06:00	40.50120	-74.08098	40.50112	-74.07714	9	16	NNW	<2	B3	0.3-0.5	Precipitation	None	1.4	48	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.50112	-74.07714	40.49481	-74.06745	9	14	NNW	<2	B3	0.3-0.5	Precipitation	None	0.9	128	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:55	40.49481	-74.06745	40.49677	-74.07571	9	18	NNW	<2	B3	0.3-0.5	Precipitation	None	3.3	321	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:55	08:00	40.49677	-74.07571	40.49581	-74.07455	8	17	NNW	<2	B3	0.5-1	Cloudy	None	0.9	242	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.49581	-74.07455	40.49407	-74.07441	8	15	N	<2	B3	0.5-1	Cloudy	None	0.7	140	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.49407	-74.07441	40.49086	-74.07338	8	18	NNW	<2	B3	0.5-1	Cloudy	None	5.1	325	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:48	40.49086	-74.07338	40.50482	-74.08003	8	18	NNW	<2	B3	0.5-1	Clear	None	0.8	235	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:48	11:00	40.50482	-74.08003	40.50280	-74.08231	8	13	NW	<2	B3	1-2	Clear	None	0.8	78	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.50280	-74.08231	40.50237	-74.08336	7	12	NW	<2	B3	2-5	Cloudy	Slight	0.9	72	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:35	40.50237	-74.08336	40.51265	-74.05209	7	14	NW	<2	B3	>5	Clear	Slight	3.5	88	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:35	12:57	40.51265	-74.05209	40.54789	-74.03761	7	18	NW	<2	B3	>5	Clear	Moderate	7.2	11	Transit	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:57	13:42	40.54789	-74.03761	40.61739	-74.06417	11	17	NW	<2	B3	>5	Clear	Moderate	7.3	13	Transit	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:19	15:00	40.61741	-74.06413	40.55080	-74.03747	8	10	NNW	<2	B2	>5	Cloudy	Moderate	7	120	Transit	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.55080	-74.03747	40.49668	-74.07215	11	11.5	NW	<2	B3	>5	Clear	Moderate	2.3	120	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.49668	-74.07215	40.49694	-74.08339	9	9.7	NW	<2	B3	>5	Clear	Severe	0.8	121	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:00	17:40	40.49694	-74.08339	40.49562	-74.07398	8	10	WNW	<2	B3	>5	Clear	Severe	2.9	276	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:40	18:15	40.49562	-74.07398	40.49278	-74.06722	7	7	W	<2	B3	>5	Clear	Severe	0.9	118	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:15	19:00	40.49278	-74.06722	40.50033	-74.08679	7	8	NW	<2	B2	>5	Clear	Severe	0.7	140	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.50033	-74.08679	40.49526	-74.07467	7	9	NW	<2	B3	>5	Clear	Severe	1.2	345	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.49526	-74.07467	40.49954	-74.09334	8	6.5	WNW	<2	B2	>5	Clear	Severe	0.7	100	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.49954	-74.09334	40.49846	-74.08110	8	6.6	WSW	<2	B2	>5	Clear	Severe	0.5	50	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:40	40.49846	-74.08110	40.49710	-74.07662	7	7	WSW	<2	B1	>5	Clear	Severe	1.2	21	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:40	23:00	40.49710	-74.07662	40.49649	-74.07600	8	4.8	SW	<2	B1	1-2	Clear	None	0.1	24	Standby	N/A
2022-10-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.49649	-74.07600	40.49612	-74.08112	8	5.7	SW	<2	B1	0.5-1	Clear	None	0.5	12	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.49612	-74.08124	40.49473	-74.06968	7	6	SW	<2	B2	0.5-1	Clear	None	0.1	351	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.49473	-74.06968	40.49084	-74.07669	7	6	SW	<2	B2	0.5-1	Clear	None	0.3	21	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.49084	-74.07669	40.48678	-74.07818	7	6	W	<2	B2	0.5-1	Clear	None	0.3	14	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.48678	-74.07818	40.49078	-74.07962	7	8	WNW	<2	B2	0.5-1	Clear	None	0.4	36	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49078	-74.07962	40.49505	-74.07757	9	7	W	<2	B2	0.5-1	Clear	None	0.2	17	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.49505	-74.07757	40.49370	-74.07366	9	4	WNW	<2	B2	0.5-1	Clear	None	0.1	53	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.49370	-74.07366	40.49471	-74.06572	8	3	W	<2	B2	0.5-1	Clear	None	0.1	70	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.49471	-74.06572	40.49520	-74.08690	8	5	W	<2	B2	0.5-1	Clear	None	0.1	154	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.49520	-74.08690	40.49178	-74.07651	8	10	WNW	<2	B2	0.5-1	Clear	None	2.1	266	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.49178	-74.07651	40.48891	-74.07007	8	8	NW	<2	B2	0.5-1	Clear	None	0.8	175	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:38	40.48891	-74.07007	40.48592	-74.06231	9	5	W	<2	B2	0.5-1	Clear	None	0.1	171	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:38	10:50	40.48592	-74.06231	40.47528	-74.04034	9	6	W	<2	B2	0.5-1	Clear	None	5.9	118	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:50	11:00	40.47528	-74.04034	40.48166	-74.01563	9	6	W	<2	B2	1-2	Clear	None	5.0	99	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.48166	-74.01563	40.43433	-73.85427	20	6	W	<2	B2	2-5	Clear	Slight	8.2	61	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.43433	-73.85427	40.39991	-73.66279	27	10	NE	<2	B2	>5	Clear	Severe	8.6	103	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.39991	-73.66279	40.36550	-73.49675	25	5	SE	<2	B3	>5	Clear	Severe	8.4	101	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.36550	-73.49675	40.30558	-73.34336	29	7.4	SE	<2	B3	>5	Clear	Severe	8.2	109	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.30558	-73.34336	40.24033	-73.18460	34	9.4	SE	<2	B3	>5	Clear	Severe	7.6	118	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:45	40.24033	-73.18460	40.18854	-73.08057	39	9.1	SE	<2	B3	>5	Clear	Severe	8.7	117	Transit	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:45	16:57	40.18854	-73.08057	40.18661	-73.07943	39	8.9	SE	<2	B3	>5	Clear	Severe	7.7	123	Standby	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:06	40.18661	-73.07943	40.18759	-73.07892	44	8	SSE	<2	B2	>5	Clear	Severe	0.6	46	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:06	18:00	40.18759	-73.07892	40.18930	-73.06775	44	8	SSE	<2	B2	>5	Clear	Severe	0.5	70	Deploying/Retrieving	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:28	40.18930	-73.06775	40.17749	-73.04302	45	7	S	<2	B2	>5	Clear	Severe	2.7	127	Deploying/Retrieving	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:28	18:49	40.17749	-73.04302	40.17676	-73.07168	47	10	S	<2	B2	>5	Clear	Severe	3.7	131	Soft Start	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:49	18:58	40.17676	-73.07168	40.18249	-73.08157	46	10	S	<2	B2	>5	Clear	Severe	4.1	170	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	19:02	40.18249	-73.08157	40.18732	-73.08150	46	10	S	<2	B2	>5	Clear	Severe	3.9	355	Silent	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:02	20:00	40.18732	-73.08150	40.25319	-73.07966	46	10	S	<2	B2	>5	Clear	Severe	3.9	355	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:42	40.25319	-73.07966	40.30417	-73.07816	43	13.8	SSW	<2	B3	>5	Clear	Severe	4.1	358	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:42	20:43	40.30417	-73.07816	40.30535	-73.07811	43	13.8	SSW	<2	B3	>5	Clear	Severe	4.1	358	Silent	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:43	20:56	40.30535	-73.07811	40.30831	-73.07025	40	14.9	SSW	<2	B3	>5	Clear	Severe	4.3	350	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:56	21:00	40.30831	-73.07025	40.30367	-73.07039	42	16	SSW	<2	B4	>5	Clear	Severe	3.9	183	Silent	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:56	40.30367	-73.07039	40.23744	-73.07224	42	18	SSW	<2	B4	>5	Clear	Severe	3.9	182	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:56	22:21	40.23744	-73.07224	40.20965	-73.07309	43	18	SSW	<2	B4	>5	Clear	Severe	4.2	185	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:21	22:35	40.20965	-73.07309	40.19462	-73.07350	43	17	SSW	<2	B4	>5	Clear	None	4.5	184	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	22:42	40.19462	-73.07350	40.18727	-73.07371	45	17.8	SSW	<2	B4	0.5-1	Clear	None	3.9	202	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:42	22:44	40.18727	-73.07371	40.18482	-73.07380	43	18	SSW	<2	B4	0.5-1	Clear	None	3.6	168	Silent	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:44	23:13	40.18482	-73.07380	40.18421	-73.08192	43	18	SSW	<2	B4	0.5-1	Clear	None	3.6	168	Full Power	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:13	23:16	40.18421	-73.08192	40.18786	-73.08181	44	12.7	SW	<2	B4	0.5-1	Clear	None	4.6	114	Silent	N/A
2022-10-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:16	00:00	40.18786	-73.08181	40.23928	-73.08038	44	12.7	SW	<2	B4	0.5-1	Clear	None	4.6	114	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:55	40.24005	-73.08037	40.30412	-73.07859	42	15	SW	<2	B3	0.5-1	Clear	None	4.2	0.5	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:55	00:57	40.30412	-73.07859	40.30642	-73.07852	41	15	SW	<2	B3	0.5-1	Clear	None	4.1	0.7	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:57	01:13	40.30642	-73.07852	40.30680	-73.07068	41	15	SW	<2	B3	0.5-1	Clear	None	4.5	1.5	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:13	01:17	40.30680	-73.07068	40.30271	-73.07080	42	17	SW	<2	B3	0.5-1	Clear	None	3.6	184	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:17	02:00	40.30271	-73.07080	40.26263	-73.07193	42	17	SW	<2	B3	0.5-1	Clear	None	3.8	184	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.26263	-73.07193	40.20173	-73.07369	42	18	SW	<2	B4	0.5-1	Clear	None	3.6	184	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:12	40.20173	-73.07369	40.18734	-73.07406	42	20	SW	<2	B4	0.5-1	Clear	None	3.2	181	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:12	03:14	40.18734	-73.07406	40.18523	-73.07410	42	18	SW	<2	B4	0.5-1	Clear	None	4.2	185	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:14	03:28	40.18523	-73.07410	40.18364	-73.08233	42	20	SW	<2	B4	0.5-1	Clear	None	4.2	186	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:28	03:32	40.18364	-73.08233	40.18811	-73.08224	42	20	SW	<2	B4	0.5-1	Clear	None	4.3	358	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:32	04:00	40.18811	-73.08224	40.21850	-73.08132	42	15	SW	<2	B4	0.5-1	Clear	None	3.8	357	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.21850	-73.08132	40.28076	-73.07955	41	16	SSW	<2	B3	0.5-1	Clear	None	3.7	356	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:21	40.28076	-73.07955	40.30382	-73.07890	42	15	SSW	<2	B3	0.5-1	Clear	None	4.2	358	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:21	05:23	40.30382	-73.07890	40.30597	-73.07881	42	13	SW	<2	B3	0.5-1	Clear	None	4.0	357	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:23	05:38	40.30597	-73.07881	40.30661	-73.07100	42	14	SW	<2	B3	0.5-1	Clear	None	3.6	357	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:38	05:41	40.30661	-73.07100	40.30352	-73.07110	42	17	SW	<2	B3	0.5-1	Clear	None	3.4	188	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:41	06:00	40.30352	-73.07110	40.28396	-73.07169	42	17	SW	<2	B3	0.5-1	Clear	None	3.4	187	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.28396	-73.07169	40.22070	-73.07351	41	18	SW	<2	B4	0.5-1	Clear	None	4.0	187	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:33	40.22070	-73.07351	40.18809	-73.07439	43	18	SW	<2	B4	0.5-1	Clear	None	4.0	187	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:33	07:35	40.18809	-73.07439	40.18589	-73.07444	45	15	SW	<2	B4	0.5-1	Clear	None	3.5	187	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:35	07:50	40.18589	-73.07444	40.18407	-73.08273	45	15	SW	<2	B4	0.5-1	Clear	None	4	192	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:50	07:54	40.18407	-73.08273	40.18809	-73.08252	44	11	WSW	<2	B4	0.5-1	Clear	None	3.5	353	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:54	08:00	40.18809	-73.08252	40.19201	-73.08239	43	11	WSW	<2	B4	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.19201	-73.08239	40.25914	-73.08051	43	12	WSW	<2	B4	0.5-1	Clear	None	4.3	355	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:36	40.25914	-73.08051	40.30443	-73.07926	43	9	WSW	<2	B4	0.5-1	Clear	None	4.4	358	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:36	09:37	40.30443	-73.07926	40.30560	-73.07924	43	9	S	<2	B4	0.5-1	Clear	None	4.2	358	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:37	09:52	40.30560	-73.07924	40.30776	-73.07133	43	9	W	<2	B4	0.5-1	Clear	None	4.5	359	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:52	09:56	40.30776	-73.07133	40.30302	-73.07151	43	8	W	<2	B4	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:56	10:00	40.30302	-73.07151	40.29833	-73.07164	43	9	W	<2	B4	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:44	40.29833	-73.07164	40.24582	-73.07313	41	9	W	<2	B4	0.5-1	Clear	None	3.9	181	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:44	11:00	40.24582	-73.07313	40.22649	-73.07370	42	6	NW	<2	B4	1-2	Clear	None	4.9	180	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:33	40.22649	-73.07370	40.18730	-73.07474	44	6	NW	<2	B3	2-5	Clear	Slight	4.4	178	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:33	11:34	40.18730	-73.07474	40.18613	-73.07480	43	7	NW	<2	B3	>5	Clear	Moderate	3.9	177	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:34	11:45	40.18613	-73.07480	40.18134	-73.08299	43	7	NW	<2	B3	>5	Clear	Moderate	3.9	177	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:45	11:51	40.18134	-73.08299	40.18842	-73.08285	44	8	NW	<2	B3	>5	Clear	Severe	4.4	1	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:51	12:00	40.18842	-73.08285	40.19807	-73.08256	43	7	NW	<2	B3	>5	Clear	Severe	4.2	3	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.19807	-73.08256	40.26479	-73.08069	43	7	NW	<2	B3	>5	Clear	Severe	3.5	3	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:25	40.26479	-73.08069	40.29285	-73.07989	42	9	NNW	<2	B3	>5	Clear	Severe	4.1	5.5	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:25	13:27	40.29285	-73.07989	40.29513	-73.07983	42	9	NNW	<2	B3	>5	Clear	Severe	4.1	3	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:27	13:49	40.29513	-73.07983	40.30955	-73.07165	42	9	NNW	<2	B3	>5	Clear	Severe	4.1	3	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:49	13:54	40.30955	-73.07165	40.30380	-73.07179	42	5	NNW	<2	B3	>5	Clear	Severe	4.2	178	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:54	14:00	40.30380	-73.07179	40.29684	-73.07198	42	5	NNW	<2	B3	>5	Clear	Severe	4.2	178	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:44	40.29684	-73.07198	40.24500	-73.07353	41	5	NNW	<2	B3	>5	Clear	Severe	4.1	177	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:44	15:01	40.24500	-73.07353	40.22533	-73.07407	41	5	NNW	<2	B3	>5	Cloudy	Moderate	4.1	177	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:01	15:34	40.22533	-73.07407	40.18792	-73.07511	45	3.8	NW	<2	B3	>5	Cloudy	Severe	4.0	175	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:34	15:36	40.18792	-73.07511	40.18569	-73.07516	45	3.8	NW	<2	B3	>5	Cloudy	Severe	4.1	175	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:36	16:01	40.18569	-73.07516	40.17147	-73.08375	45	4.7	NW	<2	B3	>5	Cloudy	Severe	3.8	192	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:01	16:06	40.17147	-73.08375	40.17759	-73.08361	45	4.7	NW	<2	B3	>5	Cloudy	Severe	3.8	192	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:06	16:54	40.17759	-73.08361	40.23403	-73.08190	44	4.3	NW	<2	B2	>5	Cloudy	Moderate	3.4	1	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:54	17:45	40.23403	-73.08190	40.29356	-73.08027	43	5	NW	<2	B2	>5	Cloudy	Slight	3.5	359	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:45	17:46	40.29356	-73.08027	40.29473	-73.08024	41	7	NW	<2	B2	>5	Cloudy	None	3.6	354	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:46	18:09	40.29473	-73.08024	40.29909	-73.08043	41	7	NW	<2	B2	>5	Cloudy	None	3.6	354	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:09	18:15	40.29909	-73.08043	40.29195	-73.08061	41	8	WNW	<2	B2	>5	Cloudy	None	4.4	182	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:15	18:59	40.29195	-73.08061	40.23904	-73.08211	41	8	WNW	<2	B2	>5	Cloudy	None	4.4	182	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	19:13	40.23904	-73.08211	40.22348	-73.08262	43	8	WNW	<2	B2	>5	Cloudy	Slight	4.1	184	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:13	19:54	40.22348	-73.08262	40.17580	-73.08388	43	8	WNW	<2	B3	>5	Clear	Severe	4.1	184	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:54	19:55	40.17580	-73.08388	40.17548	-73.08389	45	6.2	SW	<2	B3	>5	Clear	Severe	3.8	186	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:55	20:00	40.17548	-73.08389	40.17313	-73.08391	45	6.2	SW	<2	B3	>5	Clear	Severe	3.8	186	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:12	40.17313	-73.08391	40.17106	-73.09032	45	6.2	SW	<2	B3	>5	Clear	Severe	3.8	186	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:12	20:17	40.17106	-73.09032	40.17726	-73.09027	45	6.4	SW	<2	B3	>5	Clear	Severe	4.1	355	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:17	21:00	40.17726	-73.09027	40.22718	-73.08883	45	6.4	SW	<2	B3	>5	Clear	Severe	4.1	355	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:42	40.22718	-73.08883	40.27609	-73.08750	44	7	WNW	<2	B3	>5	Clear	Severe	4.1	358	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:42	21:44	40.27609	-73.08750	40.27845	-73.08742	44	7	WNW	<2	B3	>5	Clear	Severe	4.1	358	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:44	21:58	40.27845	-73.08742	40.28679	-73.07922	40	9	WNW	<2	B3	>5	Clear	None	4.2	358	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:58	22:30	40.28679	-73.07922	40.25999	-73.08736	41	8	W	<2	B3	>5	Clear	None	4.1	178	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:30	22:31	40.25999	-73.08736	40.26357	-73.08778	41	9	W	<2	B3	1-2	Clear	None	4.1	346	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:31	22:35	40.26357	-73.08778	40.26920	-73.08764	41	9	W	<2	B3	0.5-1	Clear	None	4.1	346	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	22:56	40.26920	-73.08764	40.29335	-73.08699	42	9	W	<2	B3	0.5-1	Clear	None	4.1	346	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:56	22:57	40.29335	-73.08699	40.29454	-73.08696	42	9	W	<2	B2	0.5-1	Clear	None	4.2	358	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:57	23:16	40.29454	-73.08696	40.29710	-73.08083	42	9	W	<2	B2	0.5-1	Clear	None	4.2	350	Full Power	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:16	23:20	40.29710	-73.08083	40.29242	-73.08095	41	9.6	SW	<2	B2	0.5-1	Clear	None	4.4	182	Silent	N/A
2022-10-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:20	00:00	40.29242	-73.08095	40.24504	-73.08225	41	9.6	SW	<2	B2	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.24043	-73.08246	40.17881	-73.08419	42	8	SW	<2	B2	0.5-1	Clear	None	4.2	182	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:02	40.17881	-73.08419	40.17673	-73.08424	45	10	W	<2	B2	0.5-1	Clear	None	4.2	182	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:02	01:04	40.17673	-73.08424	40.17470	-73.08430	45	10	W	<2	B2	0.5-1	Clear	None	3.8	182	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:04	01:23	40.17470	-73.08430	40.17355	-73.09065	45	10	W	<2	B2	0.5-1	Clear	None	3.8	182	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:23	01:26	40.17355	-73.09065	40.17714	-73.09055	45	9	SW	<2	B2	0.5-1	Clear	None	4.2	359	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:26	02:00	40.17714	-73.09055	40.21746	-73.08951	45	9	SW	<2	B2	0.5-1	Clear	None	4.2	359	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.21746	-73.08951	40.28373	-73.08764	45	7	SW	<2	B2	0.5-1	Clear	None	4.4	1	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:09	40.28373	-73.08764	40.29368	-73.08734	45	9	SW	<2	B2	0.5-1	Clear	None	3.9	1	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:09	03:10	40.29368	-73.08734	40.29478	-73.08732	45	10	SW	<2	B2	0.5-1	Clear	None	4.0	6	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:10	03:30	40.29478	-73.08732	40.29669	-73.08122	45	9	SW	<2	B2	0.5-1	Clear	None	4.0	359	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:30	03:34	40.29669	-73.08122	40.29205	-73.08135	45	9	SW	<2	B2	0.5-1	Clear	None	4.0	181	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:34	04:00	40.29205	-73.08135	40.26136	-73.08217	45	10	SW	<2	B2	0.5-1	Clear	None	3.8	180	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.26136	-73.08217	40.19156	-73.08418	42	9	W	<2	B2	0.5-1	Cloudy	None	4.3	180	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:13	40.19156	-73.08418	40.17648	-73.08458	44	8	WSW	<2	B2	0.5-1	Cloudy	None	4.4	180	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:13	05:14	40.17648	-73.08458	40.17532	-73.08463	44	8	WSW	<2	B2	0.5-1	Cloudy	None	4.2	182	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:14	05:32	40.17532	-73.08463	40.17303	-73.09101	44	8	WSW	<2	B2	0.5-1	Cloudy	None	3.9	172	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:32	05:36	40.17303	-73.09101	40.17776	-73.09096	45	8	WSW	<2	B2	0.5-1	Cloudy	None	4.2	359	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:36	06:00	40.17776	-73.09096	40.20459	-73.09024	45	8	WSW	<2	B2	0.5-1	Cloudy	None	4.3	359	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.20459	-73.09024	40.27314	-73.08823	43	8	SW	<2	B2	0.5-1	Cloudy	None	4.3	359	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:18	40.27314	-73.08823	40.29366	-73.08770	41	6	SW	<2	B2	0.5-1	Cloudy	None	4.1	1	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:18	07:19	40.29366	-73.08770	40.29481	-73.08767	41	2	SW	<2	B2	0.5-1	Cloudy	None	4.1	1	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:19	07:39	40.29481	-73.08767	40.29745	-73.08151	41	2	SW	<2	B2	0.5-1	Cloudy	None	4.1	358	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:39	07:43	40.29745	-73.08151	40.29272	-73.08162	41	9	SSW	<2	B2	0.5-1	Cloudy	None	4.3	181	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:43	08:00	40.29272	-73.08162	40.27393	-73.08225	41	8	SSW	<2	B2	0.5-1	Cloudy	None	4	181	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.27393	-73.08225	40.21050	-73.08401	41	11	S	<2	B2	0.5-1	Cloudy	None	4.2	181	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:25	40.21050	-73.08401	40.17658	-73.08493	41	12	S	<2	B3	0.5-1	Cloudy	None	4.1	181	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:25	09:26	40.17658	-73.08493	40.17548	-73.08496	41	12	S	<2	B3	0.5-1	Cloudy	None	4.1	181	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:26	09:29	40.17548	-73.08496	40.17214	-73.08520	41	12	S	<2	B3	0.5-1	Cloudy	None	4.1	181	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:29	09:39	40.17214	-73.08520	40.17279	-73.09148	41	15	S	<2	B3	0.5-1	Cloudy	None	4.1	184	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:39	09:43	40.17279	-73.09148	40.17713	-73.09132	41	13	S	<2	B3	0.5-1	Cloudy	None	3.8	7	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:43	10:00	40.17713	-73.09132	40.19534	-73.09083	41	13	S	<2	B3	0.5-1	Cloudy	None	3.8	353	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	11:00	40.19534	-73.09083	40.25991	-73.08893	43	10	SSW	<2	B3	0.5-1	Cloudy	None	3.8	1	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	11:00	11:07	40.25991	-73.08893	40.26746	-73.08878	42	12	SSE	<2	B3	0.5-1	Cloudy	None	3.8	3.2	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:07	11:31	40.26746	-73.08878	40.29363	-73.08800	42	11	SSE	<2	B3	1-2	Cloudy	None	3.8	355	Full Power	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:31	11:47	40.29363	-73.08800	40.29317	-73.08101	41	15	S	<2	B3	2-5	Cloudy	None	3.9	3	Silent	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:47	12:00	40.29317	-73.08101	40.28729	-73.08795	41	15	S	<2	B3	>5	Cloudy	None	2.4	181	Deploying/Retrieving	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:09	40.28729	-73.08795	40.29534	-73.09008	41	18	S	<2	B3	>5	Cloudy	None	4.3	300	Deploying/Retrieving	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:09	12:42	40.29534	-73.09008	40.28230	-73.09980	42	19	S	<2	B3	>5	Cloudy	None	3.0	5	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:42	13:00	40.28230	-73.09980	40.26580	-73.10650	42	19	S	<2	B4	>5	Cloudy	None	3.3	192	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:24	40.26580	-73.10650	40.23349	-73.10869	41	16	SSE	<2	B4	>5	Cloudy	None	3.5	191	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:24	13:41	40.23349	-73.10869	40.21062	-73.11118	43	17	SSE	<2	B4	>5	Precipitation	None	4.9	190	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:41	13:47	40.21062	-73.11118	40.20267	-73.11194	43	17	SSE	<2	B4	2-5	Precipitation	None	4.8	181	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:47	14:00	40.20267	-73.11194	40.18727	-73.11676	43	17	SSE	<2	B4	>5	Precipitation	None	4.8	181	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.18727	-73.11676	40.22516	-73.11939	43	23	SW	<2	B5	>5	Precipitation	None	4.8	274	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:31	40.22516	-73.11939	40.25575	-73.11499	43	17	SW	<2	B5	>5	Precipitation	None	4.3	359	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:31	16:00	40.25575	-73.11499	40.28008	-73.10110	42	17	SW	<2	B5	>5	Cloudy	Slight	3.4	9	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:28	40.28008	-73.10110	40.30360	-73.08517	43	19	SW	<2	B5	>5	Cloudy	Moderate	3.8	27	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:28	16:59	40.30360	-73.08517	40.28633	-73.10134	43	20	SW	<2	B5	>5	Cloudy	Moderate	3.4	27	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:59	17:30	40.28633	-73.10134	40.26274	-73.12375	40	20	SW	<2	B5	>5	Cloudy	Slight	4.4	214	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:30	18:05	40.26274	-73.12375	40.23197	-73.14180	40	20	SW	2-4	B5	>5	Cloudy	Slight	4.4	214	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:05	18:33	40.23197	-73.14180	40.20051	-73.14905	42	20	SW	2-4	B5	>5	Cloudy	Slight	4.4	194	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:33	18:42	40.20051	-73.14905	40.19029	-73.15121	42	20	SW	2-4	B5	>5	Precipitation	None	4.4	194	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:42	19:04	40.19029	-73.15121	40.16564	-73.15707	42	18	SW	2-4	B5	>5	Cloudy	None	4.4	194	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:04	20:00	40.16564	-73.15707	40.21313	-73.12817	42	16	SW	<2	B4	>5	Cloudy	None	3.1	211	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.21313	-73.12817	40.26541	-73.09514	43	20	SW	2-4	B5	>5	Cloudy	None	3.4	19	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:58	40.26541	-73.09514	40.31257	-73.06075	43	13	SW	2-4	B4	>5	Cloudy	None	3.3	22	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:58	22:31	40.31257	-73.06075	40.28931	-73.06730	40	12	SW	<2	B4	>5	Cloudy	None	3.5	28	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:31	23:00	40.28931	-73.06730	40.26653	-73.07708	41	13	SSW	<2	B4	0.5-1	Cloudy	None	3.1	199	Standby	N/A
2022-10-17	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.26653	-73.07708	40.22115	-73.10043	41	16	SE	<2	B4	0.5-1	Cloudy	None	2.6	200	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.22032	-73.10085	40.17314	-73.12279	43	16	S	<2	B4	0.5-1	Cloudy	None	3.0	200	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.17314	-73.12279	40.21207	-73.10021	43	15	SSW	<2	B4	0.5-1	Cloudy	None	3.6	200	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:39	40.21207	-73.10021	40.23983	-73.07629	43	11	W	<2	B4	0.5-1	Cloudy	None	2.9	22	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:39	03:00	40.23983	-73.07629	40.24840	-73.06816	43	16	NW	<2	B4	0.5-1	Precipitation	None	2.6	30	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:30	40.24840	-73.06816	40.27070	-73.04675	43	15	NW	<2	B4	0.5-1	Precipitation	None	2.5	31	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:30	04:00	40.27070	-73.04675	40.29020	-73.03073	43	7	NW	<2	B4	0.5-1	Precipitation	None	2.8	30	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:24	40.29020	-73.03073	40.29567	-73.02740	43	8	NNE	<2	B4	0.3-0.5	Precipitation	None	2.7	30	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:24	05:00	40.29567	-73.02740	40.27041	-73.04644	43	8	NNE	<2	B4	0.5-1	Cloudy	None	3.1	211	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:25	40.27041	-73.04644	40.25307	-73.05911	42	7	NNE	<2	B4	0.5-1	Cloudy	None	2.9	210	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:25	05:34	40.25307	-73.05911	40.24688	-73.06344	42	12	NNE	<2	B4	0.3-0.5	Precipitation	None	2.7	211	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:34	06:00	40.24688	-73.06344	40.22368	-73.08104	42	12	NNE	<2	B4	0.3-0.5	Precipitation	None	2.7	211	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.22368	-73.08104	40.17719	-73.10908	42	15	NW	<2	B4	0.3-0.5	Precipitation	None	3.7	211	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:30	40.17719	-73.10908	40.19833	-73.08492	43	21	NNW	<2	B4	0.3-0.5	Precipitation	None	3.3	31	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:30	08:00	40.19833	-73.08492	40.21980	-73.06115	43	21	NNW	<2	B4	0.3-0.5	Cloudy	None	3.3	31	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.21980	-73.06115	40.26465	-73.01471	43	19	NW	<2	B4	0.3-0.5	Cloudy	None	3.4	30	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.26465	-73.01471	40.25685	-73.00764	43	18	NW	<2	B4	0.3-0.5	Cloudy	None	3.6	31	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:30	40.25685	-73.00764	40.23330	-73.02352	43	16	NW	<2	B5	0.3-0.5	Cloudy	None	4.0	199	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:30	11:00	40.23330	-73.02352	40.23552	-73.06033	43	16	NW	<2	B5	0.3-0.5	Precipitation	None	4.0	199	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:34	40.23552	-73.06033	40.23010	-73.08444	42	14	NW	<2	B5	1-2	Precipitation	None	3.5	200	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:34	11:40	40.23010	-73.08444	40.23196	-73.08990	42	17	NW	<2	B5	>5	Cloudy	None	3	298	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:40	11:46	40.23196	-73.08990	40.23392	-73.09546	42	17	NW	<2	B5	>5	Cloudy	None	3	298	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:46	12:00	40.23392	-73.09546	40.22299	-73.09588	42	17	NW	<2	B5	>5	Cloudy	None	3	298	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.22299	-73.09588	40.21844	-73.07732	41	18	WNW	<2	B5	>5	Cloudy	None	4.9	151	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.21844	-73.07732	40.20467	-73.07645	44	12	WNW	<2	B4	>5	Cloudy	None	4.5	183	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:48	40.20467	-73.07645	40.21447	-73.07392	44	15	WNW	<2	B5	>5	Cloudy	Moderate	4.5	201	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:48	14:51	40.21447	-73.07392	40.21504	-73.07623	43	19	WNW	<2	B5	>5	Cloudy	Severe	3.0	286	Deploying/Retrieving	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:51	15:00	40.21504	-73.07623	40.21757	-73.08669	43	19	WNW	<2	B5	>5	Cloudy	Severe	3.0	286	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.21757	-73.08669	40.23423	-73.16286	43	19	WNW	<2	B5	>5	Cloudy	Severe	3.0	286	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:01	40.23423	-73.16286	40.23463	-73.16524	41	15	WNW	<2	B5	>5	Clear	Severe	3.4	282	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:01	16:59	40.23463	-73.16524	40.24822	-73.24028	43	19	WNW	<2	B5	>5	Cloudy	Severe	3.0	286	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:59	17:47	40.24822	-73.24028	40.26560	-73.29099	39	15	WNW	<2	B5	>5	Clear	Severe	3.6	282	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:47	18:37	40.26560	-73.29099	40.23534	-73.22573	37	14	WNW	<2	B5	>5	Clear	Severe	4.5	120	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:37	19:01	40.23534	-73.22573	40.22100	-73.19564	39	14	WNW	<2	B4	>5	Clear	Severe	3.9	123	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:01	20:00	40.22100	-73.19564	40.19026	-73.11879	39	14	WNW	<2	B4	>5	Clear	Severe	3.9	123	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:22	40.19026	-73.11879	40.17154	-73.09897	43	10	W	<2	B4	>5	Clear	Severe	4.4	116	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:22	21:00	40.17154	-73.09897	40.20524	-73.07104	45	12	W	<2	B4	>5	Clear	Severe	3.9	131	Deploying/Retrieving	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:32	40.20524	-73.07104	40.24566	-73.06990	44	9.4	W	<2	B4	>5	Clear	Severe	4.2	354	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:32	21:52	40.24566	-73.06990	40.26947	-73.06922	44	9.4	W	<2	B3	>5	Clear	Severe	4.2	354	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:52	22:08	40.26947	-73.06922	40.28768	-73.06888	42	13	W	<2	B3	>5	Clear	Severe	4.3	354	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:08	22:27	40.28768	-73.06888	40.30197	-73.06745	42	13	W	<2	B3	>5	Clear	None	4.3	354	Standby	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:27	22:35	40.30197	-73.06745	40.29766	-73.06566	42	13	W	<2	B3	2-5	Clear	None	4.3	354	Deploying/Retrieving	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	23:00	40.29766	-73.06566	40.27809	-73.05751	41	9	WNW	<2	B3	1-2	Clear	None	2.1	160	Deploying/Retrieving	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:23	40.27809	-73.05751	40.26164	-73.05388	42	16	WNW	<2	B3	0.5-1	Clear	None	2.6	175	Deploying/Retrieving	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:23	23:45	40.26164	-73.05388	40.25122	-73.06022	43	13	WNW	<2	B3	0.5-1	Clear	None	2.4	186	Soft Start	N/A
2022-10-18	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:45	00:00	40.25122	-73.06022	40.26694	-73.07070	43	14	W	<2	B3	0.5-1	Clear	None	3.9	336	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:38	40.26816	-73.07159	40.29675	-73.08174	41	16	W	<2	B3	0.5-1	Clear	None	4.3	330	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:38	00:41	40.29675	-73.08174	40.29322	-73.08196	41	16	W	<2	B3	0.5-1	Clear	None	4.2	187	Silent	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:41	01:00	40.29322	-73.08196	40.27347	-73.08254	41	16	W	<2	B3	0.5-1	Clear	None	4.2	187	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.27347	-73.08254	40.21374	-73.08423	41	16	W	<2	B3	0.5-1	Clear	None	3.8	171	Silent	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:28	40.21374	-73.08423	40.17727	-73.08531	41	10	WNW	<2	B3	0.5-1	Clear	None	4.1	186	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:28	02:30	40.17727	-73.08531	40.17512	-73.08535	41	10	WNW	<2	B3	0.5-1	Clear	None	4.1	186	Silent	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:30	02:44	40.17512	-73.08535	40.17331	-73.09258	41	10	WNW	<2	B3	0.5-1	Clear	None	4.2	189	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:44	02:48	40.17331	-73.09258	40.17744	-73.09265	41	19	WNW	<2	B4	0.5-1	Clear	None	3.6	346	Silent	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:48	03:00	40.17744	-73.09265	40.19036	-73.09236	41	21	WNW	<2	B4	0.5-1	Clear	None	3.9	350	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:36	40.19036	-73.09236	40.22819	-73.09130	41	19	WNW	2-4	B4	0.3-0.5*	Clear	None	3.9	346	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:36	04:00	40.22819	-73.09130	40.25189	-73.09064	43	22	NW	2-4	B5	0.3-0.5*	Cloudy	None	4.0	349	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:38	40.25189	-73.09064	40.29313	-73.08947	44	19	WNW	2-4	B5	0.3-0.5*	Clear	None	3.6	355	Full Power	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:38	04:58	40.29313	-73.08947	40.29596	-73.08186	41	19	WNW	2-4	B5	0.3-0.5	Clear	None	4.6	356	Silent	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:58	05:00	40.29596	-73.08186	40.29416	-73.08248	41	18	WNW	2-4	B5	0.3-0.5	Clear	None	3.4	200	Deploying/Retrieving	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:06	40.29416	-73.08248	40.28903	-73.08410	41	18	WNW	2-4	B5	0.3-0.5	Clear	None	3.4	200	Deploying/Retrieving	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:06	06:00	40.28903	-73.08410	40.25287	-73.08078	41	18	WNW	2-4	B5	0.3-0.5	Clear	None	2.1	200	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.25287	-73.08078	40.21865	-73.13789	42	18	WNW	2-4	B5	0.3-0.5	Clear	None	4	166	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.21865	-73.13789	40.20539	-73.20988	42	20	WNW	<2	B5	0.3-0.5	Clear	None	3.4	256	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.20539	-73.20988	40.21962	-73.16325	42	20	W	<2	B5	0.3-0.5	Clear	None	3.7	271	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.21962	-73.16325	40.24442	-73.06894	42	14	W	<2	B4	0.3-0.5	Clear	None	4.7	70	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:49	40.24442	-73.06894	40.23930	-73.15845	42	15	W	<2	B4	0.3-0.5	Clear	None	4.7	68	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:49	11:00	40.23930	-73.15845	40.24163	-73.17848	42	15	W	<2	B4	1-2	Clear	Slight	5.3	273	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.24163	-73.17848	40.25907	-73.28762	43	16	W	<2	B4	2-5	Clear	Slight	5.4	281	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.25907	-73.28762	40.28555	-73.39419	39	18	WNW	<2	B5	>5	Clear	Moderate	4.8	282	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.28555	-73.39419	40.31645	-73.49878	32	16	S	<2	B5	>5	Clear	Severe	5.0	291	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.31645	-73.49878	40.34466	-73.59682	29	20	W	<2	B5	>5	Clear	Severe	5.3	287	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.34466	-73.59682	40.36038	-73.71641	23	17	SW	<2	B5	>5	Clear	Severe	4.8	289	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:57	40.36038	-73.71641	40.36920	-73.82772	26	17	SW	<2	B5	>5	Clear	Severe	5.7	279	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:35	40.36920	-73.82772	40.37908	-73.89625	31	17	SW	<2	B5	>5	Clear	Severe	5.2	258	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:35	17:50	40.37908	-73.89625	40.38978	-73.92317	23	17	SW	<2	B4	>5	Clear	Severe	5.2	260	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:50	18:09	40.38978	-73.92317	40.40509	-73.94570	18	17	SW	<2	B3	>5	Clear	Severe	5.8	300	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:09	18:30	40.40509	-73.94570	40.40821	-73.93852	13	18	SW	<2	B3	>5	Clear	Severe	0.9	20	Deploying/Retrieving	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:30	19:25	40.40821	-73.93852	40.48235	-74.01228	14	20	WSW	<2	B3	>5	Cloudy	Moderate	5.2	28	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:25	20:00	40.48235	-74.01228	40.48957	-74.07010	16	23	WSW	<2	B3	>5	Cloudy	None	7.3	245	Transit	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.48957	-74.07010	40.50083	-74.09736	8	20	SW	<2	B3	>5	Cloudy	Severe	4.0	288	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:56	40.50083	-74.09736	40.50178	-74.08108	7	17	SW	<2	B3	>5	Cloudy	Severe	0.5	355	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:56	22:35	40.50178	-74.08108	40.50188	-74.06948	7	18	WSW	<2	B3	>5	Cloudy	None	1.0	16	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	23:00	40.50188	-74.06948	40.50262	-74.06094	7	14	SW	<2	B3	1-2	Cloudy	None	0.6	355	Standby	N/A
2022-10-19	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.50262	-74.06094	40.49984	-74.06657	6	11	SW	<2	B3	0.5-1	Cloudy	None	0.8	347	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.49996	-74.06635	40.50515	-74.04938	7	13	SW	<2	B2	0.5-1	Cloudy	None	0.7	328	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.50515	-74.04938	40.50035	-74.05957	7	14	SW	<2	B2	0.5-1	Cloudy	None	2.9	251	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.50035	-74.05957	40.49705	-74.05315	7	16	SW	<2	B2	0.5-1	Cloudy	None	1.0	342	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.49705	-74.05315	40.49287	-74.05964	7	20	SW	<2	B2	0.5-1	Cloudy	None	1.0	347	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49287	-74.05964	40.49171	-74.06317	8	19	SW	<2	B2	0.5-1	Clear	None	0.6	355	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.49171	-74.06317	40.49238	-74.06811	8	21	W	<2	B2	0.5-1	Clear	None	0.3	353	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.49238	-74.06811	40.49767	-74.07943	8	24	W	<2	B2	0.5-1	Clear	None	4.0	283	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.49767	-74.07943	40.49446	-74.06463	9	22	SW	<2	B2	0.5-1	Clear	None	0.4	8	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.49446	-74.06463	40.50066	-74.08152	7	18	WSW	<2	B2	0.5-1	Clear	None	0.6	11	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.50066	-74.08152	40.49859	-74.07764	8	20	WSW	<2	B2	0.5-1	Clear	None	0.4	355	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:52	40.49859	-74.07764	40.49860	-74.06029	9	17	SW	<2	B2	0.5-1	Clear	None	0.6	355	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:52	11:00	40.49860	-74.06029	40.49861	-74.05721	9	17	SW	<2	B2	1-2	Clear	None	0.5	0	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.49861	-74.05721	40.49825	-74.07448	8	16	SW	<2	B2	2-5	Clear	Slight	1.3	359	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.49825	-74.07448	40.50767	-74.05921	8	17	SW	<2	B2	>5	Clear	Moderate	1.0	119	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.50767	-74.05921	40.49900	-74.06562	9	13	SW	<2	B3	>5	Clear	Severe	0.7	104	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.49900	-74.06562	40.50110	-74.06747	7	15	SW	<2	B3	>5	Clear	Severe	0.9	318	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.50110	-74.06747	40.50520	-74.06780	7	24	SW	<2	B4	>5	Clear	Severe	3.6	258	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:51	40.50520	-74.06780	40.50539	-74.05846	7	20	SW	<2	B4	>5	Clear	Severe	0.4	354	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:51	18:00	40.50539	-74.05846	40.49806	-74.08082	6	19	SW	<2	B4	>5	Clear	Severe	1.8	265	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:59	40.49806	-74.08082	40.50180	-74.07385	7	21	SW	<2	B4	>5	Clear	Severe	0.5	344	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	20:00	40.50180	-74.07385	40.50506	-74.06575	7	17	SW	<2	B4	>5	Clear	Severe	0.3	330	Standby	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:40	40.50506	-74.06575	40.50232	-74.05731	7	14	SW	<2	B3	>5	Clear	Severe	0.4	324	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:40	21:00	40.50232	-74.05731	40.47624	-74.04210	8	20	SW	<2	B3	>5	Clear	Severe	4.5	171	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:30	40.47624	-74.04210	40.47140	-73.96623	13	13	SW	<2	B3	>5	Clear	Severe	7.2	67	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:30	22:00	40.47140	-73.96623	40.44442	-73.90624	13	15	SW	<2	B3	>5	Clear	Severe	8.0	125	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:00	22:32	40.44442	-73.90624	40.41907	-73.84651	19	18	SW	<2	B4	>5	Clear	Severe	6.8	109	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:32	22:35	40.41907	-73.84651	40.41694	-73.84843	19	18	SW	<2	B4	1-2	Clear	None	6.8	109	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:35	23:00	40.41694	-73.84843	40.38932	-73.87719	21	20	SW	2-4	B4	0.5-1	Clear	None	4.0	215	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:28	40.38932	-73.87719	40.35752	-73.91076	26	22	SW	2-4	B4	0.5-1	Clear	None	5.3	215	Transit	N/A
2022-10-20	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:28	00:00	40.35752	-73.91076	40.39462	-73.93034	17	22	SW	<2	B4	0.5-1	Clear	None	4.5	333	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.39672	-73.93067	40.38252	-73.92431	17	16	SW	<2	B3	0.5-1	Clear	None	4.6	349	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.38252	-73.92431	40.41741	-73.93174	17	17	SW	<2	B3	0.5-1	Clear	None	3.7	181	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.41741	-73.93174	40.39135	-73.92479	15	15	SSW	<2	B3	0.3-0.5	Clear	None	1.3	154	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.39135	-73.92479	40.39284	-73.92776	15	14	SW	<2	B3	0.3-0.5	Clear	None	4.5	352	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:15	40.39284	-73.92776	40.37760	-73.92499	17	15	WSW	<2	B3	0.3-0.5	Clear	None	4.0	175	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:15	05:00	40.37760	-73.92499	40.35200	-73.83816	17	12	SW	<2	B3	0.3-0.5	Clear	None	3.8	149	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.35200	-73.83816	40.39466	-73.69774	20	20	SW	<2	B3	0.3-0.5	Clear	None	6.1	120	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.39466	-73.69774	40.37427	-73.57789	26	20	SW	2-4	B3	0.3-0.5	Clear	None	7.6	65	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.37427	-73.57789	40.32538	-73.49427	26	16	SW	2-4	B3	0.3-0.5	Clear	None	7.2	73	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.32538	-73.49427	40.33803	-73.34991	26	17	SW	2-4	B3	0.3-0.5	Clear	None	6.2	160	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.33803	-73.34991	40.36812	-73.19496	34	14	SW	<2	B3	0.3-0.5	Clear	None	7.2	75	Transit	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:52	40.36812	-73.19496	40.32217	-73.11927	38	13	SSW	<2	B3	0.3-0.5	Clear	None	7.2	74	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:52	11:00	40.32217	-73.11927	40.31389	-73.11635	38	13	W	<2	B3	1-2	Clear	None	4.1	171	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	12:00	40.31389	-73.11635	40.25193	-73.11365	38	13	W	<2	B3	2-5	Clear	None	3.1	172	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:45	40.25193	-73.11365	40.27226	-73.08836	42	12	W	<2	B3	>5	Clear	Severe	4.8	186	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:45	13:00	40.27226	-73.08836	40.28451	-73.07940	42	12	W	<2	B3	>5	Clear	Severe	4.8	186	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:48	40.28451	-73.07940	40.30761	-73.05744	40	6	W	<2	B3	>5	Clear	Severe	3.5	21	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:48	14:00	40.30761	-73.05744	40.30905	-73.05555	43	3	W	<2	B2	>5	Clear	Severe	0.6	184	Deploying/Retrieving	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.30905	-73.05555	40.29415	-73.07751	42	4.5	W	<2	B2	>5	Clear	Severe	0.5	187	Deploying/Retrieving	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.29415	-73.07751	40.26844	-73.07184	42	6	W	<2	B3	>5	Clear	Severe	4.0	356	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:56	40.26844	-73.07184	40.19877	-73.07793	42	6	W	<2	B3	>5	Clear	Severe	4.2	181	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:56	17:09	40.19877	-73.07793	40.18435	-73.07834	43	5	W	<2	B2	>5	Clear	Severe	4.1	181	Standby	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:09	17:30	40.18435	-73.07834	40.18565	-73.07338	43	5	W	<2	B2	>5	Clear	Severe	4.1	181	Soft Start	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:30	17:44	40.18565	-73.07338	40.18241	-73.07717	45	5	W	<2	B2	>5	Clear	Severe	4.4	117	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:44	17:49	40.18241	-73.07717	40.18844	-73.07716	45	5	W	<2	B2	>5	Clear	Severe	4.4	1	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:49	18:00	40.18844	-73.07716	40.20165	-73.07678	45	5	W	<2	B2	>5	Clear	Severe	4.4	1	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:02	40.20165	-73.07678	40.27722	-73.07465	43	6	SW	<2	B2	>5	Clear	Severe	4.1	359	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:02	19:23	40.27722	-73.07465	40.30322	-73.07389	41	8	SSW	<2	B2	>5	Clear	Severe	4.3	359	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:23	19:25	40.30322	-73.07389	40.30574	-73.07382	41	8	SSW	<2	B2	>5	Clear	Severe	4.3	359	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:25	19:58	40.30574	-73.07382	40.29946	-73.08042	41	8	SSW	<2	B2	>5	Clear	Severe	4.3	359	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	19:58	20:04	40.29946	-73.08042	40.29103	-73.08039	41	9	SSW	<2	B2	>5	Clear	Severe	4.1	158	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:04	20:29	40.29103	-73.08039	40.26103	-73.08119	41	9	SSW	<2	B2	>5	Clear	Severe	4.5	180	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:29	21:00	40.26103	-73.08119	40.22440	-73.08223	41	10	SW	<2	B3	>5	Clear	Severe	4.5	180	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:41	40.22440	-73.08223	40.17648	-73.08366	44	10	SW	<2	B3	>5	Clear	Severe	4.4	186	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:41	21:42	40.17648	-73.08366	40.17527	-73.08373	45	11	SSW	<2	B3	>5	Clear	Severe	4.1	181	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:42	21:55	40.17527	-73.08373	40.17199	-73.09286	46	11	SSW	<2	B3	>5	Clear	Severe	4.1	184	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:55	21:59	40.17199	-73.09286	40.17721	-73.09270	46	11	SSW	<2	B3	>5	Clear	Slight	4.1	357	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:59	22:00	40.17721	-73.09270	40.17850	-73.09265	46	11	SSW	<2	B3	>5	Clear	None	4.1	357	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:30	40.17850	-73.09265	40.21423	-73.09158	45	11	SSW	<2	B3	2-5	Clear	None	4.1	357	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:30	23:00	40.21423	-73.09158	40.25143	-73.09062	45	11	SSW	<2	B3	1-2	Clear	None	4.1	357	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:34	40.25143	-73.09062	40.29366	-73.08949	42	11	SSW	<2	B3	0.5-1	Clear	None	4.2	3	Full Power	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:34	23:35	40.29366	-73.08949	40.29491	-73.08950	42	11	SSW	<2	B3	0.5-1	Clear	None	4.4	352	Silent	N/A
2022-10-21	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:35	00:00	40.29491	-73.08950	40.31837	-73.08250	40	11	SSW	<2	B3	0.5-1	Clear	None	4.4	352	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:19	40.31719	-73.08145	40.29633	-73.08231	39	16	SSW	<2	B3	0.5-1	Clear	None	4.1	196	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:19	00:22	40.29633	-73.08231	40.29283	-73.08240	41	16	SSW	<2	B3	0.5-1	Clear	None	4.4	187	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:22	01:00	40.29283	-73.08240	40.24507	-73.08370	41	16	SSW	<2	B3	0.5-1	Clear	None	4.4	187	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:55	40.24507	-73.08370	40.17672	-73.08563	43	16	SSW	<2	B3	0.5-1	Clear	None	4.6	182	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:55	01:57	40.17672	-73.08563	40.17422	-73.08573	43	16	SSW	<2	B3	0.5-1	Clear	None	4.6	187	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:57	02:00	40.17422	-73.08573	40.17076	-73.08521	43	16	SSW	<2	B3	0.5-1	Clear	None	4.5	176	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	02:12	40.17076	-73.08521	40.17279	-73.09322	43	16	SSW	<2	B3	0.5-1	Clear	None	4.2	176	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:12	02:16	40.17279	-73.09322	40.17773	-73.09309	45	13	SSW	<2	B3	0.5-1	Clear	None	4.2	354	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:16	03:00	40.17773	-73.09309	40.22872	-73.09167	45	14	SSW	<2	B3	0.5-1	Clear	None	4.2	355	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:50	40.22872	-73.09167	40.29341	-73.08983	43	13	SSW	<2	B3	0.5-1	Clear	None	4.4	354	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:50	03:52	40.29341	-73.08983	40.29585	-73.08981	40	13	SSW	<2	B3	0.5-1	Clear	None	4.2	356	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:52	04:00	40.29585	-73.08981	40.30404	-73.08698	40	13	SSW	<2	B3	0.5-1	Clear	None	4.4	351	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:08	40.30404	-73.08698	40.29663	-73.08260	42	12	SW	<2	B3	0.5-1	Clear	None	4.6	57	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:08	04:11	40.29663	-73.08260	40.29281	-73.08273	41	15	SW	<2	B3	0.5-1	Clear	None	4.7	185	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:11	05:00	40.29281	-73.08273	40.23703	-73.08429	41	15	SW	<2	B3	0.5-1	Clear	None	4.3	185	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:50	40.23703	-73.08429	40.17685	-73.08596	43	12	SW	<2	B3	0.5-1	Clear	None	4.5	186	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:50	05:52	40.17685	-73.08596	40.17440	-73.08601	45	11	SSW	<2	B3	0.5-1	Clear	None	4.2	182	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:52	06:00	40.17440	-73.08601	40.16688	-73.08932	45	11	SSW	<2	B3	0.5-1	Clear	None	4.6	173	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:06	40.16688	-73.08932	40.17271	-73.09348	45	10	SW	<2	B3	0.5-1	Clear	None	4.6	351	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:06	06:10	40.17271	-73.09348	40.17772	-73.09343	45	9	SW	<2	B3	0.5-1	Clear	None	4.5	359	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:10	07:00	40.17772	-73.09343	40.23764	-73.09173	45	9	SW	<2	B3	0.5-1	Clear	None	4.5	359	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:49	40.23764	-73.09173	40.29272	-73.09017	42	10	W	<2	B3	0.5-1	Clear	None	4.1	359	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:49	07:51	40.29272	-73.09017	40.29508	-73.09008	41	9	SW	<2	B3	0.5-1	Clear	None	4.2	359	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:51	08:00	40.29508	-73.09008	40.29959	-73.09065	40	9	SW	<2	B3	0.5-1	Clear	None	4.1	359	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	08:08	40.29959	-73.09065	40.29688	-73.08287	40	9	SW	<2	B3	0.5-1	Clear	None	4.1	346	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:08	08:11	40.29688	-73.08287	40.29324	-73.08306	40	9	SW	<2	B3	0.5-1	Clear	None	4.2	182	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:11	09:00	40.29324	-73.08306	40.23487	-73.08472	40	9	SW	<2	B3	0.5-1	Clear	None	4.2	183	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:45	40.23487	-73.08472	40.17618	-73.08638	40	7	SW	<2	B3	0.5-1	Clear	None	4.3	184	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:45	09:46	40.17618	-73.08638	40.17492	-73.08639	40	7	SW	<2	B3	0.5-1	Clear	None	4.7	178	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:46	10:00	40.17492	-73.08639	40.17307	-73.09378	46	7	SW	<2	B3	0.5-1	Clear	None	4.7	170	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:04	40.17307	-73.09378	40.17793	-73.09374	46	4	SW	<2	B3	0.5-1	Clear	None	4.4	357	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:04	10:52	40.17793	-73.09374	40.23646	-73.09214	46	4	SW	<2	B3	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:52	11:00	40.23646	-73.09214	40.24467	-73.09189	42	6	SW	<2	B3	1-2	Clear	None	4.3	357	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:40	40.24467	-73.09189	40.29383	-73.09056	42	7	SW	<2	B3	1-2	Clear	None	4.2	357	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:40	11:41	40.29383	-73.09056	40.29505	-73.09052	41	5	W	<2	B3	>5	Clear	Severe	4.3	349	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:41	11:53	40.29505	-73.09052	40.29762	-73.08359	42	7	SW	<2	B3	>5	Clear	Severe	4.2	357	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:53	11:57	40.29762	-73.08359	40.29269	-73.08383	42	7	SW	<2	B3	>5	Clear	Severe	4.3	186	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:57	12:00	40.29269	-73.08383	40.29090	-73.08390	42	5	SW	<2	B3	>5	Clear	Severe	4.3	186	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.29090	-73.08390	40.21555	-73.08601	42	5	SW	<2	B3	>5	Clear	Severe	4.3	186	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:31	40.21555	-73.08601	40.17659	-73.08714	43	4	SW	<2	B2	>5	Clear	Severe	4.2	183	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:31	13:32	40.17659	-73.08714	40.17538	-73.08716	45	2	SW	<2	B2	>5	Clear	Severe	4.5	182	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:32	13:44	40.17538	-73.08716	40.17189	-73.09433	45	2	SW	<2	B2	>5	Clear	Severe	4.5	182	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:44	13:49	40.17189	-73.09433	40.17783	-73.09408	45	2	SW	<2	B2	>5	Clear	Severe	4.4	357	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:49	14:00	40.17783	-73.09408	40.18789	-73.09381	44	1	NNE	<2	B2	>5	Clear	Severe	4.2	358	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.18789	-73.09381	40.26206	-73.09180	43	1	NNW	<2	B2	>5	Clear	Severe	4.1	358	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:25	40.26206	-73.09180	40.29278	-73.09093	41	1.8	NNW	<2	B2	>5	Clear	Severe	4.4	0	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:25	15:27	40.29278	-73.09093	40.29524	-73.09082	41	3.8	NNW	<2	B2	>5	Clear	Severe	4.4	355	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:27	15:48	40.29524	-73.09082	40.30988	-73.07077	41	4	NNW	<2	B2	>5	Clear	Severe	4.5	38	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:48	15:53	40.30988	-73.07077	40.30372	-73.07103	42	4	NE	<2	B2	>5	Clear	Severe	4.3	181	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:53	16:00	40.30372	-73.07103	40.29522	-73.07130	42	4	NE	<2	B2	>5	Clear	Severe	4.3	181	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:58	40.29522	-73.07130	40.22599	-73.07325	42	4	NE	<2	B2	>5	Clear	Severe	4.3	181	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:58	17:31	40.22599	-73.07325	40.18749	-73.07435	44	4	NE	<2	B1	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:31	17:32	40.18749	-73.07435	40.18632	-73.07440	45	4	NE	<2	B1	>5	Clear	Severe	4.3	180	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:32	17:54	40.18632	-73.07440	40.17261	-73.09452	45	4	NE	<2	B1	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:54	17:58	40.17261	-73.09452	40.17760	-73.09447	45	4	NE	<2	B1	>5	Clear	Severe	4.3	2	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:57	40.17760	-73.09447	40.25123	-73.09239	45	4	NE	<2	B1	>5	Clear	Severe	4.3	2	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:57	19:31	40.25123	-73.09239	40.29289	-73.09120	42	6	NE	<2	B1	>5	Clear	Severe	4.4	2	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:31	19:33	40.29289	-73.09120	40.29541	-73.09111	42	6	NE	<2	B2	>5	Clear	Severe	4.4	2	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:33	19:42	40.29541	-73.09111	40.29971	-73.08363	42	6	NE	<2	B2	>5	Clear	Severe	4.4	2	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:42	19:48	40.29971	-73.08363	40.29237	-73.08348	41	6	NE	<2	B2	>5	Clear	Severe	4.5	180	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:48	20:00	40.29237	-73.08348	40.27837	-73.08384	41	6	NE	<2	B2	>5	Clear	Severe	4.5	180	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.27837	-73.08384	40.20529	-73.08592	41	7	NE	<2	B2	>5	Clear	Severe	4.4	177	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:24	40.20529	-73.08592	40.17707	-73.08665	41	8	NE	<2	B3	>5	Cloudy	Severe	4.4	178	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:24	21:25	40.17707	-73.08665	40.17586	-73.08672	46	8	NE	<2	B3	>5	Cloudy	Severe	4.4	178	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:25	21:37	40.17586	-73.08672	40.17140	-73.09487	46	9	NE	<2	B3	>5	Cloudy	Moderate	4.4	193	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:37	21:42	40.17140	-73.09487	40.17759	-73.09487	46	9	NE	<2	B3	>5	Cloudy	None	4.4	193	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:42	22:00	40.17759	-73.09487	40.19907	-73.09421	45	8	NE	<2	B3	>5	Cloudy	None	3.5	1	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:30	40.19907	-73.09421	40.23644	-73.09311	45	8	NE	<2	B2	>5	Cloudy	None	3.5	1	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:30	23:00	40.23644	-73.09311	40.27464	-73.09214	43	8.2	NE	<2	B2	0.5-1	Cloudy	None	4.6	359	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:15	40.27464	-73.09214	40.29493	-73.09155	41	8.4	ENE	<2	B2	0.5-1	Cloudy	None	4.6	1.6	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:15	23:16	40.29493	-73.09155	40.29599	-73.09159	41	8.4	ENE	<2	B2	0.5-1	Cloudy	None	4.6	1.6	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:16	23:25	40.29599	-73.09159	40.24906	-73.09279	41	8.4	ENE	<2	B2	0.5-1	Cloudy	None	4.6	1.6	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:25	23:30	40.24906	-73.09279	40.29610	-73.08398	43	8	NE	<2	B2	2-5	Cloudy	None	3.5	1	Full Power	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:30	23:33	40.29610	-73.08398	40.29187	-73.08417	41	9	ENE	<2	B2	0.5-1	Cloudy	None	4.1	181	Silent	N/A
2022-10-22	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:33	00:00	40.29187	-73.08417	40.25954	-73.08508	41	9	ENE	<2	B2	0.5-1	Cloudy	None	4.1	181	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.25777	-73.08514	40.18400	-73.08717	43	10	NE	<2	B3	0.5-1	Cloudy	None	4.6	183	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:06	40.18400	-73.08717	40.17632	-73.08740	45	10	NE	<2	B3	0.5-1	Cloudy	None	4.6	182	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:06	01:07	40.17632	-73.08740	40.17507	-73.08745	45	10	NE	<2	B3	0.5-1	Cloudy	None	4.5	177	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:07	01:21	40.17507	-73.08745	40.17331	-73.09527	45	10	NE	<2	B3	0.5-1	Cloudy	None	4.5	177	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:21	01:24	40.17331	-73.09527	40.17686	-73.09516	45	12	NE	<2	B3	0.5-1	Cloudy	None	4.5	0.6	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:24	02:00	40.17686	-73.09516	40.21758	-73.09412	45	12	NE	<2	B3	0.5-1	Cloudy	None	4.5	359.5	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.21758	-73.09412	40.28761	-73.09215	45	12	ENE	<2	B3	0.5-1	Cloudy	None	4.2	2	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:01	40.28761	-73.09215	40.29343	-73.09196	45	12.4	ENE	<2	B3	0.5-1	Cloudy	None	4.6	3	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:01	03:03	40.29343	-73.09196	40.29590	-73.09190	45	12.4	NE	<2	B3	0.5-1	Cloudy	None	4.3	2.7	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:03	03:16	40.29590	-73.09190	40.29639	-73.08436	45	13	NE	<2	B3	0.5-1	Cloudy	None	4.4	3	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:16	03:19	40.29639	-73.08436	40.29249	-73.08453	40	13	NE	<2	B3	0.5-1	Cloudy	None	4.4	181	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:19	04:00	40.29249	-73.08453	40.24243	-73.08591	40	12	NE	<2	B3	0.5-1	Cloudy	None	4.5	176	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:54	40.24243	-73.08591	40.17682	-73.08773	42	15	NE	<2	B3	0.5-1	Cloudy	None	4.6	178	Full Power	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:54	05:00	40.17682	-73.08773	40.16929	-73.08796	42	16	NE	<2	B4	0.5-1	Cloudy	None	4.8	175	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:08	40.16929	-73.08796	40.17049	-73.09665	42	16	NE	<2	B4	0.5-1	Cloudy	None	4.8	175	Silent	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:08	05:20	40.17049	-73.09665	40.17635	-73.08933	46	17	NE	<2	B4	0.5-1	Cloudy	None	3.1	46	Deploying/Retrieving	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:20	06:00	40.17635	-73.08933	40.17972	-73.07642	46	18	NE	<2	B4	0.3-0.5	Cloudy	None	2.4	53	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	06:00	06:07	40.17972	-73.07642	40.18657	-73.07614	46	18	NE	<2	B4	0.3-0.5	Cloudy	None	2.4	77	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:07	07:00	40.18657	-73.07614	40.23555	-73.23056	46	20	NE	<2	B4	0.3-0.5	Cloudy	None	6.3	357	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:33	40.23555	-73.23056	40.26613	-73.33262	40	18	NE	<2	B4	0.3-0.5	Cloudy	None	9.1	293	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:33	08:00	40.26613	-73.33262	40.28834	-73.40665	40	16	NE	<2	B4	0.5-1	Cloudy	None	9.1	293	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.28834	-73.40665	40.34753	-73.58503	40	16	NE	<2	B4	0.5-1	Cloudy	None	9.5	292	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.34753	-73.58503	40.41041	-73.73603	40	16	NE	<2	B4	0.5-1	Cloudy	None	9.3	302	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	11:00	40.41041	-73.73603	40.43194	-73.91207	25	16	NE	<2	B4	0.5-1	Cloudy	None	8.8	290	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	11:00	11:06	40.43194	-73.91207	40.44197	-73.92414	25	17	NE	<2	B4	0.5-1	Cloudy	None	8.0	325	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:06	12:00	40.44197	-73.92414	40.48239	-74.05148	18	17	NE	<2	B4	1-2	Cloudy	None	8.1	325	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:06	40.48239	-74.05148	40.48649	-74.05600	8	16	NNE	<2	B3	>5	Cloudy	None	4.1	319	Transit	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:06	13:00	40.48649	-74.05600	40.50172	-74.07478	8	16	NNE	<2	B3	>5	Cloudy	None	4.1	319	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:40	40.50172	-74.07478	40.50865	-74.07538	7	11	NE	<2	B3	>5	Cloudy	None	0.5	290	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:40	14:00	40.50865	-74.07538	40.50558	-74.07456	6	12	NE	<2	B3	>5	Precipitation	None	0.7	302	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.50558	-74.07456	40.51035	-74.07617	7	10	NE	<2	B3	>5	Cloudy	None	0.5	302	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.51035	-74.07617	40.50188	-74.07389	6	13	ENE	<2	B3	>5	Precipitation	None	0.5	298	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.50188	-74.07389	40.49113	-74.07078	7	17	ENE	<2	B3	>5	Precipitation	None	0.6	295	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:00	17:58	40.49113	-74.07078	40.49763	-74.07937	8	17	NE	<2	B3	>5	Precipitation	None	0.6	301	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:59	40.49763	-74.07937	40.50220	-74.10825	7	18	NNE	<2	B3	>5	Cloudy	None	0.7	300	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	20:00	40.50220	-74.10825	40.49947	-74.12620	6	14	NNE	<2	B3	>5	Cloudy	None	0.7	300	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:30	40.49947	-74.12620	40.50106	-74.09887	8	15	NNE	<2	B3	>5	Cloudy	None	1.7	115	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:30	21:00	40.50106	-74.09887	40.49896	-74.10697	7	16	NNE	<2	B3	2-5	Fog	None	2.5	83	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:57	40.49896	-74.10697	40.49643	-74.10025	7	14	NNE	<2	B3	2-5	Precipitation	None	1.1	152	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:57	22:16	40.49643	-74.10025	40.49459	-74.10339	7	14	NNE	<2	B3	2-5	Precipitation	None	0.9	141	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:16	22:23	40.49459	-74.10339	40.49601	-74.09642	7	14	NNE	<2	B3	1-2	Precipitation	None	2.6	75	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:23	22:58	40.49601	-74.09642	40.49381	-74.09068	7	14	NNE	<2	B3	0.5-1	Precipitation	None	3.1	75	Standby	N/A
2022-10-23	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:58	00:00	40.49381	-74.09068	40.49567	-74.08650	7	14	NNE	<2	B3	0.3-0.5	Precipitation	None	0.7	155	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:05	40.49555	-74.08669	40.50054	-74.08075	9	16	NE	<2	B3	0.5-1	Cloudy	None	0.4	155	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:05	02:00	40.50054	-74.08075	40.49582	-74.08732	7	16	NE	<2	B3	0.5-1	Precipitation	None	0.1	156	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.49582	-74.08732	40.50254	-74.07732	7	16	NE	<2	B3	0.5-1	Precipitation	None	0.1	163	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.50254	-74.07732	40.49928	-74.07605	7	12	NNE	<2	B3	0.5-1	Cloudy	None	0.5	148	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.49928	-74.07605	40.49552	-74.07649	8	12	NE	<2	B3	0.3-0.5	Precipitation	None	0.7	161	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:40	40.49552	-74.07649	40.49815	-74.07898	8	12	NE	<2	B3	0.3-0.5	Precipitation	None	0.5	157	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:40	06:00	40.49815	-74.07898	40.50306	-74.07958	8	12	NE	<2	B3	0.3-0.5	Precipitation	None	0.5	157	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.50306	-74.07958	40.49320	-74.09229	8	13	NE	<2	B3	0.3-0.5	Precipitation	None	0.8	309	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.49320	-74.09229	40.49926	-74.08830	9	13	NE	<2	B3	0.3-0.5	Precipitation	None	0.8	309	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.49926	-74.08830	40.50047	-74.07445	9	13	NNE	<2	B3	0.3-0.5	Precipitation	None	2.1	161	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:52	40.50047	-74.07445	40.49501	-74.08369	9	15	NNE	<2	B3	0.3-0.5	Precipitation	None	3.4	70	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:52	10:00	40.49501	-74.08369	40.49408	-74.08606	9	13	NNE	<2	B3	0.3-0.5	Precipitation	None	0.4	158	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	11:10	40.49408	-74.08606	40.50068	-74.06029	7	9	NE	<2	B3	0.3-0.5	Precipitation	None	1.3	156	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:10	11:37	40.50068	-74.06029	40.49987	-74.06281	9	13	NE	<2	B3	0.5-1	Precipitation	None	1.6	71	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:37	12:00	40.49987	-74.06281	40.49920	-74.06715	8	13	NE	<2	B3	1-2	Precipitation	None	0.3	157	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	12:45	40.49920	-74.06715	40.49721	-74.07374	9	13	NE	<2	B3	2-5	Precipitation	None	0.1	150	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:45	13:00	40.49721	-74.07374	40.49658	-74.07566	9	13	NE	<2	B3	1-2	Precipitation	None	0.1	150	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	14:00	40.49658	-74.07566	40.49444	-74.07708	9	14	NE	<2	B3	1-2	Precipitation	None	0.1	152	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:34	40.49444	-74.07708	40.49341	-74.07502	7	12	NNE	<2	B3	1-2	Fog	None	0.9	158	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:34	15:00	40.49341	-74.07502	40.49279	-74.07281	7	12	NNE	<2	B3	2-5	Fog	None	0.9	158	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.49279	-74.07281	40.48889	-74.06609	8	12	NE	<2	B3	2-5	Cloudy	None	0.7	158	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:15	40.48889	-74.06609	40.47864	-74.02326	8	10	NE	<2	B3	>5	Cloudy	None	4.5	126	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:15	16:38	40.47864	-74.02326	40.46117	-73.95038	18	14	NE	<2	B3	1-2	Fog	None	9.5	67	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:38	16:56	40.46117	-73.95038	40.44101	-73.90174	12	14	NE	<2	B3	1-2	Fog	None	9.5	67	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:56	17:58	40.44101	-73.90174	40.41808	-73.73707	21	14	NE	<2	B3	1-2	Fog	None	7.9	116	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:57	40.41808	-73.73707	40.39589	-73.59115	25	15	NE	<2	B3	2-5	Fog	None	8.0	97	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:57	19:26	40.39589	-73.59115	40.38071	-73.52056	22	15	NE	<2	B4	2-5	Precipitation	None	8.0	106	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:26	20:00	40.38071	-73.52056	40.36320	-73.45530	25	15	NE	<2	B4	2-5	Fog	None	6.8	112	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:24	40.36320	-73.45530	40.34463	-73.38674	29	20	NE	<2	B5	>5	Cloudy	None	7.3	106	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:24	20:27	40.34463	-73.38674	40.34323	-73.38200	29	20	NE	<2	B5	2-5	Cloudy	None	7.3	106	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:27	21:00	40.34323	-73.38200	40.33273	-73.32492	30	19	ENE	<2	B5	1-2	Precipitation	None	7.3	106	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:40	40.33273	-73.32492	40.32251	-73.25391	33	21.5	NE	<2	B5	2-5	Cloudy	Slight	5.0	97	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	21:58	40.32251	-73.25391	40.31721	-73.22089	33	18	NE	<2	B5	0.5-1	Fog	None	5.7	110	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	21:58	22:23	40.31721	-73.22089	40.31062	-73.17375	36	16	NE	<2	B5	0.1-0.3	Fog	None	6.2	110	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:23	22:51	40.31062	-73.17375	40.30319	-73.12206	39	16	NE	<2	B5	0.1-0.3	Fog	None	6.7	109	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:51	23:00	40.30319	-73.12206	40.30098	-73.10673	39	18	NE	<2	B5	0.05-0.1	Fog	None	6.0	98	Transit	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:41	40.30098	-73.10673	40.29308	-73.06015	41	17	NE	<2	B5	<0.05	Fog	None	3.6	98	Standby	N/A
2022-10-24	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:41	00:00	40.29308	-73.06015	40.29008	-73.03861	41	14	NE	<2	B5	<0.05	Fog	None	3.2	96	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.28990	-73.03735	40.28696	-73.07221	45	14	NE	<2	B5	0.3-0.5	Cloudy	None	3.9	98	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.28696	-73.07221	40.28624	-73.16652	42	12	E	<2	B5	0.3-0.5	Cloudy	None	4.8	269	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.28624	-73.16652	40.28840	-73.12601	42	13	ENE	<2	B4	0.3-0.5	Fog	None	4.4	269	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	03:51	40.28840	-73.12601	40.28000	-73.14819	42	14	SW	<2	B4	0.5-1	Cloudy	None	3.3	89	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:51	04:00	40.28000	-73.14819	40.28036	-73.15000	42	13	SE	<2	B3	0.5-1	Clear	None	0.8	221	Deploying/Retrieving	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	04:43	40.28036	-73.15000	40.28704	-73.13266	42	15	SE	<2	B3	0.5-1	Clear	None	0.8	153	Deploying/Retrieving	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:43	05:00	40.28704	-73.13266	40.29187	-73.12094	41	15	SE	<2	B3	0.5-1	Clear	None	2.5	64	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	05:06	40.29187	-73.12094	40.29376	-73.11696	41	14	SE	<2	B3	0.5-1	Clear	None	2.7	63	Standby	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:06	05:27	40.29376	-73.11696	40.30072	-73.09230	41	15	SE	<2	B3	0.5-1	Clear	None	2.5	63	Soft Start	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:27	05:35	40.30072	-73.09230	40.29707	-73.08479	40	14	SE	<2	B3	0.5-1	Clear	None	4.4	175	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:35	05:39	40.29707	-73.08479	40.29265	-73.08481	40	12	SE	<2	B3	0.5-1	Clear	None	4.2	175	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:39	06:00	40.29265	-73.08481	40.27160	-73.08549	40	12	SE	<2	B3	0.5-1	Clear	None	3.6	173	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	06:31	40.27160	-73.08549	40.23614	-73.08640	40	12	SE	<2	B3	0.5-1	Clear	None	3.4	176	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:31	06:54	40.23614	-73.08640	40.21005	-73.08717	42	13	SE	<2	B3	0.3-0.5	Precipitation	None	4.1	154	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:54	07:00	40.21005	-73.08717	40.20325	-73.08736	43	12	SE	<2	B3	0.5-1	Cloudy	None	3.5	174	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	07:24	40.20325	-73.08736	40.17645	-73.08814	43	12	SE	<2	B3	0.5-1	Cloudy	None	4.2	171	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:24	07:25	40.17645	-73.08814	40.17548	-73.08816	45	12	SE	<2	B3	0.5-1	Cloudy	None	4.2	173	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:25	07:39	40.17548	-73.08816	40.17363	-73.09591	45	11	SE	<2	B3	0.5-1	Cloudy	None	4.2	173	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:39	07:43	40.17363	-73.09591	40.17802	-73.09540	45	9	SE	<2	B3	0.5-1	Cloudy	None	4.1	4.9	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:43	08:00	40.17802	-73.09540	40.19281	-73.09506	45	9	SE	<2	B3	0.5-1	Cloudy	None	3.9	8	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.19281	-73.09506	40.26242	-73.09308	45	10	SE	<2	B3	0.5-1	Cloudy	None	4.0	7	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:27	40.26242	-73.09308	40.29400	-73.09222	43	10	SE	<2	B3	0.5-1	Cloudy	None	2.9	10	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:27	09:28	40.29400	-73.09222	40.29517	-73.09221	42	8	SE	<2	B3	0.5-1	Cloudy	None	3.9	8	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:28	09:42	40.29517	-73.09221	40.29646	-73.08539	42	7	SE	<2	B3	0.5-1	Cloudy	None	4.5	4	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:42	09:45	40.29646	-73.08539	40.29306	-73.08527	42	10	SE	<2	B3	0.5-1	Cloudy	None	4.0	172	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:45	10:00	40.29306	-73.08527	40.27586	-73.08569	42	10	SE	<2	B3	0.5-1	Cloudy	None	4.3	172	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	10:55	40.27586	-73.08569	40.21207	-73.08742	43	12	SE	<2	B4	0.5-1	Clear	None	3.3	172	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	10:55	11:00	40.21207	-73.08742	40.20621	-73.08762	43	10	SE	<2	B4	1-2	Clear	None	5.1	175	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:00	11:25	40.20621	-73.08762	40.17680	-73.08847	43	11	SE	<2	B4	1-2	Clear	None	4.5	176	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:25	11:26	40.17680	-73.08847	40.17554	-73.08852	43	10	SE	<2	B4	>5	Clear	Slight	4.0	196	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:26	11:38	40.17554	-73.08852	40.17178	-73.09647	43	10	SE	<2	B4	>5	Clear	Slight	4.0	196	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:38	11:43	40.17178	-73.09647	40.17768	-73.09585	42	8	SE	<2	B3	>5	Clear	Moderate	4.5	4	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	11:43	12:00	40.17768	-73.09585	40.19747	-73.09529	42	8	SE	<2	B3	>5	Clear	Moderate	3.9	4	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	12:00	13:00	40.19747	-73.09529	40.26680	-73.09332	43	8	SE	<2	B3	>5	Clear	Severe	4.1	4	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:00	13:23	40.26680	-73.09332	40.29338	-73.09253	41	7	SE	<2	B3	>5	Clear	Severe	4.1	3	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:23	13:24	40.29338	-73.09253	40.29454	-73.09251	41	7	SE	<2	B3	>5	Clear	Severe	4.1	4	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:24	13:35	40.29454	-73.09251	40.29944	-73.08544	41	7	SE	<2	B3	>5	Clear	Severe	4.1	4	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:35	13:41	40.29944	-73.08544	40.29231	-73.08553	41	10	SE	<2	B3	>5	Clear	Moderate	4.4	184	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Jackson, Alicia	RPS	13:41	14:00	40.29231	-73.08553	40.27065	-73.08614	41	11	SE	<2	B3	>5	Cloudy	Moderate	4.7	180	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.27065	-73.08614	40.19933	-73.08815	42	11	SE	<2	B2	>5	Clear	Moderate	3.7	181	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:20	40.19933	-73.08815	40.17626	-73.08884	43	12	SE	<2	B2	>5	Fog	Severe	2.8	176	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:20	15:21	40.17626	-73.08884	40.17502	-73.08887	43	12	SE	<2	B3	>5	Fog	Severe	4.8	176	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:21	15:31	40.17502	-73.08887	40.17064	-73.09614	43	12	ESE	<2	B3	>5	Fog	Severe	4.8	179	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:31	15:37	40.17064	-73.09614	40.17798	-73.09624	43	8.9	SE	<2	B3	>5	Fog	Severe	4.3	1.3	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:37	16:00	40.17798	-73.09624	40.20644	-73.09538	43	8	SE	<2	B3	>5	Fog	Severe	4.4	2	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:52	40.20644	-73.09538	40.27100	-73.09356	43	7.6	SE	<2	B3	>5	Fog	Severe	4.2	359	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:52	17:10	40.27100	-73.09356	40.29288	-73.09300	41	8	SE	<2	B2	2-5	Fog	Severe	4.2	359	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:10	17:11	40.29288	-73.09300	40.29410	-73.09294	41	8	SE	<2	B2	>5	Clear	Severe	4.2	359	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:11	17:24	40.29410	-73.09294	40.29929	-73.08586	41	8	SE	<2	B2	>5	Clear	Severe	4.2	359	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:24	17:30	40.29929	-73.08586	40.29237	-73.08589	41	9	SE	<2	B2	>5	Cloudy	Severe	4.2	173	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:30	18:01	40.29237	-73.08589	40.25598	-73.08691	41	9	SE	<2	B2	>5	Cloudy	Severe	4.2	173	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:01	18:59	40.25598	-73.08691	40.18800	-73.08881	42	9	SE	<2	B2	>5	Clear	Severe	4.3	180	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	19:09	40.18800	-73.08881	40.17729	-73.08910	44	9	SE	<2	B2	>5	Clear	Severe	4.3	176	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:09	19:11	40.17729	-73.08910	40.17503	-73.08916	44	9	SE	<2	B2	>5	Clear	Severe	4.3	176	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:11	19:22	40.17503	-73.08916	40.17267	-73.09675	44	9	SE	<2	B2	>5	Clear	Severe	4.3	176	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:22	19:26	40.17267	-73.09675	40.17837	-73.09651	45	9	SE	<2	B2	>5	Clear	Severe	4.5	8	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:26	20:00	40.17837	-73.09651	40.21441	-73.09549	45	9	SE	<2	B2	>5	Clear	Severe	4.5	8	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:49	40.21441	-73.09549	40.27966	-73.09360	45	4	SE	<2	B2	>5	Clear	Moderate	4.5	8	Full Power	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:49	21:00	40.27966	-73.09360	40.29316	-73.09328	45	14	ENE	<2	B3	0.1-0.3	Fog	None	4.5	8	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	21:00	21:37	40.29316	-73.09328	40.26420	-73.08722	45	15	ENE	<2	B3	0.05-0.1	Fog	None	4.2	30	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	21:37	22:00	40.26420	-73.08722	40.23866	-73.08793	45	11	NE	<2	B3	0.1-0.3	Fog	None	4.0	174	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:00	22:08	40.23866	-73.08793	40.22990	-73.08817	42	11	NE	<2	B3	0.1-0.3	Fog	None	4.0	177	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:08	22:10	40.22990	-73.08817	40.22767	-73.08846	42	11	NE	<2	B3	0.05-0.1	Fog	None	4.0	188	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:10	22:29	40.22767	-73.08846	40.24492	-73.09711	42	11	NE	<2	B3	0.05-0.1	Fog	None	4.0	188	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:29	23:00	40.24492	-73.09711	40.27942	-73.09422	42	11	NE	<2	B3	<0.05	Fog	None	4.2	6	Silent	N/A
2022-10-25	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.27942	-73.09422	40.29031	-73.08912	41	12	ENE	<2	B3	<0.05	Fog	None	3.9	7	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	0:00	01:00	40.28908	-73.08901	40.22930	-73.09286	41	13	E	<2	B3	<0.05	Fog	None	3.6	169	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.22930	-73.09286	40.17280	-73.09249	43	13	E	<2	B3	0.05-0.1	Fog	None	3.7	194	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.17280	-73.09249	40.19591	-73.10003	45	8	NNE	<2	B3	0.05-0.1	Fog	None	3.5	176	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.19591	-73.10003	40.26191	-73.10000	42	8	NNE	<2	B3	0.05-0.1	Fog	None	3.9	2	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.26191	-73.10000	40.25689	-73.09321	41	9	E	<2	B3	0.05-0.1	Fog	None	4.0	1	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.25689	-73.09321	40.19234	-73.09613	42	5	NE	<2	B3	0.05-0.1	Fog	None	4.3	180	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.19234	-73.09613	40.19243	-73.10511	43	7	NE	<2	B3	0.05-0.1	Fog	None	3.9	173	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.19243	-73.10511	40.25830	-73.10320	43	7	NE	<2	B3	0.05-0.1	Fog	None	4.1	4.8	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.25830	-73.10320	40.30931	-73.09371	43	8	NE	<2	B3	0.05-0.1	Fog	None	4.1	4	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	10:00	40.30931	-73.09371	40.24165	-73.09404	43	6	NE	<2	B3	0.05-0.1	Fog	None	3.8	180	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	10:00	11:00	40.24165	-73.09404	40.17960	-73.09175	42	8	NE	<2	B3	0.05-0.1	Fog	None	3.6	172	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	11:00	12:00	40.17960	-73.09175	40.17177	-73.09758	42	5	NE	<2	B3	0.05-0.1	Fog	None	3.8	173	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Jackson, Alicia	RPS	12:00	13:00	40.17177	-73.09758	40.23929	-73.09671	45	7.3	NE	<2	B2	0.05-0.1	Fog	None	4.2	2	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Lewis, Henry	RPS	13:00	14:00	40.23929	-73.09671	40.30025	-73.09277	42	6	NE	<2	B2	0.05-0.1	Fog	None	3.8	3	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Rangel, Zuemy	RPS	14:00	14:38	40.30025	-73.09277	40.27445	-73.08506	42	6	E	<2	B2	0.05-0.1	Fog	None	4.2	3	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Rangel, Zuemy	RPS	14:38	15:00	40.27445	-73.08506	40.25291	-73.08461	41	5.4	NE	<2	B2	0.05-0.1	Fog	Moderate	4.0	179	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Rangel, Zuemy	RPS	15:00	15:11	40.25291	-73.08461	40.23717	-73.08409	43	2.3	E	<2	B2	0.05-0.1	Fog	Severe	4.5	179	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Rangel, Zuemy	RPS	15:11	15:20	40.23717	-73.08409	40.22697	-73.08374	43	4.1	E	<2	B2	0.1-0.3	Fog	Severe	4.3	179	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Rangel, Zuemy	RPS	15:20	16:00	40.22697	-73.08374	40.20712	-73.09116	43	4.1	E	<2	B2	0.05-0.1	Fog	Severe	4.3	179	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Lewis, Henry	RPS	16:00	17:00	40.20712	-73.09116	40.27180	-73.08995	43	5	E	<2	B1	0.05-0.1	Fog	Severe	4.3	355	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Jackson, Alicia; Lewis, Henry	RPS	17:00	18:00	40.27180	-73.08995	40.23829	-73.05783	43	2	NNW	<2	B1	0.05-0.1	Fog	Moderate	4.0	358	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	18:00	19:00	40.23829	-73.05783	40.22656	-73.08739	43	7.9	W	<2	B1	0.05-0.1	Fog	Moderate	4.2	174	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	19:00	20:00	40.22656	-73.08739	40.28502	-73.10444	43	7.6	W	<2	B1	0.05-0.1	Fog	Moderate	4	320	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	20:00	21:00	40.28502	-73.10444	40.26208	-73.08517	40	2.9	SSW	<2	B1	0.05-0.1	Fog	Slight	3.9	1	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	21:00	21:57	40.26208	-73.08517	40.21877	-73.07486	43	10	SSW	<2	B2	0.1-0.3	Fog	Slight	3.6	158	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	21:57	22:07	40.21877	-73.07486	40.23032	-73.07473	43	10	SSW	<2	B2	0.1-0.3	Fog	Slight	4.3	355	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:07	22:20	40.23032	-73.07473	40.24504	-73.07434	43	10	SSW	<2	B2	0.1-0.3	Fog	None	4.4	355	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:20	22:34	40.24504	-73.07434	40.26121	-73.07406	43	12	SSW	<2	B2	0.1-0.3	Fog	None	4.2	1	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:34	22:48	40.26121	-73.07406	40.27736	-73.07366	43	12	SSW	<2	B3	0.5-1	Fog	None	4.2	1	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:48	23:15	40.27736	-73.07366	40.27909	-73.07022	43	12	SSW	<2	B3	0.3-0.5	Fog	None	4.2	1	Silent	N/A
2022-10-26	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:15	00:00	40.27909	-73.07022	40.23196	-73.08656	41	20	SSW	<2	B4	0.5-1	Cloudy	None	4.9	219	Silent	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:40	40.23043	-73.08623	40.21532	-73.07772	43	17	SW	<2	B4	0.5-1	Clear	None	3.4	176	Deploying/Retrieving	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:40	01:00	40.21532	-73.07772	40.21929	-73.07291	43	15	SW	<2	B4	0.5-1	Clear	None	1.1	124	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.21929	-73.07291	40.28571	-73.14367	43	15	SW	<2	B4	0.5-1	Clear	None	0.9	35	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	02:00	03:00	40.28571	-73.14367	40.34306	-73.28699	43	19	SW	<2	B4	0.5-1	Clear	None	7.4	313	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	03:00	04:00	40.34306	-73.28699	40.38453	-73.43805	43	16	WSW	<2	B4	0.5-1	Clear	None	7.2	293	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	04:00	05:00	40.38453	-73.43805	40.38901	-73.59253	42	14	SW	<2	B4	0.3-0.5	Clear	None	7.4	170	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Rangel, Zuemy	RPS	05:00	06:00	40.38901	-73.59253	40.42729	-73.74424	43	15	SW	<2	B4	0.3-0.5	Clear	None	7.1	284	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	06:00	07:00	40.42729	-73.74424	40.47641	-73.88089	29	15	WSW	<2	B4	0.3-0.5	Clear	None	7.1	291	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Jackson, Alicia; Ley, Rafael	RPS	07:00	08:00	40.47641	-73.88089	40.52082	-73.99393	30	16	W	<2	B4	0.3-0.5	Clear	None	6.6	298	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	08:00	09:00	40.52082	-73.99393	40.63803	-74.05349	30	14	W	<2	B4	0.3-0.5	Clear	None	3.9	297	Transit	N/A
2022-10-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Rangel, Zuemy	RPS	09:00	09:25	40.63803	-74.05349	40.66132	-74.07259	30	8	WNW	<2	B4	0.3-0.5	Clear	None	7.5	349	Transit	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	20:00	40.66153	-74.07287	40.53583	-74.03791	3	2.4	NE	<2	B1	>5	Clear	Severe	0	299	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:12	40.53583	-74.03791	40.51718	-74.04584	10	8.3	ESE	<2	B1	>5	Cloudy	Moderate	7.2	199	Transit	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:12	21:00	40.51718	-74.04584	40.50797	-74.05852	12	8	ESE	<2	B1	>5	Cloudy	Moderate	4.5	221	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:55	40.50797	-74.05852	40.50642	-74.07483	6	7.9	ESE	<2	B2	>5	Cloudy	Slight	0.3	304	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	21:55	22:18	40.50642	-74.07483	40.50562	-74.08264	7	8	ESE	<2	B2	2-5	Cloudy	Slight	1.0	261	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:18	22:20	40.50562	-74.08264	40.50565	-74.08320	7	8	ESE	<2	B2	1-2	Cloudy	Slight	1.0	261	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:20	23:00	40.50565	-74.08320	40.50040	-74.07125	6	7.2	ESE	<2	B2	0.5-1	Cloudy	Slight	1.0	167	Standby	N/A
2022-10-28	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.50040	-74.07125	40.50058	-74.07428	7	6.1	NE	<2	B2	0.5-1	Clear	Slight	0.9	55	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.50040	-74.07470	40.49813	-74.07689	8	16	NE	<2	B2	0.5-1	Clear	None	0.4	160	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:59	40.49813	-74.07689	40.50216	-74.07206	8	13	E	<2	B2	0.5-1	Clear	None	0.8	76	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	01:59	03:00	40.50216	-74.07206	40.50119	-74.06970	8	13.2	E	<2	B2	0.5-1	Clear	None	0.2	188	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	04:00	40.50119	-74.06970	40.50007	-74.06767	8	12.2	NE	<2	B2	0.5-1	Clear	None	0.2	229	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.50007	-74.06767	40.49912	-74.06634	8	9	NE	<2	B2	0.5-1	Clear	None	0.9	90	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	06:00	40.49912	-74.06634	40.49393	-74.06190	8	11	NE	<2	B2	0.5-1	Clear	None	0.2	181	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	07:00	40.49393	-74.06190	40.50221	-74.08098	8	11	NE	<2	B2	0.5-1	Clear	None	0.2	315	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.50221	-74.08098	40.49963	-74.07991	8	13	N	<2	B2	0.5-1	Clear	None	0.3	170	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	09:00	40.49963	-74.07991	40.49530	-74.08191	8	12	NE	<2	B2	0.5-1	Clear	None	0.4	239	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:04	40.49530	-74.08191	40.50673	-74.06473	7	14	NE	<2	B2	0.5-1	Clear	None	0.4	148	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:04	11:00	40.50673	-74.06473	40.50358	-74.07192	7	13	NE	<2	B2	0.5-1	Clear	None	0.9	255	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:29	40.50358	-74.07192	40.50426	-74.06586	7	13	NE	<2	B2	2-5	Clear	None	3.8	78	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:29	12:00	40.50426	-74.06586	40.50083	-74.07722	7	13	NE	<2	B2	>5	Clear	Slight	0.8	79	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	13:01	40.50083	-74.07722	40.50216	-74.06253	7	13	N	<2	B2	>5	Clear	Moderate	1.3	129	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:01	14:00	40.50216	-74.06253	40.49585	-74.07999	5	10	N	<2	B2	>5	Clear	Severe	0.7	97	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.49585	-74.07999	40.50317	-74.06256	7	8.7	N	<2	B2	>5	Clear	Severe	1.3	144	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.50317	-74.06256	40.50319	-74.07335	7	5.5	N	<2	B2	>5	Clear	Severe	0.6	152	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:57	40.50319	-74.07335	40.50103	-74.07013	7	4	NE	<2	B2	>5	Clear	Severe	0.3	169	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:58	40.50103	-74.07013	40.50498	-74.05999	7	2	E	<2	B2	>5	Clear	Severe	1.7	117	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	19:00	40.50498	-74.05999	40.49997	-74.05747	6	3	SW	<2	B2	>5	Clear	Severe	3.2	235	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.49997	-74.05747	40.50240	-74.06083	7	3	SW	<2	B2	>5	Clear	Severe	0.8	168	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.50240	-74.06083	40.50245	-74.06698	6	6.1	SE	<2	B2	>5	Clear	Severe	0.2	16	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.50245	-74.06698	40.50266	-74.06945	7	6.4	SE	<2	B2	>5	Clear	Severe	0.4	28	Standby	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:20	40.50266	-74.06945	40.48402	-74.04642	7	6	SE	<2	B2	2-5	Clear	Slight	0.1	24	Transit	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:20	23:00	40.48402	-74.04642	40.47441	-73.97146	9	5	SE	<2	B2	0.5-1	Clear	None	6.6	166	Transit	N/A
2022-10-29	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.47441	-73.97146	40.42294	-73.80525	14	3.5	S	<2	B2	0.5-1	Clear	None	8.1	128	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.42258	-73.80297	40.38370	-73.61979	34	3	NE	<2	B2	0.5-1	Clear	None	8.8	101	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.38370	-73.61979	40.33947	-73.45399	23	7	NE	<2	B2	0.5-1	Clear	None	8.2	110	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.33947	-73.45399	40.30276	-73.33752	23	7	NE	<2	B2	0.5-1	Clear	None	8.0	113	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	04:00	40.30276	-73.33752	40.27205	-73.21949	33	11	NE	<2	B2	0.5-1	Clear	None	6.6	110	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	04:40	40.27205	-73.21949	40.25457	-73.13873	36	12	NE	<2	B2	0.5-1	Clear	None	6.6	102	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:40	05:00	40.25457	-73.13873	40.24564	-73.09812	36	12	NE	<2	B2	0.5-1	Clear	None	4.9	102	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	06:00	40.24564	-73.09812	40.23383	-73.02544	36	9	NE	<2	B2	0.5-1	Clear	None	6.2	102	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	07:00	40.23383	-73.02544	40.23838	-73.12172	45	9	NE	<2	B2	0.5-1	Clear	None	4.6	277	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.23838	-73.12172	40.23500	-73.05338	39	12	NE	<2	B2	0.5-1	Clear	None	3.6	90	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	09:00	40.23500	-73.05338	40.23751	-73.07374	41	12	NE	<2	B2	0.5-1	Clear	None	4.8	96	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.23751	-73.07374	40.24154	-73.11449	43	9	NE	<2	B2	0.5-1	Clear	None	5.2	271	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	11:00	40.24154	-73.11449	40.23872	-73.03410	39	12	NE	<2	B2	0.5-1	Clear	None	2.9	88	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	12:00	40.23872	-73.03410	40.23867	-73.04689	41	11	NE	<2	B2	>5	Clear	None	3.6	90	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	13:00	40.23867	-73.04689	40.24029	-73.16317	41	8	NE	<2	B2	>5	Clear	Severe	5.2	270	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.24029	-73.16317	40.24988	-73.26405	38	7	NE	<2	B2	>5	Clear	Severe	4.5	279	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.24988	-73.26405	40.28302	-73.35494	38	3.9	NE	<2	B2	>5	Clear	Severe	4.8	289	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.28302	-73.35494	40.31584	-73.44428	34	3.3	NE	<2	B2	>5	Clear	Severe	4.2	295	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:22	40.31584	-73.44428	40.32184	-73.46259	31	4	NE	<2	B2	>5	Clear	Severe	4.4	295	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:22	16:33	40.32184	-73.46259	40.32138	-73.46304	30	4	NE	<2	B2	>5	Clear	Severe	1.0	305	Deploying/Retrieving	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:33	17:00	40.32138	-73.46304	40.33565	-73.47350	30	4	NE	<2	B2	>5	Clear	Severe	2.8	315	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:00	18:00	40.33565	-73.47350	40.30597	-73.36473	31	4	NE	<2	B2	>5	Clear	Severe	3.7	312	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.30597	-73.36473	40.29586	-73.24858	33	7	NNE	<2	B2	>5	Clear	Severe	5.6	95	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.29586	-73.24858	40.29019	-73.13987	36	7	NE	<2	B2	>5	Clear	Severe	5.1	94	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:38	40.29019	-73.13987	40.29158	-73.06366	39	8	NE	<2	B2	>5	Clear	Severe	5.5	90	Transit	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:38	21:00	40.29158	-73.06366	40.29200	-73.04654	41	8	NE	<2	B2	>5	Clear	Severe	4	88	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.29200	-73.04654	40.29020	-73.13860	41	8	NE	<2	B2	>5	Clear	Severe	5.5	274	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:15	40.29020	-73.13860	40.28979	-73.16188	40	6	ENE	<2	B2	2-5	Clear	None	3.8	261	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:15	23:00	40.28979	-73.16188	40.28633	-73.12405	39	6	ENE	<2	B2	0.5-1	Clear	None	3.9	263	Standby	N/A
2022-10-30	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.28633	-73.12405	40.28757	-73.04587	40	8.4	ESE	<2	B2	0.5-1	Clear	None	3.5	90	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.28761	-73.04444	40.28809	-73.13009	41	10	SE	<2	B2	0.5-1	Clear	None	4.0	274	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:24	40.28809	-73.13009	40.28833	-73.16588	41	10	SSE	<2	B2	0.5-1	Cloudy	None	4.0	266	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:24	02:00	40.28833	-73.16588	40.28993	-73.12273	39	10	SSE	<2	B2	0.5-1	Cloudy	None	1.8	131	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.28993	-73.12273	40.29032	-73.04553	39	8	SSE	<2	B2	0.5-1	Cloudy	None	3.8	98	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	04:00	40.29032	-73.04553	40.28773	-73.13243	41	6.7	SW	<2	B2	0.5-1	Cloudy	None	1.3	130	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.28773	-73.13243	40.29120	-73.11992	41	4	S	<2	B2	0.5-1	Cloudy	None	4.2	264	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	06:00	40.29120	-73.11992	40.29388	-73.04380	38	6	SW	<2	B2	0.5-1	Cloudy	None	4.4	88	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	07:00	40.29388	-73.04380	40.29083	-73.12880	41	3	SW	<2	B2	0.5-1	Cloudy	None	3.4	267	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.29083	-73.12880	40.28974	-73.13991	41	4	SE	<2	B2	0.5-1	Cloudy	None	3.8	266	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:01	40.28974	-73.13991	40.28974	-73.13906	41	4	SE	<2	B2	0.5-1	Cloudy	None	3.8	266	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:01	09:00	40.28974	-73.13906	40.29013	-73.05717	39	3	SE	<2	B2	0.5-1	Cloudy	None	3.9	94	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.29013	-73.05717	40.29150	-73.10196	40	2	SE	<2	B2	0.5-1	Cloudy	None	3.4	78	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	11:00	40.29150	-73.10196	40.27900	-73.09266	38	3	NE	<2	B2	0.5-1	Cloudy	None	4.3	270	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:26	40.27900	-73.09266	40.26028	-73.07305	38	1	N	<2	B2	2-5	Cloudy	None	5.0	179	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:26	11:35	40.26028	-73.07305	40.25730	-73.06310	38	1	N	<2	B2	>5	Cloudy	None	3.1	110	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:35	12:00	40.25730	-73.06310	40.26655	-73.07132	43	1	E	<2	B2	>5	Cloudy	None	2.6	109	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:16	40.26655	-73.07132	40.28849	-73.08324	43	1	NW	<2	B2	>5	Cloudy	None	5.3	339	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:16	12:31	40.28849	-73.08324	40.29911	-73.08155	43	2	N	<2	B2	>5	Cloudy	None	5.3	337	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:31	12:39	40.29911	-73.08155	40.28913	-73.08196	41	2	N	<2	B2	>5	Precipitation	None	4.3	182	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:39	12:58	40.28913	-73.08196	40.27288	-73.06715	42	5	NW	<2	B2	>5	Precipitation	None	5.4	179	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:58	13:00	40.27288	-73.06715	40.27198	-73.06572	42	5	NW	<2	B2	2-5	Precipitation	None	2.8	127	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:25	40.27198	-73.06572	40.28716	-73.08013	42	5	NW	<2	B2	2-5	Precipitation	None	2.8	127	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:25	13:37	40.28716	-73.08013	40.29853	-73.08940	42	6	NW	<2	B2	2-5	Precipitation	None	4.2	308	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:37	14:00	40.29853	-73.08940	40.32201	-73.08770	42	6	NW	<2	B2	>5	Cloudy	Severe	4.0	0	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	15:00	40.32201	-73.08770	40.29570	-73.11990	38	6	NW	<2	B2	>5	Cloudy	Slight	3.4	176	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.29570	-73.11990	40.29745	-73.18876	40	3.4	NNW	<2	B2	>5	Cloudy	Moderate	3.1	271	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:55	40.29745	-73.18876	40.29921	-73.11846	38	1	NW	<2	B1	>5	Cloudy	Severe	3.7	90	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:55	17:58	40.29921	-73.11846	40.29954	-73.12553	40	2	NNW	<2	B1	>5	Cloudy	Slight	3.3	62	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	18:57	40.29954	-73.12553	40.30034	-73.12587	40	4	W	<2	B1	>5	Cloudy	Moderate	4.2	271	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:57	19:14	40.30034	-73.12587	40.30191	-73.09290	40	2	SW	<2	B1	>5	Cloudy	Moderate	5.8	90	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:14	19:22	40.30191	-73.09290	40.30256	-73.08319	41	2	SW	<2	B1	>5	Cloudy	Moderate	4.2	85	Deploying/Retrieving	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:22	20:00	40.30256	-73.08319	40.30027	-73.08512	41	2	SW	<2	B1	>5	Cloudy	Moderate	3.4	90	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.30027	-73.08512	40.30152	-73.09751	41	5.9	SW	<2	B1	>5	Cloudy	Severe	3.9	87	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.30152	-73.09751	40.30254	-73.10485	41	7	S	<2	B2	>5	Cloudy	None	3.8	270	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:00	40.30254	-73.10485	40.30254	-73.10485	41	8	SSW	<2	B2	2-5	Cloudy	None	3.0	82	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:00	22:15	40.30254	-73.10485	40.30474	-73.08846	41	10	SSW	<2	B2	0.5-1	Cloudy	None	3.3	72	Standby	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:15	22:39	40.30474	-73.08846	40.30814	-73.06196	41	10	SSW	<2	B2	0.5-1	Cloudy	None	3.3	72	Deploying/Retrieving	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:39	23:05	40.30814	-73.06196	40.31355	-73.07342	42	10	SSW	<2	B2	0.5-1	Cloudy	None	3.3	72	Deploying/Retrieving	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:05	23:22	40.31355	-73.07342	40.29447	-73.08177	39	11	SSW	<2	B2	0.5-1	Cloudy	None	3.8	211	Deploying/Retrieving	N/A
2022-10-31	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:22	00:00	40.29447	-73.08177	40.25061	-73.08312	39	15	SSW	<2	B3	0.5-1	Cloudy	None	3.3	185	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.24911	-73.08316	40.17415	-73.08540	42	13	SW	<2	B3	0.5-1	Cloudy	None	4.5	182	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.17415	-73.08540	40.23429	-73.09380	45	12	SW	<2	B3	0.5-1	Cloudy	None	4.4	202	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.23429	-73.09380	40.29905	-73.08496	43	15	SSW	<2	B3	0.5-1	Precipitation	None	4.5	357	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	04:00	40.29905	-73.08496	40.22594	-73.08676	40	12	SW	<2	B3	0.5-1	Precipitation	None	4	172	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.22594	-73.08676	40.16126	-73.08068	42	12	SW	<2	B3	0.5-1	Precipitation	None	4.4	167	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	05:15	40.16126	-73.08068	40.17700	-73.08881	47	14	SW	<2	B3	0.5-1	Precipitation	None	4.5	291	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:15	06:00	40.17700	-73.08881	40.23229	-73.08728	47	12	SW	<2	B3	0.5-1	Fog	None	4.5	357	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	07:00	40.23229	-73.08728	40.30400	-73.09253	43	11	SW	<2	B3	0.5-1	Cloudy	None	4.6	359	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:51	40.30400	-73.09253	40.24534	-73.08664	41	9	SW	<2	B3	0.5-1	Cloudy	None	4.6	81	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:51	08:00	40.24534	-73.08664	40.23316	-73.08699	41	10	SW	<2	B3	0.5-1	Precipitation	None	4.8	172	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	08:13	40.23316	-73.08699	40.21794	-73.08741	43	11	SW	<2	B3	0.5-1	Precipitation	None	4.5	186	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:13	08:31	40.21794	-73.08741	40.19458	-73.08807	43	10	SW	<2	B3	0.5-1	Cloudy	None	4.5	185	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:31	09:00	40.19458	-73.08807	40.16627	-73.08704	43	11	SW	<2	B3	0.3-0.5	Precipitation	None	4.5	185	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:42	40.16627	-73.08704	40.21589	-73.08812	46	11	SW	<2	B3	0.3-0.5	Precipitation	None	4.5	333	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:42	09:54	40.21589	-73.08812	40.23093	-73.08770	43	7	SW	<2	B3	0.5-1	Cloudy	None	4.5	358	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:54	10:00	40.23093	-73.08770	40.23801	-73.08748	43	7	SW	<2	B3	0.3-0.5	Precipitation	None	4.5	358	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	11:00	40.23801	-73.08748	40.29171	-73.09332	42	7	SW	<2	B3	0.3-0.5	Precipitation	None	4.1	357	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:41	40.29171	-73.09332	40.23518	-73.08622	42	12	SW	<2	B3	1-2	Precipitation	None	5.1	178	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:41	12:00	40.23518	-73.08622	40.21388	-73.08687	42	10	SW	<2	B3	1-2	Precipitation	None	4.3	186	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:07	40.21388	-73.08687	40.20367	-73.08701	43	9	SW	<2	B3	2-5	Fog	None	4.5	184	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:07	12:18	40.20367	-73.08701	40.19067	-73.08734	43	9	SW	<2	B3	1-2	Fog	None	4.5	184	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:18	13:00	40.19067	-73.08734	40.17505	-73.05489	43	9	SW	<2	B3	2-5	Fog	None	4.5	184	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:11	40.17505	-73.05489	40.16987	-73.04820	46	14	SW	<2	B3	2-5	Fog	None	3.8	118	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:11	13:17	40.16987	-73.04820	40.16604	-73.04465	46	14	SW	<2	B3	2-5	Precipitation	None	2.6	164	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:17	13:27	40.16604	-73.04465	40.15988	-73.03656	46	14	SW	<2	B3	2-5	Precipitation	None	2.6	164	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:27	13:41	40.15988	-73.03656	40.15611	-73.04142	46	14	SW	<2	B3	2-5	Precipitation	None	2.9	133	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:41	14:00	40.15611	-73.04142	40.16814	-73.05561	46	13	SW	<2	B3	1-2	Precipitation	None	3	310	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:22	40.16814	-73.05561	40.17329	-73.06677	49	12	SSW	<2	B3	2-5	Fog	None	4.1	333	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:22	14:35	40.17329	-73.06677	40.18039	-73.07791	49	12	SSW	<2	B3	2-5	Fog	None	4.1	333	Deploying/Retrieving	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:35	15:00	40.18039	-73.07791	40.19311	-73.09825	45	16	SW	<2	B3	2-5	Fog	None	3.1	309	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:30	40.19311	-73.09825	40.21058	-73.12599	43	13	SW	<2	B3	>5	Cloudy	Slight	3.1	299	Standby	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:30	15:51	40.21058	-73.12599	40.22380	-73.14936	42	13	SW	<2	B3	>5	Cloudy	Slight	4.2	300	Soft Start	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:51	16:00	40.22380	-73.14936	40.22968	-73.16006	42	13	SW	<2	B3	>5	Cloudy	Slight	3.9	300	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:58	40.22968	-73.16006	40.24081	-73.10271	42	13	SW	<2	B4	>5	Cloudy	None	3.9	300	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:58	17:22	40.24081	-73.10271	40.27029	-73.09391	42	13	SW	<2	B3	>5	Cloudy	Slight	4.9	18	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:22	17:26	40.27029	-73.09391	40.27538	-73.09386	41	13	SW	<2	B3	>5	Cloudy	Moderate	4.3	8	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:26	17:41	40.27538	-73.09386	40.29360	-73.09338	41	13	SW	<2	B3	>5	Cloudy	Slight	4.3	8	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:41	17:43	40.29360	-73.09338	40.29623	-73.09329	41	13	WSW	<2	B3	>5	Cloudy	Slight	4.3	8	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:43	17:55	40.29623	-73.09329	40.29666	-73.08591	41	13	WSW	<2	B3	>5	Cloudy	Slight	4.3	8	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:55	17:58	40.29666	-73.08591	40.29295	-73.08623	41	13	WSW	<2	B3	>5	Cloudy	Slight	4.7	180	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:58	19:00	40.29295	-73.08623	40.21557	-73.08848	41	13	WSW	<2	B3	>5	Cloudy	Slight	4.7	180	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	19:32	40.21557	-73.08848	40.17634	-73.08961	43	13	W	<2	B3	>5	Cloudy	None	4.7	180	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:32	19:34	40.17634	-73.08961	40.17384	-73.08963	43	13	W	<2	B3	>5	Cloudy	None	4.7	180	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:34	19:45	40.17384	-73.08963	40.17333	-73.09694	43	13	W	<2	B3	>5	Cloudy	None	4.7	180	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:45	19:48	40.17333	-73.09694	40.17716	-73.09691	45	13	W	<2	B3	>5	Cloudy	None	4.6	358	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:48	20:00	40.17716	-73.09691	40.19102	-73.09653	45	13	W	<2	B3	>5	Cloudy	None	4.6	358	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.19102	-73.09653	40.26521	-73.09453	43	13	WNW	<2	B3	>5	Cloudy	Moderate	4.6	38	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:22	40.26521	-73.09453	40.29379	-73.09366	41	9	W	<2	B3	>5	Cloudy	Moderate	4.5	4	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:22	21:24	40.29379	-73.09366	40.29628	-73.09358	40	9	W	<2	B3	>5	Cloudy	Slight	4.5	173	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:24	21:32	40.29628	-73.09358	40.29956	-73.08659	40	9	W	<2	B3	>5	Cloudy	Slight	4.6	6	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:32	21:37	40.29956	-73.08659	40.29305	-73.08665	41	9	W	<2	B3	>5	Cloudy	Slight	4.3	186	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:37	22:00	40.29305	-73.08665	40.26480	-73.08743	41	12	WSW	<2	B3	>5	Cloudy	None	4.3	187	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:11	40.26480	-73.08743	40.25130	-73.08780	41	12	WSW	<2	B3	1-2	Cloudy	None	4.3	183	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:11	23:00	40.25130	-73.08780	40.18939	-73.08955	42	12	WSW	<2	B3	0.5-1	Cloudy	None	4.6	179	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:11	40.18939	-73.08955	40.17646	-73.08997	44	12	WSW	<2	B3	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:11	23:12	40.17646	-73.08997	40.17525	-73.09003	44	10	W	<2	B2	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:12	23:25	40.17525	-73.09003	40.17475	-73.09738	44	10	W	<2	B2	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:25	23:28	40.17475	-73.09738	40.17747	-73.09730	45	12	W	<2	B3	0.5-1	Clear	None	4.4	1	Silent	N/A
2022-11-01	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:28	0:00	40.17747	-73.09730	40.21305	-73.09632	45	12	W	<2	B3	0.5-1	Clear	None	4.4	353	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:57	40.21450	-73.09627	40.28257	-73.09434	43	14	NW	<2	B3	0.5-1	Clear	None	4.3	8.7	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:57	00:58	40.28257	-73.09434	40.28377	-73.09431	41	11	NW	<2	B3	0.5-1	Clear	None	4.4	359	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:58	01:31	40.28377	-73.09431	40.28658	-73.09704	41	11	NW	<2	B3	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:31	01:35	40.28658	-73.09704	40.28151	-73.09718	41	9	NW	<2	B3	0.5-1	Clear	None	4.7	180	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:35	02:00	40.28151	-73.09718	40.25002	-73.09803	41	10	NW	<2	B3	0.5-1	Clear	None	4.7	180	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.25002	-73.09803	40.17983	-73.10004	43	14	NW	<2	B3	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	03:11	40.17983	-73.10004	40.16662	-73.10039	45	11	NW	<2	B3	0.5-1	Clear	None	4.1	181	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:11	03:13	40.16662	-73.10039	40.16419	-73.10044	47	13	NW	<2	B3	0.5-1	Clear	None	4.1	182	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:13	03:44	40.16419	-73.10044	40.16239	-73.10013	47	13	NW	<2	B3	0.5-1	Clear	None	4.1	182	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:44	03:48	40.16239	-73.10013	40.16715	-73.10003	46	12	NW	<2	B3	0.5-1	Clear	None	4.4	358	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:48	04:00	40.16715	-73.10003	40.18187	-73.09963	46	12	NW	<2	B3	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.18187	-73.09963	40.25325	-73.09759	44	14	NW	<2	B3	0.5-1	Clear	None	4.2	358	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	05:26	40.25325	-73.09759	40.28331	-73.09677	43	15	NW	<2	B3	0.5-1	Clear	None	4.2	1	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:26	05:28	40.28331	-73.09677	40.28598	-73.09669	41	15	NW	<2	B3	0.5-1	Clear	None	4.4	353	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:28	06:01	40.28598	-73.09669	40.28560	-73.09736	42	13	NW	<2	B3	0.5-1	Clear	None	4.2	7.7	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:01	06:04	40.28560	-73.09736	40.28187	-73.09750	40	13	NW	<2	B3	0.5-1	Clear	None	4.5	182	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:04	07:00	40.28187	-73.09750	40.21400	-73.09941	41	13	NW	<2	B3	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:39	40.21400	-73.09941	40.16566	-73.10078	43	15	NW	<2	B3	0.5-1	Clear	None	4.5	184	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:39	07:40	40.16566	-73.10078	40.16442	-73.10079	48	14	NW	<2	B3	0.5-1	Clear	None	4.5	184	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:40	08:00	40.16442	-73.10079	40.16123	-73.09273	48	14	NW	<2	B3	0.5-1	Clear	None	4.5	184	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	08:10	40.16123	-73.09273	40.16242	-73.09971	46	14	NW	<2	B3	0.5-1	Clear	None	4.6	120	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:10	08:14	40.16242	-73.09971	40.16684	-73.09969	46	16	NW	<2	B3	0.5-1	Clear	None	4.6	356	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:14	09:00	40.16684	-73.09969	40.21892	-73.09826	46	15	NW	<2	B3	0.5-1	Clear	None	4.6	356	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:01	40.21892	-73.09826	40.28247	-73.09648	43	17	NW	<2	B3	0.5-1	Clear	None	2.9	354	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:01	10:03	40.28247	-73.09648	40.28456	-73.09644	41	20	NW	<2	B3	0.5-1	Clear	None	3.7	357	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:03	10:32	40.28456	-73.09644	40.28905	-73.09716	41	20	NW	<2	B3	0.5-1	Clear	None	3.7	357	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:32	10:39	40.28905	-73.09716	40.28145	-73.09797	42	20	NW	<2	B3	0.5-1	Clear	None	4.2	181	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:39	11:00	40.28145	-73.09797	40.25678	-73.09859	41	19	N	<2	B3	1-2	Clear	None	4.3	188	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:21	40.25678	-73.09859	40.23217	-73.09930	42	20	N	<2	B3	>5	Clear	None	4.2	183	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:21	12:00	40.23217	-73.09930	40.18718	-73.10055	42	18	N	<2	B3	>5	Clear	None	4.2	183	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:19	40.18718	-73.10055	40.16632	-73.10116	42	17	NW	<2	B4	>5	Clear	None	4.2	181	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:19	12:21	40.16632	-73.10116	40.16344	-73.10125	42	17	NW	<2	B4	>5	Clear	None	4.2	182	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:21	13:00	40.16344	-73.10125	40.15704	-73.09702	42	17	NW	<2	B4	>5	Clear	None	4.2	181	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:06	40.15704	-73.09702	40.16358	-73.09933	42	23	N	<2	B5	>5	Clear	None	4.2	307	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:06	13:10	40.16358	-73.09933	40.16772	-73.09932	42	20	N	<2	B5	>5	Clear	None	4.2	3	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:10	13:31	40.16772	-73.09932	40.19230	-73.09868	45	20	N	<2	B5	>5	Clear	None	4.2	1	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:31	14:00	40.19230	-73.09868	40.22545	-73.09773	45	19	N	<2	B5	>5	Clear	None	4.2	5	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:49	40.22545	-73.09773	40.28237	-73.09612	43	19	N	<2	B5	>5	Clear	Severe	4.2	2	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:49	14:51	40.28237	-73.09612	40.28482	-73.09606	40	17	N	<2	B5	>5	Clear	Severe	4.3	3	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:51	15:21	40.28482	-73.09606	40.28558	-73.09815	41	17	N	<2	B5	>5	Clear	Severe	4.3	70	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:21	15:24	40.28558	-73.09815	40.28200	-73.09820	40	17	N	<2	B5	>5	Clear	Severe	4.1	179	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:24	16:00	40.28200	-73.09820	40.24073	-73.09931	40	15	NNW	<2	B4	>5	Clear	Severe	4.4	175	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:58	40.24073	-73.09931	40.17396	-73.10119	43	18	NE	<2	B4	>5	Clear	Severe	4.4	173	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:58	17:05	40.17396	-73.10119	40.16661	-73.10142	45	14	NE	<2	B4	>5	Clear	Severe	3.9	178	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:05	17:07	40.16661	-73.10142	40.16440	-73.10148	45	14	NE	<2	B4	>5	Clear	Severe	3.9	178	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:07	17:42	40.16440	-73.10148	40.16145	-73.09924	45	14	NE	<2	B4	>5	Clear	Severe	3.9	178	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:42	17:47	40.16145	-73.09924	40.16722	-73.09894	47	13	NNE	<2	B4	>5	Clear	Severe	4.2	4	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:47	18:00	40.16722	-73.09894	40.18211	-73.09845	47	13	NNE	<2	B4	>5	Clear	Severe	4.2	4	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:04	40.18211	-73.09845	40.25575	-73.09640	44	14	NE	<2	B4	>5	Clear	Severe	4.2	1	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:04	19:27	40.25575	-73.09640	40.28302	-73.09566	42	8	NNE	<2	B3	>5	Clear	Severe	4.3	4	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:27	19:28	40.28302	-73.09566	40.28424	-73.09565	42	8	NNE	<2	B3	>5	Clear	Severe	4.3	4	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:28	20:00	40.28424	-73.09565	40.29137	-73.10230	42	8	NNE	<2	B3	>5	Clear	Severe	4.3	4	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:05	40.29137	-73.10230	40.28433	-73.09852	40	3	NE	<2	B2	>5	Clear	Severe	4.2	79	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:05	20:07	40.28433	-73.09852	40.28206	-73.09854	40	3	NE	<2	B2	>5	Clear	Severe	4.2	79	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:07	21:00	40.28206	-73.09854	40.22069	-73.10030	41	3	NE	<2	B2	>5	Clear	Severe	4.3	181	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:49	40.22069	-73.10030	40.16579	-73.10181	43	5	NE	<2	B2	>5	Clear	Severe	3.9	178	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:49	21:51	40.16579	-73.10181	40.16342	-73.10182	43	5	NE	<2	B2	>5	Clear	Severe	3.9	178	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:51	22:00	40.16342	-73.10182	40.15307	-73.09821	43	5	NE	<2	B2	>5	Clear	Severe	3.9	178	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:12	40.15307	-73.09821	40.14298	-73.08972	46	5	NE	<2	B2	2-5	Clear	None	1.9	130	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:12	22:32	40.14298	-73.08972	40.16261	-73.09876	45	5	NE	<2	B2	0.5-1	Clear	None	4.1	250	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:32	22:36	40.16261	-73.09876	40.16786	-73.09866	46	5	NE	<2	B2	0.5-1	Clear	None	4.3	2	Silent	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:36	23:00	40.16786	-73.09866	40.19275	-73.09796	45	5	NE	<2	B2	0.5-1	Clear	None	4	359	Full Power	N/A
2022-11-02	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.19275	-73.09796	40.26094	-73.09599	43	5	NE	<2	B2	0.5-1	Clear	None	4	359	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:18	40.26191	-73.09599	40.28284	-73.09535	41	3	NE	<2	B1	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:18	00:19	40.28284	-73.09535	40.28400	-73.09531	41	3	NE	<2	B1	0.5-1	Clear	None	4.4	359	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:19	00:48	40.28400	-73.09531	40.28644	-73.09870	41	3	NE	<2	B1	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:48	00:52	40.28644	-73.09870	40.28178	-73.09885	40	3	NE	<2	B1	0.5-1	Clear	None	4.1	182	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:52	01:00	40.28178	-73.09885	40.27238	-73.09909	40	3	NE	<2	B1	0.5-1	Clear	None	4.1	182	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	02:00	40.27238	-73.09909	40.20369	-73.10106	41	6	ENE	<2	B1	0.5-1	Clear	None	4.3	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	02:32	40.20369	-73.10106	40.16680	-73.10212	42	8	E	<2	B1	0.5-1	Clear	None	4	183	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:32	02:34	40.16680	-73.10212	40.16469	-73.10218	46	8	E	<2	B1	0.5-1	Clear	None	3.7	179	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:34	03:05	40.16469	-73.10218	40.16205	-73.09839	46	8	E	<2	B1	0.5-1	Clear	None	3.7	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:05	03:09	40.16205	-73.09839	40.16694	-73.09830	45	7	SE	<2	B1	0.5-1	Clear	None	4.5	2	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:09	04:00	40.16694	-73.09830	40.22941	-73.09651	45	7	SE	<2	B1	0.5-1	Clear	None	4.5	2	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	04:44	40.22941	-73.09651	40.28256	-73.09508	45	5	SE	<2	B2	0.5-1	Clear	None	4.2	4	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:44	04:46	40.28256	-73.09508	40.28555	-73.09498	41	2	SE	<2	B2	0.5-1	Clear	None	4.2	3	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:46	05:00	40.28555	-73.09498	40.28169	-73.09231	43	2	SE	<2	B2	0.5-1	Clear	None	4.3	15	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	05:22	40.28169	-73.09231	40.28504	-73.09925	41	2	SE	<2	B2	0.5-1	Clear	None	4.6	292	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:22	05:25	40.28504	-73.09925	40.28137	-73.09931	42	2	E	<2	B2	0.5-1	Clear	None	4.5	178	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:25	05:58	40.28137	-73.09931	40.24224	-73.10036	41	2	NE	<2	B2	0.5-1	Clear	None	4.3	187	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	05:58	07:01	40.24224	-73.10036	40.16624	-73.10255	42	1	NE	<2	B1	0.5-1	Clear	None	4.5	178	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:01	07:03	40.16624	-73.10255	40.16378	-73.10260	47	5	N	<2	B1	0.5-1	Clear	None	4.5	180	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:03	07:39	40.16378	-73.10260	40.16229	-73.09798	47	5	N	<2	B1	0.5-1	Clear	None	4.5	180	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:39	07:43	40.16229	-73.09798	40.16700	-73.09787	46	6	NNE	<2	B1	0.5-1	Clear	None	4.5	0.8	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:43	08:00	40.16700	-73.09787	40.18710	-73.09734	45	6	NNE	<2	B1	0.5-1	Clear	None	4.3	2	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	09:00	40.18710	-73.09734	40.25607	-73.09541	44	5	NE	<2	B1	0.5-1	Clear	None	4.1	7	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:24	40.25607	-73.09541	40.28349	-73.09468	43	5	NE	<2	B1	0.5-1	Clear	None	4.4	5.8	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:24	09:26	40.28349	-73.09468	40.28490	-73.09464	41	8	E	<2	B1	0.5-1	Clear	None	3.8	19	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:26	10:00	40.28490	-73.09464	40.28631	-73.10731	42	8	E	<2	B1	0.5-1	Clear	None	3.7	6.2	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	10:12	40.28631	-73.10731	40.28699	-73.09954	41	6	SE	<2	B1	0.5-1	Clear	None	3.7	334	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:12	10:16	40.28699	-73.09954	40.28152	-73.09958	42	7	NE	<2	B1	0.5-1	Clear	None	4.4	190	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:16	10:50	40.28152	-73.09958	40.23942	-73.10078	40	6	NE	<2	B1	0.5-1	Clear	None	4.4	177	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:50	11:00	40.23942	-73.10078	40.22823	-73.10110	44	8	E	<2	B2	2-5	Clear	None	4.2	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:53	40.22823	-73.10110	40.16414	-73.10292	44	8	E	<2	B2	>5	Clear	None	4.2	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:53	11:54	40.16414	-73.10292	40.16293	-73.10297	47	11	NE	<2	B2	>5	Clear	None	4.2	180	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:54	12:00	40.16293	-73.10297	40.15602	-73.10342	47	11	NE	<2	B2	>5	Clear	Slight	4.2	180	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:12	40.15602	-73.10342	40.16318	-73.11001	47	9	NE	<2	B2	>5	Clear	Severe	4.6	217	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:12	12:16	40.16318	-73.11001	40.16776	-73.10991	47	11	E	<2	B2	>5	Clear	Severe	4.6	2	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:16	13:00	40.16776	-73.10991	40.21833	-73.10847	47	10	E	<2	B2	>5	Clear	Severe	4.1	1	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:45	40.21833	-73.10847	40.27101	-73.10700	43	10	E	<2	B3	>5	Clear	Severe	4.4	3	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:45	13:55	40.27101	-73.10700	40.28261	-73.10674	41	9	E	<2	B3	>5	Clear	Severe	4.3	5	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:55	13:57	40.28261	-73.10674	40.28499	-73.10669	39	10	E	<2	B3	>5	Clear	Severe	4	27	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:57	14:09	40.28499	-73.10669	40.28617	-73.09998	39	10	E	<2	B3	>5	Clear	Severe	4	27	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:09	14:12	40.28617	-73.09998	40.28234	-73.09998	40	10	E	<2	B3	>5	Clear	Severe	4.5	183	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:12	15:00	40.28234	-73.09998	40.22258	-73.10163	40	10	E	<2	B3	>5	Clear	Severe	4.5	183	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:45	40.22258	-73.10163	40.16606	-73.10321	43	11	ESE	<2	B3	>5	Clear	Severe	4.6	183	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:45	15:46	40.16606	-73.10321	40.16480	-73.10327	44	10	ESE	<2	B3	>5	Clear	Severe	4.4	178	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:46	15:56	40.16480	-73.10327	40.16070	-73.11036	46	10	ESE	<2	B3	>5	Clear	Severe	4.6	186	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:56	16:07	40.16070	-73.11036	40.17545	-73.10997	45	10	ESE	<2	B3	>5	Clear	Severe	4.3	7	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:07	16:53	40.17545	-73.10997	40.23242	-73.10837	45	10	ESE	<2	B3	>5	Clear	Severe	4.3	7	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:53	17:36	40.23242	-73.10837	40.28274	-73.10700	44	8	E	<2	B2	>5	Clear	Severe	4.3	8	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:36	17:38	40.28274	-73.10700	40.28517	-73.10694	44	8	E	<2	B2	>5	Clear	Severe	4.3	8	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:38	18:07	40.28517	-73.10694	40.29246	-73.08586	44	8	E	<2	B2	>5	Clear	Severe	4.3	8	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:07	18:59	40.29246	-73.08586	40.22932	-73.08763	41	7	E	<2	B2	>5	Clear	Severe	4.1	173	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	19:19	40.22932	-73.08763	40.20495	-73.08834	43	7	E	<2	B2	>5	Clear	Severe	4.4	177	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:19	20:00	40.20495	-73.08834	40.23721	-73.09081	43	7	E	<2	B2	>5	Clear	Severe	4.4	177	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:24	40.23721	-73.09081	40.27109	-73.08729	43	6	E	<2	B2	>5	Clear	Severe	4.5	6	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:24	20:41	40.27109	-73.08729	40.29303	-73.08668	41	7	ENE	<2	B2	>5	Clear	Severe	4.7	327	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:41	21:00	40.29303	-73.08668	40.29032	-73.09087	41	7	ENE	<2	B2	>5	Clear	Severe	4.7	1	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:22	40.29032	-73.09087	40.28932	-73.10029	40	5	ENE	<2	B2	>5	Clear	Severe	4.2	245	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:22	21:28	40.28932	-73.10029	40.28190	-73.10018	40	5	ENE	<2	B2	>5	Clear	Severe	4.6	179	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:28	22:00	40.28190	-73.10018	40.24460	-73.10133	41	5	ENE	<2	B2	>5	Clear	Moderate	4.3	181	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:10	40.24460	-73.10133	40.23234	-73.10171	42	11	E	<2	B2	2-5	Clear	None	4.6	180	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:10	23:00	40.23234	-73.10171	40.17374	-73.10335	44	13	E	<2	B2	0.5-1	Clear	None	4.6	182	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	23:05	40.17374	-73.10335	40.16585	-73.10357	45	10	ESE	<2	B3	0.5-1	Clear	None	4.4	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:05	23:06	40.16585	-73.10357	40.16464	-73.10359	45	10	ESE	<2	B3	0.5-1	Clear	None	4.4	179	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:06	23:17	40.16464	-73.10359	40.16225	-73.11637	45	10	ESE	<2	B3	0.5-1	Clear	None	4.4	179	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:17	23:20	40.16225	-73.11637	40.16236	-73.12104	45	9	SE	<2	B3	0.5-1	Clear	None	4.4	272	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:20	23:46	40.16236	-73.12104	40.16297	-73.15942	45	9	SE	<2	B3	0.5-1	Clear	None	4.1	272	Full Power	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:46	23:48	40.16297	-73.15942	40.16299	-73.16232	43	9	SE	<2	B3	0.5-1	Clear	None	4.1	269	Silent	N/A
2022-11-03	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:48	00:00	40.16299	-73.16232	40.16314	-73.17891	4	9	SE	<2	B3	0.5-1	Clear	None	4.1	271	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:32	40.16316	-73.18052	40.17662	-73.17785	42	9	SSE	<2	B3	0.5-1	Clear	None	3.8	271	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:32	00:35	40.17662	-73.17785	40.17642	-73.17286	43	12	SE	<2	B3	0.5-1	Clear	None	4.4	92	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:35	01:00	40.17642	-73.17286	40.17577	-73.13697	43	11	SE	<2	B3	0.5-1	Clear	None	4.4	92	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:28	40.17577	-73.13697	40.17506	-73.09158	44	11	SE	<2	B3	0.5-1	Clear	None	4.4	91	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:28	01:30	40.17506	-73.09158	40.17502	-73.08823	45	11	SE	<2	B3	0.5-1	Clear	None	4.4	92	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:30	02:00	40.17502	-73.08823	40.16329	-73.05175	45	11	SE	<2	B3	0.5-1	Clear	None	4.4	93	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.16329	-73.05175	40.15558	-73.10377	50	11	SE	<2	B3	0.5-1	Clear	None	3.4	123	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	03:08	40.15558	-73.10377	40.16271	-73.11063	47	9	SE	<2	B3	2-5	Clear	None	4.4	282	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:08	03:11	40.16271	-73.11063	40.16638	-73.11061	46	8	SE	<2	B3	0.5-1	Clear	None	4.4	2	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:11	04:00	40.16638	-73.11061	40.22598	-73.10888	45	9	SE	<2	B3	0.5-1	Clear	None	4.5	3	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	04:50	40.22598	-73.10888	40.28331	-73.10728	45	7	SE	<2	B3	0.5-1	Clear	None	4	7	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:50	04:52	40.28331	-73.10728	40.28587	-73.10721	42	6	SE	<2	B3	0.5-1	Clear	None	4.4	9	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:52	05:00	40.28587	-73.10721	40.29279	-73.10365	42	7	SE	<2	B3	0.5-1	Clear	None	4.4	10	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	05:08	40.29279	-73.10365	40.28620	-73.10053	42	8	S	<2	B3	0.5-1	Clear	None	4.1	110	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:08	05:12	40.28620	-73.10053	40.28094	-73.10069	41	7	S	<2	B3	0.5-1	Clear	None	3.8	184	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:12	06:00	40.28094	-73.10069	40.22743	-73.10222	41	6	S	<2	B3	0.5-1	Clear	None	4	178	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	06:56	40.22743	-73.10222	40.16507	-73.10399	44	4	SE	<2	B3	0.5-1	Clear	None	4	175	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:56	06:57	40.16507	-73.10399	40.16476	-73.10399	46	7	SE	<2	B3	0.5-1	Clear	None	4.2	177	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:57	07:00	40.16476	-73.10399	40.16057	-73.10416	46	7	SE	<2	B3	0.5-1	Clear	None	4.2	177	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:10	40.16057	-73.10416	40.16396	-73.11096	46	7	SE	<2	B3	0.5-1	Clear	None	3.9	192	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:10	07:13	40.16396	-73.11096	40.16670	-73.11092	45	6	SE	<2	B3	0.5-1	Clear	None	4.2	1	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:13	08:00	40.16670	-73.11092	40.22353	-73.10929	45	6	SE	<2	B3	0.5-1	Clear	None	4.2	2	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	08:49	40.22353	-73.10929	40.28327	-73.10768	41	3	SE	<2	B3	0.5-1	Clear	None	4	11	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:49	08:50	40.28327	-73.10768	40.28509	-73.10760	42	6	SE	<2	B3	0.5-1	Clear	None	4.4	342	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:50	09:00	40.28509	-73.10760	40.28874	-73.09999	42	6	SE	<2	B3	0.5-1	Clear	None	4.5	7.4	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:02	40.28874	-73.09999	40.28575	-73.10094	42	6	SE	<2	B3	0.5-1	Clear	None	3.8	204	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:02	09:06	40.28575	-73.10094	40.28131	-73.10110	41	6	SE	<2	B3	0.5-1	Clear	None	4	174	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:06	10:00	40.28131	-73.10110	40.22411	-73.10264	41	6	SE	<2	B3	0.5-1	Clear	None	3.2	192	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	10:47	40.22411	-73.10264	40.17208	-73.10407	41	6	SE	<2	B3	0.5-1	Clear	None	3.9	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:47	10:52	40.17208	-73.10407	40.16634	-73.10424	45	3	SE	<2	B3	2-5	Clear	None	3.9	174	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:52	10:54	40.16634	-73.10424	40.16348	-73.10431	45	2	SE	<2	B3	2-5	Clear	None	3.9	161	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:54	11:00	40.16348	-73.10431	40.15866	-73.11022	45	1	SE	<2	B3	2-5	Clear	None	4.6	176	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:04	40.15866	-73.11022	40.16149	-73.11252	47	1	SW	<2	B3	>5	Clear	None	4.6	282	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:04	11:09	40.16149	-73.11252	40.16839	-73.11126	47	4	N	<2	B3	>5	Clear	None	4.9	21	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:09	11:27	40.16839	-73.11126	40.19033	-73.11067	47	1	NE	<2	B3	>5	Clear	Slight	4.8	359	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:27	12:00	40.19033	-73.11067	40.23152	-73.10950	47	4	SE	<2	B2	>5	Clear	Moderate	4.5	0	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:19	40.23152	-73.10950	40.25362	-73.10890	44	2	SE	<2	B2	>5	Clear	Severe	4.5	0	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:19	12:34	40.25362	-73.10890	40.27216	-73.10840	44	2	SE	<2	B2	>5	Clear	Severe	4.5	0	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:34	12:43	40.27216	-73.10840	40.28307	-73.10807	44	1	N	<2	B2	>5	Clear	Severe	4.5	0	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:43	12:46	40.28307	-73.10807	40.28611	-73.10800	44	2	N	<2	B2	>5	Clear	Severe	4.3	1	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:46	12:55	40.28611	-73.10800	40.28741	-73.10118	44	2	N	<2	B2	>5	Clear	Severe	4.3	22	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:55	13:00	40.28741	-73.10118	40.28217	-73.10137	44	1	N	<2	B2	>5	Clear	Moderate	4.5	180	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:37	40.28217	-73.10137	40.23468	-73.10273	44	1	N	<2	B2	>5	Clear	Moderate	4.5	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:37	14:00	40.23468	-73.10273	40.20565	-73.10353	44	1	N	<2	B2	>5	Clear	Moderate	4.5	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:32	40.20565	-73.10353	40.16585	-73.10467	43	7	SW	<2	B2	>5	Clear	Severe	4.1	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:32	14:38	40.16585	-73.10467	40.16050	-73.10903	46	9	SSE	<2	B3	>5	Clear	Severe	4.4	184	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:38	14:47	40.16050	-73.10903	40.16067	-73.12211	46	10	SSE	<2	B3	>5	Clear	Severe	4.6	256	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:47	14:52	40.16067	-73.12211	40.16687	-73.12199	45	10	SSE	<2	B3	>5	Clear	Severe	4.5	1	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:52	15:17	40.16687	-73.12199	40.19666	-73.12103	43	10	SSE	<2	B3	>5	Clear	Severe	4.6	1	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:17	16:00	40.19666	-73.12103	40.24885	-73.11957	45	9	SSE	<2	B2	>5	Clear	Severe	3.5	1	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:19	40.24885	-73.11957	40.27217	-73.11891	42	5	SW	<2	B2	>5	Clear	Severe	4.4	241	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:19	16:21	40.27217	-73.11891	40.27459	-73.11885	40	6	SW	<2	B2	>5	Clear	Severe	4.2	210	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:21	16:34	40.27459	-73.11885	40.27565	-73.10866	40	6	SW	<2	B2	>5	Clear	Severe	4.2	210	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:34	16:37	40.27565	-73.10866	40.27200	-73.10870	40	6	SW	<2	B2	>5	Clear	Severe	4.1	179	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:37	16:56	40.27200	-73.10870	40.24789	-73.10935	40	6	SW	<2	B2	>5	Clear	Severe	4.3	187	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:56	18:00	40.24789	-73.10935	40.17408	-73.11140	42	7	WSW	<2	B2	>5	Clear	Severe	4.3	174	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:07	40.17408	-73.11140	40.16650	-73.11164	45	7	WSW	<2	B2	>5	Clear	Severe	4.3	174	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:07	18:10	40.16650	-73.11164	40.16324	-73.11172	45	7	WSW	<2	B2	>5	Clear	Severe	4.3	174	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:10	18:21	40.16324	-73.11172	40.16180	-73.12276	46	7	WSW	<2	B2	>5	Clear	Severe	4	200	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:21	18:29	40.16180	-73.12276	40.17212	-73.12207	44	7	WSW	<2	B2	>5	Clear	Severe	5.2	2	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:29	18:58	40.17212	-73.12207	40.16207	-73.12233	44	7	WSW	<2	B2	>5	Clear	Severe	5.2	2	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	19:02	40.16207	-73.12233	40.16725	-73.12221	44	8	SSE	<2	B2	>5	Clear	Severe	4.7	1	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:02	20:00	40.16725	-73.12221	40.23551	-73.12040	44	8	SSE	<2	B2	>5	Clear	Severe	4.7	1	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:29	40.23551	-73.12040	40.27243	-73.11933	42	7	SSE	<2	B2	>5	Clear	Severe	4.3	3.2	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:29	20:31	40.27243	-73.11933	40.27560	-73.11913	40	5	SSW	<2	B2	>5	Clear	Severe	4.5	22	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:31	20:41	40.27560	-73.11913	40.27800	-73.11007	40	5	SSW	<2	B2	>5	Clear	Severe	4.6	358	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:41	20:47	40.27800	-73.11007	40.27090	-73.11016	41	5	SSW	<2	B2	>5	Clear	Severe	4.2	180	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:47	21:00	40.27090	-73.11016	40.25642	-73.11056	40	5	SSW	<2	B2	>5	Clear	Severe	4.4	184	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.25642	-73.11056	40.18534	-73.11250	40	10	SSE	<2	B2	>5	Clear	Severe	4.7	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:09	40.18534	-73.11250	40.17500	-73.11280	44	11	SSE	<2	B2	2-5	Clear	None	4	189	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:09	22:16	40.17500	-73.11280	40.16693	-73.11307	46	11	SSE	<2	B2	0.5-1	Clear	None	4.1	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:16	22:18	40.16693	-73.11307	40.16464	-73.11312	45	11	SSE	<2	B2	0.5-1	Clear	None	4.1	184	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:18	22:30	40.16464	-73.11312	40.16230	-73.12260	46	11	SSE	<2	B2	0.5-1	Clear	None	4.1	180	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:30	22:34	40.16230	-73.12260	40.16725	-73.12257	44	11	SSE	<2	B2	0.5-1	Clear	None	4.5	11	Silent	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:34	23:00	40.16725	-73.12257	40.19932	-73.12171	44	11	SSE	<2	B2	0.5-1	Clear	None	4.5	316	Full Power	N/A
2022-11-04	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:00	00:00	40.19932	-73.12171	40.27319	-73.11967	42	10	SSE	<2	B2	0.5-1	Clear	None	4.7	2	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:01	40.27427	-73.11960	40.27453	-73.11959	40	13	SSE	<2	B2	0.5-1	Clear	None	4.2	38	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:01	00:14	40.27453	-73.11959	40.27511	-73.11040	40	13	SSE	<2	B2	0.5-1	Clear	None	4.2	38	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:14	00:17	40.27511	-73.11040	40.27144	-73.11050	40	15	SSE	<2	B2	0.5-1	Clear	None	4.7	183	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:17	01:00	40.27144	-73.11050	40.21876	-73.11198	40	15	SSE	<2	B2	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:00	01:43	40.21876	-73.11198	40.16678	-73.11347	43	12	SSE	<2	B2	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:43	01:45	40.16678	-73.11347	40.16470	-73.11353	43	12	SSE	<2	B2	0.5-1	Clear	None	3.5	183	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	01:45	01:58	40.16470	-73.11353	40.16295	-73.12306	43	12	SSE	<2	B2	0.5-1	Clear	None	3.5	183	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	01:58	02:02	40.16295	-73.12306	40.16823	-73.12299	42	13	SE	<2	B2	0.5-1	Clear	None	4.2	2.2	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:02	03:00	40.16823	-73.12299	40.23752	-73.12102	42	13	SE	<2	B2	0.5-1	Clear	None	4.3	1.1	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:00	03:28	40.23752	-73.12102	40.27282	-73.11997	41	13	SSE	<2	B2	0.5-1	Cloudy	None	4.3	1.1	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:28	03:30	40.27282	-73.11997	40.27450	-73.11996	41	13	S	<2	B2	0.5-1	Clear	None	4.5	0.8	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:30	03:44	40.27450	-73.11996	40.27365	-73.11079	41	13	S	<2	B2	0.5-1	Clear	None	4.5	18	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:44	03:47	40.27365	-73.11079	40.27077	-73.11087	41	15	S	<2	B2	0.5-1	Clear	None	4.2	187	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:47	04:00	40.27077	-73.11087	40.25558	-73.11127	41	15	S	<2	B2	0.5-1	Clear	None	4	175	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.25558	-73.11127	40.18544	-73.11320	42	14	S	<2	B2	0.5-1	Clear	None	4.4	180	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	05:17	40.18544	-73.11320	40.16556	-73.11379	42	15	S	<2	B2	0.5-1	Clear	None	4.6	178	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:17	05:18	40.16556	-73.11379	40.16394	-73.11382	46	15	S	<2	B2	0.5-1	Clear	None	3.8	177	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:18	05:30	40.16394	-73.11382	40.16288	-73.12337	46	15	S	<2	B2	0.5-1	Clear	None	4.4	184	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:30	05:33	40.16288	-73.12337	40.16673	-73.12326	46	13	SE	<2	B2	0.5-1	Clear	None	4.4	2	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:33	06:00	40.16673	-73.12326	40.19888	-73.12247	43	13	SE	<2	B2	0.5-1	Clear	None	4.8	9	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	06:58	40.19888	-73.12247	40.27176	-73.12043	42	14	S	<2	B2	0.5-1	Cloudy	None	4.5	2.6	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:58	07:00	40.27176	-73.12043	40.27426	-73.12033	40	13	S	<2	B2	0.5-1	Cloudy	None	4.5	2.6	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:14	40.27426	-73.12033	40.27503	-73.11106	40	13	S	<2	B2	0.5-1	Cloudy	None	4.5	2.6	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:14	07:17	40.27503	-73.11106	40.27144	-73.11115	40	15	S	<2	B2	0.5-1	Cloudy	None	4.1	180	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:17	08:00	40.27144	-73.11115	40.22205	-73.11254	40	15	S	<2	B2	0.5-1	Cloudy	None	3.8	179	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	08:52	40.22205	-73.11254	40.16625	-73.11410	41	17	S	<2	B2	0.5-1	Cloudy	None	4.2	169	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:52	08:54	40.16625	-73.11410	40.16364	-73.11420	45	13	S	<2	B2	0.5-1	Cloudy	None	3.9	196	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:54	09:00	40.16364	-73.11420	40.15852	-73.11932	45	13	S	<2	B2	0.5-1	Cloudy	None	4.7	187	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:07	40.15852	-73.11932	40.16329	-73.12403	46	12	SW	<2	B2	0.5-1	Cloudy	None	4.3	255	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:07	09:10	40.16329	-73.12403	40.16660	-73.12356	45	11	SW	<2	B2	0.5-1	Cloudy	None	4.2	348	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:10	10:00	40.16660	-73.12356	40.22888	-73.12195	45	11	S	<2	B2	0.5-1	Cloudy	None	4.8	357	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	10:03	40.22888	-73.12195	40.23257	-73.12185	43	11	S	<2	B2	0.5-1	Cloudy	None	4.3	355	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:03	10:37	40.23257	-73.12185	40.27317	-73.12075	43	11	S	<2	B2	0.5-1	Cloudy	None	4.3	355	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:37	10:38	40.27317	-73.12075	40.27361	-73.12072	43	12	S	<2	B2	0.5-1	Cloudy	None	4	15	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:38	10:49	40.27361	-73.12072	40.27660	-73.11137	42	12	S	<2	B2	0.5-1	Cloudy	None	3	23	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:49	10:54	40.27660	-73.11137	40.27093	-73.11163	41	14	SE	<2	B2	0.5-1	Cloudy	None	4.5	187	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:54	11:00	40.27093	-73.11163	40.26398	-73.11183	41	14	SE	<2	B2	2-5	Cloudy	None	4.4	189	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:20	40.26398	-73.11183	40.23789	-73.11254	41	14	SE	<2	B2	>5	Cloudy	None	4.5	187	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	12:00	40.23789	-73.11254	40.18953	-73.11385	41	14	SE	<2	B2	>5	Cloudy	Slight	4.5	187	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	12:18	40.18953	-73.11385	40.16547	-73.11449	43	8	SW	<2	B2	>5	Cloudy	Moderate	4.7	183	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:18	12:20	40.16547	-73.11449	40.16291	-73.11460	43	8	S	<2	B2	>5	Cloudy	Moderate	4.7	183	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:20	12:30	40.16291	-73.11460	40.16149	-73.12412	43	10	S	<2	B3	>5	Cloudy	Severe	4.7	202	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:30	12:35	40.16149	-73.12412	40.16821	-73.12393	43	6	S	<2	B3	>5	Cloudy	Severe	4.4	2	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:35	13:00	40.16821	-73.12393	40.19877	-73.12309	43	5	SW	<2	B3	>5	Cloudy	Severe	4.4	357	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.19877	-73.12309	40.27106	-73.12114	43	9	S	<2	B3	>5	Cloudy	Severe	4.4	357	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:00	14:01	40.27106	-73.12114	40.27228	-73.12111	43	10	S	<2	B3	>5	Cloudy	Severe	4.4	357	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:01	14:03	40.27228	-73.12111	40.27469	-73.12105	43	13	S	<2	B3	>5	Cloudy	Severe	4.4	2	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:03	14:14	40.27469	-73.12105	40.27684	-73.11181	40	13	S	<2	B3	>5	Cloudy	Severe	4.3	7	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:14	14:18	40.27684	-73.11181	40.27070	-73.11201	40	14	S	<2	B3	>5	Clear	Severe	4.4	183	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	14:18	15:00	40.27070	-73.11201	40.21888	-73.11333	40	15	S	<2	B3	>5	Clear	Severe	4.5	183	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:41	40.21888	-73.11333	40.16644	-73.11480	42	14	SW	<2	B3	>5	Clear	Severe	4.5	181	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:41	15:43	40.16644	-73.11480	40.16366	-73.11495	45	10	SE	<2	B3	>5	Cloudy	Moderate	4.9	181	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:43	15:54	40.16366	-73.11495	40.16236	-73.12442	45	9	SE	<2	B3	>5	Cloudy	Moderate	4.3	187	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:54	15:58	40.16236	-73.12442	40.16734	-73.12428	44	7	SE	<2	B3	>5	Cloudy	Moderate	4.3	4	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:58	16:57	40.16734	-73.12428	40.24226	-73.12227	44	7	SE	<2	B3	>5	Cloudy	Moderate	4.6	8	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	16:57	17:21	40.24226	-73.12227	40.27148	-73.12146	42	10	SSE	<2	B3	>5	Cloudy	Severe	4.6	2	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:21	17:25	40.27148	-73.12146	40.27649	-73.12132	42	10	SSE	<2	B3	>5	Cloudy	Severe	4.6	2	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:25	18:00	40.27649	-73.12132	40.25248	-73.10070	42	10	SSE	<2	B3	>5	Cloudy	Severe	4.6	2	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:14	40.25248	-73.10070	40.25744	-73.10702	42	13	S	<2	B3	>5	Cloudy	Severe	4.1	160	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:14	18:24	40.25744	-73.10702	40.27015	-73.10692	42	13	S	<2	B3	>5	Cloudy	Severe	4.1	160	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:24	18:48	40.27015	-73.10692	40.28699	-73.10025	42	13	S	<2	B3	>5	Cloudy	Severe	4.1	160	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:48	18:52	40.28699	-73.10025	40.28258	-73.10034	40	15	S	<2	B4	>5	Clear	Severe	3.9	184	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:52	19:00	40.28258	-73.10034	40.27355	-73.10058	40	15	S	<2	B4	>5	Clear	Severe	3.9	184	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.27355	-73.10058	40.21359	-73.10227	41	16	S	<2	B4	>5	Clear	Severe	4.1	187	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:24	40.21359	-73.10227	40.18197	-73.10309	43	14	S	<2	B4	>5	Clear	Severe	4.5	178	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:24	20:27	40.18197	-73.10309	40.17857	-73.10321	45	14	S	<2	B4	>5	Clear	Severe	4.4	181	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:27	20:56	40.17857	-73.10321	40.16106	-73.10021	45	14	S	<2	B4	>5	Clear	Severe	4.2	173	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:56	21:00	40.16106	-73.10021	40.16623	-73.10027	45	12	S	<2	B4	>5	Clear	Severe	4.7	1	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	22:00	40.16623	-73.10027	40.24627	-73.09817	45	12	S	<2	B4	>5	Clear	Severe	4.8	2	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	22:00	22:07	40.24627	-73.09817	40.25632	-73.09784	42	14	SSE	<2	B4	2-5	Clear	None	5	1	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:07	22:27	40.25632	-73.09784	40.28139	-73.09714	42	14	SSE	<2	B4	0.5-1	Clear	None	5	1	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:27	22:29	40.28139	-73.09714	40.28405	-73.09706	42	15	SSE	<2	B4	0.5-1	Clear	None	5	358	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:29	22:58	40.28405	-73.09706	40.27347	-73.10852	42	16	SSE	<2	B4	0.5-1	Clear	None	4.7	358	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:58	23:01	40.27347	-73.10852	40.27094	-73.10852	40	16	SSE	<2	B4	0.5-1	Clear	None	4.1	182	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:01	23:34	40.27094	-73.10852	40.23689	-73.10943	40	16	SSE	<2	B4	0.5-1	Clear	None	4.1	182	Full Power	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:34	23:38	40.23689	-73.10943	40.23188	-73.10954	40	16	SSE	<2	B4	0.5-1	Clear	None	4.1	182	Silent	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:38	23:50	40.23188	-73.10954	40.21949	-73.10869	40	18	S	<2	B4	0.5-1	Clear	None	4.1	182	Standby	N/A
2022-11-05	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	23:50	00:00	40.21949	-73.10869	40.21398	-73.10316	43	19	S	<2	B4	0.5-1	Clear	None	2.9	146	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:41	40.21316	-73.10229	40.19836	-73.08297	43	19	S	<2	B4	0.5-1	Clear	None	2.2	153	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:41	00:59	40.19836	-73.08297	40.18790	-73.06467	43	15	S	<2	B4	0.5-1	Clear	None	1.6	82	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:59	02:00	40.18790	-73.06467	40.22782	-73.09539	44	17	S	<2	B4	0.5-1	Clear	None	4	134	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:01	40.22782	-73.09539	40.27183	-73.13258	43	14	SE	<2	B4	0.5-1	Clear	None	3.4	320	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:01	04:00	40.27183	-73.13258	40.21978	-73.09580	42	20	S	<2	B4	0.5-1	Cloudy	None	3.3	138	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	04:00	05:00	40.21978	-73.09580	40.16171	-73.07461	42	20	S	<2	B4	0.5-1	Clear	None	4.2	166	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:00	06:00	40.16171	-73.07461	40.21985	-73.09978	42	15	S	<2	B4	0.5-1	Clear	None	2.8	329	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:00	07:00	40.21985	-73.09978	40.28354	-73.12969	42	14	S	<2	B4	0.5-1	Clear	None	3.9	339	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.28354	-73.12969	40.28076	-73.13902	42	17	S	<2	B4	0.5-1	Clear	None	4.3	341	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:00	09:02	40.28076	-73.13902	40.22732	-73.13529	43	17	S	<2	B4	0.5-1	Clear	None	3	185	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:02	10:00	40.22732	-73.13529	40.17052	-73.12910	42	16	S	<2	B4	0.5-1	Clear	None	3.7	168	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	10:45	40.17052	-73.12910	40.16046	-73.11945	42	17	S	<2	B4	0.5-1	Clear	None	3.7	174	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:45	10:55	40.16046	-73.11945	40.17363	-73.11804	42	16	SE	<2	B4	1-2	Clear	None	3.7	1	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:55	11:00	40.17363	-73.11804	40.17985	-73.11737	42	16	SE	<2	B4	2-5	Clear	Slight	5.8	2	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	12:00	40.17985	-73.11737	40.29569	-73.12230	42	15	S	<2	B4	>5	Cloudy	Slight	5	2	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:00	13:00	40.29569	-73.12230	40.24769	-73.11288	42	14	S	<2	B4	>5	Cloudy	Moderate	0.6	166	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	13:00	14:00	40.24769	-73.11288	40.27062	-73.10375	43	14	S	<2	B3	>5	Cloudy	Moderate	3.6	177	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:08	40.27062	-73.10375	40.27187	-73.10361	42	12	S	<2	B3	>5	Cloudy	Severe	1	126	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:08	15:00	40.27187	-73.10361	40.26358	-73.10390	42	12	S	<2	B3	>5	Cloudy	Severe	1	126	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:33	40.26358	-73.10390	40.23773	-73.11397	42	12	S	<2	B3	>5	Cloudy	Slight	3.5	177	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:33	15:54	40.23773	-73.11397	40.26439	-73.11498	42	12	S	<2	B3	>5	Cloudy	Severe	4.5	332	Soft Start	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:54	16:04	40.26439	-73.11498	40.25835	-73.10888	40	12	S	<2	B3	>5	Cloudy	Severe	4.2	36	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:04	16:11	40.25835	-73.10888	40.25005	-73.10909	41	12	S	<2	B3	>5	Cloudy	Severe	3.5	170	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:11	16:16	40.25005	-73.10909	40.24410	-73.10921	42	12	S	<2	B4	>5	Cloudy	Severe	4.7	180	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:16	17:00	40.24410	-73.10921	40.19676	-73.11061	42	12	S	<2	B4	>5	Cloudy	Severe	4.4	184	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:20	40.19676	-73.11061	40.17218	-73.11117	43	13	S	<2	B4	>5	Cloudy	Moderate	3.2	176	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:20	17:22	40.17218	-73.11117	40.16989	-73.11127	44	14	S	<2	B3	>5	Cloudy	Slight	4.5	179	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:22	17:56	40.16989	-73.11127	40.14664	-73.11975	44	14	S	<2	B3	>5	Cloudy	Slight	4.5	179	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:56	18:08	40.14664	-73.11975	40.16061	-73.12465	45	12	S	<2	B3	>5	Cloudy	Slight	4.8	341	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:08	18:13	40.16061	-73.12465	40.16684	-73.12466	44	12	S	<2	B3	>5	Cloudy	Slight	4.5	359	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:13	18:41	40.16684	-73.12466	40.16254	-73.12477	44	12	S	<2	B3	>5	Cloudy	Slight	4.5	359	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:41	18:45	40.16254	-73.12477	40.16703	-73.12468	44	12	S	<2	B3	>5	Cloudy	Moderate	4.5	2	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:45	19:01	40.16703	-73.12468	40.18704	-73.12417	44	12	S	<2	B3	>5	Cloudy	Moderate	4.5	2	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:01	20:00	40.18704	-73.12417	40.25931	-73.12212	43	12	S	<2	B3	>5	Cloudy	Severe	4.3	357	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:09	40.25931	-73.12212	40.27180	-73.12180	40	13	S	<2	B3	>5	Cloudy	Severe	4.5	1.5	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:09	20:11	40.27180	-73.12180	40.27435	-73.12173	40	14	S	<2	B3	>5	Cloudy	Severe	4.5	186	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:11	20:24	40.27435	-73.12173	40.27675	-73.11210	40	16	S	<2	B3	>5	Cloudy	Severe	4.6	78	Full Power	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:24	20:34	40.27675	-73.11210	40.26564	-73.11240	40	17	S	<2	B3	>5	Cloudy	Severe	4	181	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:34	20:45	40.26564	-73.11240	40.25530	-73.11260	40	17	S	<2	B3	>5	Cloudy	Severe	4	181	Silent	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:45	21:00	40.25530	-73.11260	40.24496	-73.10826	40	17	S	<2	B3	>5	Cloudy	Severe	3.2	165	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:26	40.24496	-73.10826	40.23011	-73.10051	42	17	S	<2	B3	>5	Cloudy	Severe	3.2	160	Deploying/Retrieving	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:26	21:40	40.23011	-73.10051	40.22055	-73.09399	42	17	S	<2	B3	>5	Cloudy	Severe	2.1	164	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	22:00	40.22055	-73.09399	40.20512	-73.08269	43	16	S	<2	B3	>5	Cloudy	Moderate	3.9	157	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:00	22:05	40.20512	-73.08269	40.20113	-73.07970	43	17	S	<2	B3	2-5	Cloudy	None	3.5	152	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:05	22:11	40.20113	-73.07970	40.19648	-73.07656	43	17	S	<2	B3	1-2	Cloudy	None	3.5	152	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:11	22:30	40.19648	-73.07656	40.18305	-73.06756	43	17	S	<2	B3	0.5-1	Clear	None	3.5	152	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.18305	-73.06756	40.20266	-73.07455	45	17	S	<2	B3	0.5-1	Clear	None	3.1	158	Standby	N/A
2022-11-06	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.20266	-73.07455	40.26099	-73.09518	43	19	S	<2	B3	0.5-1	Clear	None	4.4	337	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:28	40.26197	-73.09552	40.28599	-73.10387	40	18	S	<2	B4	0.5-1	Clear	None	3.5	337	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:28	01:00	40.28599	-73.10387	40.25905	-73.09480	40	18	S	<2	B4	0.5-1	Clear	None	3.5	144	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	02:00	40.25905	-73.09480	40.20155	-73.07760	41	19	S	<2	B4	0.5-1	Clear	None	3.3	174	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	02:34	40.20155	-73.07760	40.19828	-73.07483	43	18	S	<2	B4	0.5-1	Clear	None	3.4	167	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:34	03:00	40.19828	-73.07483	40.22583	-73.08148	44	18	S	<2	B4	0.5-1	Clear	None	4.4	350	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.22583	-73.08148	40.27829	-73.08573	44	18	S	<2	B4	0.5-1	Clear	None	3.3	341	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:26	40.27829	-73.08573	40.29943	-73.08803	41	18	S	<2	B4	0.5-1	Clear	None	3.3	349	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:26	05:00	40.29943	-73.08803	40.27014	-73.09048	41	21	SSW	<2	B4	0.5-1	Clear	None	2.1	178	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.27014	-73.09048	40.21687	-73.09627	41	16	SSW	<2	B4	0.5-1	Clear	None	3.4	186	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.21687	-73.09627	40.16291	-73.10588	42	16	S	<2	B4	0.5-1	Clear	None	3.4	193	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:14	40.16291	-73.10588	40.15357	-73.10858	47	17	S	<2	B4	0.5-1	Clear	None	3	186	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:14	08:00	40.15357	-73.10858	40.19799	-73.10680	46	16	SSW	<2	B4	0.5-1	Clear	None	3.7	2	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.19799	-73.10680	40.25235	-73.10328	43	18	SSW	<2	B4	0.5-1	Cloudy	None	3.7	1	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.25235	-73.10328	40.30634	-73.09901	42	15	SSW	<2	B4	0.5-1	Cloudy	None	3.1	2	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:17	40.30634	-73.09901	40.31949	-73.09656	40	16	SSW	<2	B4	0.5-1	Cloudy	None	3.1	2	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:17	10:30	40.31949	-73.09656	40.30810	-73.09625	38	17	SSW	<2	B4	0.5-1	Cloudy	None	3.1	171	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.30810	-73.09625	40.28149	-73.09685	38	19	SSW	<2	B4	0.5-1	Cloudy	None	3.7	184	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:06	40.28149	-73.09685	40.27625	-73.09690	40	21	SW	<2	B4	0.5-1	Cloudy	None	3.4	185	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:06	11:13	40.27625	-73.09690	40.26969	-73.09704	40	21	SW	<2	B4	1-2	Cloudy	None	3.4	185	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:13	12:00	40.26969	-73.09704	40.22740	-73.09609	40	21	SW	<2	B4	2-5	Cloudy	None	3.4	185	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:42	40.22740	-73.09609	40.18402	-73.10502	41	21	SW	<2	B4	>5	Cloudy	None	3.9	195	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:42	13:00	40.18402	-73.10502	40.16602	-73.10881	41	20	SW	<2	B4	>5	Cloudy	None	2.9	199	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:33	40.16602	-73.10881	40.19550	-73.11548	41	18	SW	<2	B4	>5	Cloudy	None	4.4	170	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:33	14:00	40.19550	-73.11548	40.22871	-73.11457	41	15	SW	<2	B4	>5	Cloudy	Severe	4.6	355	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:40	40.22871	-73.11457	40.27549	-73.11290	43	15	SW	<2	B4	>5	Cloudy	Severe	4.6	355	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:40	15:00	40.27549	-73.11290	40.28741	-73.10704	43	17	SW	<2	B4	>5	Clear	Severe	4.6	353	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.28741	-73.10704	40.27259	-73.10567	40	13	SW	<2	B4	>5	Clear	Severe	3.2	10	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.27259	-73.10567	40.21184	-73.12384	40	15	SW	<2	B4	>5	Clear	Severe	3.8	200	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	18:00	40.21184	-73.12384	40.16552	-73.13077	43	12	SW	<2	B4	>5	Clear	Severe	3.4	198	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.16552	-73.13077	40.21584	-73.12038	44	12	SW	<2	B4	>5	Clear	Severe	3.9	231	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.21584	-73.12038	40.21875	-73.11552	42	12	SW	<2	B4	>5	Clear	Severe	3.3	14	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.21875	-73.11552	40.18021	-73.11396	43	13	SW	<2	B3	>5	Clear	Severe	3.3	179	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:55	40.18021	-73.11396	40.20342	-73.12122	45	15	SW	<2	B3	>5	Clear	Severe	4	3	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:55	22:06	40.20342	-73.12122	40.19571	-73.13389	42	13	W	<2	B3	2-5	Clear	None	4.3	235	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:06	22:10	40.19571	-73.13389	40.19279	-73.13884	43	12	W	<2	B3	1-2	Clear	None	4.3	233	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:10	22:30	40.19279	-73.13884	40.17379	-73.14465	43	12	W	<2	B3	0.5-1	Clear	None	4.5	234	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.17379	-73.14465	40.17624	-73.14291	45	10	W	<2	B3	0.5-1	Clear	None	4.4	359	Standby	N/A
2022-11-07	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.17624	-73.14291	40.25745	-73.12660	44	9	W	<2	B3	0.5-1	Clear	None	3.5	248	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.25870	-73.12631	40.34017	-73.11405	40	13	W	<2	B3	0.5-1	Clear	None	4.9	7	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	02:00	40.34017	-73.11405	40.42291	-73.10764	35	17	NW	<2	B3	0.5-1	Clear	None	4.8	359	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	02:26	40.42291	-73.10764	40.45884	-73.10465	36	22	NW	<2	B4	0.5-1	Clear	None	4.8	4	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:26	02:51	40.45884	-73.10465	40.49388	-73.10423	33	25	NNW	<2	B5	0.5-1	Clear	None	5.1	4	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:51	03:00	40.49388	-73.10423	40.50571	-73.10440	33	23	NNW	<2	B5	0.5-1	Clear	None	4.9	2	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.50571	-73.10440	40.58591	-73.10198	25	25	NNW	<2	B5	0.5-1	Clear	None	4.9	353	Transit	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.58591	-73.10198	40.57059	-73.10117	25	25	NNW	<2	B5	0.5-1	Clear	None	3.5	12	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.57059	-73.10117	40.60304	-73.09379	27	27	N	<2	B5	0.5-1	Clear	None	3.7	188	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.60304	-73.09379	40.56450	-73.10275	27	24	N	<2	B5	0.5-1	Clear	None	3	9	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.56450	-73.10275	40.60624	-73.09084	27	24	N	<2	B5	0.5-1	Clear	None	3	15	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.60624	-73.09084	40.58097	-73.09737	25	24	N	<2	B5	0.5-1	Clear	None	2.1	289	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.58097	-73.09737	40.58352	-73.09730	26	30	NNW	<2	B5	0.5-1	Clear	None	2.9	11	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.58352	-73.09730	40.58000	-73.09924	26	20	NNW	<2	B5	0.5-1	Clear	None	3.6	190	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.58000	-73.09924	40.58000	-73.09947	26	23	NNW	<2	B5	0.5-1	Clear	None	3.7	355	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	12:00	40.58000	-73.09947	40.56638	-73.08894	26	21	N	<2	B5	1-2	Clear	None	0.7	241	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.56638	-73.08894	40.60004	-73.10387	26	20	N	<2	B5	>5	Clear	Moderate	1.3	148	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:23	40.60004	-73.10387	40.59501	-73.10207	19	18	N	<2	B5	>5	Clear	Severe	1.3	254	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:23	14:00	40.59501	-73.10207	40.59948	-73.10041	19	27	N	<2	B5	>5	Clear	Severe	3.5	357	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.59948	-73.10041	40.58138	-73.10084	19	25	N	<2	B5	>5	Clear	Severe	0.9	88	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.58138	-73.10084	40.58446	-73.09916	28	24	N	<2	B5	>5	Clear	Severe	1.1	181	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:29	40.58446	-73.09916	40.62438	-73.09561	25	22	N	<2	B5	>5	Clear	Severe	6	56	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:29	17:00	40.62438	-73.09561	40.61754	-73.09616	18	16	N	<2	B5	>5	Clear	Severe	0.8	71	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	18:00	40.61754	-73.09616	40.60441	-73.09832	17	18	N	<2	B5	>5	Clear	Severe	0.7	98	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.60441	-73.09832	40.59213	-73.10673	20	15	N	<2	B4	>5	Clear	Severe	1	98	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.59213	-73.10673	40.59446	-73.10930	24	15	N	<2	B3	>5	Clear	Severe	0.8	112	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.59446	-73.10930	40.61948	-73.09978	23	14	N	<2	B3	>5	Clear	Severe	4	25	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:48	40.61948	-73.09978	40.60999	-73.10858	16	11	N	<2	B3	>5	Clear	Severe	1	110	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:48	22:04	40.60999	-73.10858	40.60672	-73.11150	21	15	N	<2	B3	2-5	Clear	None	1	95	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:04	22:10	40.60672	-73.11150	40.60544	-73.11282	20	13	N	<2	B3	1-2	Clear	None	1	103	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:10	22:30	40.60544	-73.11282	40.60159	-73.11658	20	13	N	<2	B3	0.5-1	Clear	None	1	103	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.60159	-73.11658	40.61161	-73.09708	22	15	N	<2	B3	0.5-1	Clear	None	0.8	104	Standby	N/A
2022-11-08	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.61161	-73.09708	40.60820	-73.08966	21	16	N	<2	B3	0.5-1	Clear	None	3.8	58	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.60762	-73.08989	40.61803	-73.08657	23	17	N	<2	B3	0.5-1	Clear	None	0.9	101	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	02:00	40.61803	-73.08657	40.60537	-73.09335	21	19	N	<2	B3	0.5-1	Clear	None	1.5	55	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.60537	-73.09335	40.62119	-73.08359	21	20	N	<2	B3	0.5-1	Clear	None	1.5	120	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	03:56	40.62119	-73.08359	40.60995	-73.09473	17	17	N	<2	B3	0.5-1	Clear	None	0.6	89	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	03:56	04:17	40.60995	-73.09473	40.61102	-73.08744	22	21	N	<2	B3	0.5-1	Clear	Slight	1	132	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:17	05:00	40.61102	-73.08744	40.61046	-73.08471	22	26	N	<2	B3	0.5-1	Clear	None	3.6	49	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.61046	-73.08471	40.59675	-73.10563	22	24	N	<2	B3	0.5-1	Clear	None	1.4	135	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.59675	-73.10563	40.59457	-73.10189	23	23	N	<2	B3	0.5-1	Clear	None	1.2	215	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.59457	-73.10189	40.59233	-73.08813	23	24	N	<2	B3	0.5-1	Clear	None	2.9	54	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.59233	-73.08813	40.59986	-73.07318	23	22	NNE	<2	B3	0.5-1	Clear	None	0.6	153	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.59986	-73.07318	40.59790	-73.07407	22	21	NNE	<2	B3	0.5-1	Clear	None	1.2	162	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:15	40.59790	-73.07407	40.59079	-73.09004	23	23	NNE	<2	B4	0.5-1	Clear	None	2.7	56	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:15	10:30	40.59079	-73.09004	40.57746	-73.10296	26	20	NNE	<2	B4	0.5-1	Clear	None	5.3	216	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.57746	-73.10296	40.53260	-73.12943	26	20	NNE	<2	B4	0.5-1	Clear	None	5.3	200	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:07	40.53260	-73.12943	40.52037	-73.13879	27	20	NE	<2	B4	1-2	Clear	None	5.9	219	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:07	11:14	40.52037	-73.13879	40.51070	-73.14626	30	21	NE	<2	B4	2-5	Clear	None	5.9	211	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:14	11:57	40.51070	-73.14626	40.45197	-73.19182	30	21	NE	<2	B4	>5	Clear	None	5.9	211	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	11:57	13:00	40.45197	-73.19182	40.37170	-73.25558	34	16	NE	<2	B4	>5	Clear	Moderate	5.9	205	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:49	40.37170	-73.25558	40.30503	-73.29788	32	15	NE	<2	B4	>5	Clear	Severe	6.2	208	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:49	14:00	40.30503	-73.29788	40.30688	-73.28070	34	14	NE	<2	B4	>5	Clear	Severe	4.8	76	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.30688	-73.28070	40.31909	-73.17956	34	14	NE	<2	B4	>5	Cloudy	Severe	4.4	78	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.31909	-73.17956	40.31728	-73.07610	38	13	ENE	<2	B4	>5	Cloudy	Severe	5.5	78	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.31728	-73.07610	40.28824	-73.16353	38	13	ENE	<2	B4	>5	Cloudy	Severe	3.1	257	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:56	40.28824	-73.16353	40.29159	-73.13685	39	11	NE	<2	B4	>5	Clear	Severe	4.5	244	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:56	19:00	40.29159	-73.13685	40.31158	-73.06236	40	7	ENE	<2	B3	>5	Cloudy	Severe	3.5	70	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.31158	-73.06236	40.30952	-73.09017	40	7	E	<2	B3	>5	Clear	Severe	3.6	71	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:05	40.30952	-73.09017	40.30762	-73.09768	40	5	SE	<2	B2	>5	Clear	Severe	3.5	256	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:05	20:22	40.30762	-73.09768	40.31006	-73.09794	40	4	SE	<2	B2	>5	Clear	Severe	2	39	Deploying/Retrieving	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:22	21:00	40.31006	-73.09794	40.27467	-73.12216	40	2	SE	<2	B2	>5	Clear	Severe	3.2	16	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:55	40.27467	-73.12216	40.19680	-73.14276	40	5	SE	<2	B2	>5	Clear	Severe	5	192	Transit	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:55	22:02	40.19680	-73.14276	40.18858	-73.14443	42	4	SE	<2	B2	2-5	Cloudy	None	5.1	184	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:02	22:05	40.18858	-73.14443	40.18442	-73.14450	43	4	SE	<2	B2	1-2	Cloudy	None	4.6	175	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:05	22:30	40.18442	-73.14450	40.18358	-73.14373	43	4	SE	<2	B2	0.5-1	Cloudy	None	5.3	173	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:30	23:00	40.18358	-73.14373	40.17131	-73.14313	43	4	SE	<2	B2	0.5-1	Cloudy	None	5.5	182	Standby	N/A
2022-11-09	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	23:00	00:00	40.17131	-73.14313	40.18245	-73.14033	43	2	SE	<2	B2	0.5-1	Cloudy	None	4.5	4	Standby	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:58	40.18104	-73.14031	40.18185	-73.13818	44	7	SE	<2	B3	0.5-1	Clear	None	5	178	Standby	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	00:58	02:00	40.18185	-73.13818	40.17025	-73.13725	50	6	S	<2	B2	0.5-1	Cloudy	None	5.1	2.2	Standby	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	02:14	40.17025	-73.13725	40.18842	-73.13469	43	8	SSE	<2	B2	0.5-1	Cloudy	None	4.8	63	Standby	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:14	03:00	40.18842	-73.13469	40.18919	-73.09433	43	8	SSE	<2	B2	0.5-1	Cloudy	None	2.1	60	Deploying/Retrieving	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	03:14	40.18919	-73.09433	40.18959	-73.08155	43	11	S	<2	B2	0.5-1	Cloudy	None	2.2	90	Deploying/Retrieving	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:14	03:16	40.18959	-73.08155	40.18959	-73.07992	43	11	S	<2	B2	0.5-1	Cloudy	None	2.2	90	Transit	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:16	03:37	40.18959	-73.07992	40.19738	-73.08801	43	9	S	<2	B2	0.5-1	Cloudy	None	2.2	103	Soft Start	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:37	04:00	40.19738	-73.08801	40.22594	-73.09907	43	6	SE	<2	B2	0.5-1	Cloudy	None	4.4	344	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:50	40.22594	-73.09907	40.27575	-73.11220	43	7	S	<2	B2	0.5-1	Clear	None	4.4	344	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:50	04:53	40.27575	-73.11220	40.27201	-73.11226	40	6	SE	<2	B2	0.5-1	Clear	None	4.4	180	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:53	05:00	40.27201	-73.11226	40.26478	-73.11247	40	6	SE	<2	B2	0.5-1	Clear	None	4.7	181	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:54	40.26478	-73.11247	40.19775	-73.11425	40	6	SE	<2	B2	0.5-1	Clear	None	3.2	179	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:54	06:20	40.19775	-73.11425	40.16655	-73.11516	43	9	SE	<2	B2	0.5-1	Clear	None	4.6	179	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:20	06:22	40.16655	-73.11516	40.16368	-73.11526	41	8	SE	<2	B2	0.5-1	Clear	None	4.3	188	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:22	06:34	40.16368	-73.11526	40.16307	-73.12522	42	9	SE	<2	B2	0.5-1	Clear	None	4.4	205	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:34	06:37	40.16307	-73.12522	40.16795	-73.12505	44	6	SSE	<2	B2	0.5-1	Clear	None	4.7	1.3	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:37	06:59	40.16795	-73.12505	40.19494	-73.12429	43	7	SSE	<2	B2	0.5-1	Clear	None	4.7	3.1	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	06:59	08:00	40.19494	-73.12429	40.27012	-73.12222	43	6	SE	<2	B2	0.5-1	Clear	None	4.4	3	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:02	40.27012	-73.12222	40.27258	-73.12212	40	8	S	<2	B2	0.5-1	Clear	None	4.5	5.8	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:02	08:04	40.27258	-73.12212	40.27501	-73.12209	40	6	S	<2	B2	0.5-1	Clear	None	4.4	6	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:04	08:16	40.27501	-73.12209	40.27601	-73.11244	40	8	S	<2	B2	0.5-1	Clear	None	4.4	7.1	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:16	08:20	40.27601	-73.11244	40.27120	-73.11263	40	10	S	<2	B2	0.5-1	Clear	None	4.4	176.4	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:20	08:57	40.27120	-73.11263	40.22623	-73.11387	40	11	S	<2	B2	0.5-1	Clear	None	4.6	177.6	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:57	09:48	40.22623	-73.11387	40.16537	-73.11551	41	8	SW	<2	B2	0.5-1	Clear	None	4.1	177	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:48	09:50	40.16537	-73.11551	40.16376	-73.11556	42	9	SW	<2	B2	0.5-1	Clear	None	3.8	179	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:50	10:01	40.16376	-73.11556	40.16285	-73.12549	42	8	SW	<2	B2	0.5-1	Clear	None	4.5	186	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:01	10:05	40.16285	-73.12549	40.16848	-73.12530	44	7	SSW	<2	B2	0.5-1	Clear	None	4.8	5.3	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:05	10:30	40.16848	-73.12530	40.19551	-73.12460	43	8	SSW	<2	B2	0.5-1	Clear	None	4.7	4.6	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:52	40.19551	-73.12460	40.22563	-73.12375	42	7	SW	<2	B2	0.5-1	Clear	None	4.3	3	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	10:52	10:58	40.22563	-73.12375	40.23344	-73.12354	43	8	SSW	<2	B2	1-2	Clear	None	4.4	1	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	10:58	11:12	40.23344	-73.12354	40.25171	-73.12301	42	9	SSW	<2	B2	2-5	Clear	None	4.4	3	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:12	11:29	40.25171	-73.12301	40.27279	-73.12248	42	9	SSW	<2	B2	>5	Clear	None	4.4	3	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:29	11:30	40.27279	-73.12248	40.27463	-73.12239	44	8	SSW	<2	B2	>5	Clear	None	4.5	3	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:30	11:54	40.27463	-73.12239	40.29754	-73.13424	40	8	SSW	<2	B2	>5	Clear	None	4	332	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:54	12:00	40.29754	-73.13424	40.30015	-73.13968	41	10	SSW	<2	B2	>5	Clear	None	3	297	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:16	40.30015	-73.13968	40.30712	-73.15557	39	9	SSW	<2	B2	>5	Clear	None	2.9	296	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:16	13:00	40.30712	-73.15557	40.27387	-73.12890	41	9	SW	<2	B2	>5	Clear	Severe	3.2	295	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:04	40.27387	-73.12890	40.26589	-73.12586	40	7	W	<2	B2	>5	Clear	Severe	4	156	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:04	13:08	40.26589	-73.12586	40.26095	-73.12600	40	8	SW	<2	B2	>5	Clear	Severe	4	188	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:08	13:28	40.26095	-73.12600	40.23735	-73.12660	41	8	SW	<2	B2	>5	Clear	Severe	4.4	180	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:28	13:30	40.23735	-73.12660	40.23483	-73.12668	41	8	SW	<2	B2	>5	Clear	Severe	4.4	180	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:30	14:00	40.23483	-73.12668	40.25310	-73.13350	41	8	SW	<2	B2	>5	Clear	Severe	4.4	180	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:11	40.25310	-73.13350	40.25640	-73.12606	41	7	SW	<2	B2	>5	Clear	Severe	5	1	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:11	14:15	40.25640	-73.12606	40.25127	-73.12621	41	8	SW	<2	B2	>5	Clear	Severe	4.7	183	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:15	15:00	40.25127	-73.12621	40.19431	-73.12782	41	7	SW	<2	B2	>5	Clear	Severe	4.4	187	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:29	40.19431	-73.12782	40.15575	-73.12889	43	7	SW	<2	B2	>5	Clear	Severe	4.5	184	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:29	15:30	40.15575	-73.12889	40.15335	-73.12894	45	7	SW	<2	B2	>5	Clear	Severe	4.5	207	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:30	16:01	40.15335	-73.12894	40.16112	-73.12593	45	7	SW	<2	B2	>5	Clear	Severe	4.3	207	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:01	16:06	40.16112	-73.12593	40.16748	-73.12577	44	6	SW	<2	B2	>5	Clear	Severe	4.2	207	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:06	17:00	40.16748	-73.12577	40.23246	-73.12395	44	6	SW	<2	B2	>5	Clear	Severe	4.3	356	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:24	40.23246	-73.12395	40.26138	-73.12318	42	5	SW	<2	B2	>5	Clear	Severe	4.4	357	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:24	17:25	40.26138	-73.12318	40.26257	-73.12316	40	4	WSW	<2	B2	>5	Clear	Severe	4.2	7	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:25	17:50	40.26257	-73.12316	40.26761	-73.12785	40	4	WSW	<2	B2	>5	Clear	Severe	4.3	2	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:50	17:55	40.26761	-73.12785	40.26147	-73.12836	40	4	WSW	<2	B2	>5	Clear	Severe	5.1	187	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:55	18:00	40.26147	-73.12836	40.25555	-73.12860	40	3	SW	<2	B2	>5	Clear	Severe	4.5	185	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:45	40.25555	-73.12860	40.19921	-73.13023	41	3	SW	<2	B1	>5	Clear	Severe	4.6	184	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:45	19:00	40.19921	-73.13023	40.18109	-73.13066	41	3	SW	<2	B1	>5	Clear	Severe	4.6	184	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	19:22	40.18109	-73.13066	40.15598	-73.13136	45	5	SSW	<2	B1	>5	Clear	Severe	4.2	181	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:22	19:24	40.15598	-73.13136	40.15358	-73.13142	45	5	SSW	<2	B1	>5	Clear	Severe	4.2	188	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:24	19:45	40.15358	-73.13142	40.14896	-73.12866	45	5	SSW	<2	B1	>5	Clear	Severe	4.2	188	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:45	19:46	40.14896	-73.12866	40.15014	-73.12864	45	5	SSW	<2	B1	>5	Clear	Severe	4.2	357	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:46	19:51	40.15014	-73.12864	40.15626	-73.12852	45	5	SSW	<2	B1	>5	Clear	Severe	4.2	357	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:51	20:00	40.15626	-73.12852	40.16189	-73.12838	45	5	SSW	<2	B1	>5	Clear	Severe	4.5	1	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.16189	-73.12838	40.24157	-73.12613	44	5	SSW	<2	B2	>5	Clear	Severe	4.5	2	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:16	40.24157	-73.12613	40.26139	-73.12559	42	8	SSW	<2	B2	>5	Clear	Severe	4.7	280	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:16	21:18	40.26139	-73.12559	40.26390	-73.12551	42	8	SSW	<2	B2	>5	Clear	Severe	4.6	2	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:18	21:40	40.26390	-73.12551	40.26749	-73.12780	40	8	SSW	<2	B2	>5	Clear	Severe	4.3	3	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	21:46	40.26749	-73.12780	40.26047	-73.12807	40	7	SSW	<2	B2	>5	Clear	Moderate	4.2	182	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:46	21:53	40.26047	-73.12807	40.25150	-73.12835	40	7	SSW	<2	B2	>5	Clear	None	4.4	180	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:53	22:01	40.25150	-73.12835	40.24276	-73.12858	40	7	SSW	<2	B2	2-5	Clear	None	4.4	180	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:01	22:06	40.24276	-73.12858	40.23670	-73.12875	40	7	SSW	<2	B2	1-2	Clear	None	4.4	180	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:06	22:30	40.23670	-73.12875	40.20999	-73.12944	42	7	SSW	<2	B2	0.5-1	Clear	None	4.6	182	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.20999	-73.12944	40.17701	-73.13035	42	7	SSW	<2	B2	0.5-1	Clear	None	3.8	178	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	23:16	40.17701	-73.13035	40.15608	-73.13093	44	10	SSW	<2	B2	0.5-1	Clear	None	4.3	179	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:16	23:18	40.15608	-73.13093	40.15370	-73.13097	45	8	SSW	<2	B2	0.5-1	Clear	None	4.6	178	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:18	23:41	40.15370	-73.13097	40.15216	-73.12820	45	8	SSW	<2	B2	0.5-1	Clear	None	4.6	178	Full Power	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:41	23:44	40.15216	-73.12820	40.15600	-73.12813	45	6	S	<2	B2	0.5-1	Clear	None	4.2	3	Silent	N/A
2022-11-10	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:44	00:00	40.15600	-73.12813	40.17613	-73.12760	45	6	S	<2	B2	0.5-1	Clear	None	4.6	2	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:56	40.17751	-73.12759	40.24872	-73.12571	45	7	S	<2	B2	0.5-1	Clear	None	4.8	351	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	00:56	01:07	40.24872	-73.12571	40.26074	-73.12533	42	8	S	<2	B2	0.5-1	Clear	None	3.3	0.3	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:07	01:09	40.26074	-73.12533	40.26334	-73.12531	42	8	S	<2	B2	0.5-1	Clear	None	4.8	356	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:09	01:32	40.26334	-73.12531	40.26538	-73.12758	42	8	S	<2	B2	0.5-1	Clear	None	4.6	356	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:32	01:36	40.26538	-73.12758	40.25990	-73.12774	40	10	S	<2	B2	0.5-1	Clear	None	4.1	181	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:36	02:00	40.25990	-73.12774	40.23203	-73.12853	40	9	S	<2	B2	0.5-1	Clear	None	4.1	181	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.23203	-73.12853	40.15986	-73.13047	42	10	S	<2	B2	0.5-1	Clear	None	4.2	182	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	03:03	40.15986	-73.13047	40.15627	-73.13057	45	12	S	<2	B2	0.5-1	Clear	None	4.7	181	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:03	03:05	40.15627	-73.13057	40.15389	-73.13065	45	12	S	<2	B2	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:05	03:18	40.15389	-73.13065	40.14262	-73.12588	45	12	S	<2	B2	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:18	03:26	40.14262	-73.12588	40.15149	-73.12795	44	10	S	<2	B2	0.5-1	Clear	None	4.7	327	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:26	03:30	40.15149	-73.12795	40.15649	-73.12784	45	10	S	<2	B2	0.5-1	Clear	None	4.3	357	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:30	04:00	40.15649	-73.12784	40.19139	-73.12684	45	10	S	<2	B2	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:58	40.19139	-73.12684	40.26225	-73.12487	43	10	S	<2	B2	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:58	05:00	40.26225	-73.12487	40.26412	-73.12479	40	9	SSE	<2	B2	0.5-1	Clear	None	4.4	357	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:24	40.26412	-73.12479	40.26551	-73.12725	40	10	SSE	<2	B2	0.5-1	Clear	None	4.5	357	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:24	05:28	40.26551	-73.12725	40.26060	-73.12736	40	9	SSE	<2	B2	0.5-1	Clear	None	4.5	183	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:28	05:56	40.26060	-73.12736	40.22575	-73.12833	40	9	SSE	<2	B2	0.5-1	Clear	None	4.3	184	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	05:56	06:54	40.22575	-73.12833	40.15497	-73.13028	42	7	SSE	<2	B2	0.5-1	Clear	None	3.9	182	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:54	06:56	40.15497	-73.13028	40.15334	-73.13034	40	8	SE	<2	B2	0.5-1	Cloudy	None	4.2	181	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:56	07:00	40.15334	-73.13034	40.14898	-73.12866	41	9	SE	<2	B2	0.5-1	Cloudy	None	4.6	163	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:19	40.14898	-73.12866	40.15270	-73.12747	41	9	SE	<2	B2	0.5-1	Cloudy	None	4.6	142	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:19	07:22	40.15270	-73.12747	40.15671	-73.12743	45	8	SE	<2	B2	0.5-1	Cloudy	None	4.8	359	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:22	08:00	40.15671	-73.12743	40.20441	-73.12614	45	8	SE	<2	B2	0.5-1	Cloudy	None	4.5	359	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:45	40.20441	-73.12614	40.26124	-73.12455	42	8	SE	<2	B2	0.5-1	Cloudy	None	4.5	0.2	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:45	08:47	40.26124	-73.12455	40.26376	-73.12449	40	8	SE	<2	B2	0.5-1	Cloudy	None	4.3	0.9	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:47	09:00	40.26376	-73.12449	40.27659	-73.12860	40	8	SE	<2	B2	0.5-1	Cloudy	None	4.3	1	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:12	40.27659	-73.12860	40.26510	-73.12681	40	12	SSE	<2	B2	0.5-1	Cloudy	None	4.1	93	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:12	09:16	40.26510	-73.12681	40.26019	-73.12706	41	12	SSE	<2	B2	0.5-1	Cloudy	None	4.3	178	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:16	10:00	40.26019	-73.12706	40.21116	-73.12833	39	11	SSE	<2	B2	0.5-1	Cloudy	None	4.5	178	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.21116	-73.12833	40.17627	-73.12935	42	10	SE	<2	B2	0.5-1	Cloudy	None	4.5	178	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:48	40.17627	-73.12935	40.15429	-73.12996	45	11	SE	<2	B2	0.5-1	Cloudy	None	4.6	177	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:48	10:49	40.15429	-73.12996	40.15322	-73.13000	44	12	SE	<2	B2	0.5-1	Cloudy	None	4.4	177	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:49	11:00	40.15322	-73.13000	40.14453	-73.12215	44	12	SE	<2	B2	0.5-1	Cloudy	None	4.6	177	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:00	11:09	40.14453	-73.12215	40.14882	-73.12772	44	13	SSE	<2	B3	1-2	Cloudy	None	3.9	195	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:09	11:14	40.14882	-73.12772	40.15540	-73.12716	45	12	SE	<2	B3	2-5	Cloudy	None	4.9	1	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:14	11:22	40.15540	-73.12716	40.16608	-73.12685	45	12	SE	<2	B3	2-5	Cloudy	None	4.9	1	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:22	12:00	40.16608	-73.12685	40.21369	-73.12558	44	12	SE	<2	B3	>5	Cloudy	None	4.5	2	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:38	40.21369	-73.12558	40.26221	-73.12423	43	12	SSE	<2	B3	>5	Cloudy	None	4.3	1.5	Full Power	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:38	12:58	40.26221	-73.12423	40.27870	-73.13421	39	12	SSE	<2	B3	>5	Cloudy	None	4.5	359	Silent	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	12:58	13:36	40.27870	-73.13421	40.29404	-73.14666	40	10	SE	<2	B3	>5	Cloudy	None	2.9	318	Deploying/Retrieving	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:36	14:00	40.29404	-73.14666	40.30005	-73.19481	40	13	SE	<2	B3	>5	Cloudy	None	0.3	10	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.30005	-73.19481	40.32679	-73.37865	38	13	SE	<2	B3	>5	Cloudy	None	9.2	279	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.32679	-73.37865	40.37757	-73.56801	32	14	SE	<2	B3	>5	Cloudy	Slight	8.9	278	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:50	40.37757	-73.56801	40.41287	-73.72405	26	13	SE	<2	B3	>5	Cloudy	Moderate	8.8	287	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:50	17:00	40.41287	-73.72405	40.41832	-73.75552	25	13	SE	<2	B3	>5	Precipitation	None	8.7	287	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:12	40.41832	-73.75552	40.42480	-73.79572	29	13	SE	<2	B3	2-5	Precipitation	None	9	282	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:12	18:00	40.42480	-73.79572	40.45783	-73.94362	29	13	SE	<2	B3	2-5	Precipitation	None	9	282	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	18:58	40.45783	-73.94362	40.48655	-74.05850	8	13	SE	<2	B2	2-5	Precipitation	None	6.2	309	Transit	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	20:00	40.48655	-74.05850	40.49874	-74.07180	8	11	SE	<2	B2	2-5	Precipitation	None	7.3	316	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:44	40.49874	-74.07180	40.50239	-74.07618	7	15	SE	<2	B3	2-5	Precipitation	None	0.5	30	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:44	21:07	40.50239	-74.07618	40.49865	-74.06022	7	17	SE	<2	B3	1-2	Precipitation	None	0.5	37	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:07	21:30	40.49865	-74.06022	40.50117	-74.06525	7	20	SE	<2	B3	0.5-1	Precipitation	None	0.5	37	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	21:30	22:00	40.50117	-74.06525	40.50411	-74.07512	7	23	SE	<2	B3	0.3-0.5	Precipitation	None	0.9	302	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:00	22:30	40.50411	-74.07512	40.50160	-74.07134	7	20	SSE	<2	B3	0.3-0.5	Precipitation	None	0.7	44	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.50160	-74.07134	40.50460	-74.08063	7	16	SSE	<2	B3	0.3-0.5	Precipitation	None	1.5	42	Standby	N/A
2022-11-11	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.50460	-74.08063	40.50014	-74.07926	7	17	SSE	<2	B3	0.3-0.5	Precipitation	None	1.2	100	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.49948	-74.07755	40.50124	-74.07123	7	25	S	<2	B4	0.5-1	Precipitation	None	0.4	107	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	02:00	40.50124	-74.07123	40.50073	-74.07297	8	20	S	<2	B4	0.5-1	Precipitation	None	0.8	54	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.50073	-74.07297	40.49559	-74.06960	9	22	S	<2	B4	0.5-1	Precipitation	None	0.5	49	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.49559	-74.06960	40.49290	-74.06894	7	32	S	<2	B4	0.5-1	Cloudy	None	0.8	67	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49290	-74.06894	40.50891	-74.06637	9	26	S	<2	B4	0.5-1	Cloudy	None	1.6	272	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50891	-74.06637	40.49795	-74.06498	8	24	SSW	<2	B4	0.5-1	Cloudy	None	0.8	73	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49795	-74.06498	40.49860	-74.07353	7	25	S	<2	B4	0.5-1	Cloudy	None	1.3	296	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49860	-74.07353	40.50929	-74.06243	7	22	S	<2	B4	0.5-1	Precipitation	None	1	299	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.50929	-74.06243	40.49928	-74.08136	6	18	S	<2	B4	0.5-1	Precipitation	None	0.5	292	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:15	40.49928	-74.08136	40.50173	-74.08054	7	21	S	<2	B4	0.5-1	Precipitation	None	0.5	299	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:15	10:00	40.50173	-74.08054	40.50865	-74.08095	7	18	S	<2	B4	0.5-1	Precipitation	None	0.5	298	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.50865	-74.08095	40.49128	-74.07926	6	21	S	<2	B4	0.5-1	Precipitation	None	0.4	303	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.49128	-74.07926	40.49425	-74.08235	7	15	SW	<2	B4	0.5-1	Cloudy	None	4	219	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:19	40.49425	-74.08235	40.49597	-74.08342	7	15	SW	<2	B4	0.5-1	Precipitation	None	0.3	333	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:19	11:26	40.49597	-74.08342	40.49662	-74.08376	7	15	SW	<2	B4	1-2	Precipitation	None	0.6	15	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:26	11:33	40.49662	-74.08376	40.49736	-74.08423	7	15	SW	<2	B4	2-5	Precipitation	None	0.2	328	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:33	11:44	40.49736	-74.08423	40.49859	-74.08507	7	15	SW	<2	B4	1-2	Precipitation	None	0.4	329	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:44	12:00	40.49859	-74.08507	40.49945	-74.08437	7	15	SW	<2	B4	2-5	Cloudy	None	0.4	334	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.49945	-74.08437	40.49155	-74.07472	8	18	WSW	<2	B4	>5	Cloudy	None	0.2	2	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.49155	-74.07472	40.50221	-74.08077	8	18	WSW	<2	B4	>5	Clear	Severe	0.7	23	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.50221	-74.08077	40.49752	-74.06724	7	20	W	<2	B4	>5	Cloudy	Severe	2.9	305	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.49752	-74.06724	40.49542	-74.06874	7	19	W	<2	B4	>5	Cloudy	Severe	0.7	32	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.49542	-74.06874	40.50132	-74.07287	8	23	WNW	<2	B4	>5	Cloudy	Moderate	4.2	286	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	18:00	40.50132	-74.07287	40.49870	-74.06531	7	16	SW	<2	B4	>5	Cloudy	Moderate	0.9	22	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:00	19:00	40.49870	-74.06531	40.50268	-74.06328	8	16	WNW	<2	B4	>5	Clear	Severe	0.1	270	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:00	20:00	40.50268	-74.06328	40.50031	-74.06305	7	17	WNW	<2	B3	>5	Clear	Severe	1.7	258	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.50031	-74.06305	40.50130	-74.07354	7	14	WSW	<2	B3	>5	Clear	Severe	0.6	287	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:55	40.50130	-74.07354	40.49696	-74.07757	7	10	WSW	<2	B2	>5	Clear	Moderate	1.5	262	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:55	22:00	40.49696	-74.07757	40.49687	-74.07718	7	7	WSW	<2	B2	2-5	Clear	None	0.3	152	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	22:00	22:05	40.49687	-74.07718	40.49676	-74.07668	7	8	WSW	<2	B2	1-2	Clear	None	0.4	141	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:05	22:30	40.49676	-74.07668	40.49627	-74.07556	7	8	WSW	<2	B1	0.5-1	Cloudy	None	0.4	143	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.49627	-74.07556	40.49548	-74.07733	7	8	W	<2	B1	0.5-1	Cloudy	None	0.3	148	Standby	N/A
2022-11-12	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.49548	-74.07733	40.50151	-74.07445	7	7	W	<2	B1	0.5-1	Clear	None	0.3	250	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:38	40.50149	-74.07469	40.49932	-74.07115	7	7	WSW	<2	B1	0.5-1	Clear	None	0.2	15	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:38	01:59	40.49932	-74.07115	40.49854	-74.07505	7	3	SW	<2	B0	0.5-1	Cloudy	None	0.4	20	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:59	02:00	40.49854	-74.07505	40.50020	-74.06558	7	3	SSW	<2	B0	0.5-1	Cloudy	None	0.3	25	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.50020	-74.06558	40.50054	-74.06431	8	4	SW	<2	B1	0.5-1	Cloudy	None	0.2	58	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.50054	-74.06431	40.50024	-74.07317	7	3	S	<2	B0	0.5-1	Cloudy	None	0.3	16	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.50024	-74.07317	40.49998	-74.05545	9	3	SSW	<2	B0	0.5-1	Cloudy	None	0.4	14	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.49998	-74.05545	40.49868	-74.07608	7	7	NW	<2	B1	0.5-1	Cloudy	None	0.3	92	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49868	-74.07608	40.49605	-74.06818	7	4	N	<2	B1	0.5-1	Cloudy	None	0.3	212	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49605	-74.06818	40.49319	-74.05576	7	5	W	<2	B0	0.5-1	Cloudy	None	0.7	149	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:09	40.49319	-74.05576	40.49315	-74.05779	7	15	NW	<2	B1	0.5-1	Cloudy	None	1.2	189	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:09	09:00	40.49315	-74.05779	40.49886	-74.07714	7	18	NW	<2	B3	0.5-1	Precipitation	None	3.8	294	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:01	40.49886	-74.07714	40.48978	-74.06985	7	11	N	<2	B3	0.5-1	Precipitation	None	0.5	225	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:01	10:30	40.48978	-74.06985	40.49714	-74.07062	8	12	N	<2	B3	0.5-1	Precipitation	None	0.6	234	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.49714	-74.07062	40.50639	-74.07495	7	14	NW	<2	B3	0.5-1	Precipitation	None	3.7	12	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:20	40.50639	-74.07495	40.50389	-74.07527	7	13	NW	<2	B3	0.5-1	Precipitation	None	0.5	221	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	11:25	40.50389	-74.07527	40.50321	-74.07534	7	18	NW	<2	B3	1-2	Cloudy	None	0.4	195	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:25	11:53	40.50321	-74.07534	40.49909	-74.07585	7	18	NW	<2	B3	2-5	Cloudy	None	0.4	195	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:53	12:00	40.49909	-74.07585	40.49827	-74.07581	7	15	NW	<2	B3	1-2	Precipitation	None	0.4	220	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.49827	-74.07581	40.48956	-74.07666	8	17	NNW	<2	B3	1-2	Precipitation	None	0.6	206	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:17	40.48956	-74.07666	40.49966	-74.07559	8	16	N	<2	B3	2-5	Precipitation	None	0.5	220	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:17	14:00	40.49966	-74.07559	40.49844	-74.07751	7	15	N	<2	B3	2-5	Precipitation	None	5	9	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:22	40.49844	-74.07751	40.49445	-74.07699	7	23	NW	<2	B4	2-5	Precipitation	None	1.3	71	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-13	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:22	15:00	40.49445	-74.07699	40.50263	-74.07074	7	21	NW	<2	B4	>5	Precipitation	None	0.3	22	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.50263	-74.07074	40.50183	-74.06859	7	18	NW	<2	B4	>5	Cloudy	None	0.8	39	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.50183	-74.06859	40.50124	-74.05601	7	17	NW	<2	B4	>5	Cloudy	None	3.3	357	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:59	40.50124	-74.05601	40.49837	-74.07174	6	21	NW	<2	B4	>5	Cloudy	None	1.1	190	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:59	19:01	40.49837	-74.07174	40.49932	-74.07781	7	20	WNW	<2	B4	>5	Cloudy	None	1.2	185	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:01	20:00	40.49932	-74.07781	40.49895	-74.06821	7	20	NW	<2	B4	>5	Cloudy	None	1.2	202	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.49895	-74.06821	40.50184	-74.07983	7	26	NW	<2	B4	>5	Cloudy	None	4.1	288	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:47	40.50184	-74.07983	40.49901	-74.06878	7	21	NW	<2	B4	>5	Cloudy	None	1.3	186	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:47	21:58	40.49901	-74.06878	40.49671	-74.06593	7	26	NW	<2	B4	2-5	Cloudy	None	1.2	46	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:58	22:01	40.49671	-74.06593	40.49617	-74.06487	7	27	NW	<2	B4	1-2	Cloudy	None	1.1	48	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:01	22:30	40.49617	-74.06487	40.49958	-74.08344	7	25	NW	<2	B4	0.5-1	Cloudy	None	1.1	48	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.49958	-74.08344	40.49809	-74.07465	7	23	NW	<2	B4	0.5-1	Cloudy	None	0.8	255	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	23:57	40.49809	-74.07465	40.49616	-74.06062	7	22	NW	<2	B4	0.5-1	Cloudy	None	0.6	187	Standby	N/A
2022-11-13	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:57	00:00	40.49616	-74.06062	40.49614	-74.06046	8	18	NW	<2	B4	0.5-1	Clear	None	4.3	109	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:59	40.49616	-74.06005	40.49573	-74.07823	8	18	NW	<2	B4	0.5-1	Clear	None	0.6	109	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	00:59	02:00	40.49573	-74.07823	40.49590	-74.06970	8	18	W	<2	B4	0.5-1	Clear	None	0.6	37	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.49590	-74.06970	40.50024	-74.06772	7	17	WNW	<2	B4	0.5-1	Clear	None	0.6	34	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.50024	-74.06772	40.50310	-74.07335	7	18	W	<2	B4	0.5-1	Clear	None	0.6	44	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.50310	-74.07335	40.49912	-74.07016	7	19	WNW	<2	B4	0.5-1	Clear	None	0.6	2	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.49912	-74.07016	40.49719	-74.06324	7	18	WNW	<2	B4	0.5-1	Clear	None	0.6	186	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49719	-74.06324	40.49789	-74.06641	7	24	NW	<2	B4	0.5-1	Clear	None	3.6	277	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49789	-74.06641	40.49749	-74.08210	7	12	NW	<2	B3	0.5-1	Clear	None	0.9	206	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49749	-74.08210	40.49624	-74.06486	7	17	W	<2	B3	0.5-1	Clear	None	0.8	211	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49624	-74.06486	40.47272	-73.96801	8	15	NW	<2	B3	0.5-1	Clear	None	0.8	188	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.47272	-73.96801	40.43945	-73.89384	14	18	NW	<2	B4	0.5-1	Clear	None	7.8	127	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:01	40.43945	-73.89384	40.42540	-73.80736	21	19	NW	<2	B4	0.5-1	Clear	None	7.8	105	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:01	11:13	40.42540	-73.80736	40.41932	-73.77661	36	25	NW	<2	B4	0.5-1	Cloudy	None	7.5	103	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:13	12:00	40.41932	-73.77661	40.39397	-73.64928	32	18	NW	<2	B4	1-2	Cloudy	None	7.7	106	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.39397	-73.64928	40.36574	-73.49783	25	18	WNW	<2	B4	2-5	Cloudy	Slight	7.5	99	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.36574	-73.49783	40.32655	-73.35598	28	17	NW	<2	B4	>5	Clear	Severe	7.1	106	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:44	40.32655	-73.35598	40.29609	-73.25633	33	15	NW	<2	B4	>5	Clear	Severe	6.7	109	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:44	15:00	40.29609	-73.25633	40.28752	-73.22830	37	13	NW	<2	B4	>5	Clear	Severe	6.8	110	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	16:00	40.28752	-73.22830	40.23191	-73.11057	36	13	NW	<2	B4	>5	Clear	Severe	6.5	110	Transit	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:49	40.23191	-73.11057	40.19730	-73.05416	43	11	NW	<2	B4	>5	Clear	Severe	4.5	150	Standby	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:49	17:00	40.19730	-73.05416	40.19667	-73.05081	45	13	NW	<2	B4	>5	Clear	Severe	1	241	Deploying/Retrieving	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:51	40.19667	-73.05081	40.21400	-73.08103	46	13	NW	<2	B4	>5	Clear	Severe	1.2	245	Deploying/Retrieving	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:51	17:55	40.21400	-73.08103	40.21573	-73.08544	43	11	NW	<2	B4	>5	Clear	Severe	2.9	297	Soft Start	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:55	18:14	40.21573	-73.08544	40.21839	-73.10815	43	10	WNW	<2	B4	>5	Clear	Severe	3.3	295	Soft Start	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:14	18:35	40.21839	-73.10815	40.21981	-73.10005	43	10	WNW	<2	B4	>5	Clear	Severe	3.3	295	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:35	18:40	40.21981	-73.10005	40.21377	-73.10032	43	11	NW	<2	B4	>5	Clear	Severe	4	178	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:40	18:56	40.21377	-73.10032	40.19619	-73.10072	43	11	NW	<2	B4	>5	Clear	Severe	4	178	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:56	18:58	40.19619	-73.10072	40.19370	-73.10079	43	11	NW	<2	B4	>5	Clear	Severe	4.4	180	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:58	19:44	40.19370	-73.10079	40.15130	-73.12893	43	11	NW	<2	B4	>5	Clear	Severe	4.4	180	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:44	19:48	40.15130	-73.12893	40.15599	-73.12877	45	11	NW	<2	B4	>5	Clear	Severe	4.4	3	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:48	20:00	40.15599	-73.12877	40.17023	-73.12851	45	11	NW	<2	B4	>5	Clear	Severe	4.4	3	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:00	40.17023	-73.12851	40.24268	-73.12650	44	13	NW	<2	B4	>5	Clear	Severe	4.3	2	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:15	40.24268	-73.12650	40.26116	-73.12599	42	10	NW	<2	B4	>5	Clear	Moderate	4.5	356	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:15	21:16	40.26116	-73.12599	40.26239	-73.12595	42	10	NW	<2	B4	>5	Clear	Moderate	4.6	356	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:16	21:36	40.26239	-73.12595	40.27729	-73.10960	40	10	NW	<2	B4	>5	Clear	Moderate	4.5	356	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:36	21:41	40.27729	-73.10960	40.27102	-73.10994	40	9	NW	<2	B3	>5	Clear	Slight	4.2	182	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:41	21:50	40.27102	-73.10994	40.26063	-73.11012	40	13	NW	<2	B3	>5	Clear	None	4.5	178	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:50	21:58	40.26063	-73.11012	40.25034	-73.11046	41	13	NW	<2	B3	2-5	Clear	None	3.6	185	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:58	22:01	40.25034	-73.11046	40.24639	-73.11054	42	8	NW	<2	B3	1-2	Clear	None	4.5	181	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	22:01	22:30	40.24639	-73.11054	40.21195	-73.11148	42	8	NW	<2	B3	0.5-1	Clear	None	4.5	181	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.21195	-73.11148	40.17958	-73.11237	42	10	NW	<2	B3	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	23:07	40.17958	-73.11237	40.16657	-73.11271	42	10	NW	<2	B3	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:07	23:09	40.16657	-73.11271	40.16410	-73.11283	45	7	NNW	<2	B3	0.5-1	Clear	None	4.5	182	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:09	23:30	40.16410	-73.11283	40.15186	-73.12676	45	12	NNW	<2	B3	0.5-1	Clear	None	4.5	186	Full Power	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:30	23:34	40.15186	-73.12676	40.15685	-73.12676	45	11	NW	<2	B3	0.5-1	Clear	None	4.4	0.6	Silent	N/A
2022-11-14	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:34	00:00	40.15685	-73.12676	40.18822	-73.12585	45	10	NW	<2	B3	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.18954	-73.12583	40.26166	-73.12386	43	13	NW	<2	B3	0.5-1	Clear	None	4.6	357	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	01:01	40.26166	-73.12386	40.26378	-73.12382	43	12	NW	<2	B3	0.5-1	Clear	None	4.4	1	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:01	01:25	40.26378	-73.12382	40.26431	-73.12660	43	13	NW	<2	B3	0.5-1	Clear	None	4.4	0.4	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:25	01:30	40.26431	-73.12660	40.26001	-73.12669	42	9	NNW	<2	B3	0.5-1	Clear	None	3.5	181	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:30	01:59	40.26001	-73.12669	40.22498	-73.12767	42	9	NNW	<2	B3	0.5-1	Clear	None	4.2	181	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:59	02:57	40.22498	-73.12767	40.15488	-73.12950	42	8	N	<2	B3	0.5-1	Clear	None	4.7	181	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:57	02:59	40.15488	-73.12950	40.15283	-73.12964	45	11	NE	<2	B3	0.5-1	Clear	None	4.3	180	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:59	03:00	40.15283	-73.12964	40.15201	-73.12966	45	11	NE	<2	B3	0.5-1	Clear	None	4.3	180	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	03:29	40.15201	-73.12966	40.15393	-73.12647	45	8	N	<2	B3	0.5-1	Clear	None	4.3	164	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:29	03:31	40.15393	-73.12647	40.15643	-73.12639	45	8	N	<2	B3	0.5-1	Clear	None	4.3	0	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:31	04:00	40.15643	-73.12639	40.19031	-73.12545	45	8	N	<2	B3	0.5-1	Clear	None	4.4	0	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:59	40.19031	-73.12545	40.26247	-73.12346	43	11	N	<2	B3	0.5-1	Cloudy	None	4.4	0	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:59	05:00	40.26247	-73.12346	40.26321	-73.12340	40	11	N	<2	B3	0.5-1	Cloudy	None	4.1	1.3	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:23	40.26321	-73.12340	40.26391	-73.12616	40	11	N	<2	B3	0.5-1	Cloudy	None	4.2	1	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:23	05:26	40.26391	-73.12616	40.25994	-73.12631	42	13	N	<2	B3	0.5-1	Cloudy	None	4.4	180	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:26	06:00	40.25994	-73.12631	40.21728	-73.12750	40	18	N	<2	B3	0.5-1	Cloudy	None	4.6	180	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:50	40.21728	-73.12750	40.15576	-73.12922	43	13	NE	<2	B3	0.5-1	Cloudy	None	4.5	180	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:50	06:52	40.15576	-73.12922	40.15315	-73.12925	41	11	NNE	<2	B3	0.5-1	Cloudy	None	4.4	180	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:52	07:00	40.15315	-73.12925	40.14817	-73.13609	42	10	NNE	<2	B3	0.5-1	Cloudy	None	4.4	180	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:05	40.14817	-73.13609	40.15363	-73.13684	43	16	NE	<2	B3	0.5-1	Cloudy	None	4	328	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:05	07:07	40.15363	-73.13684	40.15607	-73.13655	45	17	NE	<2	B3	0.5-1	Cloudy	None	4.3	8	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:07	08:00	40.15607	-73.13655	40.21836	-73.13491	44	16	NE	<2	B3	0.5-1	Cloudy	None	4.3	1	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:36	40.21836	-73.13491	40.26098	-73.13380	42	13	NNE	<2	B4	0.5-1	Cloudy	None	4.3	3	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:36	08:38	40.26098	-73.13380	40.26336	-73.13368	40	14	NE	<2	B4	0.5-1	Cloudy	None	4.4	3	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:38	08:52	40.26336	-73.13368	40.26537	-73.12873	40	14	NE	<2	B4	0.5-1	Cloudy	None	4.4	3	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:52	08:55	40.26537	-73.12873	40.26141	-73.12882	40	12	NE	<2	B3	0.5-1	Cloudy	None	4.7	179	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:55	09:00	40.26141	-73.12882	40.25501	-73.12895	40	11	NE	<2	B3	0.5-1	Cloudy	None	4.7	179	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.25501	-73.12895	40.18365	-73.13085	41	11	NNE	<2	B3	0.5-1	Cloudy	None	4.4	178	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:24	40.18365	-73.13085	40.15574	-73.13165	44	11	NNE	<2	B3	0.5-1	Cloudy	None	4.4	178	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:24	10:26	40.15574	-73.13165	40.15300	-73.13175	44	14	NNE	<2	B3	0.5-1	Cloudy	None	4.1	171	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:26	10:30	40.15300	-73.13175	40.14881	-73.13152	44	11	NNE	<2	B3	0.5-1	Cloudy	None	4.2	178	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:38	40.14881	-73.13152	40.15280	-73.13700	44	11	NNE	<2	B3	0.5-1	Cloudy	None	4.2	178	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:38	10:42	40.15280	-73.13700	40.15723	-73.13693	43	17	NNE	<2	B3	0.5-1	Cloudy	None	4.5	2	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:42	11:00	40.15723	-73.13693	40.17774	-73.13636	43	14	NNE	<2	B3	0.5-1	Cloudy	None	4.5	1	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:13	40.17774	-73.13636	40.19378	-73.13589	43	16	NNE	<2	B3	0.5-1	Cloudy	None	4.1	6	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:13	11:20	40.19378	-73.13589	40.20165	-73.13561	43	13	NNE	<2	B3	1-2	Cloudy	None	4.1	7	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	11:36	40.20165	-73.13561	40.22076	-73.13517	43	17	NE	<2	B3	2-5	Cloudy	None	4.1	7	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:36	12:00	40.22076	-73.13517	40.24790	-73.13440	43	17	NE	<2	B3	>5	Cloudy	None	4.1	7	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:12	40.24790	-73.13440	40.26195	-73.13396	40	14	NE	<2	B3	>5	Cloudy	None	4.3	7	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:12	12:13	40.26195	-73.13396	40.26349	-73.13388	41	17	NE	<2	B3	>5	Cloudy	None	4.3	6	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:13	12:26	40.26349	-73.13388	40.26353	-73.12915	42	16	NE	<2	B3	>5	Cloudy	None	4	354	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:26	12:29	40.26353	-73.12915	40.26003	-73.12913	42	13	NNE	<2	B3	>5	Cloudy	None	4.6	175	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:29	13:00	40.26003	-73.12913	40.22197	-73.13020	41	12	NNE	<2	B3	>5	Cloudy	None	4.5	177	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:56	40.22197	-73.13020	40.15588	-73.13197	42	15	NE	<2	B4	>5	Cloudy	None	4.7	175	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:56	13:57	40.15588	-73.13197	40.15478	-73.13200	45	14	NE	<2	B4	>5	Cloudy	None	4.7	179	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:57	14:00	40.15478	-73.13200	40.15137	-73.13181	45	14	NE	<2	B4	>5	Cloudy	None	4	161	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:09	40.15137	-73.13181	40.15141	-73.13800	45	12	NE	<2	B4	>5	Cloudy	None	4	162	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:09	14:14	40.15141	-73.13800	40.15636	-73.13727	44	17	NE	<2	B4	>5	Cloudy	None	4.3	20	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:14	15:00	40.15636	-73.13727	40.21301	-73.13568	44	15	E	<2	B4	>5	Cloudy	None	4.4	6	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:40	40.21301	-73.13568	40.26145	-73.13436	43	13	E	<2	B4	>5	Cloudy	None	4.5	8	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:40	15:42	40.26145	-73.13436	40.26395	-73.13432	40	13	NE	<2	B4	>5	Cloudy	None	4.4	359	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:42	15:53	40.26395	-73.13432	40.26720	-73.12925	40	13	NE	<2	B3	>5	Cloudy	None	4.4	1	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:53	15:58	40.26720	-73.12925	40.26091	-73.12950	40	14	NE	<2	B3	>5	Cloudy	None	4.5	180	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:58	17:00	40.26091	-73.12950	40.18654	-73.13154	41	14	NE	<2	B3	>5	Cloudy	None	4.4	180	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:28	40.18654	-73.13154	40.15586	-73.13233	43	14	NE	<2	B3	>5	Cloudy	None	4	174	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:28	17:30	40.15586	-73.13233	40.15349	-73.13242	43	13	ENE	<2	B3	>5	Cloudy	None	4	174	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:30	17:47	40.15349	-73.13242	40.15284	-73.13771	45	13	ENE	<2	B3	>5	Cloudy	None	4.3	181	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:47	17:50	40.15284	-73.13771	40.15653	-73.13767	44	14	ENE	<2	B4	>5	Cloudy	None	4.5	3	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:50	17:56	40.15653	-73.13767	40.16474	-73.13744	44	14	ENE	<2	B4	>5	Cloudy	None	4.5	4	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:56	18:59	40.16474	-73.13744	40.23916	-73.13538	43	15	E	<2	B4	>5	Cloudy	None	4.2	356	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	18:59	19:18	40.23916	-73.13538	40.26110	-73.13479	42	14	ENE	<2	B4	>5	Cloudy	None	4.4	2	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:18	19:20	40.26110	-73.13479	40.26350	-73.13476	40	14	ENE	<2	B4	>5	Cloudy	None	4.4	2	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:20	19:35	40.26350	-73.13476	40.27576	-73.12478	40	17	ENE	<2	B4	>5	Cloudy	None	4.4	2	Full Power	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:35	19:50	40.27576	-73.12478	40.27455	-73.11049	40	23	ENE	<2	B4	>5	Cloudy	None	4.1	72	Silent	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:50	20:00	40.27455	-73.11049	40.27304	-73.12344	40	19	ENE	<2	B4	>5	Cloudy	None	3.8	259	Deploying/Retrieving	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	20:41	40.27304	-73.12344	40.27074	-73.15428	40	19	ENE	<2	B4	>5	Cloudy	None	3.3	262	Deploying/Retrieving	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:41	21:00	40.27074	-73.15428	40.27767	-73.19242	40	20	ENE	<2	B4	>5	Cloudy	None	3.3	262	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:00	21:35	40.27767	-73.19242	40.29573	-73.27576	38	20	ENE	<2	B5	>5	Cloudy	None	6.6	286	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:35	21:48	40.29573	-73.27576	40.30250	-73.30730	36	17	ENE	<2	B5	2-5	Cloudy	None	6.7	284	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:48	21:53	40.30250	-73.30730	40.30474	-73.31822	34	18	ENE	<2	B5	1-2	Cloudy	None	6.8	289	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	21:53	22:30	40.30474	-73.31822	40.31886	-73.40881	33	20	ENE	<2	B5	0.5-1	Cloudy	None	6.8	289	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.31886	-73.40881	40.33109	-73.48276	32	20	ENE	<2	B5	0.5-1	Cloudy	None	7	279	Transit	N/A
2022-11-15	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.33109	-73.48276	40.37068	-73.61992	29	26	E	<2	B5	0.1-0.3	Precipitation	None	7	291	Transit	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	00:59	40.37202	-73.62462	40.41204	-73.76799	24	19	E	<2	B5	0.3-0.5	Precipitation	None	7.3	289	Transit	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	00:59	02:00	40.41204	-73.76799	40.44614	-73.90877	30	21	E	<2	B5	0.3-0.5	Precipitation	None	7.2	287	Transit	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.44614	-73.90877	40.48188	-74.05261	18	24	ENE	<2	B5	0.3-0.5	Precipitation	None	7	305	Transit	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	03:22	40.48188	-74.05261	40.50263	-74.07167	8	27	NE	<2	B5	0.3-0.5	Precipitation	None	6.7	310	Transit	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:22	04:00	40.50263	-74.07167	40.50136	-74.12038	7	27	NE	<2	B5	0.3-0.5	Precipitation	None	4.8	242	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.50136	-74.12038	40.49640	-74.07241	7	24	NE	<2	B5	0.3-0.5	Precipitation	None	3.2	285	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.49640	-74.07241	40.49956	-74.12023	8	27	NE	<2	B5	0.3-0.5	Precipitation	None	2.9	86	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49956	-74.12023	40.49902	-74.10128	7	21	NE	<2	B5	0.3-0.5	Precipitation	None	3.8	279	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:24	40.49902	-74.10128	40.49642	-74.07606	7	26	NE	<2	B5	0.3-0.5	Precipitation	None	2.5	90	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:24	08:00	40.49642	-74.07606	40.49682	-74.07395	7	26	NE	<2	B5	0.1-0.3	Precipitation	None	2.5	90	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:59	40.49682	-74.07395	40.50243	-74.13908	7	26	NE	<2	B5	0.1-0.3	Precipitation	None	3.2	277	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	08:59	09:19	40.50243	-74.13908	40.50132	-74.12647	8	16	NE	<2	B5	0.1-0.3	Precipitation	None	2.8	284	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:19	10:00	40.50132	-74.12647	40.49672	-74.07516	8	19	NE	<2	B5	0.1-0.3	Precipitation	None	3	87	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.49672	-74.07516	40.49595	-74.07399	7	16	N	<2	B5	0.1-0.3	Precipitation	None	4	92	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.49595	-74.07399	40.49871	-74.10220	7	16	N	<2	B5	0.1-0.3	Precipitation	None	2.6	282	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:33	40.49871	-74.10220	40.50261	-74.13391	7	14	N	<2	B5	0.5-1	Precipitation	None	2.5	287	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:33	12:00	40.50261	-74.13391	40.50023	-74.11595	7	19	N	<2	B5	1-2	Precipitation	None	2.6	289	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.50023	-74.11595	40.49625	-74.07356	8	14	WNW	<2	B5	1-2	Precipitation	None	3.4	93	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.49625	-74.07356	40.50114	-74.07748	7	21	NW	<2	B5	2-5	Fog	None	3.7	283	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:26	40.50114	-74.07748	40.49761	-74.07394	7	18	NW	<2	B5	>5	Cloudy	None	2.1	76	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:26	15:00	40.49761	-74.07394	40.49207	-74.07187	7	18	W	<2	B5	>5	Cloudy	Slight	0.7	45	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:00	15:23	40.49207	-74.07187	40.48887	-74.07054	7	18	W	<2	B4	>5	Cloudy	Slight	0.6	165	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	15:23	16:00	40.48887	-74.07054	40.50002	-74.07580	8	18	W	<2	B4	>5	Cloudy	Moderate	0.7	29	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	16:00	40.50002	-74.07580	40.50002	-74.07580	7	23	WNW	<2	B5	>5	Cloudy	None	1.3	99	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	16:00	17:00	40.50002	-74.07580	40.48956	-74.06575	7	19	W	<2	B4	>5	Cloudy	Moderate	0.5	28	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	17:00	17:57	40.48956	-74.06575	40.50084	-74.08302	8	27	W	<2	B5	>5	Cloudy	Moderate	1	121	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	17:57	19:06	40.50084	-74.08302	40.49237	-74.06373	7	22	W	<2	B5	>5	Cloudy	Moderate	0.7	118	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry	RPS	19:06	20:00	40.49237	-74.06373	40.50124	-74.07327	8	24	W	<2	B5	>5	Clear	Moderate	1.1	115	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	20:00	21:40	40.50124	-74.07327	40.49840	-74.06648	7	23	W	<2	B5	>5	Clear	Severe	1	28	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:40	21:47	40.49840	-74.06648	40.49723	-74.06400	7	20	WNW	<2	B5	2-5	Cloudy	None	1.1	39	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah	RPS	21:47	21:54	40.49723	-74.06400	40.49597	-74.06130	7	20	WNW	<2	B5	1-2	Cloudy	None	1	41	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Lewis, Henry	RPS	21:54	22:30	40.49597	-74.06130	40.50439	-74.07990	7	19	WNW	<2	B5	0.5-1	Cloudy	None	2.3	304	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	22:30	23:00	40.50439	-74.07990	40.49957	-74.07123	7	20	WNW	<2	B4	0.5-1	Cloudy	None	0.9	47	Standby	N/A
2022-11-16	*GO Discovery*	HRG	Visual	Garcia, Marah; Ley, Rafael	RPS	23:00	00:00	40.49957	-74.07123	40.50527	-74.07425	7	20	WNW	<2	B4	0.5-1	Cloudy	None	0.8	36	Standby	N/A
11/17/2022	*GO Discovery*	HRG	Visual	Lewis, Henry; Ley, Rafael	RPS	00:00	01:00	40.50514	-74.07367	40.50407	-74.08005	7	20	W	<2	B4	0.5-1	Clear	None	0.6	23	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	01:00	02:00	40.50407	-74.08005	40.49982	-74.06656	8	22	W	<2	B4	0.5-1	Clear	None	0.9	16	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Lewis, Henry	RPS	02:00	03:00	40.49982	-74.06656	40.50010	-74.07412	8	21	W	<2	B4	0.5-1	Clear	None	3.7	298	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-17	*GO Discovery*	HRG	Visual	Lewis, Henry; Sandoval, Maria	RPS	03:00	04:00	40.50010	-74.07412	40.50367	-74.07897	7	23	W	<2	B4	0.5-1	Clear	None	0.8	21	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.50367	-74.07897	40.50040	-74.06938	7	27	WNW	<2	B4	0.5-1	Clear	None	3.9	300	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50040	-74.06938	40.50177	-74.07132	8	24	WSW	<2	B4	0.5-1	Clear	None	0.5	15	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.50177	-74.07132	40.49974	-74.06242	7	23	W	<2	B4	0.5-1	Clear	None	3.9	302	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49974	-74.06242	40.50202	-74.06143	7	21	W	<2	B4	0.5-1	Clear	None	0.8	14	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:45	40.50202	-74.06143	40.50599	-74.05335	7	18	SW	<2	B4	0.5-1	Cloudy	None	1	12	Standby	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:45	09:00	40.50599	-74.05335	40.51897	-74.04436	7	20	WSW	<2	B4	0.5-1	Cloudy	None	1	326	Transit	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.51897	-74.04436	40.62821	-74.05538	12	18	WSW	<2	B4	0.5-1	Cloudy	None	6.8	35	Transit	N/A
2022-11-17	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.62821	-74.05538	40.66144	-74.07261	15	14	WSW	<2	B4	0.5-1	Cloudy	None	7.4	349	Transit	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:01	40.66141	-74.07258	40.60433	-74.04607	9	11	W	<2	B3	0.5-1	Cloudy	None	0.1	29	Transit	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:01	03:00	40.60433	-74.04607	40.50126	-74.07133	8	10	W	<2	B3	0.5-1	Cloudy	None	9.6	158	Transit	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.50126	-74.07133	40.50181	-74.07424	7	21	W	<2	B3	0.5-1	Cloudy	None	0.7	339	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.50181	-74.07424	40.50290	-74.07773	7	22	NW	<2	B3	0.5-1	Cloudy	None	4.2	303	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50290	-74.07773	40.49938	-74.07316	7	15	WSW	<2	B3	0.5-1	Clear	None	0.4	7	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49938	-74.07316	40.49619	-74.06617	7	17	WSW	<2	B3	0.5-1	Clear	None	0.2	4	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49619	-74.06617	40.50094	-74.07076	8	18	WSW	<2	B3	0.5-1	Clear	None	0.5	2	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:01	40.50094	-74.07076	40.50263	-74.06672	8	19	WSW	<2	B3	0.5-1	Clear	None	4.5	302	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:01	10:00	40.50263	-74.06672	40.50027	-74.07209	7	20	SW	<2	B3	0.5-1	Clear	None	0.8	4.1	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.50027	-74.07209	40.50203	-74.07844	7	19	WSW	<2	B3	0.5-1	Clear	None	3.9	268	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50203	-74.07844	40.50127	-74.06837	7	19	SW	<2	B3	0.5-1	Clear	None	0.9	359	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:12	40.50127	-74.06837	40.50100	-74.06347	7	15	SW	<2	B3	0.5-1	Clear	None	1	346	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:12	11:19	40.50100	-74.06347	40.50079	-74.06072	7	17	SW	<2	B3	1-2	Fog	None	1.2	354	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:19	11:25	40.50079	-74.06072	40.50070	-74.05826	7	17	SW	<2	B3	2-5	Fog	None	1.1	352	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:25	11:59	40.50070	-74.05826	40.50092	-74.08235	7	17	SW	<2	B3	>5	Fog	None	1.1	356	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	11:59	13:00	40.50092	-74.08235	40.50165	-74.06135	8	18	WSW	<2	B3	>5	Fog	Moderate	1.5	359	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:20	40.50165	-74.06135	40.50073	-74.05635	7	18	SW	<2	B3	>5	Fog	Severe	1	4	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:20	14:00	40.50073	-74.05635	40.49903	-74.07157	7	18	W	<2	B4	>5	Fog	Severe	3.4	257	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.49903	-74.07157	40.49835	-74.08342	7	21	SW	<2	B4	>5	Fog	Severe	1.1	357	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.49835	-74.08342	40.49305	-74.06796	7	19	W	<2	B4	>5	Fog	Severe	0.8	326	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.49305	-74.06796	40.50436	-74.07972	7	22	W	<2	B4	>5	Clear	Severe	0.7	112	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	18:00	40.50436	-74.07972	40.50254	-74.08325	7	19	W	<2	B4	>5	Clear	Severe	0.6	328	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.50254	-74.08325	40.49877	-74.07415	7	20	S	<2	B5	>5	Clear	Severe	0.5	327	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.49877	-74.07415	40.50129	-74.07298	7	24	NNE	<2	B5	>5	Clear	Severe	0.7	96	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.50129	-74.07298	40.50563	-74.07903	9	22	WSW	<2	B5	>5	Clear	Moderate	0.7	261	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:30	40.50563	-74.07903	40.50695	-74.07221	9	25	SSE	<2	B5	>5	Clear	Severe	1	293	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:30	22:00	40.50695	-74.07221	40.50459	-74.08178	4	21	SSE	<2	B4	2-5	Clear	None	1	97	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.50459	-74.08178	40.50740	-74.06214	4	20	SSE	<2	B4	0.5-1	Clear	None	1.2	327	Standby	N/A
2022-11-18	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.50740	-74.06214	40.50725	-74.07435	4	15	SW	<2	B4	0.5-1	Clear	None	0.9	345	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:21	40.50739	-74.07387	40.50257	-74.07197	6	29	SW	<2	B3	0.5-1	Cloudy	None	2.5	170	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:21	00:33	40.50257	-74.07197	40.50216	-74.06610	7	21	NNE	<2	B3	0.5-1	Precipitation	None	1.6	94	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:33	01:00	40.50216	-74.06610	40.50110	-74.07704	7	24	SW	<2	B3	0.5-1	Cloudy	None	1.2	357	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:38	40.50110	-74.07704	40.49735	-74.06986	8	21	SSE	<2	B3	0.5-1	Precipitation	None	2.1	261	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:38	02:00	40.49735	-74.06986	40.49807	-74.06493	8	22	WSW	<2	B3	0.5-1	Precipitation	None	1.4	20	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.49807	-74.06493	40.49878	-74.08510	7	23	WSW	<2	B3	0.5-1	Precipitation	None	3.1	283	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.49878	-74.08510	40.49236	-74.06929	7	25	W	<2	B3	0.5-1	Clear	None	0.8	337	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49236	-74.06929	40.49851	-74.08265	7	18	SW	<2	B3	0.5-1	Clear	None	0.6	9.7	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.49851	-74.08265	40.49138	-74.07717	7	23	W	<2	B3	0.5-1	Clear	None	0.4	20	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49138	-74.07717	40.50809	-74.08122	7	17	W	<2	B3	0.5-1	Clear	None	0.4	21	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.50809	-74.08122	40.50074	-74.07788	6	17	W	<2	B3	0.5-1	Clear	None	0.1	348	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.50074	-74.07788	40.49203	-74.07166	7	15	W	<2	B3	0.5-1	Clear	None	0.5	22	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49203	-74.07166	40.50709	-74.07447	7	18	WNW	<2	B3	0.5-1	Clear	None	0.9	22	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.50709	-74.07447	40.50452	-74.06498	7	20	WSW	<2	B3	0.5-1	Cloudy	None	0.8	12	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50452	-74.06498	40.50279	-74.05315	7	15	WSW	<2	B3	0.5-1	Cloudy	None	1.1	28	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:21	40.50279	-74.05315	40.49888	-74.04992	7	13	WSW	<2	B3	0.5-1	Cloudy	None	1	2	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:21	11:30	40.49888	-74.04992	40.49399	-74.04929	7	18	W	<2	B3	1-2	Cloudy	None	1.3	262	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:30	11:47	40.49399	-74.04929	40.48081	-74.01567	19	18	W	<2	B3	2-5	Cloudy	None	7	118	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	11:47	13:00	40.48081	-74.01567	40.41607	-73.76727	15	12	W	<2	B3	>5	Cloudy	Moderate	10	126	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.41607	-73.76727	40.37033	-73.56350	31	21	W	<2	B3	>5	Cloudy	Severe	9	101	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.37033	-73.56350	40.33391	-73.36316	24	19	W	<2	B4	>5	Cloudy	Severe	9.3	107	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:59	40.33391	-73.36316	40.32819	-73.15848	31	17	W	<2	B4	>5	Clear	Severe	9.6	90	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:59	16:27	40.32819	-73.15848	40.32393	-73.06436	37	17	WSW	<2	B4	>5	Cloudy	Severe	9.5	95	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:27	16:35	40.32393	-73.06436	40.32325	-73.06001	39	20	WSW	<2	B5	>5	Cloudy	Severe	0.2	220	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:35	17:00	40.32325	-73.06001	40.32109	-73.05787	39	20	WSW	<2	B5	>5	Cloudy	Severe	0.2	218	Deploying/Retrieving	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:08	40.32109	-73.05787	40.31748	-73.06360	39	20	WSW	<2	B5	>5	Cloudy	Severe	1.2	237	Deploying/Retrieving	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:08	18:00	40.31748	-73.06360	40.32051	-73.01487	39	20	WSW	<2	B5	>5	Cloudy	Severe	1.2	237	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:32	40.32051	-73.01487	40.30222	-72.98187	40	14	NNW	<2	B5	>5	Cloudy	Severe	4.5	107	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:32	19:00	40.30222	-72.98187	40.27288	-72.98274	40	20	WSW	<2	B5	>5	Cloudy	Severe	3.5	132	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:20	40.27288	-72.98274	40.25170	-72.98340	40	18	W	<2	B5	>5	Cloudy	Severe	3.9	132	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:20	19:36	40.25170	-72.98340	40.24111	-72.99491	40	22	S	<2	B5	>5	Cloudy	Severe	3.4	254	Deploying/Retrieving	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:36	20:00	40.24111	-72.99491	40.22522	-73.01627	40	22	S	<2	B5	>5	Cloudy	Severe	3.4	254	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.22522	-73.01627	40.17522	-73.09108	53	22	S	<2	B5	>5	Clear	Severe	4.2	227	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:30	40.17522	-73.09108	40.14794	-73.13163	52	24	SSW	<2	B5	>5	Clear	Moderate	5.3	230	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:30	21:40	40.14794	-73.13163	40.15691	-73.13653	50	24	SSW	<2	B5	2-5	Clear	Slight	5.1	239	Transit	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:45	40.15691	-73.13653	40.16322	-73.13627	53	24	SSW	<2	B5	2-5	Clear	None	4.9	350	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	22:00	40.16322	-73.13627	40.18198	-73.13581	53	24	SSW	<2	B5	1-2	Clear	None	4.9	350	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:46	40.18198	-73.13581	40.24132	-73.13418	53	23	SSW	<2	B5	0.5-1	Clear	None	5	349	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:46	23:00	40.24132	-73.13418	40.25986	-73.13362	49	21	NNE	<2	B5	0.3-0.5	Clear	None	5	2	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:02	40.25986	-73.13362	40.26210	-73.13353	49	15	SW	<2	B5	0.3-0.5	Clear	None	5	353	Standby	N/A
2022-11-19	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:02	00:00	40.26210	-73.13353	40.28829	-73.22704	49	15	SW	<2	B5	0.3-0.5	Clear	None	5	353	Transit	N/A
11/20/2022	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.28952	-73.23345	40.31094	-73.33470	37	15	SW	<2	B4	0.5-1	Clear	None	5	285	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.31094	-73.33470	40.33681	-73.44354	35	25	W	<2	B4	0.5-1	Clear	None	5.1	277	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.33681	-73.44354	40.35852	-73.55746	32	21	SW	<2	B4	0.5-1	Clear	None	5.2	276	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.35852	-73.55746	40.39012	-73.66439	25	19	SW	<2	B4	0.5-1	Clear	None	5.2	285	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.39012	-73.66439	40.41831	-73.77116	25	21	SW	<2	B4	0.5-1	Clear	None	5.1	285	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.41831	-73.77116	40.44388	-73.88283	33	22	SW	<2	B4	0.5-1	Clear	None	5	281	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.44388	-73.88283	40.48492	-73.99371	20	23	SW	<2	B4	0.5-1	Clear	None	5.6	267	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:30	40.48492	-73.99371	40.47691	-74.04354	15	21	WSW	<2	B4	0.5-1	Clear	None	5.1	278	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:30	08:00	40.47691	-74.04354	40.49641	-74.07057	15	15	W	<2	B4	0.5-1	Clear	None	4.9	320	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49641	-74.07057	40.49761	-74.06177	8	15	W	<2	B4	0.5-1	Clear	None	0.5	155	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49761	-74.06177	40.49657	-74.07790	7	15	WNW	<2	B4	0.5-1	Clear	None	0.6	177	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.49657	-74.07790	40.49640	-74.06591	7	20	NW	<2	B4	0.5-1	Clear	None	1	176	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.49640	-74.06591	40.49679	-74.04965	7	27	NW	<2	B4	0.5-1	Clear	None	1.5	189	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:22	40.49679	-74.04965	40.49665	-74.07735	7	27	NW	<2	B4	0.5-1	Clear	None	1.3	204	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:22	11:30	40.49665	-74.07735	40.49616	-74.07932	7	22	WNW	<2	B4	1-2	Clear	None	4	271	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:30	11:40	40.49616	-74.07932	40.49639	-74.07487	7	19	NW	<2	B4	2-5	Clear	None	1.2	195	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:40	12:00	40.49639	-74.07487	40.49810	-74.06619	7	20	W	<2	B4	>5	Clear	None	1.2	166	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.49810	-74.06619	40.49868	-74.06662	8	25	W	<2	B4	>5	Clear	Slight	1.5	160	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.49868	-74.06662	40.49333	-74.07871	8	30	W	<2	B5	>5	Clear	Moderate	1.1	173	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.49333	-74.07871	40.49866	-74.06624	8	27	NW	<2	B5	>5	Clear	Moderate	1.4	174	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:10	40.49866	-74.06624	40.49774	-74.08403	7	28	NW	<2	B5	>5	Clear	Severe	4.6	275	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:10	16:00	40.49774	-74.08403	40.56069	-74.03613	7	28	NW	<2	B5	>5	Clear	Severe	4.4	42	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.56069	-74.03613	40.61754	-74.06407	11	27	NW	<2	B5	>5	Clear	Severe	4.7	347	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.61746	-74.06404	40.53014	-74.03913	7	10	WNW	<2	B3	0.5-1	Clear	None	3.6	67	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:25	40.53014	-74.03913	40.49979	-74.07426	7	22	W	<2	B3	0.3-0.5	Clear	None	6.6	197	Transit	N/A
2022-11-20	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:25	00:00	40.49979	-74.07426	40.50057	-74.06258	8	24	W	<2	B4	0.3-0.5	Clear	None	2.9	260	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.50037	-74.06183	40.49769	-74.06709	7	22	W	<2	B3	0.3-0.5	Clear	None	3	266	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.49769	-74.06709	40.49733	-74.07540	8	20	WNW	<2	B3	0.3-0.5	Clear	None	1	33	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.49733	-74.07540	40.49588	-74.06675	6	23	WSW	<2	B3	0.3-0.5	Clear	None	1.1	18	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.49588	-74.06675	40.49964	-74.07528	7	17	W	<2	B3	0.5-1	Clear	None	1.1	25	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49964	-74.07528	40.50462	-74.07926	7	20	WSW	<2	B3	0.5-1	Clear	None	0.7	30	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50462	-74.07926	40.49710	-74.07487	7	18	W	<2	B3	0.5-1	Clear	None	0.7	18	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49710	-74.07487	40.49282	-74.07676	7	16	W	<2	B3	0.5-1	Clear	None	0.5	29	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49282	-74.07676	40.50011	-74.08210	7	16	W	<2	B3	0.5-1	Clear	None	4.4	349	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:09	40.50011	-74.08210	40.49863	-74.08205	7	16	W	<2	B3	0.5-1	Clear	None	0.7	22	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:09	09:00	40.49863	-74.08205	40.45742	-73.94260	7	14	W	<2	B3	0.5-1	Clear	None	3.1	80	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.45742	-73.94260	40.41183	-73.73655	8	13	W	<2	B3	0.5-1	Clear	None	9.9	130	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.41183	-73.73655	40.39069	-73.63223	28	15	NW	<2	B3	0.5-1	Clear	None	9.8	104	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.39069	-73.63223	40.36721	-73.52628	23	9	NW	<2	B3	0.5-1	Clear	None	10	104	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:14	40.36721	-73.52628	40.35670	-73.47942	25	11	W	<2	B3	0.5-1	Clear	None	10.2	105	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:14	11:20	40.35670	-73.47942	40.35219	-73.45905	30	7	W	<2	B3	1-2	Clear	None	9.3	105	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	11:31	40.35219	-73.45905	40.34396	-73.42094	30	9	W	<2	B3	2-5	Clear	None	9.3	105	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:31	12:00	40.34396	-73.42094	40.32397	-73.32608	30	8	NW	<2	B3	>5	Clear	None	9.3	104	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:53	40.32397	-73.32608	40.27916	-73.15837	35	12	WNW	<2	B3	>5	Clear	None	9.5	105	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:53	13:00	40.27916	-73.15837	40.27881	-73.15598	33	8	W	<2	B3	>5	Cloudy	None	1.1	243	Deploying/Retrieving	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:43	40.27881	-73.15598	40.27946	-73.18174	39	9	W	<2	B3	>5	Cloudy	None	1	243	Deploying/Retrieving	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:43	13:45	40.27946	-73.18174	40.27967	-73.18354	39	10	SW	<2	B3	>5	Cloudy	Slight	2.5	268	Soft Start	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:45	14:00	40.27967	-73.18354	40.28604	-73.19123	39	10	SW	<2	B3	>5	Cloudy	Slight	2.5	268	Soft Start	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:04	40.28604	-73.19123	40.28533	-73.18343	38	7	SW	<2	B3	>5	Cloudy	Severe	4.9	66	Soft Start	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:04	14:13	40.28533	-73.18343	40.28049	-73.17001	39	9	W	<2	B3	>5	Cloudy	Severe	4.8	119	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:13	14:18	40.28049	-73.17001	40.27789	-73.16338	39	3	W	<2	B3	>5	Cloudy	Severe	4.5	118	Testing	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:18	15:00	40.27789	-73.16338	40.26465	-73.14331	39	8	W	<2	B3	>5	Cloudy	Severe	4.5	119	Testing	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:15	40.26465	-73.14331	40.26294	-73.12974	40	12	SW	<2	B3	>5	Cloudy	Severe	4.7	9	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:15	15:17	40.26294	-73.12974	40.26019	-73.12987	40	14	WSW	<2	B3	>5	Cloudy	Severe	4.5	180	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:17	16:00	40.26019	-73.12987	40.20714	-73.13131	40	14	WSW	<2	B3	>5	Cloudy	Severe	4.6	181	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:43	40.20714	-73.13131	40.15470	-73.13276	42	14	WSW	<2	B3	>5	Clear	Severe	4.5	191	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:43	16:45	40.15470	-73.13276	40.15216	-73.13220	42	16	WSW	<2	B3	>5	Clear	Severe	4.4	183	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:45	16:58	40.15216	-73.13220	40.15311	-73.13807	42	16	WSW	<2	B3	>5	Clear	Severe	4.4	183	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:58	16:59	40.15311	-73.13807	40.15408	-73.13807	44	15	WSW	<2	B3	>5	Clear	Severe	4.5	353	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:59	18:00	40.15408	-73.13807	40.22838	-73.13605	44	15	WSW	<2	B3	>5	Clear	Severe	4.5	353	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:28	40.22838	-73.13605	40.26291	-73.13513	44	14	WSW	<2	B4	>5	Clear	Severe	4.6	354	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:28	18:30	40.26291	-73.13513	40.26472	-73.13518	43	16	WSW	<2	B4	>5	Clear	Severe	4.3	356	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:30	18:44	40.26472	-73.13518	40.26643	-73.12957	40	17	NW	2-4	B4	>5	Clear	Severe	4	157	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:44	18:49	40.26643	-73.12957	40.25991	-73.13021	40	16	NW	2-4	B4	>5	Clear	Severe	4.1	185	Silent	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:49	19:00	40.25991	-73.13021	40.24726	-73.13054	39	16	NW	2-4	B4	>5	Clear	Severe	4.3	185	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.24726	-73.13054	40.17369	-73.13260	39	17	WNW	<2	B4	>5	Clear	Severe	4.3	185	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:15	40.17369	-73.13260	40.15568	-73.13308	44	19	SW	<2	B4	>5	Clear	Severe	4.2	188	Full Power	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:15	20:34	40.15568	-73.13308	40.14720	-73.14525	46	17	SW	<2	B4	>5	Clear	Severe	4.3	187	Standby	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:34	21:00	40.14720	-73.14525	40.16409	-73.12232	43	20	SW	<2	B4	>5	Clear	Severe	3.6	34	Deploying/Retrieving	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:26	40.16409	-73.12232	40.17069	-73.10806	44	19	SW	<2	B4	>5	Clear	Moderate	2.5	61	Deploying/Retrieving	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:26	21:40	40.17069	-73.10806	40.17400	-73.13359	44	18	SW	<2	B4	2-5	Clear	Slight	1.1	228	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	22:00	40.17400	-73.13359	40.17982	-73.17535	45	21	SW	<2	B5	1-2	Clear	None	6.1	275	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:28	40.17982	-73.17535	40.19107	-73.23372	41	23	SW	2-4	B5	0.5-1	Clear	None	6.2	275	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:28	23:00	40.19107	-73.23372	40.20755	-73.30370	40	22	SW	2-4	B5	0.3-0.5	Clear	None	6.9	279	Transit	N/A
2022-11-21	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.20755	-73.30370	40.18933	-73.42654	39	33	SW	2-4	B6	0.3-0.5	Clear	None	6.3	279	Transit	N/A
11/22/2022	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.18859	-73.43011	40.16415	-73.55376	39	34	SW	2-4	B5	0.3-0.5	Cloudy	None	5.2	249	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.16415	-73.55376	40.13662	-73.66544	39	34	SW	2-4	B5	0.3-0.5	Cloudy	None	6	249	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.13662	-73.66544	40.10206	-73.72194	56	36	SW	2-4	B6	0.3-0.5	Clear	None	4.4	180	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.10206	-73.72194	40.06616	-73.79268	34	32	SW	2-4	B6	0.3-0.5	Clear	None	3.3	229	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.06616	-73.79268	40.02517	-73.87011	30	28	SW	2-4	B6	0.3-0.5	Clear	None	4.2	232	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.02517	-73.87011	39.98286	-73.95917	24	28	SW	2-4	B6	0.3-0.5	Clear	None	4.8	229	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:30	39.98286	-73.95917	39.96795	-73.99309	21	26	W	2-4	B5	0.3-0.5	Clear	None	3.3	232	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:30	07:00	39.96795	-73.99309	39.99963	-73.99005	20	17	W	<2	B4	0.3-0.5	Clear	None	3.9	232	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	39.99963	-73.99005	39.97829	-73.99033	20	17	W	<2	B4	0.3-0.5	Clear	None	5	8	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	39.97829	-73.99033	39.92325	-74.00213	20	18	W	<2	B4	0.3-0.5	Clear	None	3.8	190	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	39.92325	-74.00213	39.89321	-74.01027	19	17	W	<2	B4	0.3-0.5	Clear	None	3.8	193	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	39.89321	-74.01027	39.93049	-74.00072	21	16	W	<2	B4	0.3-0.5	Clear	None	4.5	8	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	39.93049	-74.00072	39.96414	-73.99213	21	15	W	<2	B4	0.5-1	Clear	None	4.5	8	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:19	39.96414	-73.99213	39.98598	-73.98652	19	13	W	<2	B4	0.5-1	Clear	None	3.3	8	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:19	11:27	39.98598	-73.98652	39.98991	-73.97064	21	13	W	<2	B4	0.5-1	Clear	None	6	80	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:27	11:35	39.98991	-73.97064	39.99261	-73.95300	21	13	W	<2	B4	1-2	Clear	None	6.3	80	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:35	11:43	39.99261	-73.95300	39.99539	-73.93476	21	13	W	<2	B4	2-5	Clear	None	6.3	80	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:43	12:00	39.99539	-73.93476	40.00155	-73.89340	20	14	W	<2	B4	>5	Clear	None	6.4	79	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.00155	-73.89340	40.02060	-73.74697	21	13	W	<2	B4	>5	Clear	Slight	7	80	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.02060	-73.74697	40.03760	-73.60170	32	12	NW	<2	B4	>5	Clear	Severe	6.7	80	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.03760	-73.60170	40.06269	-73.44029	32	9	NW	<2	B4	>5	Clear	Severe	6.7	79	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.06269	-73.44029	40.11356	-73.24205	44	9	NW	<2	B3	>5	Clear	Severe	9.7	68	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:30	40.11356	-73.24205	40.14806	-73.15276	44	7	NW	<2	B3	>5	Clear	Severe	9.6	87	Transit	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:30	17:00	40.14806	-73.15276	40.18148	-73.13443	44	8	NW	<2	B3	>5	Clear	Severe	4.7	45	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:52	40.18148	-73.13443	40.17176	-73.13191	44	7	NW	<2	B2	>5	Clear	Severe	3.7	18	Deploying/Retrieving	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:52	17:57	40.17176	-73.13191	40.16713	-73.12996	44	7	NW	<2	B2	>5	Clear	Severe	3.7	18	Standby	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:57	18:00	40.16713	-73.12996	40.16432	-73.12957	43	7	W	<2	B2	>5	Clear	Severe	3.7	217	Soft Start	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:20	40.16432	-73.12957	40.14902	-73.14394	43	8	W	<2	B3	>5	Clear	Severe	4.2	215	Soft Start	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:20	18:58	40.14902	-73.14394	40.15229	-73.13845	43	6	W	<2	B3	>5	Clear	Severe	3.1	222	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:58	19:03	40.15229	-73.13845	40.15758	-73.13832	44	7	W	<2	B3	>5	Clear	Severe	4.5	357	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:03	20:00	40.15758	-73.13832	40.22544	-73.13645	44	7	W	<2	B3	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:29	40.22544	-73.13645	40.26141	-73.13549	41	13	SW	<2	B2	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:29	20:32	40.26141	-73.13549	40.26536	-73.13538	40	12	SW	<2	B2	>5	Clear	Severe	4.3	356	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:32	21:00	40.26536	-73.13538	40.27043	-73.13013	40	12	SW	<2	B2	>5	Clear	Severe	4.3	356	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:04	40.27043	-73.13013	40.26645	-73.13036	40	15	SW	<2	B2	>5	Clear	Moderate	3.7	191	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:04	21:12	40.26645	-73.13036	40.26161	-73.13749	40	15	SW	<2	B2	>5	Clear	Slight	4.6	185	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:12	21:25	40.26161	-73.13749	40.27493	-73.13004	40	14	SW	<2	B2	>5	Clear	Slight	4.8	330	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:25	21:40	40.27493	-73.13004	40.27673	-73.12839	40	14	SW	<2	B2	2-5	Clear	None	4.5	339	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:50	40.27673	-73.12839	40.26533	-73.13045	40	15	SW	<2	B3	1-2	Clear	None	3.9	214	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:50	21:55	40.26533	-73.13045	40.26031	-73.13058	40	15	SW	<2	B3	1-2	Clear	None	3.8	188	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:55	22:00	40.26031	-73.13058	40.25408	-73.13075	40	15	SW	<2	B3	0.5-1	Clear	None	3.9	188	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.25408	-73.13075	40.18367	-73.13261	40	16	SW	<2	B3	0.5-1	Clear	None	4.5	190	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:23	40.18367	-73.13261	40.15611	-73.13341	45	16	SW	<2	B3	0.5-1	Clear	None	4.2	189	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:23	23:24	40.15611	-73.13341	40.15498	-73.13345	45	20	SW	<2	B3	0.5-1	Clear	None	4.2	193	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:24	23:38	40.15498	-73.13345	40.14935	-73.13874	45	20	SW	<2	B4	0.5-1	Clear	None	4.2	193	Full Power	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:38	23:43	40.14935	-73.13874	40.15711	-73.13875	45	19	SW	<2	B4	0.5-1	Clear	None	4.5	347	Silent	N/A
2022-11-22	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:43	00:00	40.15711	-73.13875	40.17697	-73.13824	45	19	SW	<2	B4	0.5-1	Clear	None	4.6	349	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.17831	-73.13820	40.24881	-73.13623	43	19	SW	<2	B4	0.5-1	Clear	None	4.8	351	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:12	40.24881	-73.13623	40.26176	-73.13589	43	20	WSW	<2	B4	0.5-1	Clear	None	4.1	335	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:12	01:13	40.26176	-73.13589	40.26305	-73.13586	40	18	WSW	<2	B4	0.5-1	Clear	None	4.1	344	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:13	01:40	40.26305	-73.13586	40.26556	-73.13078	41	20	WSW	<2	B4	0.5-1	Clear	None	4.1	348	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:40	01:44	40.26556	-73.13078	40.26068	-73.13098	41	23	WSW	<2	B4	0.5-1	Clear	None	4.5	194	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:44	02:00	40.26068	-73.13098	40.24333	-73.13149	41	23	WSW	<2	B4	0.5-1	Clear	None	4.5	194	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	02:20	40.24333	-73.13149	40.22030	-73.13211	40	20	WSW	<2	B4	0.5-1	Clear	None	4.3	199	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:20	03:00	40.22030	-73.13211	40.17627	-73.13323	41	23	WSW	2-4	B4	0.5-1	Clear	None	4.3	194	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:19	40.17627	-73.13323	40.15541	-73.13389	44	21	W	2-4	B4	0.5-1	Clear	None	4.2	200	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:19	03:20	40.15541	-73.13389	40.15409	-73.13389	44	21	W	2-4	B4	0.5-1	Clear	None	4.2	200	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:20	03:40	40.15409	-73.13389	40.15132	-73.13924	44	21	SW	2-4	B4	0.5-1	Clear	None	4.2	180	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:40	03:45	40.15132	-73.13924	40.15683	-73.13912	44	20	SW	2-4	B4	0.5-1	Clear	None	4.5	348	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:45	04:00	40.15683	-73.13912	40.17297	-73.13869	43	21	SW	2-4	B4	0.5-1	Clear	None	4.1	351	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.17297	-73.13869	40.24356	-73.13676	44	21	SSW	<2	B4	0.5-1	Clear	None	4.5	354	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:15	40.24356	-73.13676	40.26140	-73.13621	42	20	WSW	<2	B4	0.5-1	Clear	None	4.6	355	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:15	05:16	40.26140	-73.13621	40.26262	-73.13617	40	19	WSW	<2	B4	0.5-1	Clear	None	4.7	356	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:16	05:37	40.26262	-73.13617	40.26673	-73.13116	40	21	WSW	<2	B4	0.5-1	Clear	None	4.1	353	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:37	05:42	40.26673	-73.13116	40.26117	-73.13126	40	23	WSW	<2	B4	0.5-1	Clear	None	3.8	190	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:42	06:00	40.26117	-73.13126	40.24215	-73.13181	40	23	WSW	<2	B4	0.5-1	Clear	None	3.7	191	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.24215	-73.13181	40.17894	-73.13358	40	24	W	<2	B4	0.5-1	Clear	None	3.7	189	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:22	40.17894	-73.13358	40.15645	-73.13412	44	23	W	<2	B4	0.5-1	Clear	None	3.7	186	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:22	07:24	40.15645	-73.13412	40.15440	-73.13425	45	20	W	<2	B4	0.5-1	Clear	None	3.6	193	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:24	07:43	40.15440	-73.13425	40.15070	-73.13958	45	21	W	<2	B4	0.5-1	Clear	None	3.8	190	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:43	07:48	40.15070	-73.13958	40.15675	-73.13943	44	20	W	<2	B4	0.5-1	Clear	None	4.2	350	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:48	08:00	40.15675	-73.13943	40.17165	-73.13908	44	19	W	<2	B4	0.5-1	Clear	None	4	355	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.17165	-73.13908	40.24687	-73.13697	44	18	W	<2	B4	0.5-1	Clear	None	4.7	355	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:12	40.24687	-73.13697	40.26172	-73.13660	41	17	W	<2	B4	0.5-1	Clear	None	4.5	354	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:12	09:13	40.26172	-73.13660	40.26300	-73.13657	40	19	W	<2	B4	0.5-1	Clear	None	4.5	355	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:13	09:31	40.26300	-73.13657	40.26835	-73.13137	40	19	W	<2	B4	0.5-1	Clear	None	4.4	356	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:31	09:37	40.26835	-73.13137	40.26145	-73.13155	40	17	W	<2	B4	0.5-1	Clear	None	4.3	187	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:37	10:00	40.26145	-73.13155	40.23718	-73.13235	40	17	W	<2	B4	0.5-1	Clear	None	4.3	187	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.23718	-73.13235	40.20320	-73.13324	42	17	W	<2	B4	0.5-1	Clear	None	4.4	186	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.20320	-73.13324	40.16846	-73.13410	42	15	W	<2	B4	0.5-1	Clear	None	4.2	188	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:11	40.16846	-73.13410	40.15458	-73.13453	45	16	W	<2	B4	0.5-1	Clear	None	4.2	188	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:11	11:14	40.15458	-73.13453	40.15207	-73.13448	45	11	NW	<2	B4	0.5-1	Clear	None	4.1	185	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:14	11:20	40.15207	-73.13448	40.14454	-73.13243	45	14	NW	<2	B4	0.5-1	Clear	None	4.4	165	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	11:29	40.14454	-73.13243	40.14890	-73.14013	45	15	NW	<2	B4	1-2	Clear	None	4.4	246	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:29	11:30	40.14890	-73.14013	40.15001	-73.14000	45	17	NW	<2	B4	2-5	Clear	None	4.4	358	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:30	11:35	40.15001	-73.14000	40.15617	-73.13981	45	14	NW	<2	B4	>5	Clear	None	4.4	351	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:35	12:00	40.15617	-73.13981	40.18682	-73.13898	43	18	NW	<2	B4	>5	Clear	None	4.4	349	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.18682	-73.13898	40.25763	-73.13706	41	16	NW	<2	B4	>5	Clear	Moderate	4.6	350	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:04	40.25763	-73.13706	40.26269	-73.13691	41	17	NW	<2	B4	>5	Clear	Severe	4.6	350	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:04	13:05	40.26269	-73.13691	40.26445	-73.13686	41	17	NW	<2	B4	>5	Clear	Severe	4.6	350	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:05	13:19	40.26445	-73.13686	40.26743	-73.13187	41	17	NW	<2	B4	>5	Clear	Severe	4.6	321	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:19	13:24	40.26743	-73.13187	40.26122	-73.13194	41	16	NW	<2	B4	>5	Clear	Severe	4.1	190	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:24	14:00	40.26122	-73.13194	40.21556	-73.13334	40	15	NW	<2	B4	>5	Clear	Severe	4.1	191	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:46	40.21556	-73.13334	40.15562	-73.13496	42	14	NW	<2	B4	>5	Clear	Severe	4.3	192	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:46	14:47	40.15562	-73.13496	40.15434	-73.13503	44	14	NW	<2	B4	>5	Clear	Severe	4.6	188	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:47	15:00	40.15434	-73.13503	40.14649	-73.14039	44	15	NW	<2	B4	>5	Clear	Severe	4.6	180	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:05	40.14649	-73.14039	40.15230	-73.14021	44	17	NW	<2	B4	>5	Clear	Severe	4	309	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:05	15:09	40.15230	-73.14021	40.15698	-73.14011	43	17	NW	<2	B4	>5	Clear	Severe	4	350	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:09	15:53	40.15698	-73.14011	40.20484	-73.13886	43	17	NW	<2	B4	>5	Clear	Severe	4	350	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:53	16:33	40.20484	-73.13886	40.25118	-73.13761	42	15	NW	<2	B4	>5	Clear	Severe	4.1	348	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:33	16:34	40.25118	-73.13761	40.25240	-73.13756	40	14	NW	<2	B4	>5	Clear	Severe	4.6	351	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:34	16:55	40.25240	-73.13756	40.26593	-73.13201	40	13	NW	<2	B4	>5	Clear	Severe	4.2	343	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:55	16:59	40.26593	-73.13201	40.26152	-73.13227	41	12	NW	<2	B4	>5	Clear	Severe	4.4	192	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:59	18:00	40.26152	-73.13227	40.18732	-73.13431	41	11	NW	<2	B4	>5	Clear	Severe	4.5	188	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:24	40.18732	-73.13431	40.15572	-73.13519	41	11	NW	<2	B4	>5	Clear	Severe	5	185	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:24	18:26	40.15572	-73.13519	40.15313	-73.13523	40	9	NW	<2	B4	>5	Clear	Severe	4.4	188	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:26	18:39	40.15313	-73.13523	40.15127	-73.14693	40	9	NW	<2	B4	>5	Clear	Severe	4.4	188	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:39	18:45	40.15127	-73.14693	40.15813	-73.14677	44	12	NW	<2	B4	>5	Clear	Severe	4.3	355	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:45	19:00	40.15813	-73.14677	40.17548	-73.14630	44	12	NW	<2	B4	>5	Clear	Severe	4.2	357	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.17548	-73.14630	40.24870	-73.14431	44	11	NW	<2	B4	>5	Clear	Severe	4.3	365	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:02	40.24870	-73.14431	40.25219	-73.14418	41	14	NW	<2	B4	>5	Clear	Severe	4.6	338	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:02	20:04	40.25219	-73.14418	40.25437	-73.14424	41	14	NW	<2	B4	>5	Clear	Severe	4.6	338	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:04	20:16	40.25437	-73.14424	40.25610	-73.13762	41	14	NW	<2	B4	>5	Clear	Severe	4.5	338	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:16	20:21	40.25610	-73.13762	40.25069	-73.13784	40	11	NW	<2	B4	>5	Clear	Severe	4.6	184	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:21	21:00	40.25069	-73.13784	40.20219	-73.13918	40	11	NW	<2	B4	>5	Clear	Severe	4.4	183	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:20	40.20219	-73.13918	40.17759	-73.13989	42	11	NW	<2	B4	>5	Clear	Moderate	4.5	184	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:20	21:38	40.17759	-73.13989	40.15449	-73.14051	42	12	NW	<2	B4	2-5	Clear	None	4.6	180	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:38	21:39	40.15449	-73.14051	40.15292	-73.14036	45	10	NW	<2	B4	1-2	Clear	None	4.5	180	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:39	21:51	40.15292	-73.14036	40.15183	-73.14724	45	10	NW	<2	B4	1-2	Clear	None	4.5	180	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:51	21:55	40.15183	-73.14724	40.15655	-73.14716	45	13	NW	<2	B4	1-2	Clear	None	4.6	355	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:55	22:00	40.15655	-73.14716	40.16193	-73.14702	45	13	NW	<2	B4	1-2	Clear	None	4.6	355	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.16193	-73.14702	40.23401	-73.14506	45	12	NW	<2	B4	0.5-1	Clear	None	4.5	355	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:14	40.23401	-73.14506	40.25102	-73.14461	42	12	NW	<2	B3	0.5-1	Clear	None	4.3	358	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:14	23:15	40.25102	-73.14461	40.25225	-73.14458	42	12	NW	<2	B3	0.5-1	Clear	None	4.5	357	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:15	23:30	40.25225	-73.14458	40.25535	-73.13816	42	11	NW	<2	B3	0.5-1	Clear	None	4.5	357	Full Power	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:30	23:34	40.25535	-73.13816	40.25020	-73.13826	41	10	NW	<2	B3	0.5-1	Clear	None	4.7	183	Silent	N/A
2022-11-23	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:34	00:00	40.25020	-73.13826	40.21964	-73.13909	41	10	NW	<2	B3	0.5-1	Clear	None	4.5	183	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:48	40.21751	-73.13912	40.15604	-73.14088	42	12	NW	<2	B3	0.5-1	Clear	None	4.5	184	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:48	00:49	40.15604	-73.14088	40.15369	-73.14091	44	11	NW	<2	B3	0.5-1	Clear	None	4.6	186	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:49	01:00	40.15369	-73.14091	40.14702	-73.14673	44	11	NW	<2	B3	0.5-1	Clear	None	4.6	186	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:03	40.14702	-73.14673	40.14961	-73.14749	43	16	N	<2	B3	0.5-1	Clear	None	3.6	346	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:03	01:09	40.14961	-73.14749	40.15643	-73.14753	43	15	N	<2	B3	0.5-1	Clear	None	4.4	350	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:09	02:00	40.15643	-73.14753	40.21681	-73.14589	42	13	NNW	<2	B3	0.5-1	Clear	None	3.1	352	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	02:29	40.21681	-73.14589	40.25100	-73.14500	41	11	N	<2	B3	0.5-1	Clear	None	4.3	357	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:29	02:30	40.25100	-73.14500	40.25234	-73.14499	41	19	NW	<2	B3	0.5-1	Clear	None	4	1	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:30	02:46	40.25234	-73.14499	40.25784	-73.13854	42	20	NE	<2	B3	0.5-1	Clear	None	4	0	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:46	02:52	40.25784	-73.13854	40.24949	-73.13866	41	15	NE	<2	B3	0.5-1	Clear	None	4.7	180	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:52	03:00	40.24949	-73.13866	40.24034	-73.13886	42	14	NNE	<2	B3	0.5-1	Clear	None	4.4	182	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.24034	-73.13886	40.16487	-73.14095	42	15	NE	<2	B3	0.5-1	Clear	None	4.1	185	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:07	40.16487	-73.14095	40.15572	-73.14111	43	16	NNE	<2	B3	0.5-1	Clear	None	4.7	182	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:07	04:08	40.15572	-73.14111	40.15444	-73.14117	43	16	NNE	<2	B3	0.5-1	Clear	None	4.6	182	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:08	04:26	40.15444	-73.14117	40.15129	-73.14805	43	16	NNE	<2	B3	0.5-1	Clear	None	4.6	182	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:26	04:31	40.15129	-73.14805	40.15705	-73.14786	45	17	NE	<2	B3	0.5-1	Clear	None	4.2	0	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:31	05:00	40.15705	-73.14786	40.19057	-73.14689	44	17	NE	<2	B3	0.5-1	Clear	None	4.2	1	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:51	40.19057	-73.14689	40.25136	-73.14530	42	16	NNE	<2	B3	0.5-1	Clear	None	4.1	3	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:51	05:52	40.25136	-73.14530	40.25349	-73.14522	42	12	NE	<2	B3	0.5-1	Clear	None	4.4	4	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:52	06:00	40.25349	-73.14522	40.26095	-73.14312	42	12	NE	<2	B3	0.5-1	Clear	None	4.5	3	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:05	40.26095	-73.14312	40.25695	-73.13884	41	12	NE	<2	B3	0.5-1	Clear	None	5	124	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:05	06:10	40.25695	-73.13884	40.25033	-73.13896	41	12	NE	<2	B3	0.5-1	Clear	None	5	124	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:10	07:00	40.25033	-73.13896	40.18889	-73.14061	42	11	NNE	<2	B3	0.5-1	Clear	None	4.7	177	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:27	40.18889	-73.14061	40.15562	-73.14153	42	9	NNE	<2	B3	0.5-1	Clear	None	4.7	176	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:27	07:33	40.15562	-73.14153	40.14825	-73.14102	45	12	NE	<2	B3	0.5-1	Clear	None	4.5	175	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:33	07:42	40.14825	-73.14102	40.15048	-73.14836	43	9	N	<2	B3	0.5-1	Clear	None	4.5	216	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:42	07:48	40.15048	-73.14836	40.15709	-73.14825	43	13	NE	<2	B3	0.5-1	Clear	None	4.4	5	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:48	08:00	40.15709	-73.14825	40.17232	-73.14786	44	12	NE	<2	B3	0.5-1	Clear	None	4.2	6	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.17232	-73.14786	40.24622	-73.14586	44	11	NE	<2	B3	0.5-1	Clear	None	4.4	7	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:04	40.24622	-73.14586	40.25109	-73.14567	42	13	NE	<2	B3	0.5-1	Clear	None	4.2	8	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:04	09:05	40.25109	-73.14567	40.25229	-73.14563	42	11	NE	<2	B3	0.5-1	Clear	None	4.2	8	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:05	09:16	40.25229	-73.14563	40.25726	-73.13916	42	13	NE	<2	B3	0.5-1	Clear	None	4.8	8	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:16	09:21	40.25726	-73.13916	40.25095	-73.13940	41	10	NE	<2	B3	0.5-1	Clear	None	4.6	176	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:21	10:00	40.25095	-73.13940	40.20144	-73.14064	42	8	NE	<2	B3	0.5-1	Clear	None	4.2	170	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.20144	-73.14064	40.16672	-73.14152	41	11	NE	<2	B3	0.5-1	Clear	None	3.5	174	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:39	40.16672	-73.14152	40.15554	-73.14187	43	10	NE	<2	B3	0.5-1	Clear	None	4.5	178	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:39	10:40	40.15554	-73.14187	40.15431	-73.14188	43	10	NE	<2	B3	0.5-1	Clear	None	4.5	177	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:40	10:51	40.15431	-73.14188	40.14990	-73.14871	43	11	NE	<2	B3	0.5-1	Clear	None	4.5	176	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:51	10:56	40.14990	-73.14871	40.15665	-73.14864	43	13	NE	<2	B3	0.5-1	Clear	None	4.7	5	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:56	11:00	40.15665	-73.14864	40.16113	-73.14850	42	13	NE	<2	B3	0.5-1	Clear	None	4.7	3	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:14	40.16113	-73.14850	40.17971	-73.14797	42	14	NE	<2	B3	0.5-1	Clear	None	4.5	3	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:14	11:23	40.17971	-73.14797	40.18972	-73.14768	42	14	NE	<2	B3	1-2	Clear	None	4.5	5	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:23	11:34	40.18972	-73.14768	40.20306	-73.14734	42	14	NE	<2	B3	2-5	Clear	None	4.5	5	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:34	12:00	40.20306	-73.14734	40.23579	-73.14644	42	14	NE	<2	B3	>5	Clear	None	4.4	5	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:12	40.23579	-73.14644	40.25117	-73.14602	42	13	E	<2	B3	>5	Clear	None	4.7	2	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:12	12:13	40.25117	-73.14602	40.25318	-73.14594	43	12	E	<2	B3	>5	Clear	Moderate	4.4	2	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:13	12:24	40.25318	-73.14594	40.25585	-73.13948	42	10	E	<2	B3	>5	Clear	Moderate	4.7	349	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:24	12:29	40.25585	-73.13948	40.24949	-73.13969	42	9	NE	<2	B3	>5	Clear	Moderate	4	181	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:29	13:00	40.24949	-73.13969	40.21171	-73.14069	43	9	NE	<2	B3	>5	Clear	Moderate	4.7	180	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:45	40.21171	-73.14069	40.15617	-73.14218	42	9	E	<2	B3	>5	Clear	Severe	4.5	181	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:45	13:46	40.15617	-73.14218	40.15391	-73.14227	45	9	E	<2	B3	>5	Clear	Severe	4.5	189	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:46	13:58	40.15391	-73.14227	40.15104	-73.14915	45	10	E	<2	B3	>5	Clear	Severe	4.5	177	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:58	14:00	40.15104	-73.14915	40.15347	-73.14897	43	10	E	<2	B3	>5	Clear	Severe	4.7	358	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:03	40.15347	-73.14897	40.15719	-73.14893	43	9	E	<2	B3	>5	Clear	Severe	4.4	356	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:03	15:00	40.15719	-73.14893	40.22781	-73.14701	43	9	E	<2	B3	>5	Clear	Severe	4.4	356	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:19	40.22781	-73.14701	40.25187	-73.14636	42	8	SE	<2	B3	>5	Clear	Severe	4.6	357	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:19	15:20	40.25187	-73.14636	40.25301	-73.14635	40	9	SE	<2	B3	>5	Clear	Severe	4.4	357	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:20	15:31	40.25301	-73.14635	40.25476	-73.13985	40	9	SE	<2	B3	>5	Clear	Severe	4.5	357	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:31	15:35	40.25476	-73.13985	40.25030	-73.14000	41	11	SE	<2	B3	>5	Clear	Severe	4.6	184	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:35	16:00	40.25030	-73.14000	40.22047	-73.14079	41	10	SE	<2	B3	>5	Clear	Severe	4.4	184	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:51	40.22047	-73.14079	40.15586	-73.14258	41	10	SE	<2	B3	>5	Clear	Severe	4.6	182	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:51	16:52	40.15586	-73.14258	40.15486	-73.14260	45	8	SSW	<2	B3	>5	Clear	Severe	4.4	183	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:52	17:00	40.15486	-73.14260	40.14679	-73.14244	45	8	SSW	<2	B3	>5	Clear	Severe	4.5	183	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:59	40.14679	-73.14244	40.15242	-73.14942	45	7	SSW	<2	B3	>5	Clear	Severe	3	183	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:59	18:03	40.15242	-73.14942	40.15669	-73.14932	45	4	SSW	<2	B3	>5	Clear	Severe	4.2	358	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:03	19:00	40.15669	-73.14932	40.22344	-73.14748	45	4	SSW	<2	B3	>5	Clear	Severe	4.2	358	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:22	40.22344	-73.14748	40.25083	-73.14674	41	5	SW	<2	B2	>5	Clear	Severe	4.3	3	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:22	19:23	40.25083	-73.14674	40.25182	-73.14670	40	7	SW	<2	B2	>5	Clear	Severe	4.3	3	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:23	19:37	40.25182	-73.14670	40.25609	-73.14028	40	7	SW	<2	B2	>5	Clear	Severe	4.3	0	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:37	19:42	40.25609	-73.14028	40.24963	-73.14038	40	6	SW	<2	B2	>5	Clear	Severe	4.5	177	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:42	20:00	40.24963	-73.14038	40.22805	-73.14097	40	6	SW	<2	B2	>5	Clear	Severe	4.5	177	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:59	40.22805	-73.14097	40.15581	-73.14290	41	9	SW	<2	B2	>5	Clear	Severe	4.2	178	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:59	21:00	40.15581	-73.14290	40.15423	-73.14295	44	9	SW	<2	B2	>5	Clear	Slight	4.4	178	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:12	40.15423	-73.14295	40.15319	-73.15078	44	9	SW	<2	B2	>5	Clear	Slight	4.4	178	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:12	21:15	40.15319	-73.15078	40.15731	-73.15068	45	7	SW	<2	B2	>5	Clear	Slight	4.6	3	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:15	21:45	40.15731	-73.15068	40.19208	-73.14975	45	7	SW	<2	B2	>5	Clear	Slight	4.5	5	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	21:52	40.19208	-73.14975	40.20038	-73.14947	44	7	SW	<2	B2	2-5	Clear	None	4.6	6	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:52	22:00	40.20038	-73.14947	40.21065	-73.14924	43	6	SW	<2	B2	1-2	Clear	None	4.7	4	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:32	40.21065	-73.14924	40.25119	-73.14810	42	7	SSW	<2	B2	0.5-1	Clear	None	4.6	4	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:32	22:33	40.25119	-73.14810	40.25288	-73.14808	41	8	SW	<2	B2	0.5-1	Clear	None	4.4	6	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:33	22:46	40.25288	-73.14808	40.25457	-73.14064	41	8	SW	<2	B2	0.5-1	Clear	None	4.7	9	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:46	22:50	40.25457	-73.14064	40.24986	-73.14072	41	8	SW	<2	B2	0.5-1	Clear	None	4.5	177	Silent	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:50	23:00	40.24986	-73.14072	40.23743	-73.14106	41	8	SW	<2	B2	0.5-1	Clear	None	4.4	177	Full Power	N/A
2022-11-24	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.23743	-73.14106	40.16519	-73.14306	42	8	SW	<2	B2	0.5-1	Clear	None	4.5	180	Full Power	N/A
11/25/2022	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:05	40.16308	-73.14310	40.15682	-73.14324	43	13	SSW	<2	B3	0.5-1	Clear	None	4.5	180	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:05	00:07	40.15682	-73.14324	40.15433	-73.14332	43	14	SSW	<2	B3	0.5-1	Clear	None	4.6	180	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:07	00:18	40.15433	-73.14332	40.15157	-73.15122	43	13	SSW	<2	B3	0.5-1	Clear	None	4.4	180	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:18	00:22	40.15157	-73.15122	40.15663	-73.15111	45	11	SSW	<2	B3	0.5-1	Clear	None	4.8	1	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:22	01:00	40.15663	-73.15111	40.20178	-73.14988	44	11	SSW	<2	B3	0.5-1	Clear	None	4.5	0	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:40	40.20178	-73.14988	40.25158	-73.14844	43	14	SSW	<2	B3	0.5-1	Clear	None	4.4	0	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:40	01:41	40.25158	-73.14844	40.25288	-73.14842	43	15	SSW	<2	B3	0.5-1	Clear	None	4.4	359	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:41	01:52	40.25288	-73.14842	40.25618	-73.14081	43	15	SSW	<2	B3	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:52	01:57	40.25618	-73.14081	40.24950	-73.14108	42	14	SSW	<2	B3	0.5-1	Clear	None	4.3	185	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:57	03:00	40.24950	-73.14108	40.16912	-73.14328	42	16	SSW	<2	B3	0.5-1	Clear	None	4.3	183	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:11	40.16912	-73.14328	40.15468	-73.14363	43	12	SW	<2	B3	0.5-1	Clear	None	4.3	183	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:11	03:12	40.15468	-73.14363	40.15330	-73.14369	45	11	SSW	<2	B2	0.5-1	Clear	None	4.5	184	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:12	03:22	40.15330	-73.14369	40.15097	-73.15139	45	11	SSW	<2	B2	0.5-1	Clear	None	4.5	184	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:22	03:27	40.15097	-73.15139	40.15673	-73.15137	45	9	SW	<2	B2	0.5-1	Clear	None	4.3	356	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:27	04:00	40.15673	-73.15137	40.19415	-73.15036	45	9	SW	<2	B2	0.5-1	Clear	None	4.1	357	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:47	40.19415	-73.15036	40.25114	-73.14881	42	9	SSW	<2	B2	0.5-1	Clear	None	4.4	359	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:47	04:48	40.25114	-73.14881	40.25234	-73.14876	40	13	SSW	<2	B2	0.5-1	Clear	None	4.3	0	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:48	04:59	40.25234	-73.14876	40.25648	-73.14126	40	13	SSW	<2	B2	0.5-1	Clear	None	4.4	0	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:59	05:00	40.25648	-73.14126	40.25485	-73.14127	42	13	SSW	<2	B2	0.5-1	Clear	None	4.3	182	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:04	40.25485	-73.14127	40.25046	-73.14140	42	13	SSW	<2	B2	0.5-1	Clear	None	4.4	182	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:04	06:00	40.25046	-73.14140	40.18034	-73.14335	42	14	SSW	<2	B2	0.5-1	Clear	None	4.5	182	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:20	40.18034	-73.14335	40.15572	-73.14401	42	16	SW	<2	B2	0.5-1	Clear	None	4.5	180	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:20	06:21	40.15572	-73.14401	40.15410	-73.14405	42	18	SW	<2	B2	0.5-1	Cloudy	None	4.3	179	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:21	06:31	40.15410	-73.14405	40.15009	-73.15244	42	18	SW	<2	B2	0.5-1	Cloudy	None	4.3	179	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:31	06:36	40.15009	-73.15244	40.15636	-73.15176	42	16	S	<2	B2	0.5-1	Cloudy	None	4.8	17	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:36	07:00	40.15636	-73.15176	40.18504	-73.15096	42	16	SW	<2	B2	0.5-1	Cloudy	None	4.8	1	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:53	40.18504	-73.15096	40.25104	-73.14925	42	13	SSW	<2	B2	0.5-1	Cloudy	None	4.6	2	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:53	07:54	40.25104	-73.14925	40.25225	-73.14918	40	16	SSW	<2	B3	0.5-1	Cloudy	None	4.4	4	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:54	08:00	40.25225	-73.14918	40.25891	-73.14661	40	16	SSW	<2	B3	0.5-1	Cloudy	None	4.4	4	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:05	40.25891	-73.14661	40.25665	-73.14182	40	17	SSW	<2	B3	0.5-1	Cloudy	None	4.2	69	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:05	08:10	40.25665	-73.14182	40.25072	-73.14176	41	14	SSW	<2	B3	0.5-1	Cloudy	None	4.4	179	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:10	09:00	40.25072	-73.14176	40.18990	-73.14337	42	15	SSW	<2	B3	0.5-1	Cloudy	None	4.3	178	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:28	40.18990	-73.14337	40.15644	-73.14428	42	16	SW	<2	B3	0.5-1	Cloudy	None	4	178	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:28	09:30	40.15644	-73.14428	40.15404	-73.14435	45	17	SW	<2	B3	0.5-1	Cloudy	None	4.5	179	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:30	09:39	40.15404	-73.14435	40.15008	-73.15273	45	18	SW	<2	B3	0.5-1	Cloudy	None	4.3	179	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:39	09:44	40.15008	-73.15273	40.15711	-73.15209	45	15	S	<2	B3	0.5-1	Cloudy	None	4.3	16	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:44	10:00	40.15711	-73.15209	40.17504	-73.15160	44	15	SSW	<2	B3	0.5-1	Cloudy	None	4.3	4	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.17504	-73.15160	40.21328	-73.15058	44	17	SSW	<2	B3	0.5-1	Cloudy	None	4.3	3	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.21328	-73.15058	40.25201	-73.14952	44	17	SSW	<2	B3	0.5-1	Cloudy	None	4.6	1	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:01	40.25201	-73.14952	40.25300	-73.14949	44	14	SW	<2	B3	0.5-1	Cloudy	None	4.5	1	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:01	11:14	40.25300	-73.14949	40.25524	-73.14198	44	15	SW	<2	B3	0.5-1	Cloudy	None	4.5	1	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:14	11:19	40.25524	-73.14198	40.24963	-73.14212	44	20	SW	<2	B3	0.5-1	Cloudy	None	4	182	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:19	11:30	40.24963	-73.14212	40.23691	-73.14248	44	19	SW	<2	B3	0.5-1	Cloudy	None	4.2	183	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:30	11:41	40.23691	-73.14248	40.22490	-73.14280	44	17	SW	<2	B4	1-2	Cloudy	None	4.2	185	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:41	11:55	40.22490	-73.14280	40.20866	-73.14330	44	17	SW	<2	B4	2-5	Cloudy	None	4.2	185	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:55	12:00	40.20866	-73.14330	40.20347	-73.14340	42	20	SW	<2	B4	>5	Cloudy	None	4.1	189	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:38	40.20347	-73.14340	40.16108	-73.14457	42	20	SW	<2	B4	>5	Cloudy	None	4	185	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:38	12:43	40.16108	-73.14457	40.15499	-73.14473	43	23	SW	<2	B4	>5	Precipitation	None	4.2	185	Full Power	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:43	13:00	40.15499	-73.14473	40.15982	-73.14931	43	22	SW	<2	B4	>5	Precipitation	None	4.2	186	Silent	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:38	40.15982	-73.14931	40.18096	-73.13068	42	20	SW	<2	B4	>5	Precipitation	None	3.6	20	Deploying/Retrieving	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:38	14:00	40.18096	-73.13068	40.18560	-73.13588	42	19	W	<2	B4	>5	Precipitation	None	1.2	237	Deploying/Retrieving	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.18560	-73.13588	40.09675	-73.30441	42	18	SW	<2	B4	>5	Precipitation	None	8	250	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.09675	-73.30441	40.00312	-73.46930	41	23	SW	<2	B5	2-5	Precipitation	None	9.4	234	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.00312	-73.46930	39.92236	-73.64383	52	24	SW	<2	B5	2-5	Precipitation	None	9.4	239	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	18:00	39.92236	-73.64383	39.86211	-73.83135	33	25	SW	<2	B5	2-5	Precipitation	None	9.4	238	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	39.86211	-73.83135	39.83088	-74.01981	30	21	W	<2	B4	2-5	Cloudy	None	8.9	249	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:05	39.83088	-74.01981	39.83493	-74.02509	18	15	W	<2	B3	>5	Cloudy	None	9.1	359	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:05	20:00	39.83493	-74.02509	39.89740	-74.03906	18	14	W	<2	B3	>5	Cloudy	None	5	332	Standby	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	39.89740	-74.03906	39.96351	-74.03267	18	17	WNW	<2	B3	>5	Clear	Severe	4	1	Standby	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:40	39.96351	-74.03267	40.00431	-74.02434	18	16	WNW	<2	B3	>5	Clear	Moderate	3.9	7	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:50	40.00431	-74.02434	40.01446	-74.02225	18	15	WNW	<2	B3	2-5	Cloudy	None	3.6	3	Standby	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:50	22:00	40.01446	-74.02225	40.02404	-74.02029	18	15	WNW	<2	B3	1-2	Cloudy	None	3.5	3	Standby	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:40	40.02404	-74.02029	40.07810	-74.00507	18	15	WNW	<2	B3	0.5-1	Cloudy	None	3.6	3	Standby	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:40	23:00	40.07810	-74.00507	40.10571	-73.99773	18	17	NW	<2	B2	0.3-0.5	Cloudy	None	5	8	Transit	N/A
2022-11-25	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.10571	-73.99773	40.18407	-73.97550	18	14	NW	<2	B2	0.3-0.5	Cloudy	None	5	8	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.18650	-73.97476	40.26915	-73.95084	20	17	NW	<2	B2	0.3-0.5	Clear	None	5	8	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.26915	-73.95084	40.40400	-73.93135	15	30	NW	<2	B2	0.3-0.5	Clear	None	6.3	8	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.40400	-73.93135	40.47780	-74.04558	17	32	NW	<2	B2	0.3-0.5	Clear	None	9.6	348	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.47780	-74.04558	40.62561	-74.05039	10	28	NW	<2	B2	0.3-0.5	Cloudy	None	8.3	317	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:33	40.62561	-74.05039	40.66140	-74.07250	10	28	NW	<2	B2	0.5-1	Cloudy	None	8.5	347	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:37	21:00	40.66141	-74.07256	40.64477	-74.05686	9	9	W	<2	B2	>5	Clear	Severe	0.8	299	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:40	40.64477	-74.05686	40.55008	-74.02714	14	8	W	<2	B2	>5	Clear	Moderate	8.9	172	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:51	40.55008	-74.02714	40.52638	-74.01577	14	15	W	<2	B2	2-5	Clear	None	8.6	172	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:51	22:00	40.52638	-74.01577	40.51717	-73.99441	17	14	W	<2	B2	1-2	Clear	None	8.3	145	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.51717	-73.99441	40.45676	-73.84352	20	11	SW	<2	B2	0.5-1	Clear	None	7.2	111	Transit	N/A
2022-11-26	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.45676	-73.84352	40.39682	-73.68563	25	13	WSW	<2	B2	0.5-1	Clear	None	8.7	126	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:31	40.39546	-73.68068	40.37227	-73.58951	18	20	WSW	<2	B3	0.5-1	Clear	None	8.2	110	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:31	01:00	40.37227	-73.58951	40.35353	-73.50266	25	20	WSW	<2	B3	0.5-1	Clear	None	8.4	107	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.35353	-73.50266	40.31678	-73.32945	25	19	WSW	<2	B3	0.5-1	Clear	None	8.2	104	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.31678	-73.32945	40.27006	-73.15471	34	22	WSW	<2	B4	0.5-1	Clear	None	8.6	108	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:04	40.27006	-73.15471	40.26896	-73.14328	41	19	WSW	<2	B4	0.5-1	Clear	None	8.7	97	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:04	03:42	40.26896	-73.14328	40.26454	-73.15128	41	18	WSW	<2	B4	0.5-1	Clear	None	6.7	96	Deploying/Retrieving	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:42	03:52	40.26454	-73.15128	40.26191	-73.16298	40	19	WSW	<2	B4	0.5-1	Clear	None	3.1	254	Deploying/Retrieving	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:52	04:00	40.26191	-73.16298	40.26833	-73.16373	40	20	WSW	<2	B4	0.5-1	Clear	None	4.3	293	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:09	40.26833	-73.16373	40.26782	-73.14978	40	20	WSW	<2	B4	0.5-1	Clear	None	4.2	101	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:09	04:33	40.26782	-73.14978	40.26702	-73.11745	40	20	WSW	<2	B4	0.5-1	Clear	None	4.2	101	Deploying/Retrieving	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:33	05:00	40.26702	-73.11745	40.27141	-73.06866	40	20	WSW	<2	B4	0.5-1	Clear	None	4.1	93	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.27141	-73.06866	40.27475	-73.10621	42	16	WSW	<2	B4	0.5-1	Clear	None	4.8	82	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:10	40.27475	-73.10621	40.27174	-73.11166	40	23	W	<2	B4	0.5-1	Clear	None	3.8	263	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:10	06:30	40.27174	-73.11166	40.27340	-73.10179	40	23	W	<2	B4	0.5-1	Clear	None	3.8	263	Deploying/Retrieving	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:30	07:00	40.27340	-73.10179	40.26458	-73.15803	40	18	W	<2	B4	0.5-1	Clear	None	3	285	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.26458	-73.15803	40.24326	-73.28692	40	20	W	<2	B4	0.5-1	Clear	None	6.2	257	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.24326	-73.28692	40.21279	-73.45865	40	23	W	<2	B4	0.5-1	Clear	None	8.6	256	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.21279	-73.45865	40.17717	-73.63252	36	23	WSW	<2	B4	0.5-1	Cloudy	None	8.8	256	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.17717	-73.63252	40.15982	-73.72505	40	16	WSW	<2	B4	0.5-1	Cloudy	None	8.6	252	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.15982	-73.72505	40.14068	-73.81665	38	16	SW	<2	B4	0.5-1	Cloudy	None	8.9	250	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:21	40.14068	-73.81665	40.12630	-73.88351	40	15	SW	<2	B4	0.5-1	Cloudy	None	8.7	251	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:21	11:31	40.12630	-73.88351	40.11998	-73.91262	23	16	SW	<2	B4	1-2	Cloudy	None	8.8	250	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:31	11:41	40.11998	-73.91262	40.11326	-73.94354	20	16	SW	<2	B4	2-5	Cloudy	None	8.8	251	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:41	11:45	40.11326	-73.94354	40.11700	-73.95527	19	14	SW	<2	B4	>5	Cloudy	None	8.4	250	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:45	12:00	40.11700	-73.95527	40.13976	-73.95312	19	13	SW	<2	B4	>5	Cloudy	None	6	8	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.13976	-73.95312	40.20640	-73.94290	19	15	SW	<2	B4	>5	Cloudy	None	4	5	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.20640	-73.94290	40.27288	-73.93381	19	12	SW	<2	B4	>5	Cloudy	None	4	4	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.27288	-73.93381	40.33878	-73.92537	19	15	SW	<2	B4	>5	Fog	None	3.3	5	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.33878	-73.92537	40.30931	-73.92954	17	13	SSW	<2	B4	>5	Fog	None	4	4.8	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.30931	-73.92954	40.25518	-73.94461	18	17	SSW	<2	B4	>5	Fog	None	2.7	188	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:40	40.25518	-73.94461	40.25891	-73.95407	19	17	SSW	<2	B4	>5	Fog	None	4.4	202	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:40	18:00	40.25891	-73.95407	40.29050	-73.94620	15	17	S	<2	B4	>5	Fog	None	5.6	10	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:56	40.29050	-73.94620	40.37446	-73.92821	15	13	S	<2	B4	>5	Fog	None	5.7	12	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:56	20:00	40.37446	-73.92821	40.46525	-73.95625	15	18	SSW	<2	B4	2-5	Precipitation	None	5.6	357	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:56	40.46525	-73.95625	40.49876	-74.07018	7	9	S	<2	B4	2-5	Precipitation	None	6.4	308	Transit	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:56	21:00	40.49876	-74.07018	40.50022	-74.07095	7	8	SSE	<2	B3	2-5	Precipitation	None	2.5	310	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:40	40.50022	-74.07095	40.50361	-74.06541	7	8	SSE	<2	B3	2-5	Precipitation	None	1.4	352	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:55	40.50361	-74.06541	40.50041	-74.07175	7	7	SSW	<2	B2	1-2	Precipitation	None	0.8	110	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	21:55	22:00	40.50041	-74.07175	40.50101	-74.07175	7	14	SSW	<2	B2	0.5-1	Cloudy	None	0.4	251	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.50101	-74.07175	40.49978	-74.07076	7	14	SSW	<2	B2	0.3-0.5	Cloudy	None	0.4	251	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:29	40.49978	-74.07076	40.50321	-74.07845	8	14	S	<2	B2	0.3-0.5	Precipitation	None	0.6	69	Standby	N/A
2022-11-27	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:29	00:00	40.50321	-74.07845	40.50132	-74.07390	8	16	S	<2	B2	0.3-0.5	Cloudy	None	0.8	78	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.50157	-74.07424	40.49639	-74.07211	8	18	S	<2	B3	0.5-1	Precipitation	None	0.8	72	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.49639	-74.07211	40.50290	-74.07625	9	14	WSW	<2	B3	0.5-1	Precipitation	None	4	103	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.50290	-74.07625	40.50257	-74.07199	8	20	W	<2	B4	0.5-1	Precipitation	None	2.5	205	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.50257	-74.07199	40.49759	-74.06743	7	25	W	<2	B4	0.5-1	Clear	None	1.8	155	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49759	-74.06743	40.49864	-74.07185	6	24	W	<2	B4	0.5-1	Clear	None	1	149	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.49864	-74.07185	40.49928	-74.08273	9	19	WSW	<2	B3	0.5-1	Clear	None	1.6	17	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49928	-74.08273	40.50145	-74.06932	7	16	W	<2	B3	0.5-1	Clear	None	4.3	276	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.50145	-74.06932	40.49972	-74.06249	8	13	WSW	<2	B3	0.5-1	Clear	None	1	354	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49972	-74.06249	40.49966	-74.07619	8	14	WSW	<2	B3	0.5-1	Clear	None	4.3	270	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49966	-74.07619	40.49917	-74.05872	8	16	WSW	<2	B3	0.5-1	Clear	None	0.6	355	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.49917	-74.05872	40.50020	-74.07343	7	15	SW	<2	B3	0.5-1	Clear	None	0.8	355	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50020	-74.07343	40.50007	-74.05425	7	17	W	<2	B3	0.5-1	Clear	None	4.5	270	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:05	40.50007	-74.05425	40.50146	-74.04531	7	16	WSW	<2	B3	0.5-1	Clear	None	4.3	87	Standby	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:05	11:29	40.50146	-74.04531	40.53044	-74.03908	7	14	WSW	<2	B3	0.5-1	Clear	None	5.5	11	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:29	11:37	40.53044	-74.03908	40.53855	-74.03718	10	12	WSW	<2	B3	1-2	Clear	None	4	10	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:37	11:45	40.53855	-74.03718	40.54686	-74.03524	10	12	WSW	<2	B3	2-5	Clear	None	4	10	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:45	12:00	40.54686	-74.03524	40.56227	-74.03190	10	12	WSW	<2	B3	>5	Cloudy	None	4	10	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:55	40.56227	-74.03190	40.61733	-74.06424	10	13	WSW	<2	B3	>5	Cloudy	None	4	353	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:40	23:00	40.61734	-74.06428	40.58496	-74.03630	5	8	WNW	<2	B3	0.5-1	Clear	None	1.5	42	Transit	N/A
2022-11-28	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.58496	-74.03630	40.49435	-73.93308	21	13	NW	<2	B3	0.5-1	Clear	None	8.1	169	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.49248	-73.92851	40.42487	-73.76896	26	21	NW	<2	B3	0.5-1	Clear	None	8.6	113	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.42487	-73.76896	40.35415	-73.62600	26	23	NW	<2	B3	0.5-1	Clear	None	8.5	127	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.35415	-73.62600	40.27848	-73.45758	24	24	NW	<2	B4	0.5-1	Clear	None	8.2	126	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:30	40.27848	-73.45758	40.24365	-73.37787	33	21	NW	<2	B4	0.5-1	Clear	None	8.6	119	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:30	04:00	40.24365	-73.37787	40.21000	-73.29876	36	17	NW	<2	B4	0.5-1	Clear	None	8.7	118	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:55	40.21000	-73.29876	40.15245	-73.15985	36	20	NW	<2	B4	0.5-1	Clear	None	8.2	118	Transit	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:55	05:00	40.15245	-73.15985	40.15135	-73.15704	46	16	NNW	<2	B4	0.5-1	Clear	None	4.6	116	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:56	40.15135	-73.15704	40.16810	-73.15047	46	17	NNW	<2	B4	0.5-1	Clear	None	0.7	261	Deploying/Retrieving	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:56	06:00	40.16810	-73.15047	40.17027	-73.14992	44	16	N	<2	B4	0.5-1	Clear	None	1.9	279	Deploying/Retrieving	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:03	40.17027	-73.14992	40.17236	-73.14938	44	16	N	<2	B4	0.5-1	Clear	None	1.9	351	Deploying/Retrieving	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:03	06:12	40.17236	-73.14938	40.17674	-73.14889	44	15	N	<2	B4	0.5-1	Clear	None	2	351	Deploying/Retrieving	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:12	06:22	40.17674	-73.14889	40.18153	-73.14128	43	14	N	<2	B4	0.5-1	Clear	None	2.2	354	Standby	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:22	06:43	40.18153	-73.14128	40.15648	-73.14351	43	14	N	<2	B4	0.5-1	Clear	None	5.1	167	Soft Start	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:43	06:59	40.15648	-73.14351	40.15006	-73.15258	44	12	NW	<2	B4	0.5-1	Cloudy	None	5.3	196	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:59	07:00	40.15006	-73.15258	40.15016	-73.15258	44	11	N	<2	B4	0.5-1	Cloudy	None	4.4	354	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:05	40.15016	-73.15258	40.15624	-73.15248	44	11	N	<2	B4	0.5-1	Cloudy	None	4.4	354	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:05	08:00	40.15624	-73.15248	40.22142	-73.15068	43	11	N	<2	B4	0.5-1	Cloudy	None	4.3	357	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:23	40.22142	-73.15068	40.25023	-73.14992	42	13	N	<2	B4	0.5-1	Cloudy	None	4.5	358	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:23	08:25	40.25023	-73.14992	40.25273	-73.14984	40	14	N	<2	B4	0.5-1	Cloudy	None	4.6	359	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:25	08:35	40.25273	-73.14984	40.25636	-73.14202	40	14	N	<2	B4	0.5-1	Cloudy	None	4.6	359	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:35	08:39	40.25636	-73.14202	40.25110	-73.14244	40	13	N	<2	B4	0.5-1	Cloudy	None	5	184	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:39	09:00	40.25110	-73.14244	40.22308	-73.14319	42	11	N	<2	B4	0.5-1	Clear	None	4.7	182	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:50	40.22308	-73.14319	40.15710	-73.14504	42	12	N	<2	B3	0.5-1	Cloudy	None	4.9	180	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:50	09:51	40.15710	-73.14504	40.15474	-73.14512	42	8	N	<2	B3	0.5-1	Cloudy	None	5	180	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:51	10:00	40.15474	-73.14512	40.14862	-73.15174	42	11	N	<2	B3	0.5-1	Cloudy	None	4.5	180	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:02	40.14862	-73.15174	40.15024	-73.15259	42	9	N	<2	B3	0.5-1	Cloudy	None	4.3	352	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:02	10:08	40.15024	-73.15259	40.15738	-73.15281	42	10	N	<2	B3	0.5-1	Cloudy	None	3.8	351	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:08	10:16	40.15738	-73.15281	40.16666	-73.15254	44	12	N	<2	B3	0.5-1	Cloudy	None	4.7	358	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:16	10:30	40.16666	-73.15254	40.18370	-73.15207	44	12	N	<2	B3	0.5-1	Cloudy	None	4.3	2	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.18370	-73.15207	40.22296	-73.15097	44	10	N	<2	B3	0.5-1	Cloudy	None	4.6	2	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:21	40.22296	-73.15097	40.25058	-73.15023	41	11	N	<2	B3	0.5-1	Cloudy	None	4.8	5	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:21	11:23	40.25058	-73.15023	40.25325	-73.15023	41	12	N	<2	B3	0.5-1	Cloudy	None	4.5	4	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:23	11:32	40.25325	-73.15023	40.26081	-73.15069	40	10	NNE	<2	B3	1-2	Cloudy	None	2.8	3	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:32	11:46	40.26081	-73.15069	40.25716	-73.14266	40	10	NNE	<2	B3	2-5	Cloudy	None	2.8	5	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:46	11:51	40.25716	-73.14266	40.24940	-73.14285	40	9	N	<2	B3	>5	Cloudy	None	5	175	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:51	12:00	40.24940	-73.14285	40.23851	-73.14317	40	10	N	<2	B3	>5	Cloudy	None	4.7	177	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.23851	-73.14317	40.16051	-73.14527	40	11	NNE	<2	B3	>5	Cloudy	None	4.9	177	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:03	40.16051	-73.14527	40.15663	-73.14537	43	10	NE	<2	B3	>5	Cloudy	None	5	177	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:03	13:04	40.15663	-73.14537	40.15532	-73.14541	43	8	NE	<2	B3	>5	Cloudy	None	4.7	187	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:04	13:17	40.15532	-73.14541	40.15159	-73.15348	43	8	NE	<2	B3	>5	Cloudy	None	4.7	187	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:17	13:21	40.15159	-73.15348	40.15670	-73.15318	43	10	NE	<2	B3	>5	Cloudy	None	4.7	2	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:21	14:00	40.15670	-73.15318	40.20271	-73.15190	42	11	NE	<2	B3	>5	Cloudy	None	4.1	5	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:17	40.20271	-73.15190	40.22367	-73.15134	42	11	NE	<2	B3	>5	Cloudy	None	4.1	6	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:17	14:39	40.22367	-73.15134	40.25072	-73.15057	42	12	N	<2	B3	>5	Cloudy	None	4.5	2	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:39	14:41	40.25072	-73.15057	40.25299	-73.15054	40	12	N	<2	B3	>5	Cloudy	None	4.1	5	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:41	14:52	40.25299	-73.15054	40.25511	-73.14302	40	10	N	<2	B3	>5	Cloudy	None	4.4	14	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:52	14:56	40.25511	-73.14302	40.25004	-73.14319	42	9	N	<2	B3	>5	Cloudy	None	5	177	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:56	15:00	40.25004	-73.14319	40.24527	-73.14334	41	8	N	<2	B3	>5	Cloudy	None	4.2	178	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.24527	-73.14334	40.17491	-73.14528	41	7	N	<2	B3	>5	Cloudy	None	4.3	178	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:15	40.17491	-73.14528	40.15627	-73.14572	44	8	N	<2	B3	>5	Cloudy	Severe	4.2	180	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:15	16:16	40.15627	-73.14572	40.15516	-73.14574	45	7	NNE	<2	B3	>5	Cloudy	Severe	4.5	180	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:16	16:32	40.15516	-73.14574	40.15269	-73.15356	45	7	NNE	<2	B3	>5	Cloudy	Severe	4.5	180	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:32	16:36	40.15269	-73.15356	40.15730	-73.15350	45	10	NE	<2	B3	>5	Cloudy	Severe	4.4	0	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:36	17:00	40.15730	-73.15350	40.18704	-73.15270	45	11	NE	<2	B3	>5	Cloudy	Severe	4.3	0	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:50	40.18704	-73.15270	40.25088	-73.15098	42	6	ENE	<2	B3	>5	Cloudy	Severe	4.4	1	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:50	17:51	40.25088	-73.15098	40.25235	-73.15095	40	8	NE	<2	B3	>5	Cloudy	Severe	4.5	2	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:51	18:00	40.25235	-73.15095	40.25821	-73.14393	40	8	NE	<2	B3	>5	Cloudy	Severe	4.5	2	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:02	40.25821	-73.14393	40.25540	-73.14328	40	8	NE	<2	B3	>5	Cloudy	Severe	4.2	187	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:02	18:06	40.25540	-73.14328	40.25017	-73.14351	40	8	N	<2	B3	>5	Cloudy	Severe	4.6	183	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:06	19:00	40.25017	-73.14351	40.18461	-73.14529	40	8	N	<2	B3	>5	Cloudy	Severe	4.6	183	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:23	40.18461	-73.14529	40.15582	-73.14613	42	4	NE	<2	B2	>5	Cloudy	Severe	4.4	182	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:23	19:25	40.15582	-73.14613	40.15300	-73.14624	42	4	N	<2	B2	>5	Cloudy	Severe	4.5	182	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:25	19:37	40.15300	-73.14624	40.15249	-73.15389	42	4	N	<2	B2	>5	Cloudy	Severe	4.5	181	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:37	19:41	40.15249	-73.15389	40.15717	-73.15383	44	6	NE	<2	B2	>5	Cloudy	Severe	4.3	356	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:41	20:00	40.15717	-73.15383	40.17710	-73.15329	44	7	NE	<2	B2	>5	Cloudy	Severe	4.4	356	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.17710	-73.15329	40.25151	-73.15133	44	7	NE	<2	B2	>5	Cloudy	Severe	4.3	356	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:01	40.25151	-73.15133	40.25359	-73.15119	41	4	N	<2	B2	>5	Cloudy	None	4.3	359	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:01	21:12	40.25359	-73.15119	40.25509	-73.14370	41	5	N	<2	B2	>5	Cloudy	None	4.5	3	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:12	21:16	40.25509	-73.14370	40.25007	-73.14386	40	3	NNE	<2	B2	>5	Cloudy	None	4.3	184	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:16	21:27	40.25007	-73.14386	40.23608	-73.14429	40	3	NNE	<2	B2	>5	Cloudy	None	4.5	184	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:27	21:45	40.23608	-73.14429	40.21554	-73.14484	42	4	NNE	<2	B2	2-5	Cloudy	None	4.3	182	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	22:00	40.21554	-73.14484	40.19647	-73.14536	42	6	NNE	<2	B2	1-2	Cloudy	None	4.7	182	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:32	40.19647	-73.14536	40.15490	-73.14649	42	5	NNE	<2	B2	0.5-1	Cloudy	None	4.7	183	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:32	22:34	40.15490	-73.14649	40.15287	-73.14653	45	7	NE	<2	B2	0.5-1	Cloudy	None	4.8	181	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:34	23:00	40.15287	-73.14653	40.17261	-73.16789	45	7	NE	<2	B2	0.5-1	Cloudy	None	4.5	188	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:05	40.17261	-73.16789	40.17899	-73.16772	43	9	NE	<2	B2	0.5-1	Cloudy	None	4.3	0	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:05	23:47	40.17899	-73.16772	40.22971	-73.16639	43	9	ENE	<2	B2	0.5-1	Cloudy	None	4.6	0	Full Power	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:47	23:48	40.22971	-73.16639	40.23092	-73.16635	42	7	E	<2	B2	0.5-1	Cloudy	None	4.5	10	Silent	N/A
2022-11-29	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:48	00:00	40.23092	-73.16635	40.24534	-73.16047	42	7	E	<2	B2	0.5-1	Cloudy	None	4.4	10	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:15	40.24669	-73.16006	40.25605	-73.15147	40	7	E	<2	B2	0.5-1	Clear	None	5	16	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:15	00:20	40.25605	-73.15147	40.24992	-73.15166	38	7	SE	<2	B2	0.5-1	Clear	None	4.5	177	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:20	01:00	40.24992	-73.15166	40.20230	-73.15295	41	7	SE	<2	B2	0.5-1	Clear	None	4.5	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:29	40.20230	-73.15295	40.16626	-73.15389	42	6	E	<2	B2	0.5-1	Clear	None	4.5	178	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:29	01:30	40.16626	-73.15389	40.16461	-73.15392	42	9	SSE	<2	B2	0.5-1	Clear	None	4.3	179	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:30	01:46	40.16461	-73.15392	40.17442	-73.16815	42	9	SSE	<2	B2	0.5-1	Clear	None	4.3	179	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:46	01:50	40.17442	-73.16815	40.17958	-73.16802	42	6	SSE	<2	B2	0.5-1	Clear	None	4.5	2	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:50	02:30	40.17958	-73.16802	40.22940	-73.16668	42	6	SSE	<2	B2	0.5-1	Clear	None	4.6	1	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:30	02:32	40.22940	-73.16668	40.23222	-73.16656	42	9	SE	<2	B2	0.5-1	Clear	None	4.6	8	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:32	02:59	40.23222	-73.16656	40.25615	-73.15187	42	11	SE	<2	B2	0.5-1	Clear	None	4.3	19	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:59	03:00	40.25615	-73.15187	40.25499	-73.15194	42	9	SE	<2	B2	0.5-1	Clear	None	4.5	7	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:04	40.25499	-73.15194	40.24942	-73.15203	42	9	SE	<2	B2	0.5-1	Clear	None	4.5	7	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:04	03:16	40.24942	-73.15203	40.23480	-73.15238	40	11	SE	<2	B2	0.5-1	Cloudy	None	4.6	175	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:16	04:00	40.23480	-73.15238	40.18217	-73.15384	40	10	SE	<2	B2	0.5-1	Cloudy	None	4.6	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:12	40.18217	-73.15384	40.16710	-73.15422	44	12	SSE	<2	B2	0.5-1	Cloudy	None	4.5	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:12	04:13	40.16710	-73.15422	40.16587	-73.15425	44	10	SSE	<2	B2	0.5-1	Cloudy	None	4.5	177	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:13	04:28	40.16587	-73.15425	40.17305	-73.16847	44	12	SSE	<2	B2	0.5-1	Cloudy	None	4.5	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:28	04:33	40.17305	-73.16847	40.17866	-73.16839	42	11	SSE	<2	B2	0.5-1	Cloudy	None	4.3	0.6	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:33	05:00	40.17866	-73.16839	40.21248	-73.16750	42	8	SSE	<2	B2	0.5-1	Cloudy	None	4.4	1.2	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:15	40.21248	-73.16750	40.22973	-73.16709	42	9	SSE	<2	B2	0.5-1	Cloudy	None	4.2	1.5	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:15	05:16	40.22973	-73.16709	40.23096	-73.16705	42	9	S	<2	B2	0.5-1	Cloudy	None	4.4	2	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:16	05:42	40.23096	-73.16705	40.25582	-73.15239	42	9	SSE	<2	B2	0.5-1	Cloudy	None	4.5	7	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:42	05:47	40.25582	-73.15239	40.25012	-73.15235	43	10	S	<2	B2	0.5-1	Cloudy	None	4.6	178	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:47	06:00	40.25012	-73.15235	40.23384	-73.15279	43	10	SSE	<2	B2	0.5-1	Cloudy	None	4.7	179	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:53	40.23384	-73.15279	40.16701	-73.15465	43	10	SSE	<2	B2	0.5-1	Cloudy	None	4.4	180	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:53	06:54	40.16701	-73.15465	40.16573	-73.15468	43	9	SE	<2	B2	0.5-1	Cloudy	None	4.2	180	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:54	07:00	40.16573	-73.15468	40.16411	-73.16098	43	9	SE	<2	B2	0.5-1	Cloudy	None	4.2	180	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:09	40.16411	-73.16098	40.17336	-73.16888	43	6	SSE	<2	B2	0.5-1	Cloudy	None	4.4	322	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:09	07:13	40.17336	-73.16888	40.17833	-73.16880	43	9	SSE	<2	B2	0.5-1	Cloudy	None	4.5	357	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:13	07:55	40.17833	-73.16880	40.22907	-73.16743	43	10	SSE	<2	B2	0.5-1	Cloudy	None	4.2	358	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:55	07:57	40.22907	-73.16743	40.23159	-73.16737	41	10	SE	<2	B2	0.5-1	Cloudy	None	4.5	0	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:57	08:00	40.23159	-73.16737	40.23590	-73.16596	41	10	SE	<2	B2	0.5-1	Cloudy	None	4.6	12	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:24	40.23590	-73.16596	40.25540	-73.15254	41	15	SE	<2	B3	0.5-1	Cloudy	None	5	18	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:24	08:28	40.25540	-73.15254	40.25045	-73.15269	41	15	SSE	<2	B3	0.5-1	Cloudy	None	4.6	177	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:28	09:00	40.25045	-73.15269	40.20902	-73.15378	41	14	S	<2	B3	0.5-1	Cloudy	None	4.5	179	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:35	40.20902	-73.15378	40.16687	-73.15498	42	15	SE	<2	B4	0.5-1	Cloudy	None	4.3	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:35	09:36	40.16687	-73.15498	40.16568	-73.15502	42	14	SE	<2	B4	0.5-1	Cloudy	None	4.3	179	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:36	09:52	40.16568	-73.15502	40.17335	-73.16963	42	14	SE	<2	B4	0.5-1	Cloudy	None	4.3	179	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:52	09:56	40.17335	-73.16963	40.17832	-73.16911	43	12	SE	<2	B4	0.5-1	Cloudy	None	4.5	3	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:56	10:00	40.17832	-73.16911	40.18329	-73.16897	43	13	SE	<2	B4	0.5-1	Cloudy	None	4.4	1	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.18329	-73.16897	40.21968	-73.16802	43	14	SE	<2	B4	0.5-1	Cloudy	None	3.8	1	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:38	40.21968	-73.16802	40.23100	-73.16774	43	13	SE	<2	B4	0.5-1	Cloudy	None	4.5	2	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:38	10:39	40.23100	-73.16774	40.23107	-73.16773	43	14	SE	<2	B4	0.5-1	Cloudy	None	4.3	3	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:39	11:00	40.23107	-73.16773	40.25820	-73.15812	43	14	SE	<2	B4	0.5-1	Cloudy	None	4.5	3	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:07	40.25820	-73.15812	40.25548	-73.15167	43	15	S	<2	B4	0.5-1	Cloudy	None	4.3	122	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:07	11:11	40.25548	-73.15167	40.24963	-73.15308	43	14	S	<2	B4	0.5-1	Cloudy	None	4.5	190	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:11	11:20	40.24963	-73.15308	40.23949	-73.15334	43	13	S	<2	B4	0.5-1	Cloudy	None	4.4	176	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:20	11:34	40.23949	-73.15334	40.22201	-73.15381	42	12	S	<2	B4	1-2	Cloudy	None	4.5	178	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:34	11:46	40.22201	-73.15381	40.20700	-73.15420	42	13	S	<2	B4	2-5	Cloudy	None	4.2	176	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:46	12:00	40.20700	-73.15420	40.18868	-73.15477	42	10	S	<2	B4	>5	Cloudy	None	4.8	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:19	40.18868	-73.15477	40.16607	-73.15535	42	15	S	<2	B4	>5	Cloudy	None	4.4	177	Full Power	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:19	12:33	40.16607	-73.15535	40.16067	-73.16489	42	19	S	<2	B4	>5	Cloudy	None	3.3	176	Silent	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:33	12:38	40.16067	-73.16489	40.16490	-73.16742	42	22	SSE	<2	B4	>5	Cloudy	None	4.2	335	Deploying/Retrieving	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:38	12:52	40.16490	-73.16742	40.17524	-73.17373	42	21	SE	2-4	B5	>5	Cloudy	None	3.3	335	Deploying/Retrieving	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:52	13:00	40.17524	-73.17373	40.18080	-73.17496	42	24	SSE	2-4	B5	>5	Cloudy	None	3.1	335	Deploying/Retrieving	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:13	40.18080	-73.17496	40.18601	-73.17618	42	23	S	2-4	B5	>5	Cloudy	None	1.8	22	Deploying/Retrieving	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:13	13:15	40.18601	-73.17618	40.18724	-73.17659	42	20	SE	2-4	B5	>5	Cloudy	None	2.3	13	Deploying/Retrieving	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:15	14:00	40.18724	-73.17659	40.23335	-73.30821	42	24	SE	2-4	B5	>5	Cloudy	None	6.5	293	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.23335	-73.30821	40.31038	-73.47958	35	22	SE	2-4	B5	>5	Cloudy	None	8.9	292	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.31038	-73.47958	40.41082	-73.64297	32	22	SSE	2-4	B5	2-5	Fog	None	9.2	300	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:37	40.41082	-73.64297	40.43650	-73.74721	27	25	SE	2-4	B5	2-5	Precipitation	None	9.4	298	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:37	17:00	40.43650	-73.74721	40.42452	-73.77670	32	31	SE	>4	B6	2-5	Precipitation	None	8.7	199	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	18:00	40.42452	-73.77670	40.49307	-73.92617	32	30	NW	>4	B6	2-5	Precipitation	None	9	306	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:16	40.49307	-73.92617	40.51342	-73.97680	27	31	S	>4	B6	2-5	Precipitation	None	9.7	293	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:16	18:43	40.51342	-73.97680	40.55202	-74.03317	16	30	S	>4	B6	1-2	Precipitation	None	9.1	293	Transit	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:43	19:00	40.55202	-74.03317	40.53067	-74.03933	12	35	S	2-4	B5	2-5	Precipitation	None	2.6	194	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.53067	-74.03933	40.52744	-74.03925	12	31	S	2-4	B5	0.5-1	Precipitation	None	5.7	188	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.52744	-74.03925	40.49659	-74.04467	11	26	S	2-4	B5	1-2	Precipitation	None	4.9	6	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:40	40.49659	-74.04467	40.49871	-74.06432	12	24	S	<2	B5	1-2	Precipitation	None	5.5	191	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:50	40.49871	-74.06432	40.50060	-74.06213	9	23	SW	<2	B4	0.5-1	Precipitation	None	1.3	288	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	21:50	22:00	40.50060	-74.06213	40.50233	-74.05943	9	25	SW	<2	B4	0.3-0.5	Precipitation	None	0.9	282	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.50233	-74.05943	40.49691	-74.07324	9	24	SW	<2	B4	0.3-0.5	Precipitation	None	1.3	290	Standby	N/A
2022-11-30	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.49691	-74.07324	40.49600	-74.07401	9	23	WSW	<2	B4	0.3-0.5	Precipitation	None	3.2	270	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.49596	-74.07306	40.49609	-74.07374	8	31	W	<2	B4	0.3-0.5	Cloudy	None	1	177	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.49609	-74.07374	40.49803	-74.07754	8	26	W	<2	B4	0.3-0.5	Cloudy	None	1.7	308	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.49803	-74.07754	40.49947	-74.08037	8	33	WNW	<2	B4	0.3-0.5	Cloudy	None	1.2	168	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.49947	-74.08037	40.49935	-74.08226	8	25	NW	<2	B4	0.3-0.5	Cloudy	None	1.2	322	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49935	-74.08226	40.50056	-74.07031	8	27	NNW	<2	B4	0.3-0.5	Cloudy	None	0.4	169	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50056	-74.07031	40.49963	-74.06985	8	31	W	<2	B4	0.3-0.5	Clear	None	0.8	167	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49963	-74.06985	40.49903	-74.07290	8	28	NW	<2	B4	0.3-0.5	Clear	None	4.5	271	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49903	-74.07290	40.49928	-74.07991	8	27	W	<2	B4	0.3-0.5	Clear	None	0.7	169	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49928	-74.07991	40.50135	-74.05646	8	26	W	<2	B4	0.3-0.5	Clear	None	3.4	279	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.50135	-74.05646	40.49864	-74.07369	7	24	WNW	<2	B4	0.3-0.5	Clear	None	1.3	177	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.49864	-74.07369	40.50101	-74.06099	7	23	WNW	<2	B4	0.3-0.5	Clear	None	1.2	171	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50101	-74.06099	40.49933	-74.07470	7	23	W	<2	B4	0.3-0.5	Clear	None	1	165	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:28	40.49933	-74.07470	40.49753	-74.08191	7	25	W	<2	B4	0.5-1	Clear	None	3.5	266	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:28	11:39	40.49753	-74.08191	40.49871	-74.07677	7	22	W	<2	B4	1-2	Clear	None	1.2	169	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:39	11:49	40.49871	-74.07677	40.49746	-74.08098	7	25	W	<2	B4	2-5	Clear	None	3.1	255	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:49	12:00	40.49746	-74.08098	40.49593	-74.08344	7	23	W	<2	B4	>5	Clear	None	3.1	260	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.49593	-74.08344	40.50047	-74.06191	7	22	WNW	<2	B3	>5	Clear	None	1.2	166	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:11	40.50047	-74.06191	40.49911	-74.07726	7	25	W	<2	B3	>5	Clear	Moderate	2.6	260	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:11	14:00	40.49911	-74.07726	40.50142	-74.08180	7	24	W	<2	B3	>5	Clear	Moderate	3.8	265	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.50142	-74.08180	40.50479	-74.06800	7	23	W	<2	B3	>5	Clear	Moderate	0.9	169	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.50479	-74.06800	40.49634	-74.08350	7	22	W	<2	B4	>5	Cloudy	Severe	0.7	174	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.49634	-74.08350	40.49769	-74.07431	7	23	WNW	<2	B4	>5	Cloudy	Severe	0.6	182	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	18:00	40.49769	-74.07431	40.49393	-74.08268	7	24	NW	<2	B4	>5	Cloudy	Severe	0.5	172	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.49393	-74.08268	40.50400	-74.07818	7	21	W	<2	B4	>5	Cloudy	Severe	0.8	15	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.50400	-74.07818	40.50230	-74.07891	7	20	W	<2	B4	>5	Clear	Severe	0.7	205	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.50230	-74.07891	40.49899	-74.09905	7	23	W	<2	B4	>5	Clear	Severe	1.8	267	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:30	40.49899	-74.09905	40.50289	-74.14182	9	25	W	<2	B4	>5	Clear	Moderate	3.8	271	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:30	21:45	40.50289	-74.14182	40.50099	-74.11913	8	22	W	<2	B4	2-5	Clear	None	4.2	101	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	21:55	40.50099	-74.11913	40.49904	-74.10206	8	22	W	<2	B4	1-2	Clear	None	4.8	100	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:55	22:00	40.49904	-74.10206	40.49822	-74.09463	8	23	W	<2	B4	0.5-1	Clear	None	4.7	99	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.49822	-74.09463	40.50245	-74.06727	8	23	W	<2	B4	0.3-0.5	Clear	None	4.6	100	Standby	N/A
2022-12-01	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.50245	-74.06727	40.49939	-74.06288	8	20	W	<2	B3	0.3-0.5	Clear	None	1.2	20	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:10	40.49950	-74.06211	40.49947	-74.05749	7	19	W	<2	B3	0.3-0.5	Clear	None	1.1	169	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:10	01:00	40.49947	-74.05749	40.46828	-73.96095	7	20	W	<2	B3	0.3-0.5	Clear	None	1.6	170	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.46828	-73.96095	40.42094	-73.79945	14	17	W	<2	B3	0.3-0.5	Clear	None	7.5	127	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.42094	-73.79945	40.38212	-73.62180	14	13	NW	<2	B3	0.3-0.5	Clear	None	8.1	103	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.38212	-73.62180	40.34584	-73.44013	22	18	NW	<2	B3	0.3-0.5	Clear	None	8.5	102	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.34584	-73.44013	40.30895	-73.25982	29	11	NW	<2	B3	0.3-0.5	Clear	None	8.8	104	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:55	40.30895	-73.25982	40.31215	-73.10877	36	12	NNW	<2	B3	0.5-1	Clear	None	8.5	83	Transit	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:55	06:00	40.31215	-73.10877	40.31165	-73.10872	40	13	NW	<2	B3	0.5-1	Clear	None	0.5	267	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:17	40.31165	-73.10872	40.31975	-73.11435	40	13	NW	<2	B3	0.5-1	Clear	None	0.5	278	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:17	06:25	40.31975	-73.11435	40.31870	-73.10589	40	13	NW	<2	B3	0.5-1	Clear	None	3.8	21	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:25	06:37	40.31870	-73.10589	40.31407	-73.08553	40	10	NW	<2	B3	0.5-1	Clear	None	5.5	106	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:37	07:00	40.31407	-73.08553	40.29594	-73.06538	40	11	NW	<2	B3	0.5-1	Clear	None	3.5	107	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.29594	-73.06538	40.25135	-73.13143	41	10	NW	<2	B3	0.5-1	Clear	None	4.4	186	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.25135	-73.13143	40.18338	-73.13863	42	5	NW	<2	B3	0.5-1	Clear	None	4.7	185	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Fuhr Ely, Gabriele	RPS	09:00	10:00	40.18338	-73.13863	40.23608	-73.13133	42	7	NNW	<2	B3	0.5-1	Clear	None	4.7	1	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Fuhr Ely, Gabriele	RPS	10:00	10:30	40.23608	-73.13133	40.19793	-73.13257	42	5	NNW	<2	B3	0.5-1	Clear	None	4.6	185	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Fuhr Ely, Gabriele	RPS	10:30	11:00	40.19793	-73.13257	40.16026	-73.13363	42	6	NW	<2	B3	0.5-1	Clear	None	4.5	184	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria; Fuhr Ely, Gabriele	RPS	11:00	11:26	40.16026	-73.13363	40.16961	-73.14636	42	3	N	<2	B3	0.5-1	Clear	None	4.5	184	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:26	11:29	40.16961	-73.14636	40.17346	-73.14615	44	5	N	<2	B3	1-2	Clear	None	4.8	358	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:29	11:41	40.17346	-73.14615	40.18775	-73.14581	44	3	N	<2	B3	2-5	Clear	None	4.5	354	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:41	12:00	40.18775	-73.14581	40.21137	-73.14517	42	3	N	<2	B3	>5	Clear	None	4.5	355	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:49	40.21137	-73.14517	40.26592	-73.14778	42	2	N	<2	B2	>5	Clear	Slight	4.5	358	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:49	13:00	40.26592	-73.14778	40.27583	-73.14662	42	1	SSW	<2	B2	>5	Clear	Moderate	3.1	1	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:08	40.27583	-73.14662	40.28302	-73.14562	40	2	SSE	<2	B2	>5	Clear	Severe	3.5	1	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:08	13:14	40.28302	-73.14562	40.28804	-73.14518	40	2	SSE	<2	B2	>5	Clear	Severe	3	1	Deploying/Retrieving	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:14	13:29	40.28804	-73.14518	40.30111	-73.14323	40	2	SSE	<2	B2	>5	Clear	Severe	3	1	Standby	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:29	13:51	40.30111	-73.14323	40.27837	-73.14448	40	2	SSE	<2	B2	>5	Clear	Severe	4.9	50	Soft Start	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:51	14:00	40.27837	-73.14448	40.26585	-73.14972	40	4	SSE	<2	B2	>5	Clear	Severe	4.9	199	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:08	40.26585	-73.14972	40.25642	-73.15325	40	3	SSE	<2	B2	>5	Clear	Severe	4.9	199	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:08	14:13	40.25642	-73.15325	40.25014	-73.15336	40	5	SSW	<2	B2	>5	Clear	Severe	4.5	177	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:13	14:42	40.25014	-73.15336	40.21747	-73.15430	41	3	SE	<2	B2	>5	Clear	Severe	4.6	180	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:42	15:00	40.21747	-73.15430	40.19959	-73.15479	42	4	S	<2	B2	>5	Clear	Severe	3.4	180	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:27	40.19959	-73.15479	40.16609	-73.15564	42	6	S	<2	B2	>5	Clear	Severe	3.4	178	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:27	15:28	40.16609	-73.15564	40.16558	-73.15566	42	7	S	<2	B2	>5	Clear	Severe	4.6	179	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:28	15:42	40.16558	-73.15566	40.17227	-73.16938	42	7	S	<2	B2	>5	Clear	Severe	4.6	179	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:42	15:48	40.17227	-73.16938	40.18006	-73.16945	43	9	SW	<2	B2	>5	Clear	Severe	4.5	355	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:48	16:00	40.18006	-73.16945	40.19498	-73.16901	43	9	SW	<2	B2	>5	Clear	Severe	4.5	2	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	16:30	40.19498	-73.16901	40.23111	-73.16804	42	11	SW	<2	B2	>5	Clear	Severe	4.4	2	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:30	16:31	40.23111	-73.16804	40.23131	-73.16803	41	8	SW	<2	B2	>5	Cloudy	Severe	4.1	1	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:31	16:57	40.23131	-73.16803	40.25579	-73.15349	41	8	SW	<2	B2	>5	Cloudy	Severe	4.2	1	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:57	17:00	40.25579	-73.15349	40.25286	-73.15363	38	11	SW	<2	B2	>5	Cloudy	Severe	4.3	183	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:02	40.25286	-73.15363	40.25035	-73.15371	38	13	SW	<2	B2	>5	Cloudy	Severe	4.5	183	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:02	18:00	40.25035	-73.15371	40.17914	-73.15560	38	13	SW	<2	B2	>5	Cloudy	Severe	4.4	183	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:10	40.17914	-73.15560	40.16602	-73.15604	44	13	SW	<2	B3	>5	Clear	Severe	4.5	182	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:10	18:11	40.16602	-73.15604	40.16479	-73.15607	42	10	SW	<2	B3	>5	Clear	Severe	4.5	180	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:11	18:53	40.16479	-73.15607	40.17031	-73.16931	42	10	SW	<2	B3	>5	Clear	Severe	4.5	180	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:53	19:00	40.17031	-73.16931	40.18010	-73.16975	42	8	SW	<2	B3	>5	Clear	Severe	4.7	348	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:40	40.18010	-73.16975	40.23078	-73.16845	42	11	SW	<2	B3	>5	Clear	Severe	4.5	343	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:40	19:41	40.23078	-73.16845	40.23199	-73.16843	40	11	SW	<2	B3	>5	Clear	Severe	4.3	357	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:41	20:00	40.23199	-73.16843	40.25170	-73.16064	40	11	SW	<2	B3	>5	Clear	Severe	4.4	2	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:08	40.25170	-73.16064	40.25615	-73.15335	40	11	SW	<2	B3	>5	Clear	Severe	4.5	6	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:08	20:13	40.25615	-73.15335	40.25028	-73.15410	38	13	SW	<2	B3	>5	Clear	Severe	4	199	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:13	21:00	40.25028	-73.15410	40.19423	-73.15562	40	13	SW	<2	B3	>5	Clear	Severe	4.7	185	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:22	40.19423	-73.15562	40.16713	-73.15640	41	14	SW	<2	B3	>5	Clear	Moderate	4.4	184	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:22	21:23	40.16713	-73.15640	40.16579	-73.15643	42	12	SW	<2	B3	>5	Clear	None	4.5	183	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:23	21:35	40.16579	-73.15643	40.16598	-73.16510	42	16	SW	<2	B3	>5	Clear	None	4.5	185	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:35	21:41	40.16598	-73.16510	40.17327	-73.17025	42	12	SW	<2	B3	2-5	Clear	None	4.4	321	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:41	21:45	40.17327	-73.17025	40.17830	-73.17023	43	13	SW	<2	B3	2-5	Clear	None	4.6	351	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	22:00	40.17830	-73.17023	40.19634	-73.16971	43	13	SW	<2	B3	1-2	Clear	None	4.5	354	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:28	40.19634	-73.16971	40.23007	-73.16878	41	13	SW	<2	B3	0.5-1	Clear	None	4.5	355	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:28	22:29	40.23007	-73.16878	40.23114	-73.16873	41	14	SW	<2	B3	0.5-1	Clear	None	4.3	355	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:29	23:00	40.23114	-73.16873	40.25410	-73.15423	41	14	SW	<2	B3	0.5-1	Clear	None	4.4	355	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:03	40.25410	-73.15423	40.25038	-73.15442	41	14	SW	<2	B3	0.5-1	Clear	None	4.3	185	Silent	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:03	23:40	40.25038	-73.15442	40.20384	-73.15571	41	16	SW	<2	B3	0.5-1	Clear	None	4.7	189	Full power	N/A
2022-12-02	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:40	00:00	40.20384	-73.15571	40.18119	-73.15636	41	16	SW	<2	B4	0.5-1	Clear	None	4.6	186	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:09	40.17911	-73.15637	40.16657	-73.15676	43	17	SW	<2	B4	0.5-1	Clear	None	4.7	188	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:09	00:11	40.16657	-73.15676	40.16443	-73.15679	42	17	SW	<2	B4	0.5-1	Clear	None	4.8	185	Silent	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:11	00:27	40.16443	-73.15679	40.17352	-73.17059	42	18	SW	<2	B4	0.5-1	Clear	None	4.6	186	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:27	00:32	40.17352	-73.17059	40.17908	-73.17053	42	15	SW	<2	B4	0.5-1	Clear	None	4.4	352	Silent	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:32	01:00	40.17908	-73.17053	40.21276	-73.16958	42	13	SW	<2	B4	0.5-1	Clear	None	4.2	354	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:14	40.21276	-73.16958	40.22957	-73.16913	42	17	SW	<2	B4	0.5-1	Clear	None	4.2	357	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:14	01:16	40.22957	-73.16913	40.23213	-73.16903	42	16	SW	<2	B4	0.5-1	Clear	None	4.5	11	Silent	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:16	01:45	40.23213	-73.16903	40.25538	-73.15464	42	16	SW	<2	B4	0.5-1	Clear	None	4.2	21	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:45	01:50	40.25538	-73.15464	40.24938	-73.15488	40	13	SW	<2	B4	0.5-1	Clear	None	4.1	186	Silent	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:50	02:00	40.24938	-73.15488	40.23633	-73.15520	40	14	SSW	<2	B4	0.5-1	Clear	None	4.4	184	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	02:09	40.23633	-73.15520	40.22634	-73.15545	41	17	SSW	<2	B4	0.5-1	Clear	None	4.7	186	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:09	02:59	40.22634	-73.15545	40.16682	-73.15706	41	19	SSW	<2	B4	0.5-1	Clear	None	4.7	184	Full power	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:59	03:00	40.16682	-73.15706	40.16493	-73.15725	43	20	S	<2	B4	0.5-1	Clear	None	4.3	191	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:11	40.16493	-73.15725	40.15770	-73.16326	43	20	S	<2	B4	0.5-1	Clear	None	4.3	191	Silent	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:11	03:25	40.15770	-73.16326	40.17124	-73.16252	43	18	S	<2	B4	0.5-1	Clear	None	3.8	318	Deploying/Retrieving	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:25	03:48	40.17124	-73.16252	40.18750	-73.16110	43	18	S	<2	B4	0.5-1	Cloudy	None	3.5	4	Deploying/Retrieving	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:48	03:52	40.18750	-73.16110	40.18768	-73.16148	43	18	S	<2	B4	0.5-1	Cloudy	None	3.5	4	Deploying/Retrieving	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:52	04:00	40.18768	-73.16148	40.18835	-73.15992	43	18	S	<2	B4	0.5-1	Cloudy	None	3.5	4	Deploying/Retrieving	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:23	40.18835	-73.15992	40.19092	-73.15682	41	20	SSW	<2	B4	0.5-1	Clear	None	1.2	146	Deploying/Retrieving	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:23	05:00	40.19092	-73.15682	40.23701	-73.24047	41	21	SW	<2	B4	0.5-1	Clear	None	5.4	30	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.23701	-73.24047	40.28944	-73.41713	40	18	S	<2	B4	0.5-1	Clear	None	9.5	307	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.28944	-73.41713	40.22140	-73.60274	40	19	SSW	<2	B4	0.5-1	Clear	None	9.5	277	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.22140	-73.60274	40.14434	-73.78652	34	21	SSW	<2	B4	0.3-0.5	Cloudy	None	9.8	238	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.14434	-73.78652	40.16271	-73.92478	30	20	S	<2	B4	0.3-0.5	Cloudy	None	9.8	234	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.16271	-73.92478	40.32183	-73.92398	30	18	S	<2	B4	0.5-1	Cloudy	None	9.7	359	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.32183	-73.92398	40.40171	-73.92377	20	18	S	<2	B4	0.5-1	Cloudy	None	9.6	359	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.40171	-73.92377	40.46820	-73.96063	18	18	S	<2	B4	0.5-1	Cloudy	None	9.5	0	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:35	40.46820	-73.96063	40.48185	-74.05094	15	12	S	<2	B4	0.5-1	Cloudy	None	9.4	304	Transit	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:35	11:45	40.48185	-74.05094	40.49022	-74.06384	8	8	SW	<2	B3	0.5-1	Cloudy	None	4.4	305	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:45	12:00	40.49022	-74.06384	40.49729	-74.06586	7	9	SW	<2	B2	1-2	Precipitation	None	4.4	311	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.49729	-74.06586	40.49975	-74.07718	7	6	SW	<2	B2	1-2	Precipitation	None	0.7	357	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.49975	-74.07718	40.49146	-74.07620	7	23	S	<2	B2	1-2	Precipitation	None	0.4	234	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.49146	-74.07620	40.49305	-74.07500	7	19	S	<2	B2	2-5	Precipitation	None	0.9	83	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	16:00	40.49305	-74.07500	40.49314	-74.08458	7	25	S	<2	B4	1-2	Precipitation	None	1.8	279	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.49314	-74.08458	40.50165	-74.11997	7	26	SW	<2	B4	1-2	Precipitation	None	2.6	286	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	18:00	40.50165	-74.11997	40.49869	-74.08554	8	21	SW	<2	B4	1-2	Precipitation	None	3.8	106	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.49869	-74.08554	40.50204	-74.12768	8	22	SW	<2	B4	1-2	Precipitation	None	3.8	270	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.50204	-74.12768	40.49706	-74.07430	8	23	SW	<2	B5	2-5	Precipitation	None	3.5	82	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.49706	-74.07430	40.50288	-74.14014	8	25	SW	<2	B5	2-5	Fog	None	2.8	271	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:40	40.50288	-74.14014	40.50289	-74.09329	9	21	SW	<2	B4	2-5	Fog	None	3.1	269	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:55	40.50289	-74.09329	40.50103	-74.08637	8	16	SW	<2	B4	1-2	Fog	None	1.1	127	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:55	22:00	40.50103	-74.08637	40.50079	-74.08559	8	16	SW	<2	B4	0.5-1	Cloudy	None	0.5	218	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.50079	-74.08559	40.50424	-74.06647	8	15	SW	<2	B4	0.3-0.5	Cloudy	None	1.4	167	Standby	N/A
2022-12-03	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.50424	-74.06647	40.49772	-74.07724	8	23	W	<2	B4	0.3-0.5	Cloudy	None	1.2	230	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.49763	-74.07821	40.49943	-74.07344	8	20	W	<2	B3	0.3-0.5	Cloudy	None	2.4	277	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.49943	-74.07344	40.49740	-74.08125	8	20	W	<2	B3	0.3-0.5	Cloudy	None	1.2	31	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.49740	-74.08125	40.49915	-74.08045	7	21	W	<2	B3	0.3-0.5	Cloudy	None	1.3	204	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.49915	-74.08045	40.49957	-74.07445	7	13	NW	<2	B3	0.3-0.5	Clear	None	0.7	200	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49957	-74.07445	40.50213	-74.08338	7	18	WNW	<2	B3	0.3-0.5	Clear	None	4.2	291	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50213	-74.08338	40.49462	-74.08338	7	17	W	<2	B3	0.3-0.5	Clear	None	0.4	30	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.49462	-74.08338	40.50141	-74.08583	7	15	W	<2	B3	0.3-0.5	Clear	None	0.5	15	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.50141	-74.08583	40.49871	-74.08426	7	15	WNW	<2	B3	0.3-0.5	Clear	None	0.2	189	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49871	-74.08426	40.49446	-74.06976	8	10	WNW	<2	B3	0.3-0.5	Clear	None	3.4	88	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49446	-74.06976	40.49247	-74.06008	8	15	NW	<2	B3	0.3-0.5	Clear	None	0.2	177	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.49247	-74.06008	40.50212	-74.08547	8	15	NW	<2	B3	0.3-0.5	Clear	None	1.4	276	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50212	-74.08547	40.50162	-74.07821	8	10	NW	<2	B3	0.3-0.5	Clear	None	0.4	211	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:05	40.50162	-74.07821	40.50159	-74.07669	8	9	NW	<2	B3	0.3-0.5	Clear	None	0.8	194	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:05	11:23	40.50159	-74.07669	40.48384	-74.05530	8	11	NW	<2	B3	0.5-1	Clear	None	5	171	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:23	11:38	40.48384	-74.05530	40.47533	-74.03156	8	12	NW	<2	B3	1-2	Clear	None	5	141	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:38	11:47	40.47533	-74.03156	40.48144	-74.01544	13	14	NW	<2	B3	2-5	Clear	None	5.2	60	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:47	12:00	40.48144	-74.01544	40.48179	-73.98639	21	14	NW	<2	B3	>5	Clear	None	6	62	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	13:00	40.48179	-73.98639	40.43569	-73.86630	21	15	WNW	<2	B3	>5	Clear	Slight	6.5	100	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	14:00	40.43569	-73.86630	40.41072	-73.69576	22	17	WNW	<2	B3	>5	Clear	Severe	7.9	96	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.41072	-73.69576	40.37820	-73.52005	22	18	NW	<2	B3	>5	Clear	Severe	8.1	101	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:16	40.37820	-73.52005	40.37025	-73.47462	26	16	NW	<2	B4	>5	Clear	Severe	8.3	100	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:16	16:00	40.37025	-73.47462	40.34713	-73.36420	26	16	NW	<2	B4	>5	Clear	Severe	8.3	100	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.34713	-73.36420	40.29370	-73.19969	32	13	NW	<2	B4	>5	Clear	Severe	8	110	Transit	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:05	40.29370	-73.19969	40.29178	-73.19248	39	10	NW	<2	B3	>5	Clear	Severe	6.3	288	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:05	17:50	40.29178	-73.19248	40.27982	-73.20175	39	11	NW	<2	B3	>5	Clear	Severe	1.2	270	Deploying/Retrieving	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:50	18:00	40.27982	-73.20175	40.27069	-73.20282	38	11	NW	<2	B3	>5	Clear	Severe	4.3	208	Standby	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:21	40.27069	-73.20282	40.25234	-73.18617	38	13	NW	<2	B3	>5	Clear	Severe	4.2	152	Soft Start	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:21	18:46	40.25234	-73.18617	40.22658	-73.16337	38	10	NW	<2	B3	>5	Clear	Severe	3.2	142	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:46	19:00	40.22658	-73.16337	40.21343	-73.14924	41	8	NW	<2	B3	>5	Clear	Severe	4.2	144	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:32	40.21343	-73.14924	40.18389	-73.11263	41	5	W	<2	B3	>5	Clear	Severe	4.5	135	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:32	19:39	40.18389	-73.11263	40.17574	-73.11121	45	8	W	<2	B3	>5	Clear	Severe	4.2	181	Silent	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:39	19:48	40.17574	-73.11121	40.16695	-73.11055	45	6	W	<2	B3	>5	Cloudy	Severe	4.5	182	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:48	19:50	40.16695	-73.11055	40.16493	-73.10939	45	6	W	<2	B3	>5	Cloudy	Severe	4.5	182	Silent	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:50	20:00	40.16493	-73.10939	40.15855	-73.11707	46	7	W	<2	B3	>5	Cloudy	Severe	4.3	244	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:18	40.15855	-73.11707	40.15342	-73.14136	46	7	W	<2	B3	>5	Cloudy	Severe	4.4	245	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:18	20:22	40.15342	-73.14136	40.15862	-73.14123	44	9	W	<2	B3	>5	Cloudy	Slight	4.6	359	Silent	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:22	21:00	40.15862	-73.14123	40.20624	-73.13998	44	9	W	<2	B3	>5	Cloudy	Slight	4.6	357	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:30	40.20624	-73.13998	40.24476	-73.13929	42	10	NW	<2	B3	>5	Cloudy	Moderate	4.5	359	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:30	21:45	40.24476	-73.13929	40.25777	-73.15639	41	4	NW	<2	B2	2-5	Cloudy	None	4.3	323	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	21:52	40.25777	-73.15639	40.25906	-73.15168	39	8	NW	<2	B2	1-2	Cloudy	None	4.3	358	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:52	21:59	40.25906	-73.15168	40.25019	-73.15146	39	8	NW	<2	B2	0.5-1	Cloudy	None	4.7	183	Silent	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	21:59	23:00	40.25019	-73.15146	40.17704	-73.15341	39	10	NW	<2	B2	0.5-1	Cloudy	None	4.5	183	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:08	40.17704	-73.15341	40.16709	-73.15373	43	7	WNW	<2	B2	0.5-1	Clear	None	4.5	185	Full power	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:08	23:10	40.16709	-73.15373	40.16460	-73.15380	42	6	NW	<2	B2	0.5-1	Clear	None	4.5	185	Silent	N/A
2022-12-04	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:10	00:00	40.16460	-73.15380	40.18559	-73.15210	42	6	NW	<2	B2	0.5-1	Clear	None	4.5	185	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:54	40.18753	-73.15206	40.25194	-73.15031	43	2	N	<2	B2	0.5-1	Clear	None	4.2	355	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:54	01:00	40.25194	-73.15031	40.25707	-73.14540	40	4	NW	<2	B2	0.5-1	Clear	None	4.3	358	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:08	40.25707	-73.14540	40.25448	-73.13578	40	3	WNW	<2	B2	0.5-1	Clear	None	4.8	90	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:08	01:11	40.25448	-73.13578	40.25124	-73.13597	41	5	NNW	<2	B2	0.5-1	Clear	None	4.5	186	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:11	01:18	40.25124	-73.13597	40.24284	-73.13616	41	5	NW	<2	B2	0.5-1	Clear	None	4.6	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:18	01:20	40.24284	-73.13616	40.24045	-73.13620	41	3	NW	<2	B2	0.5-1	Clear	None	4.8	183	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:20	01:51	40.24045	-73.13620	40.25439	-73.13763	41	5	NW	<2	B2	0.5-1	Clear	None	4.8	181	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:51	01:55	40.25439	-73.13763	40.24994	-73.13770	41	3	W	<2	B2	0.5-1	Clear	None	4.5	181	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:55	02:00	40.24994	-73.13770	40.24394	-73.13784	40	2	W	<2	B2	0.5-1	Clear	None	4.6	182	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	03:00	40.24394	-73.13784	40.16851	-73.13983	40	7	SW	<2	B2	0.5-1	Clear	None	4.3	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	03:10	40.16851	-73.13983	40.15671	-73.14014	40	8	W	<2	B2	0.5-1	Clear	None	4.4	181	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:10	03:11	40.15671	-73.14014	40.15543	-73.14017	44	6	W	<2	B2	0.5-1	Clear	None	4.3	206	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:11	03:16	40.15543	-73.14017	40.15340	-73.14558	44	6	W	<2	B2	0.5-1	Clear	None	4.3	206	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:16	03:40	40.15340	-73.14558	40.17372	-73.17085	44	6	W	<2	B2	0.5-1	Clear	None	4.3	206	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:40	03:45	40.17372	-73.17085	40.17877	-73.17085	42	5	SW	<2	B2	0.5-1	Clear	None	4.2	355	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:45	04:00	40.17877	-73.17085	40.19812	-73.17033	42	4	SW	<2	B2	0.5-1	Clear	None	4.4	359	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:27	40.19812	-73.17033	40.22907	-73.16949	42	6	WSW	<2	B2	0.5-1	Clear	None	4.4	359	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:27	04:29	40.22907	-73.16949	40.23200	-73.16935	42	10	W	<2	B2	0.5-1	Clear	None	4.2	2	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:29	05:00	40.23200	-73.16935	40.25193	-73.15511	42	10	W	<2	B2	0.5-1	Clear	None	4.2	2	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.25193	-73.15511	40.17898	-73.15705	42	11	SW	<2	B2	0.5-1	Clear	None	4.4	180	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:10	40.17898	-73.15705	40.16627	-73.15747	43	7	SW	<2	B2	0.5-1	Clear	None	4.3	178	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:10	06:11	40.16627	-73.15747	40.16576	-73.15747	43	8	SW	<2	B2	0.5-1	Clear	None	4.5	179	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:11	06:27	40.16576	-73.15747	40.17282	-73.17145	42	7	SW	<2	B2	0.5-1	Clear	None	4.1	187	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:27	06:32	40.17282	-73.17145	40.17904	-73.17120	43	9	SW	<2	B2	0.5-1	Clear	None	4.5	7	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:32	07:00	40.17904	-73.17120	40.21397	-73.17032	43	7	SW	<2	B2	0.5-1	Clear	None	4.4	1	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:13	40.21397	-73.17032	40.22902	-73.16985	41	6	W	<2	B2	0.5-1	Clear	None	4.5	2	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:13	07:15	40.22902	-73.16985	40.23151	-73.16983	41	5	W	<2	B2	0.5-1	Clear	None	4.5	3	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:15	07:41	40.23151	-73.16983	40.25678	-73.15559	41	5	NW	<2	B2	0.5-1	Clear	None	4.8	3	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:41	07:46	40.25678	-73.15559	40.25051	-73.15551	40	8	W	<2	B2	0.5-1	Clear	None	4.6	179	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:46	08:00	40.25051	-73.15551	40.23333	-73.15593	40	3	NW	<2	B2	0.5-1	Clear	None	4.5	179	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:54	40.23333	-73.15593	40.16680	-73.15777	41	6	NW	<2	B2	0.5-1	Clear	None	4.4	180	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:54	08:55	40.16680	-73.15777	40.16559	-73.15779	43	5	SW	<2	B2	0.5-1	Clear	None	4.4	181	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:55	09:00	40.16559	-73.15779	40.16103	-73.16144	43	5	SW	<2	B2	0.5-1	Clear	None	4.4	181	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:12	40.16103	-73.16144	40.17346	-73.17208	42	4	WSW	<2	B2	0.5-1	Clear	None	4.4	295	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:12	09:16	40.17346	-73.17208	40.17854	-73.17153	43	2	NW	<2	B2	0.5-1	Clear	None	4.7	2	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:16	09:58	40.17854	-73.17153	40.22999	-73.17018	42	5	N	<2	B2	0.5-1	Clear	None	4.5	358	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:58	09:59	40.22999	-73.17018	40.23123	-73.17015	41	1	SE	<2	B2	0.5-1	Clear	None	4.5	359	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:59	10:00	40.23123	-73.17015	40.23310	-73.17012	41	1	SE	<2	B2	0.5-1	Clear	None	4.5	359	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.23310	-73.17012	40.25027	-73.15584	41	2	SE	<2	B2	0.5-1	Clear	None	4.6	0	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.25027	-73.15584	40.21229	-73.15689	41	5	W	<2	B2	0.5-1	Clear	None	4.3	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:26	40.21229	-73.15689	40.17790	-73.15783	42	3	SW	<2	B2	0.5-1	Clear	None	4.7	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:26	11:35	40.17790	-73.15783	40.16744	-73.15812	42	2	S	<2	B2	1-2	Clear	None	4.5	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:35	11:38	40.16744	-73.15812	40.16275	-73.15838	43	6	S	<2	B2	2-5	Clear	None	4.5	185	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:38	11:47	40.16275	-73.15838	40.16695	-73.16789	43	4	SW	<2	B2	2-5	Clear	None	4.5	194	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:47	11:53	40.16695	-73.16789	40.17274	-73.17194	43	4	S	<2	B2	>5	Clear	None	4.4	324	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:53	11:54	40.17274	-73.17194	40.17396	-73.17198	43	5	SSW	<2	B2	>5	Clear	None	4.4	358	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:54	11:58	40.17396	-73.17198	40.17987	-73.17194	43	4	S	<2	B2	>5	Clear	None	4.4	324	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:58	12:00	40.17987	-73.17194	40.18165	-73.17193	42	4	SSW	<2	B2	>5	Clear	None	4.6	356	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:39	40.18165	-73.17193	40.23032	-73.17060	41	4	SSW	<2	B2	>5	Clear	None	4.6	356	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:39	12:41	40.23032	-73.17060	40.23214	-73.17054	41	5	SSW	<2	B2	>5	Clear	None	4.4	1	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:41	13:00	40.23214	-73.17054	40.25663	-73.16677	41	6	SSW	<2	B2	>5	Clear	Moderate	4.4	6	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:09	40.25663	-73.16677	40.25773	-73.15601	39	5	S	<2	B2	>5	Clear	Severe	4.5	35	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:09	13:15	40.25773	-73.15601	40.24981	-73.15618	39	6	SSW	<2	B2	>5	Clear	Severe	4.8	190	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:15	13:42	40.24981	-73.15618	40.21760	-73.15707	40	8	S	<2	B2	>5	Clear	Severe	4.7	185	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:42	13:45	40.21760	-73.15707	40.21384	-73.15720	40	5	S	<2	B2	>5	Clear	Severe	4.4	185	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:45	14:00	40.21384	-73.15720	40.19504	-73.15772	42	10	S	<2	B2	>5	Clear	Severe	4.5	356	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:22	40.19504	-73.15772	40.16743	-73.15853	40	8	SSW	<2	B2	>5	Clear	Severe	4.5	185	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:22	14:25	40.16743	-73.15853	40.16366	-73.15861	40	10	SW	<2	B2	>5	Clear	Severe	4.5	184	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:25	14:42	40.16366	-73.15861	40.17451	-73.17242	44	10	S	<2	B2	>5	Clear	Severe	4.5	209	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:42	14:45	40.17451	-73.17242	40.17905	-73.17228	44	8	SSW	<2	B2	>5	Clear	Severe	4.6	356	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:45	15:00	40.17905	-73.17228	40.19702	-73.17182	44	8	SSW	<2	B2	>5	Clear	Severe	4.3	356	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:26	40.19702	-73.17182	40.22986	-73.17088	41	6	SW	<2	B2	>5	Clear	Severe	4.6	358	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:26	15:28	40.22986	-73.17088	40.23192	-73.17082	41	7	S	<2	B2	>5	Clear	Severe	4.5	359	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:28	15:52	40.23192	-73.17082	40.25789	-73.15814	41	7	S	<2	B2	>5	Clear	Severe	4.5	359	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:52	15:58	40.25789	-73.15814	40.25041	-73.15660	40	10	SW	<2	B2	>5	Clear	Severe	4.6	159	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:58	16:00	40.25041	-73.15660	40.24714	-73.15666	40	9	SW	<2	B2	>5	Clear	Severe	4.3	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.24714	-73.15666	40.17377	-73.15864	40	8	SW	<2	B2	>5	Clear	Severe	4.3	183	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:06	40.17377	-73.15864	40.16583	-73.15883	43	9	S	<2	B2	>5	Clear	Severe	4.8	181	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:06	17:07	40.16583	-73.15883	40.16561	-73.15883	41	8	S	<2	B2	>5	Clear	Severe	4.5	180	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:07	17:23	40.16561	-73.15883	40.17257	-73.17245	42	8	S	<2	B2	>5	Clear	Severe	4.6	180	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:23	17:28	40.17257	-73.17245	40.17889	-73.17262	43	6	S	<2	B2	>5	Clear	Severe	4.3	1	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:28	18:00	40.17889	-73.17262	40.21812	-73.17156	42	6	S	<2	B2	>5	Clear	Severe	4.4	1	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:09	40.21812	-73.17156	40.22909	-73.17124	41	7	S	<2	B2	>5	Cloudy	Severe	4.4	4	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:09	18:11	40.22909	-73.17124	40.23218	-73.17115	41	7	S	<2	B2	>5	Cloudy	Severe	4.4	3	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:11	18:40	40.23218	-73.17115	40.25596	-73.15686	41	8	S	<2	B2	>5	Cloudy	Severe	4.4	4	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:40	18:45	40.25596	-73.15686	40.24955	-73.15689	41	10	S	<2	B2	>5	Cloudy	Severe	4.2	181	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:45	19:00	40.24955	-73.15689	40.23889	-73.15721	40	10	S	<2	B2	>5	Cloudy	Severe	4.2	181	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:54	40.23889	-73.15721	40.16646	-73.15916	40	9	S	<2	B3	>5	Cloudy	Severe	4.4	179	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:54	19:55	40.16646	-73.15916	40.16576	-73.15919	41	9	S	<2	B3	>5	Cloudy	Severe	4.5	179	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:55	20:00	40.16576	-73.15919	40.16202	-73.16122	41	8	S	<2	B3	>5	Cloudy	Severe	4.7	192	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	20:11	40.16202	-73.16122	40.17372	-73.17299	41	8	S	<2	B3	>5	Cloudy	Severe	4.7	237	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:11	20:16	40.17372	-73.17299	40.17895	-73.17303	42	8	S	<2	B3	>5	Cloudy	Moderate	4.5	355	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:16	20:56	40.17895	-73.17303	40.22922	-73.17165	42	10	S	<2	B3	>5	Cloudy	Moderate	4.6	1	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:56	20:58	40.22922	-73.17165	40.23219	-73.17158	40	7	S	<2	B3	>5	Clear	Slight	4.4	4	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:58	21:00	40.23219	-73.17158	40.23464	-73.17135	40	8	S	<2	B3	>5	Clear	Slight	4.6	4	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:25	40.23464	-73.17135	40.25526	-73.15716	40	7	S	<2	B3	>5	Clear	Slight	4.7	8	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:25	21:29	40.25526	-73.15716	40.25028	-73.15729	39	10	SE	<2	B3	>5	Clear	None	4.6	177	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:29	21:30	40.25028	-73.15729	40.24892	-73.15734	40	9	SE	<2	B3	>5	Clear	None	4.5	179	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:30	21:45	40.24892	-73.15734	40.23179	-73.15781	40	9	SE	<2	B3	2-5	Clear	None	4.5	179	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:45	22:00	40.23179	-73.15781	40.21358	-73.15827	42	10	SE	<2	B3	1-2	Clear	None	4.3	178	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	22:38	40.21358	-73.15827	40.16553	-73.15956	42	10	SE	<2	B3	0.5-1	Clear	None	4.5	179	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:38	22:39	40.16553	-73.15956	40.16407	-73.15960	42	9	SSE	<2	B3	0.5-1	Clear	None	4.6	180	Silent	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:39	22:57	40.16407	-73.15960	40.17594	-73.17346	42	9	SSE	<2	B3	0.5-1	Clear	None	4.6	191	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:57	23:00	40.17594	-73.17346	40.17909	-73.17340	42	7	SSE	<2	B3	0.5-1	Clear	None	4.7	0	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	23:42	40.17909	-73.17340	40.22967	-73.17203	43	6	SSE	<2	B3	0.5-1	Clear	None	4.3	359	Full power	N/A
2022-12-05	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:42	00:00	40.22967	-73.17203	40.25019	-73.16907	43	9	SSE	<2	B3	0.5-1	Clear	None	4.5	1	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	00:14	40.25214	-73.16831	40.25007	-73.15764	42	10	SE	<2	B3	0.5-1	Clear	None	4.7	6	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:14	01:00	40.25007	-73.15764	40.19300	-73.15917	42	10	SE	<2	B3	0.5-1	Clear	None	4.7	6	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:21	40.19300	-73.15917	40.16680	-73.15993	41	12	SSE	<2	B3	0.5-1	Clear	None	4	179	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:21	01:22	40.16680	-73.15993	40.16555	-73.16001	42	11	SSE	<2	B3	0.5-1	Clear	None	4.6	180	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:22	01:38	40.16555	-73.16001	40.17370	-73.17377	42	11	SSE	<2	B3	0.5-1	Clear	None	4.6	180	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:38	01:42	40.17370	-73.17377	40.17841	-73.17374	42	9	SSE	<2	B3	0.5-1	Clear	None	4.3	358	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:42	02:00	40.17841	-73.17374	40.20008	-73.17312	42	8	SSE	<2	B3	0.5-1	Clear	None	4.3	358	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	02:25	40.20008	-73.17312	40.22988	-73.17233	42	8	SSE	<2	B3	0.5-1	Clear	None	4.3	358	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:25	02:26	40.22988	-73.17233	40.23152	-73.17228	42	9	SE	<2	B3	0.5-1	Clear	None	4.4	2	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:26	03:00	40.23152	-73.17228	40.24627	-73.15810	42	9	SE	<2	B3	0.5-1	Clear	None	4.4	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.24627	-73.15810	40.17287	-73.16007	41	12	SSE	<2	B3	0.5-1	Clear	None	4.5	179	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	04:04	40.17287	-73.16007	40.16740	-73.16019	41	10	SSE	<2	B3	0.5-1	Clear	None	4.4	178	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:04	04:06	40.16740	-73.16019	40.16511	-73.16024	41	11	SSE	<2	B3	0.5-1	Clear	None	4.4	181	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:06	04:21	40.16511	-73.16024	40.17397	-73.17400	41	11	SSE	<2	B3	0.5-1	Clear	None	4.4	181	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:21	04:25	40.17397	-73.17400	40.17921	-73.17399	41	10	SSE	<2	B3	0.5-1	Clear	None	4.3	2	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:25	05:00	40.17921	-73.17399	40.22212	-73.17292	41	10	SSE	<2	B3	0.5-1	Clear	None	4.4	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	05:07	40.22212	-73.17292	40.23058	-73.17268	41	10	SSE	<2	B3	0.5-1	Clear	None	4.4	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:07	05:08	40.23058	-73.17268	40.23151	-73.17266	41	10	SSE	<2	B3	0.5-1	Clear	None	4.3	2	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:08	05:34	40.23151	-73.17266	40.25459	-73.15841	41	10	SSE	<2	B3	0.5-1	Clear	None	4.8	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:34	05:37	40.25459	-73.15841	40.25007	-73.15840	41	9	SE	<2	B3	0.5-1	Clear	None	4.7	177	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:37	06:00	40.25007	-73.15840	40.22338	-73.15900	41	9	SE	<2	B3	0.5-1	Clear	None	4.2	175	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	06:46	40.22338	-73.15900	40.16774	-73.16060	42	11	SE	<2	B3	0.5-1	Clear	None	4.4	175	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:46	06:48	40.16774	-73.16060	40.16521	-73.16069	42	12	SE	<2	B3	0.5-1	Clear	None	4.6	173	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:48	07:00	40.16521	-73.16069	40.17013	-73.17246	42	13	SE	<2	B3	0.5-1	Clear	None	4.6	186	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	07:03	40.17013	-73.17246	40.17367	-73.17450	42	13	SE	<2	B3	0.5-1	Clear	None	4.7	333	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:03	07:07	40.17367	-73.17450	40.17869	-73.17445	42	13	SE	<2	B3	0.5-1	Clear	None	4.3	1	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:07	07:49	40.17869	-73.17445	40.22996	-73.17300	42	13	SE	<2	B3	0.5-1	Clear	None	4.6	4	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:49	07:50	40.22996	-73.17300	40.23119	-73.17293	40	14	SE	<2	B3	0.5-1	Cloudy	None	4.4	7	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:50	08:00	40.23119	-73.17293	40.24441	-73.17032	40	14	SE	<2	B3	0.5-1	Cloudy	None	4.4	7	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	08:15	40.24441	-73.17032	40.25560	-73.15870	40	14	SE	<2	B3	0.5-1	Cloudy	None	4.7	26	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:15	08:19	40.25560	-73.15870	40.25069	-73.15869	40	16	SE	<2	B3	0.5-1	Cloudy	None	4.4	171	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:19	09:00	40.25069	-73.15869	40.19864	-73.16010	40	16	SE	<2	B3	0.5-1	Cloudy	None	4.6	173	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	09:26	40.19864	-73.16010	40.16716	-73.16099	40	18	SE	<2	B3	0.5-1	Clear	None	4.7	174	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:26	09:47	40.16716	-73.16099	40.17956	-73.17474	42	17	SE	<2	B3	0.5-1	Clear	None	4.1	174	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:47	10:00	40.17956	-73.17474	40.19352	-73.17436	42	18	SE	<2	B3	0.5-1	Clear	None	4.8	5	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:29	40.19352	-73.17436	40.22944	-73.17341	41	19	SE	<2	B3	0.5-1	Clear	None	4.4	6	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:29	10:30	40.22944	-73.17341	40.23083	-73.17337	41	19	SSE	<2	B3	0.5-1	Clear	None	4.5	8	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	10:58	40.23083	-73.17337	40.25621	-73.15884	41	19	SSE	<2	B3	0.5-1	Clear	None	4.5	8	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:58	11:00	40.25621	-73.15884	40.25320	-73.15904	40	19	SE	<2	B3	0.5-1	Clear	None	4.4	172	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	11:03	40.25320	-73.15904	40.25020	-73.15907	40	19	SE	<2	B3	0.5-1	Clear	None	4.4	172	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:03	11:34	40.25020	-73.15907	40.21538	-73.16001	40	19	SE	<2	B3	0.5-1	Clear	None	4.4	173	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:34	11:39	40.21538	-73.16001	40.20881	-73.16018	42	18	SE	<2	B4	1-2	Cloudy	None	3.7	176	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:39	11:49	40.20881	-73.16018	40.19852	-73.16047	42	19	SE	<2	B4	2-5	Cloudy	None	4.4	176	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	11:49	12:00	40.19852	-73.16047	40.18542	-73.16081	41	19	SE	<2	B4	>5	Cloudy	Slight	3.1	176	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:17	40.18542	-73.16081	40.16732	-73.16130	43	19	SSE	<2	B4	>5	Cloudy	Slight	4.4	174	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:17	12:19	40.16732	-73.16130	40.16513	-73.16134	43	18	SE	<2	B4	>5	Cloudy	Slight	4	176	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:19	12:36	40.16513	-73.16134	40.17587	-73.17525	43	18	SE	<2	B4	>5	Cloudy	Slight	4	176	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:36	12:39	40.17587	-73.17525	40.17918	-73.17513	43	19	NNW	<2	B4	>5	Cloudy	Slight	4.6	1	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:39	13:00	40.17918	-73.17513	40.20124	-73.17445	43	16	NNW	<2	B4	>5	Cloudy	Slight	4.1	1	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:25	40.20124	-73.17445	40.22932	-73.17375	42	19	SSE	<2	B4	>5	Cloudy	None	3.7	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:25	13:27	40.22932	-73.17375	40.23179	-73.17363	42	19	SE	<2	B4	>5	Cloudy	None	4.5	4	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:27	13:59	40.23179	-73.17363	40.25020	-73.15938	42	18	SE	<2	B4	>5	Cloudy	None	3.7	2	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:59	15:00	40.25020	-73.15938	40.18246	-73.16121	41	18	SSE	<2	B4	>5	Cloudy	None	3.9	175	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:00	15:15	40.18246	-73.16121	40.16623	-73.16161	42	21	SE	2-4	B5	>5	Cloudy	None	4.4	174	Full power	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	15:15	16:00	40.16623	-73.16161	40.20869	-73.16865	42	21	SE	2-4	B5	>5	Cloudy	None	3.8	171	Silent	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	16:00	17:00	40.20869	-73.16865	40.24620	-73.14021	42	21	SE	2-4	B5	>5	Cloudy	None	4.2	7	Standby	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:00	17:55	40.24620	-73.14021	40.21615	-73.16134	41	21	SE	2-4	B5	>5	Cloudy	None	4.5	173	Standby	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	17:55	18:00	40.21615	-73.16134	40.21990	-73.16649	41	17	SE	2-4	B5	>5	Cloudy	None	3.4	317	Deploying/Retrieving	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:09	40.21990	-73.16649	40.22566	-73.17463	41	17	SE	2-4	B5	>5	Cloudy	None	3.4	317	Deploying/Retrieving	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:09	18:37	40.22566	-73.17463	40.23484	-73.18864	41	17	SE	2-4	B5	>5	Cloudy	None	3.4	317	Deploying/Retrieving	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:37	19:00	40.23484	-73.18864	40.24205	-73.20838	40	16	SSE	2-4	B5	>5	Cloudy	None	0.7	104	Standby	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:43	40.24205	-73.20838	40.26587	-73.27906	40	15	SE	2-4	B5	>5	Cloudy	None	5.2	291	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:43	20:00	40.26587	-73.27906	40.27398	-73.30736	40	14	SE	2-4	B5	2-5	Precipitation	None	5.2	290	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	20:00	21:00	40.27398	-73.30736	40.30341	-73.40745	37	16	SE	2-4	B5	2-5	Precipitation	None	4.9	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:00	21:20	40.30341	-73.40745	40.31367	-73.44159	32	16	SE	2-4	B5	2-5	Precipitation	None	5.2	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:20	21:40	40.31367	-73.44159	40.32370	-73.47385	32	17	SE	2-4	B5	1-2	Precipitation	None	5.1	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Patterson, Tania	RPS	21:40	21:50	40.32370	-73.47385	40.32825	-73.48903	33	20	SE	2-4	B5	0.5-1	Precipitation	None	5.1	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	21:50	22:00	40.32825	-73.48903	40.33475	-73.50974	33	18	SE	2-4	B5	0.3-0.5	Precipitation	None	5.2	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Patterson, Tania	RPS	22:00	23:00	40.33475	-73.50974	40.36331	-73.62022	28	18	SE	2-4	B5	0.3-0.5	Precipitation	None	5.2	289	Transit	N/A
2022-12-06	*GO Discovery*	HRG	Visual	Ley, Rafael; Patterson, Tania	RPS	23:00	00:00	40.36331	-73.62022	40.39859	-73.73860	27	16	SE	2-4	B5	0.3-0.5	Cloudy	None	5.9	288	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	00:00	01:00	40.39978	-73.74229	40.43713	-73.87262	25	12	SE	2-4	B5	0.3-0.5	Precipitation	None	6	289	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.43713	-73.87262	40.48458	-73.99943	20	14	SE	2-4	B5	0.3-0.5	Precipitation	None	7.3	285	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:00	02:32	40.48458	-73.99943	40.49011	-74.06319	19	16	SE	2-4	B5	0.3-0.5	Precipitation	None	6.4	240	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	02:32	03:00	40.49011	-74.06319	40.50227	-74.07007	19	16	SE	2-4	B5	0.3-0.5	Precipitation	None	5	316	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Sandoval, Maria	RPS	03:00	04:00	40.50227	-74.07007	40.49929	-74.06899	7	14	S	<2	B5	0.3-0.5	Precipitation	None	0.3	205	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	04:00	05:00	40.49929	-74.06899	40.50564	-74.07146	7	15	SSE	<2	B3	0.3-0.5	Precipitation	None	0.2	282	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	05:00	06:00	40.50564	-74.07146	40.50429	-74.07203	7	16	SE	<2	B3	0.3-0.5	Precipitation	None	0.7	263	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	06:00	07:00	40.50429	-74.07203	40.50175	-74.07706	7	15	S	<2	B3	0.3-0.5	Precipitation	None	4.2	165	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.50175	-74.07706	40.49412	-74.07161	8	14	S	<2	B3	0.3-0.5	Precipitation	None	0.8	52	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.49412	-74.07161	40.49652	-74.06515	8	15	S	<2	B3	0.3-0.5	Precipitation	None	0.8	54	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49652	-74.06515	40.50056	-74.06493	8	12	S	<2	B3	0.3-0.5	Precipitation	None	3.5	93	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	10:00	10:30	40.50056	-74.06493	40.50019	-74.06177	7	7	SSW	<2	B3	0.3-0.5	Precipitation	None	0.2	25	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:30	11:00	40.50019	-74.06177	40.49905	-74.05080	7	6	SSW	<2	B3	0.3-0.5	Precipitation	None	4	105	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	12:00	40.49905	-74.05080	40.61931	-74.06344	12	1	SW	<2	B3	0.3-0.5	Fog	None	6.1	75	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	12:00	12:06	40.61931	-74.06344	40.61759	-74.06406	8	4	SW	<2	B3	0.3-0.5	Fog	None	0.3	292	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	12:06	13:05	40.61759	-74.06406	40.61787	-74.06374	8	4	SW	<2	B3	0.3-0.5	Fog	None	0	40	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:05	14:00	40.61787	-74.06374	40.53962	-74.02640	8	4	SW	<2	B3	0.3-0.5	Fog	None	1.8	48	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	15:00	40.53962	-74.02640	40.46813	-73.87599	8	3	N	<2	B3	0.3-0.5	Fog	None	6.3	169	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	15:00	15:48	40.46813	-73.87599	40.43015	-73.75499	22	15	N	2-4	B3	0.3-0.5	Fog	None	7.1	100	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	15:48	16:00	40.43015	-73.75499	40.41787	-73.73090	28	15	N	2-4	B3	0.3-0.5	Fog	None	6.9	122	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	16:00	17:00	40.41787	-73.73090	40.36186	-73.60979	24	13	SW	2-4	B3	0.3-0.5	Fog	None	7.2	123	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	17:00	18:00	40.36186	-73.60979	40.31037	-73.49956	24	17	SW	2-4	B4	0.3-0.5	Fog	None	6.2	123	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.31037	-73.49956	40.26890	-73.41881	28	16	SW	2-4	B4	0.3-0.5	Fog	None	6.4	128	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.26890	-73.41881	40.22922	-73.33859	34	15	SW	2-4	B4	0.3-0.5	Fog	None	5.4	126	Transit	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:00	20:18	40.22922	-73.33859	40.21887	-73.31922	42	17	SSE	2-4	B4	0.1-0.3	Fog	None	4.4	125	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:18	21:00	40.21887	-73.31922	40.22054	-73.27537	42	17	SSE	<2	B4	0.3-0.5	Fog	None	4.4	125	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:00	21:43	40.22054	-73.27537	40.23306	-73.21553	42	17	SW	<2	B4	0.5-1	Fog	None	4.7	83	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:43	22:00	40.23306	-73.21553	40.23667	-73.19761	42	16	SW	<2	B3	0.3-0.5	Fog	None	4.1	79	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:00	22:38	40.23667	-73.19761	40.22401	-73.14520	43	15	SSW	<2	B3	0.3-0.5	Fog	None	4.2	82	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:38	23:00	40.22401	-73.14520	40.21369	-73.11954	43	14	SW	<2	B3	0.05-0.1	Fog	None	3.2	122	Standby	N/A
2022-12-07	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	23:00	00:00	40.21369	-73.11954	40.19751	-73.08472	43	13	SW	<2	B3	0.05-0.1	Fog	None	3.6	126	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	00:00	01:00	40.19644	-73.09096	40.16971	-73.13540	45	14	SW	<2	B3	0.1-0.3	Fog	None	4.2	241	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	01:37	40.16971	-73.13540	40.21337	-73.12653	40	13	WSW	<2	B3	0.1-0.3	Fog	None	4.7	35	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:37	02:00	40.21337	-73.12653	40.21839	-73.12411	42	17	W	<2	B3	0.1-0.3	Fog	None	4.5	359	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	02:20	40.21839	-73.12411	40.21726	-73.14121	42	18	W	<2	B3	0.3-0.5	Fog	None	0.6	275	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:20	03:00	40.21726	-73.14121	40.25086	-73.13625	42	17	W	<2	B3	0.5-1	Cloudy	None	3.9	278	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	03:00	04:00	40.25086	-73.13625	40.19891	-73.14155	42	21	W	<2	B3	0.5-1	Cloudy	None	4	354	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	04:00	05:00	40.19891	-73.14155	40.16751	-73.15218	43	19	W	<2	B3	0.5-1	Cloudy	None	3.6	185	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	05:00	06:00	40.16751	-73.15218	40.23316	-73.15040	43	17	W	<2	B3	0.5-1	Cloudy	None	3.9	354	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	06:00	07:00	40.23316	-73.15040	40.21934	-73.14332	42	18	WNW	<2	B3	0.5-1	Cloudy	None	4.4	355	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.21934	-73.14332	40.15431	-73.14509	42	18	NE	<2	B4	0.5-1	Clear	None	4.5	184	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.15431	-73.14509	40.20812	-73.16018	45	18	NE	<2	B4	0.5-1	Clear	None	3.9	188	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.20812	-73.16018	40.24806	-73.14664	45	19	NW	<2	B5	0.5-1	Clear	None	4	358	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	11:00	40.24806	-73.14664	40.18007	-73.14749	41	18	NW	<2	B5	0.5-1	Cloudy	None	4.2	178	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	12:00	40.18007	-73.14749	40.18845	-73.09701	41	16	NW	<2	B5	0.5-1	Cloudy	None	4.6	183	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:20	40.18845	-73.09701	40.21374	-73.09631	43	17	N	<2	B5	1-2	Cloudy	None	4.8	1	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:20	12:58	40.21374	-73.09631	40.26223	-73.09492	43	17	N	<2	B5	2-5	Cloudy	None	4.8	1	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:58	13:00	40.26223	-73.09492	40.26386	-73.09493	43	16	N	<2	B5	>5	Cloudy	Slight	4.8	1	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:00	13:29	40.26386	-73.09493	40.29909	-73.09350	41	22	N	<2	B5	>5	Cloudy	Moderate	4.8	2	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:29	13:41	40.29909	-73.09350	40.31058	-73.09233	41	18	N	<2	B5	>5	Cloudy	Severe	3.5	0	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:41	13:46	40.31058	-73.09233	40.31405	-73.09179	41	18	N	<2	B5	>5	Cloudy	Slight	3	19	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:46	13:54	40.31405	-73.09179	40.31847	-73.08821	41	22	N	<2	B5	>5	Cloudy	Slight	3	19	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:54	13:59	40.31847	-73.08821	40.32111	-73.08495	41	22	N	<2	B5	>5	Cloudy	Slight	2.6	22	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	13:59	14:00	40.32111	-73.08495	40.32187	-73.08422	39	18	N	<2	B5	>5	Cloudy	Slight	3.8	22	Deploying/Retrieving	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:00	14:07	40.32187	-73.08422	40.32823	-73.08058	39	18	N	<2	B5	>5	Cloudy	Slight	3.8	23	Standby	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:07	14:28	40.32823	-73.08058	40.31303	-73.08775	39	18	N	<2	B5	>5	Cloudy	Moderate	3.8	51	Soft Start	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	14:28	15:00	40.31303	-73.08775	40.28199	-73.12506	40	16	N	<2	B5	>5	Cloudy	Slight	2.7	227	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	15:00	15:29	40.28199	-73.12506	40.25084	-73.15334	40	14	N	<2	B5	>5	Cloudy	Moderate	4.8	230	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	15:29	15:41	40.25084	-73.15334	40.23610	-73.15371	41	20	NNW	<2	B5	>5	Cloudy	Slight	4.5	184	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	15:41	16:00	40.23610	-73.15371	40.21165	-73.15438	41	20	NNW	<2	B5	>5	Cloudy	Slight	4.5	184	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	16:00	16:35	40.21165	-73.15438	40.16786	-73.15558	42	21	N	<2	B5	>5	Cloudy	Severe	4.8	183	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	16:35	16:58	40.16786	-73.15558	40.17328	-73.17411	42	20	NNW	<2	B5	>5	Cloudy	Severe	4.5	184	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Sandoval, Maria	RPS	16:58	17:00	40.17328	-73.17411	40.17536	-73.17485	43	22	N	<2	B5	>5	Cloudy	Severe	4.1	316	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	17:03	40.17536	-73.17485	40.17990	-73.17474	43	18	N	<2	B5	>5	Cloudy	Severe	4.3	355	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:03	17:45	40.17990	-73.17474	40.22878	-73.17342	43	19	N	<2	B5	>5	Cloudy	Severe	4.3	354	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:45	17:46	40.22878	-73.17342	40.23060	-73.17337	40	20	NNW	<2	B5	>5	Cloudy	Severe	4.4	357	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:46	18:00	40.23060	-73.17337	40.24648	-73.16737	40	20	NNW	<2	B5	>5	Cloudy	Severe	4.4	357	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	18:17	40.24648	-73.16737	40.25105	-73.15372	40	20	NNW	<2	B5	>5	Cloudy	Severe	4.7	14	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:17	19:00	40.25105	-73.15372	40.19819	-73.15516	40	16	NW	<2	B5	>5	Cloudy	Severe	4.2	182	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:25	40.19819	-73.15516	40.16673	-73.15599	41	17	NW	<2	B5	>5	Cloudy	Severe	4.4	180	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:25	19:48	40.16673	-73.15599	40.17400	-73.17500	41	17	NW	<2	B5	>5	Cloudy	Severe	4.4	180	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:48	19:52	40.17400	-73.17500	40.17871	-73.17511	42	17	NW	<2	B5	>5	Cloudy	Severe	4.1	358	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:52	19:53	40.17871	-73.17511	40.17990	-73.17505	42	17	NW	<2	B5	>5	Cloudy	Severe	4.4	359	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:53	19:55	40.17990	-73.17505	40.18232	-73.17503	42	18	NW	<2	B5	>5	Cloudy	Severe	4.2	145	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:55	20:00	40.18232	-73.17503	40.18164	-73.17010	42	18	NW	<2	B5	>5	Cloudy	Severe	4.2	154	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:00	20:11	40.18164	-73.17010	40.17324	-73.17478	43	17	NW	<2	B5	>5	Cloudy	Severe	4.3	173	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:11	20:16	40.17324	-73.17478	40.17899	-73.17510	43	19	NW	<2	B5	>5	Cloudy	Severe	4.1	2	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:16	20:57	40.17899	-73.17510	40.22835	-73.17380	43	19	NW	<2	B5	>5	Cloudy	Severe	4.5	359	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:57	20:59	40.22835	-73.17380	40.23094	-73.17372	43	15	NNW	<2	B4	>5	Cloudy	Slight	4.3	2	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	20:59	21:00	40.23094	-73.17372	40.23225	-73.17374	43	15	NNW	<2	B4	>5	Cloudy	Slight	4.3	3	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:00	21:22	40.23225	-73.17374	40.25598	-73.16023	43	15	NNW	<2	B4	>5	Cloudy	Slight	4.3	3	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:22	21:27	40.25598	-73.16023	40.25015	-73.15940	40	14	N	<2	B4	>5	Cloudy	None	4.2	171	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:27	21:46	40.25015	-73.15940	40.22639	-73.15997	41	14	N	<2	B3	>5	Cloudy	None	4.3	180	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:46	21:57	40.22639	-73.15997	40.21408	-73.16031	41	15	NNW	<2	B3	2-5	Cloudy	None	4.4	178	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael	RPS	21:57	22:00	40.21408	-73.16031	40.21007	-73.16043	42	16	NNW	<2	B3	1-2	Cloudy	None	4.4	178	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:00	22:36	40.21007	-73.16043	40.16647	-73.16164	42	14	NNW	<2	B3	0.5-1	Cloudy	None	4.3	176	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:36	22:38	40.16647	-73.16164	40.16499	-73.16165	43	15	NNW	<2	B3	0.5-1	Cloudy	None	4.5	177	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:38	22:56	40.16499	-73.16165	40.17199	-73.17463	43	15	NNW	<2	B3	0.5-1	Cloudy	None	4.4	178	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	22:56	23:00	40.17199	-73.17463	40.17687	-73.17554	42	18	NW	<2	B3	0.5-1	Cloudy	None	4.4	347	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	23:00	23:02	40.17687	-73.17554	40.17919	-73.17551	42	17	NW	<2	B3	0.5-1	Cloudy	None	4.7	0	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	23:02	23:44	40.17919	-73.17551	40.22926	-73.17419	42	20	NW	<2	B4	0.5-1	Cloudy	None	4.5	358	Full power	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	23:44	23:50	40.22926	-73.17419	40.23577	-73.17412	40	28	N	<2	B4	0.5-1	Cloudy	None	4.3	2	Silent	N/A
2022-12-08	*GO Discovery*	HRG	Visual	Ley, Rafael; Muehlenweg, Ashley	RPS	23:50	00:00	40.23577	-73.17412	40.24385	-73.17474	40	22	N	<2	B4	0.5-1	Cloudy	None	3.6	356	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	00:00	00:46	40.24414	-73.17386	40.21769	-73.16808	42	25	N	2-4	B5	0.5-1	Cloudy	None	3.5	142	Deploying/Retrieving	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	00:46	00:50	40.21769	-73.16808	40.21744	-73.17066	42	25	N	2-4	B5	0.5-1	Cloudy	None	1.6	278	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	00:50	01:00	40.21744	-73.17066	40.22499	-73.19592	43	26	N	2-4	B5	0.5-1	Cloudy	None	6.8	302	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	01:00	02:00	40.22499	-73.19592	40.27443	-73.36105	43	27	N	<2	B5	0.5-1	Cloudy	None	7.4	295	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	02:00	03:00	40.27443	-73.36105	40.32707	-73.52450	36	24	N	<2	B5	0.5-1	Cloudy	None	8.2	300	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	03:00	04:00	40.32707	-73.52450	40.38015	-73.69198	27	23	N	<2	B5	0.5-1	Cloudy	None	8	297	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	04:00	05:00	40.38015	-73.69198	40.43031	-73.84845	25	26	N	<2	B5	0.5-1	Cloudy	None	8.2	300	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	05:00	06:00	40.43031	-73.84845	40.47037	-73.96344	24	22	N	<2	B5	0.5-1	Cloudy	None	6.4	302	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	06:00	06:44	40.47037	-73.96344	40.50054	-74.07010	9	22	N	<2	B5	0.5-1	Cloudy	None	6.2	312	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Muehlenweg, Ashley	RPS	06:44	07:00	40.50054	-74.07010	40.49822	-74.06778	7	22	N	<2	B4	0.5-1	Cloudy	None	4.2	25	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	07:00	08:00	40.49822	-74.06778	40.51049	-74.06501	8	20	NW	<2	B3	0.5-1	Cloudy	None	0.9	110	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Ley, Rafael; Sandoval, Maria	RPS	08:00	09:00	40.51049	-74.06501	40.49536	-74.07946	8	19	N	<2	B3	0.5-1	Clear	None	0.9	106	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Ley, Rafael	RPS	09:00	10:00	40.49536	-74.07946	40.50564	-74.06363	8	20	N	<2	B3	0.5-1	Clear	None	1.2	110	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:00	10:50	40.50564	-74.06363	40.49478	-74.07666	8	17	NNW	<2	B3	0.5-1	Clear	None	1.6	103	Standby	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	10:50	11:00	40.49478	-74.07666	40.49742	-74.06427	8	20	N	<2	B3	0.5-1	Clear	None	3.3	53	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele; Sandoval, Maria	RPS	11:00	12:00	40.49742	-74.06427	40.60421	-74.04840	7	15	N	<2	B3	0.5-1	Clear	None	5.6	80	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Fuhr Ely, Gabriele	RPS	12:00	12:15	40.60421	-74.04840	40.61732	-74.06430	7	19	N	<2	B3	1-2	Clear	None	9.1	327	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:56	16:00	40.61743	-74.06426	40.61855	-74.06066	7	15	N	<2	B3	>5	Clear	None	4.5	50	Transit	N/A
2022-12-09	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	16:36	40.61855	-74.06066	40.66135	-74.07252	7	15	N	<2	B3	>5	Clear	None	0.5	50	Transit	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:48	06:00	40.66146	-74.07253	40.65944	-74.07043	10	5	NNE	<2	B2	0.5-1	Cloudy	None	0.4	308	Transit	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	06:00	07:00	40.65944	-74.07043	40.55604	-74.03298	7	12	NE	<2	B2	0.5-1	Cloudy	None	3.3	40	Transit	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	07:00	08:00	40.55604	-74.03298	40.49483	-74.06663	4	15	NE	<2	B2	0.5-1	Cloudy	None	8	196	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	08:00	09:00	40.49483	-74.06663	40.49396	-74.06415	7	14	NE	<2	B2	0.5-1	Cloudy	None	0.5	310	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.49396	-74.06415	40.49682	-74.06222	5	13	NE	<2	B2	0.5-1	Cloudy	None	0.9	322	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	11:00	40.49682	-74.06222	40.49442	-74.08922	6	14	NE	<2	B2	0.5-1	Cloudy	None	1.4	90	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	11:00	12:00	40.49442	-74.08922	40.50723	-74.07479	6	16	NE	<2	B3	0.5-1	Cloudy	None	1.4	172	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	13:00	40.50723	-74.07479	40.49913	-74.09880	5	14	NE	<2	B3	1-2	Cloudy	None	2.9	158	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	14:00	40.49913	-74.09880	40.50209	-74.07379	6	11	NE	<2	B3	1-2	Cloudy	None	1.2	329	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.50209	-74.07379	40.49866	-74.08757	6	11	NE	<2	B3	2-5	Cloudy	None	0.7	330	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.49866	-74.08757	40.49853	-74.11490	7	16	NE	<2	B4	2-5	Cloudy	None	3.5	234	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.49853	-74.11490	40.50142	-74.12395	7	13	NE	<2	B4	2-5	Cloudy	None	1	327	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.50142	-74.12395	40.50160	-74.12695	7	15	NE	<2	B4	2-5	Precipitation	None	3.1	103	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.50160	-74.12695	40.49151	-74.06782	7	13	NE	<2	B4	2-5	Precipitation	None	2.7	203	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.49151	-74.06782	40.49114	-74.06187	8	19	NE	<2	B4	2-5	Precipitation	None	0.9	11	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.49114	-74.06187	40.48846	-74.06233	8	14	NE	<2	B4	1-2	Precipitation	None	0.5	144	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:34	40.48846	-74.06233	40.49027	-74.06185	8	15	NE	<2	B4	1-2	Precipitation	None	0.6	92	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:34	21:50	40.49027	-74.06185	40.49372	-74.06406	8	13	NE	<2	B4	1-2	Precipitation	None	0.5	96	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	21:50	22:00	40.49372	-74.06406	40.49224	-74.06613	8	15	NE	<2	B4	0.5-1	Precipitation	None	2.6	347	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.49224	-74.06613	40.49305	-74.06541	8	12	NE	<2	B4	0.5-1	Precipitation	None	0.5	99	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.49305	-74.06541	40.49125	-74.07188	8	9	NE	<2	B4	0.5-1	Precipitation	None	0.2	151	Standby	N/A
2022-12-11	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.49125	-74.07188	40.49443	-74.09269	8	13	NE	<2	B3	0.5-1	Precipitation	None	0.3	321	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.49454	-74.09293	40.49935	-74.10372	10	11	NE	<2	B4	0.5-1	Precipitation	None	1.2	338	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.49935	-74.10372	40.50045	-74.10799	5	7	N	<2	B3	0.5-1	Precipitation	None	1.1	257	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	02:17	40.50045	-74.10799	40.49927	-74.11266	8	14	N	<2	B3	0.5-1	Precipitation	None	0.7	123	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:17	03:00	40.49927	-74.11266	40.50213	-74.09912	8	12	N	<2	B3	0.5-1	Cloudy	None	0.9	117	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	03:00	03:27	40.50213	-74.09912	40.49907	-74.10393	8	16	N	<2	B4	0.5-1	Precipitation	None	0.6	103	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana ,Felipe	RPS	03:27	04:00	40.49907	-74.10393	40.49884	-74.08792	5	13	NW	<2	B4	0.5-1	Precipitation	None	0.5	103	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	04:00	04:20	40.49884	-74.08792	40.49448	-74.09211	8	17	N	<2	B4	0.5-1	Precipitation	None	1.4	112	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	04:20	04:40	40.49448	-74.09211	40.49210	-74.09240	8	18	N	<2	B4	0.5-1	Precipitation	None	0.8	107	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	04:40	05:00	40.49210	-74.09240	40.49448	-74.08359	8	18	N	<2	B4	0.5-1	Precipitation	None	3.7	50	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.49448	-74.08359	40.49421	-74.07180	6	18	N	<2	B4	0.5-1	Precipitation	None	1	113	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	06:00	07:00	40.49421	-74.07180	40.49799	-74.06429	6	18	N	<2	B4	0.5-1	Precipitation	None	0.4	110	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	07:00	08:00	40.49799	-74.06429	40.49430	-74.06869	7	14	N	<2	B3	0.5-1	Precipitation	None	0.8	116	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	08:00	09:00	40.49430	-74.06869	40.49110	-74.06739	5	14	N	<2	B3	0.5-1	Cloudy	None	0.8	254	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	09:17	40.49110	-74.06739	40.48744	-74.06850	5	14	N	<2	B3	0.5-1	Cloudy	None	0.7	96	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:17	10:00	40.48744	-74.06850	40.49327	-74.06871	8	13	N	<2	B3	0.5-1	Cloudy	None	0.6	103	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:20	40.49327	-74.06871	40.48918	-74.07259	5	16	NW	<2	B4	0.5-1	Cloudy	None	0.7	97	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	10:20	11:00	40.48918	-74.07259	40.49304	-74.07367	5	16	NW	<2	B4	0.5-1	Cloudy	None	0.7	97	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	11:00	11:31	40.49304	-74.07367	40.49155	-74.08152	6	15	N	<2	B3	0.5-1	Cloudy	None	1.1	100	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	11:31	12:00	40.49155	-74.08152	40.49455	-74.08346	6	15	N	<2	B3	1-2	Cloudy	None	2.1	21	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	13:00	40.49455	-74.08346	40.49575	-74.08639	7	15	N	<2	B4	1-2	Cloudy	None	0.8	120	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	14:00	40.49575	-74.08639	40.49309	-74.07802	6	9	WNW	<2	B3	2-5	Cloudy	Slight	1.1	101	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.49309	-74.07802	40.49477	-74.08277	6	11	NW	<2	B4	>5	Cloudy	Moderate	0.7	74	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.49477	-74.08277	40.49147	-74.07156	6	15	NNW	<2	B4	>5	Cloudy	Severe	2	56	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.49147	-74.07156	40.50607	-74.06649	7	15	N	<2	B4	>5	Cloudy	Severe	0.3	76	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.50607	-74.06649	40.49989	-74.06289	7	15	N	<2	B4	>5	Cloudy	Severe	0.3	76	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.49989	-74.06289	40.50311	-74.06008	7	14	NNW	<2	B4	>5	Cloudy	Severe	0.6	109	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.50311	-74.06008	40.50720	-74.06579	6	16	NNE	<2	B4	>5	Cloudy	Severe	0.6	111	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.50720	-74.06579	40.49382	-74.06090	6	15	NW	<2	B4	>5	Cloudy	Severe	2.2	230	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:44	40.49382	-74.06090	40.48604	-74.06087	6	14	NW	<2	B4	>5	Cloudy	None	1	111	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:44	21:55	40.48604	-74.06087	40.49187	-74.06099	7	18	NNW	<2	B4	2-5	Cloudy	None	3	340	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	21:55	22:00	40.49187	-74.06099	40.49554	-74.06132	8	17	N	<2	B4	1-2	Cloudy	None	1.3	60	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.49554	-74.06132	40.49704	-74.06919	8	17	N	<2	B4	0.5-1	Cloudy	None	3.6	60	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.49704	-74.06919	40.49234	-74.07417	8	13	N	<2	B3	0.5-1	Cloudy	None	0.6	103	Standby	N/A
2022-12-12	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.49234	-74.07417	40.48168	-74.01370	7	22	NW	<2	B3	0.5-1	Cloudy	None	1.1	94	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.48224	-74.01251	40.45068	-73.91992	11	19	N	<2	B4	0.5-1	Clear	None	4.2	72	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.45068	-73.91992	40.42118	-73.82788	15	20	N	<2	B4	0.5-1	Clear	None	5.2	109	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	03:00	40.42118	-73.82788	40.40447	-73.76370	27	25	N	<2	B4	0.5-1	Clear	None	5	198	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana ,Felipe	RPS	03:00	04:00	40.40447	-73.76370	40.37072	-73.67616	30	23	N	<2	B4	0.5-1	Clear	None	4.8	109.4	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.37072	-73.67616	40.33914	-73.60302	30	25	N	<2	B5	0.5-1	Clear	None	4.6	109	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.33914	-73.60302	40.30756	-73.53422	18	22	N	<2	B4	0.5-1	Clear	None	3.9	111	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	06:00	07:00	40.30756	-73.53422	40.27293	-73.45160	18	17	NW	<2	B4	0.5-1	Clear	None	3.5	101	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	07:00	08:00	40.27293	-73.45160	40.24028	-73.38155	18	19	NW	<2	B5	0.5-1	Clear	None	4.1	111	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	08:00	08:41	40.24028	-73.38155	40.22743	-73.34546	34	22	NW	<2	B5	0.5-1	Clear	None	3.2	111	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana ,Felipe	RPS	08:41	09:00	40.22743	-73.34546	40.24574	-73.35153	34	22	NW	<2	B5	0.5-1	Clear	None	3.2	352	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.24574	-73.35153	40.28758	-73.38103	34	20	N	<2	B5	0.5-1	Clear	None	3.4	338	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	10:00	11:00	40.28758	-73.38103	40.33905	-73.41362	33	23	N	<2	B5	0.5-1	Clear	None	4.4	341	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	11:00	11:34	40.33905	-73.41362	40.36893	-73.43176	31	19	N	<2	B5	0.5-1	Clear	None	3.3	340	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana ,Felipe	RPS	11:34	12:00	40.36893	-73.43176	40.34878	-73.40436	30	19	N	<2	B5	1-2	Clear	None	3.6	139	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	13:00	40.34878	-73.40436	40.30252	-73.33830	27	16	N	<2	B5	1-2	Clear	Slight	4.5	124	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-13	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	13:51	40.30252	-73.33830	40.25571	-73.28947	33	15	N	<2	B5	2-5	Clear	Moderate	4.5	153	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:51	14:00	40.25571	-73.28947	40.24999	-73.27976	33	14	NNW	<2	B5	>5	Clear	Moderate	3.6	131	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.24999	-73.27976	40.23465	-73.20365	34	14	NNW	<2	B5	>5	Clear	Moderate	3.8	99	Transit	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.23465	-73.20365	40.22252	-73.13945	40	15	NNW	<2	B5	>5	Clear	Severe	3.9	100	Standby	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	16:51	40.22252	-73.13945	40.15965	-73.14050	41	16	NNW	<2	B5	>5	Clear	Severe	4.4	174	Standby	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:51	16:58	40.15965	-73.14050	40.15801	-73.14048	41	18	N	<2	B5	>5	Clear	Severe	0.7	306	Deploying/Retrieving	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:58	17:00	40.15801	-73.14048	40.15769	-73.14076	41	18	N	<2	B5	>5	Clear	Severe	0.5	332	Deploying/Retrieving	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	17:53	40.15769	-73.14076	40.18533	-73.14955	41	18	N	<2	B5	>5	Clear	Severe	0.5	332	Deploying/Retrieving	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:53	18:00	40.18533	-73.14955	40.19328	-73.14831	42	15	N	<2	B5	>5	Clear	Severe	4.4	3	Soft Start	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	18:14	40.19328	-73.14831	40.20964	-73.14568	42	17	N	<2	B5	>5	Clear	Severe	3.7	3	Soft Start	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:14	19:00	40.20964	-73.14568	40.20649	-73.13410	42	17	N	<2	B5	>5	Clear	Severe	4.6	3	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	19:44	40.20649	-73.13410	40.18167	-73.13832	43	15	NNW	<2	B4	>5	Clear	Severe	4.8	178	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:44	19:49	40.18167	-73.13832	40.18646	-73.13832	43	16	NNW	<2	B4	>5	Clear	Severe	4.8	355	Testing	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:49	20:00	40.18646	-73.13832	40.19751	-73.13769	43	16	NNW	<2	B4	>5	Clear	Severe	4.8	355	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	20:35	40.19751	-73.13769	40.23874	-73.13628	43	15	N	<2	B4	>5	Clear	Severe	4.3	4	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:35	20:39	40.23874	-73.13628	40.24297	-73.13622	42	15	NW	<2	B4	>5	Clear	Severe	4.1	359	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:39	20:46	40.24297	-73.13622	40.25142	-73.13603	42	15	NW	<2	B4	>5	Clear	Severe	4.3	359	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:46	20:48	40.25142	-73.13603	40.25490	-73.13598	42	13	NNW	<2	B4	>5	Clear	Severe	4.2	332	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:48	21:00	40.25490	-73.13598	40.26152	-73.14976	42	12	NNW	<2	B4	>5	Clear	Severe	4	326	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:09	40.26152	-73.14976	40.25548	-73.15905	41	12	NNW	<2	B4	>5	Clear	Severe	4.5	268	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:09	21:14	40.25548	-73.15905	40.25004	-73.15976	41	15	NNW	<2	B4	>5	Clear	Severe	4.3	183	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:14	21:54	40.25004	-73.15976	40.20325	-73.16101	41	14	NNW	<2	B4	>5	Clear	Severe	4.7	182	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:54	22:00	40.20325	-73.16101	40.19602	-73.16121	41	15	NW	<2	B3	2-5	Clear	None	4.4	181	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:25	40.19602	-73.16121	40.16663	-73.16200	41	16	NNW	<2	B3	0.5-1	Clear	None	3.8	181	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:25	22:27	40.16663	-73.16200	40.16456	-73.16203	41	18	N	<2	B3	0.5-1	Clear	None	4.1	190	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:27	22:40	40.16456	-73.16203	40.16401	-73.16800	42	16	N	<2	B3	0.5-1	Clear	None	4	215	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	22:46	40.16401	-73.16800	40.17480	-73.17571	42	16	NNW	<2	B3	0.5-1	Clear	None	4	325	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:46	22:50	40.17480	-73.17571	40.17856	-73.17581	42	13	NNW	<2	B3	0.5-1	Clear	None	4.2	0	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:50	23:00	40.17856	-73.17581	40.19009	-73.17558	42	13	NNW	<2	B3	0.5-1	Clear	None	4.2	358	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	23:35	40.19009	-73.17558	40.22939	-73.17450	43	17	NNW	<2	B3	0.5-1	Clear	None	4.2	358	Full power	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:35	23:36	40.22939	-73.17450	40.23054	-73.17449	43	20	N	<2	B3	0.5-1	Clear	None	4.1	3	Silent	N/A
2022-12-13	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:36	00:00	40.23054	-73.17449	40.25724	-73.16191	42	18	N	<2	B3	0.5-1	Clear	None	4.1	12	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	00:02	40.25714	-73.16152	40.25695	-73.16119	31	15	NW	<2	B3	0.5-1	Clear	None	4.2	181	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:02	00:05	40.25695	-73.16119	40.25011	-73.16008	31	15	NW	<2	B3	0.5-1	Clear	None	4.2	181	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:05	01:00	40.25011	-73.16008	40.18652	-73.16185	31	15	NW	<2	B3	0.5-1	Clear	None	4.2	181	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	01:18	40.18652	-73.16185	40.16699	-73.16235	40	14	NW	<2	B3	0.5-1	Clear	None	4.1	182	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:18	01:19	40.16699	-73.16235	40.16586	-73.16239	42	18	NW	<2	B3	0.5-1	Clear	None	4.7	332	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:19	01:37	40.16586	-73.16239	40.17379	-73.17619	42	18	NW	<2	B3	0.5-1	Clear	None	4.7	332	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:37	01:42	40.17379	-73.17619	40.18012	-73.17609	42	15	NW	<2	B3	0.5-1	Clear	None	4.3	357	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:42	02:00	40.18012	-73.17609	40.20108	-73.17557	42	15	NW	<2	B3	0.5-1	Clear	None	4.3	357	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	02:24	40.20108	-73.17557	40.23033	-73.17476	42	19	NW	<2	B4	0.5-1	Clear	None	4.4	359	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:24	02:25	40.23033	-73.17476	40.23134	-73.17479	41	19	NW	<2	B4	0.5-1	Clear	None	4.4	353	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:25	02:51	40.23134	-73.17479	40.25221	-73.15970	41	20	NW	<2	B4	0.5-1	Clear	None	5.2	11	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:51	02:52	40.25221	-73.15970	40.25103	-73.16002	40	14	NW	<2	B4	0.5-1	Clear	None	4.4	197	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:52	03:00	40.25103	-73.16002	40.24146	-73.16072	40	14	NW	<2	B4	0.5-1	Clear	None	4.4	197	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	03:03	40.24146	-73.16072	40.23822	-73.16075	41	16	NW	<2	B4	0.5-1	Clear	None	4.4	182	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:03	03:36	40.23822	-73.16075	40.20062	-73.16182	42	14	NW	<2	B4	0.5-1	Clear	None	4.2	187	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:36	04:00	40.20062	-73.16182	40.18420	-73.16225	42	14	NW	<2	B4	0.5-1	Clear	None	4.3	182	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	04:04	40.18420	-73.16225	40.16708	-73.16271	42	15	WNW	<2	B4	0.5-1	Clear	None	4.5	184	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:04	04:29	40.16708	-73.16271	40.17887	-73.17652	42	17	NW	<2	B4	0.5-1	Clear	None	3.8	261	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:29	05:00	40.17887	-73.17652	40.21396	-73.17558	43	16	NNW	<2	B4	0.5-1	Clear	None	4.6	354	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	05:12	40.21396	-73.17558	40.23004	-73.17513	41	20	NW	<2	B4	0.5-1	Clear	None	4.6	354	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:12	05:13	40.23004	-73.17513	40.23122	-73.17509	41	20	NW	<2	B4	0.5-1	Clear	None	4.6	354	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:13	05:27	40.23122	-73.17509	40.24927	-73.17026	41	20	NW	<2	B4	0.5-1	Clear	None	4.6	354	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:27	05:43	40.24927	-73.17026	40.25409	-73.15909	42	20	NW	<2	B4	0.5-1	Clear	None	4	7	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:43	05:46	40.25409	-73.15909	40.25079	-73.16035	40	17	NNW	<2	B4	0.5-1	Clear	None	4	209	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:46	05:48	40.25079	-73.16035	40.24853	-73.16072	40	17	NNW	<2	B4	0.5-1	Clear	None	4	209	Full power	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:48	06:00	40.24853	-73.16072	40.23790	-73.16527	41	26	NW	<2	B4	0.5-1	Clear	None	2.5	298	Silent	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	06:25	40.23790	-73.16527	40.23552	-73.17593	41	26	NW	<2	B4	0.5-1	Clear	None	2.5	298	Deploying/Retrieving	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:25	06:49	40.23552	-73.17593	40.22240	-73.14842	41	27	NW	<2	B5	0.5-1	Clear	None	2.5	298	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:49	07:00	40.22240	-73.14842	40.21596	-73.13518	42	22	NW	<2	B4	0.5-1	Clear	None	4.5	122	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	07:42	40.21596	-73.13518	40.23265	-73.16024	41	22	NW	<2	B5	0.5-1	Clear	None	4.5	122	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:42	08:00	40.23265	-73.16024	40.24404	-73.17789	41	31	NW	2-4	B6	0.5-1	Clear	None	3.3	312	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	09:00	40.24404	-73.17789	40.28372	-73.22904	39	33	NW	2-4	B6	0.5-1	Clear	None	3	312	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.28372	-73.22904	40.31986	-73.27521	33	30	NW	2-4	B7	0.5-1	Clear	None	5.2	159	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:30	40.31986	-73.27521	40.33180	-73.29140	40	29	NW	2-4	B7	0.5-1	Clear	None	1.8	312	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:30	11:00	40.33180	-73.29140	40.34667	-73.30916	33	33	NW	2-4	B7	0.5-1	Clear	None	2.4	317	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:25	40.34667	-73.30916	40.36092	-73.33036	33	33	NW	2-4	B7	0.5-1	Clear	None	3.2	318	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:25	11:44	40.36092	-73.33036	40.33478	-73.31473	33	28	NW	2-4	B6	0.5-1	Cloudy	None	3.5	155	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:44	12:00	40.33478	-73.31473	40.31423	-73.30296	33	28	NW	2-4	B6	1-2	Cloudy	None	3.5	155	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	13:00	40.31423	-73.30296	40.25600	-73.26684	33	20	NNW	2-4	B6	1-2	Cloudy	Moderate	5.3	155	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	14:00	40.25600	-73.26684	40.25576	-73.27571	38	27	NNW	2-4	B6	2-5	Cloudy	Moderate	4.3	152	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.25576	-73.27571	40.31342	-73.32770	38	26	N	2-4	B6	2-5	Clear	Severe	3.7	329	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.31342	-73.32770	40.27489	-73.30974	34	26	N	2-4	B6	2-5	Clear	Severe	4.3	325	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.27489	-73.30974	40.21889	-73.24853	35	23	NNW	2-4	B6	2-5	Clear	Severe	4.5	156	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.21889	-73.24853	40.23590	-73.23653	35	22	NW	2-4	B6	2-5	Clear	Severe	4.3	136	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.23590	-73.23653	40.28528	-73.27568	40	24	WNW	2-4	B6	2-5	Clear	Severe	3.4	332	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.28528	-73.27568	40.32401	-73.33783	40	24	WNW	2-4	B6	2-5	Clear	Severe	3.4	332	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.32401	-73.33783	40.34828	-73.40273	33	25	WNW	2-4	B6	2-5	Cloudy	Severe	3.6	303	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:55	40.34828	-73.40273	40.31461	-73.30553	30	21	WNW	2-4	B6	2-5	Cloudy	Slight	6.3	112	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:55	22:00	40.31461	-73.30553	40.31146	-73.29663	34	26	NNW	2-4	B5	1-2	Clear	None	4.4	113	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Balderas ,Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.31146	-73.29663	40.29116	-73.23794	34	26	NNW	2-4	B5	0.5-1	Clear	None	4.4	113	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.29116	-73.23794	40.28082	-73.20849	38	25	NNW	2-4	B5	0.5-1	Clear	None	4.7	110	Standby	N/A
2022-12-14	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.28082	-73.20849	40.28083	-73.19475	38	25	NNW	2-4	B5	0.5-1	Clear	None	4.7	110	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.28104	-73.19525	40.31061	-73.22390	38	32	NNE	2-4	B5	0.5-1	Clear	None	2.4	333	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	01:42	40.31061	-73.22390	40.29481	-73.21530	36	25	N	2-4	B5	0.5-1	Clear	None	2.5	332	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:42	02:00	40.29481	-73.21530	40.27633	-73.20166	38	23	N	2-4	B5	0.5-1	Clear	None	4.6	146	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	03:00	40.27633	-73.20166	40.26393	-73.20267	38	25	N	2-4	B5	0.5-1	Clear	None	4	146	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	04:00	40.26393	-73.20267	40.31005	-73.23611	38	27	N	2-4	B5	0.5-1	Clear	None	3	330	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.31005	-73.23611	40.25464	-73.23361	38	23	NNE	2-4	B5	0.5-1	Clear	None	4.1	330	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.25464	-73.23361	40.24962	-73.23866	38	23	NNE	2-4	B5	0.5-1	Clear	None	4.3	180	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	07:00	40.24962	-73.23866	40.29480	-73.23476	39	23	NNE	2-4	B5	0.5-1	Clear	None	3.9	356	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	07:00	08:00	40.29480	-73.23476	40.29034	-73.23527	37	24	NE	2-4	B5	0.5-1	Clear	None	3.3	12	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	09:00	40.29034	-73.23527	40.30424	-73.20943	37	24	NE	2-4	B5	0.5-1	Clear	None	1.6	31	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.30424	-73.20943	40.27034	-73.19186	38	17	NE	2-4	B5	0.5-1	Cloudy	None	4.9	176	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:30	40.27034	-73.19186	40.28435	-73.15976	38	20	ENE	<2	B4	0.5-1	Cloudy	None	3.5	58	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:30	10:51	40.28435	-73.15976	40.28054	-73.15304	38	19	NE	<2	B4	0.5-1	Cloudy	None	2.5	59	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:51	11:00	40.28054	-73.15304	40.27119	-73.15272	40	14	NE	<2	B4	0.5-1	Cloudy	None	4.4	165	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:36	40.27119	-73.15272	40.22941	-73.17137	40	18	NE	<2	B4	0.5-1	Cloudy	None	3.8	174	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:36	12:00	40.22941	-73.17137	40.21990	-73.18584	41	15	NE	<2	B4	1-2	Cloudy	None	4.6	219	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:00	13:00	40.21990	-73.18584	40.25277	-73.28478	41	15	NE	<2	B4	2-5	Cloudy	None	3.4	328	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	13:00	14:00	40.25277	-73.28478	40.29697	-73.40322	39	16	NNE	<2	B5	2-5	Cloudy	None	5.5	306	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	14:38	40.29697	-73.40322	40.31953	-73.47017	32	21	NE	<2	B5	2-5	Cloudy	None	5.9	289	Standby	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:38	15:00	40.31953	-73.47017	40.31801	-73.47495	32	21	NE	<2	B5	>5	Cloudy	None	0.7	50	Deploying/Retrieving	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.31801	-73.47495	40.38066	-73.65606	30	24	NE	<2	B5	>5	Cloudy	None	0.8	87	Transit	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.38066	-73.65606	40.43370	-73.83619	25	19	NE	<2	B5	>5	Cloudy	None	9.2	295	Transit	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.43370	-73.83619	40.53096	-74.01402	27	20	NE	<2	B5	>5	Cloudy	None	9.6	307	Transit	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.53096	-74.01402	40.66186	-74.07382	17	20	NE	<2	B4	>5	Cloudy	None	9.8	307	Transit	N/A
2022-12-15	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	19:15	40.66186	-74.07382	40.66195	-74.07378	12	13	E	<2	B2	>5	Precipitation	None	0.9	289	Transit	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.66191	-74.07379	40.56528	-74.03344	8	15	W	<2	B3	>5	Cloudy	Severe	1.2	296	Transit	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	18:27	40.56528	-74.03344	40.50802	-74.05173	19	17	W	<2	B4	>5	Cloudy	Severe	7.9	169	Transit	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:27	19:00	40.50802	-74.05173	40.50165	-74.07536	8	17	WNW	<2	B4	>5	Cloudy	Slight	4.6	260	Standby	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.50165	-74.07536	40.49378	-74.06949	8	18	W	<2	B4	>5	Cloudy	Slight	0.8	27	Standby	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.49378	-74.06949	40.50019	-74.06914	7	15	W	<2	B4	>5	Cloudy	Slight	0.6	57	Standby	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:55	40.50019	-74.06914	40.49654	-74.06019	7	17	W	<2	B4	>5	Cloudy	None	0.7	34	Standby	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	21:55	22:00	40.49654	-74.06019	40.49480	-74.06053	8	22	W	<2	B4	1-2	Cloudy	None	2.3	225	Standby	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.49480	-74.06053	40.47606	-73.97405	10	22	W	<2	B4	0.5-1	Cloudy	None	3.6	181	Transit	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.47606	-73.97405	40.44958	-73.92485	12	16	W	<2	B4	0.5-1	Cloudy	None	9.2	181	Transit	N/A
2022-12-17	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.44958	-73.92485	40.40538	-73.74869	17	18	W	<2	B4	0.5-1	Cloudy	None	8.3	105	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.40496	-73.74679	40.37103	-73.58472	24	21	W	<2	B4	0.5-1	Cloudy	None	8	106	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.37103	-73.58472	40.34411	-73.43736	21	20	NW	<2	B4	0.5-1	Cloudy	None	7	99	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	02:45	40.34411	-73.43736	40.32029	-73.32140	31	22	W	<2	B4	0.5-1	Cloudy	None	7.3	104	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:45	03:00	40.32029	-73.32140	40.31139	-73.28530	32	22	NNW	<2	B4	0.5-1	Cloudy	None	7.1	107	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	03:45	40.31139	-73.28530	40.26327	-73.20531	32	19	NW	<2	B4	0.5-1	Cloudy	None	6.8	108	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:45	04:00	40.26327	-73.20531	40.25160	-73.18880	40	18	NW	<2	B4	0.5-1	Cloudy	None	6.2	133	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.25160	-73.18880	40.26130	-73.19305	32	18	WNW	<2	B4	0.5-1	Cloudy	None	6.4	134	Transit	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	05:16	40.26130	-73.19305	40.26966	-73.20391	39	24	W	<2	B4	0.5-1	Cloudy	None	2.7	301	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:16	05:30	40.26966	-73.20391	40.27667	-73.21140	38	18	W	<2	B4	0.5-1	Cloudy	None	2.6	303	Deploying/Retrieving	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:30	05:45	40.27667	-73.21140	40.28471	-73.22349	37	19	W	<2	B4	0.5-1	Cloudy	None	2.5	304	Deploying/Retrieving	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:45	06:05	40.28471	-73.22349	40.29796	-73.22479	37	19	W	<2	B4	0.5-1	Cloudy	None	2.5	304	Soft Start	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	06:05	06:18	40.29796	-73.22479	40.29426	-73.20255	37	19	W	<2	B4	0.5-1	Cloudy	None	2.5	304	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:18	07:00	40.29426	-73.20255	40.26163	-73.18563	37	19	W	<2	B4	0.5-1	Cloudy	None	2.5	304	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	07:40	40.26163	-73.18563	40.21715	-73.19944	39	17	W	<2	B4	0.5-1	Cloudy	None	3.6	190	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:40	08:00	40.21715	-73.19944	40.23080	-73.19915	39	19	W	<2	B4	0.5-1	Cloudy	None	3.4	309	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	08:22	40.23080	-73.19915	40.23974	-73.18599	40	20	W	<2	B4	0.5-1	Cloudy	None	3.8	350	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:22	08:36	40.23974	-73.18599	40.22469	-73.18084	40	14	W	<2	B4	0.5-1	Cloudy	None	4	303	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:36	08:41	40.22469	-73.18084	40.21874	-73.18074	40	16	W	<2	B4	0.5-1	Cloudy	None	3.5	187	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:41	08:48	40.21874	-73.18074	40.21062	-73.18097	40	20	W	<2	B4	0.5-1	Cloudy	None	3.5	189	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:48	09:00	40.21062	-73.18097	40.20579	-73.19211	41	18	W	<2	B4	0.5-1	Cloudy	None	3.9	207	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	09:43	40.20579	-73.19211	40.18368	-73.19526	40	20	W	<2	B5	0.5-1	Cloudy	None	3.9	304	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:43	09:49	40.18368	-73.19526	40.19045	-73.19558	40	18	W	<2	B4	0.5-1	Cloudy	None	4.3	349	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:49	10:00	40.19045	-73.19558	40.20301	-73.19524	40	19	W	<2	B5	0.5-1	Cloudy	None	4.1	350	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:05	40.20301	-73.19524	40.20869	-73.19507	40	20	W	<2	B4	0.5-1	Cloudy	None	4.1	351	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:05	10:06	40.20869	-73.19507	40.20984	-73.19500	40	20	W	<2	B4	0.5-1	Cloudy	None	4.1	351	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:06	10:23	40.20984	-73.19500	40.22363	-73.18107	40	20	W	<2	B4	0.5-1	Cloudy	None	4.1	351	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:23	10:28	40.22363	-73.18107	40.21796	-73.18075	40	20	W	<2	B4	0.5-1	Cloudy	None	4.1	351	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:28	10:53	40.21796	-73.18075	40.18960	-73.18157	40	15	NW	<2	B4	0.5-1	Cloudy	None	4	192	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:53	10:55	40.18960	-73.18157	40.18733	-73.18168	40	17	NW	<2	B4	0.5-1	Cloudy	None	4	192	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:55	11:07	40.18733	-73.18168	40.18485	-73.19523	40	18	NW	<2	B4	0.5-1	Cloudy	None	4.1	198	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:07	11:11	40.18485	-73.19523	40.18941	-73.19597	40	18	NW	<2	B4	0.5-1	Cloudy	None	4.1	198	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:11	11:30	40.18941	-73.19597	40.20807	-73.19549	41	21	NW	<2	B4	0.5-1	Cloudy	None	3.8	349	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:30	11:32	40.20807	-73.19549	40.21023	-73.19546	41	22	NW	<2	B4	0.5-1	Cloudy	None	4.2	10	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:32	11:47	40.21023	-73.19546	40.22598	-73.18466	41	22	NW	<2	B4	0.5-1	Cloudy	None	4.2	10	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:47	11:50	40.22598	-73.18466	40.22380	-73.18138	41	22	NW	<2	B4	0.5-1	Cloudy	None	4.2	10	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:50	11:55	40.22380	-73.18138	40.21807	-73.18130	41	17	NW	<2	B4	1-2	Cloudy	None	4	196	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:55	12:00	40.21807	-73.18130	40.21194	-73.18130	41	17	NW	<2	B4	1-2	Cloudy	None	4	196	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	12:19	40.21194	-73.18130	40.18889	-73.18186	41	17	NW	<2	B4	2-5	Cloudy	None	4	196	Full power	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:19	12:40	40.18889	-73.18186	40.18946	-73.19995	42	21	WNW	<2	B5	2-5	Cloudy	None	3.8	236	Silent	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:40	13:00	40.18946	-73.19995	40.19295	-73.18960	42	21	WNW	<2	B5	2-5	Cloudy	None	3.8	236	Deploying/Retrieving	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	13:10	40.19295	-73.18960	40.18686	-73.17311	41	23	NNW	<2	B5	2-5	Cloudy	None	3.6	113	Deploying/Retrieving	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:10	14:00	40.18686	-73.17311	40.17522	-73.14617	41	18	WNW	2-4	B5	2-5	Cloudy	Moderate	2.2	63	Deploying/Retrieving	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.17522	-73.14617	40.19573	-73.17739	44	20	NW	2-4	B5	2-5	Cloudy	Severe	1.7	143	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.19573	-73.17739	40.24093	-73.25109	43	23	NW	2-4	B5	>5	Cloudy	Severe	3.7	307	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.24093	-73.25109	40.28289	-73.32524	43	21	NW	2-4	B5	>5	Cloudy	Severe	4.2	307	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.28289	-73.32524	40.31987	-73.40381	40	23	NW	2-4	B5	>5	Cloudy	Severe	4.7	298	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.31987	-73.40381	40.33545	-73.48640	33	23	W	2-4	B5	>5	Cloudy	Severe	4.2	293	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.33545	-73.48640	40.34278	-73.52802	30	24	W	2-4	B5	>5	Cloudy	Severe	2.8	277	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.34278	-73.52802	40.37982	-73.60509	26	26	NW	2-4	B5	>5	Cloudy	Moderate	4.5	293	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:50	40.37982	-73.60509	40.36305	-73.52888	23	21	W	2-4	B5	>5	Cloudy	Moderate	3.5	75	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:50	22:00	40.36305	-73.52888	40.36023	-73.51501	27	23	W	<2	B5	2-5	Cloudy	None	4	101	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-18	*GO Discovery*	HRG	Visual	Balderas ,Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.36023	-73.51501	40.34854	-73.45640	27	23	W	<2	B5	1-2	Cloudy	None	4	101	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.34854	-73.45640	40.34451	-73.43589	30	20	W	<2	B4	0.5-1	Cloudy	None	4	102	Standby	N/A
2022-12-18	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.34451	-73.43589	40.32607	-73.33979	29	20	W	<2	B4	0.5-1	Cloudy	None	4.3	101	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.32573	-73.33804	40.33925	-73.38765	34	20	NW	2-4	B5	0.5-1	Clear	None	3.1	289	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.33925	-73.38765	40.35396	-73.45044	31	25	NW	2-4	B5	0.5-1	Clear	None	2.9	290	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	03:00	40.35396	-73.45044	40.36787	-73.50029	32	26	NW	2-4	B5	0.5-1	Clear	None	3	290	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	04:00	40.36787	-73.50029	40.38220	-73.56498	29	27	NNW	2-4	B5	0.5-1	Clear	None	2.8	289	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.38220	-73.56498	40.37280	-73.51740	26	26	WNW	2-4	B5	0.5-1	Cloudy	None	2.5	286	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.37280	-73.51740	40.35260	-73.43321	25	28	WNW	2-4	B6	0.5-1	Cloudy	None	2.5	105	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	07:00	40.35260	-73.43321	40.33835	-73.37483	32	28	WNW	2-4	B6	0.5-1	Cloudy	None	1	293	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	08:00	40.33835	-73.37483	40.34940	-73.41332	31	25	WNW	2-4	B5	0.5-1	Cloudy	None	2.1	285	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	09:00	40.34940	-73.41332	40.35474	-73.46050	31	28	NW	2-4	B5	0.5-1	Clear	None	2.3	278	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.35474	-73.46050	40.36581	-73.50111	30	28	NW	2-4	B5	0.5-1	Clear	None	2.2	283	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:30	40.36581	-73.50111	40.36900	-73.51410	29	28	WNW	2-4	B5	0.5-1	Clear	None	3	290	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:30	11:00	40.36900	-73.51410	40.37750	-73.53932	27	30	WNW	2-4	B5	0.5-1	Clear	None	3.9	294	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:42	40.37750	-73.53932	40.38293	-73.57194	26	22	WNW	2-4	B5	0.5-1	Clear	None	1.8	284	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:42	12:00	40.38293	-73.57194	40.38453	-73.58462	26	26	W	2-4	B6	1-2	Clear	None	1.5	286	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	12:30	40.38453	-73.58462	40.37539	-73.54574	23	25	W	2-4	B6	1-2	Clear	None	1.6	317	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:30	13:00	40.37539	-73.54574	40.36525	-73.50023	26	22	WNW	2-4	B6	2-5	Clear	Moderate	5.2	102	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	14:00	40.36525	-73.50023	40.35824	-73.50584	27	25	NW	2-4	B6	2-5	Clear	Moderate	1.5	270	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	15:00	40.35824	-73.50584	40.36529	-73.55670	26	23	W	2-4	B6	2-5	Clear	Severe	4.2	285	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.36529	-73.55670	40.34778	-73.45455	26	26	NW	2-4	B6	>5	Clear	Severe	4.8	100	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.34778	-73.45455	40.34660	-73.40581	31	22	NW	2-4	B6	>5	Clear	Severe	4.9	99	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.34660	-73.40581	40.37748	-73.51484	32	25	NW	2-4	B6	>5	Clear	Severe	4.7	102	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.37748	-73.51484	40.39813	-73.62106	26	25	NW	2-4	B5	>5	Clear	Severe	5.2	286	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.39813	-73.62106	40.39395	-73.61459	22	23	NW	2-4	B5	>5	Clear	Severe	5.1	287	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.39395	-73.61459	40.38710	-73.57871	24	24	NW	2-4	B5	>5	Cloudy	Moderate	4	99	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:46	40.38710	-73.57871	40.39780	-73.63617	23	30	NW	2-4	B5	>5	Cloudy	Moderate	3.7	292	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:46	21:53	40.39780	-73.63617	40.39661	-73.63662	24	29	NW	2-4	B5	2-5	Cloudy	None	3.9	287	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:53	22:00	40.39661	-73.63662	40.39330	-73.62930	24	30	NW	2-4	B5	1-2	Cloudy	None	4.4	114	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:40	40.39330	-73.62930	40.36591	-73.57243	23	26	NW	2-4	B5	0.5-1	Cloudy	None	4.3	118	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.36591	-73.57243	40.35174	-73.54642	24	26	NW	2-4	B5	0.5-1	Cloudy	None	4.7	121	Standby	N/A
2022-12-19	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.35174	-73.54642	40.33632	-73.51141	24	20	NW	2-4	B4	0.5-1	Cloudy	None	4.3	121	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.33656	-73.51178	40.35917	-73.56107	32	25	NW	<2	B5	0.5-1	Clear	None	2.5	304	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.35917	-73.56107	40.38024	-73.61239	24	22	NNW	<2	B5	0.5-1	Clear	None	2.8	304	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	03:00	40.38024	-73.61239	40.39490	-73.64903	23	24	NNW	<2	B5	0.5-1	Clear	None	2.9	302	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	04:00	40.39490	-73.64903	40.36295	-73.57999	25	23	NW	<2	B5	0.5-1	Clear	None	2.2	282	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.36295	-73.57999	40.33639	-73.50995	22	22	NW	<2	B4	0.5-1	Clear	None	4.2	113	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.33639	-73.50995	40.30720	-73.43469	27	19	NW	<2	B4	0.5-1	Clear	None	4	112	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	07:00	40.30720	-73.43469	40.31128	-73.42626	31	24	WNW	<2	B4	0.5-1	Clear	None	3.7	113	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	08:00	40.31128	-73.42626	40.29752	-73.39386	31	25	NW	<2	B5	0.5-1	Clear	None	3.3	308	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	09:00	40.29752	-73.39386	40.25007	-73.25800	33	21	NW	<2	B4	0.5-1	Clear	None	7.4	115	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	09:09	40.25007	-73.25800	40.23861	-73.22556	39	20	NNW	<2	B4	0.5-1	Cloudy	None	6.6	115	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:09	10:00	40.23861	-73.22556	40.23486	-73.20744	39	20	NNW	<2	B4	0.5-1	Cloudy	None	6.6	115	Transit	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:30	40.23486	-73.20744	40.23854	-73.21617	40	16	NNW	<2	B4	0.5-1	Cloudy	None	2.9	307	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:30	11:00	40.23854	-73.21617	40.25066	-73.23558	39	19	NW	<2	B4	0.5-1	Cloudy	None	2.4	304	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:08	40.25066	-73.23558	40.25409	-73.24058	39	22	NW	<2	B4	0.5-1	Cloudy	None	2.2	313	Standby	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:08	11:32	40.25409	-73.24058	40.26497	-73.25681	38	19	NNW	<2	B4	0.5-1	Cloudy	None	2.6	306	Deploying/Retrieving	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:32	11:45	40.26497	-73.25681	40.26327	-73.24243	38	19	N	<2	B4	0.5-1	Cloudy	None	4.4	68	Soft Start	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:45	11:53	40.26327	-73.24243	40.25580	-73.23185	38	18	NNW	<2	B4	1-2	Cloudy	None	4.9	132	Soft Start	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:53	12:28	40.25580	-73.23185	40.22458	-73.18352	38	17	NNW	<2	B4	1-2	Cloudy	None	5	129	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:28	12:29	40.22458	-73.18352	40.22369	-73.18239	38	19	NW	<2	B4	2-5	Cloudy	None	4	187	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:29	12:59	40.22369	-73.18239	40.18952	-73.18231	38	19	NW	<2	B4	2-5	Cloudy	Slight	4	187	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:59	13:01	40.18952	-73.18231	40.18732	-73.18240	41	19	NW	<2	B4	2-5	Cloudy	Severe	4	192	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:01	13:51	40.18732	-73.18240	40.18550	-73.19557	41	19	NW	<2	B4	2-5	Cloudy	Severe	4	192	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:51	13:52	40.18550	-73.19557	40.18640	-73.19619	41	21	NW	<2	B5	2-5	Cloudy	Severe	4	354	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:52	14:13	40.18640	-73.19619	40.20977	-73.19584	41	21	NW	<2	B5	2-5	Cloudy	Severe	4	354	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:13	14:14	40.20977	-73.19584	40.21002	-73.19583	41	21	NW	<2	B5	2-5	Cloudy	Severe	4.3	354	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:14	14:28	40.21002	-73.19583	40.22438	-73.18398	41	21	NW	<2	B5	2-5	Cloudy	Severe	4.3	354	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:28	14:32	40.22438	-73.18398	40.22092	-73.18177	41	21	NW	<2	B5	2-5	Cloudy	Severe	4.3	354	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:32	14:59	40.22092	-73.18177	40.18933	-73.18255	41	21	NW	<2	B5	2-5	Cloudy	Severe	4.3	354	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:59	15:00	40.18933	-73.18255	40.18788	-73.18258	41	18	NW	<2	B5	>5	Cloudy	Severe	4.8	185	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	15:01	40.18788	-73.18258	40.18698	-73.18280	43	22	NW	<2	B5	>5	Cloudy	Severe	4.8	256	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:01	15:11	40.18698	-73.18280	40.18594	-73.19617	43	24	NW	<2	B5	>5	Cloudy	Severe	4.7	255	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:11	15:12	40.18594	-73.19617	40.18675	-73.19656	43	24	NW	<2	B5	>5	Cloudy	Severe	3.6	336	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:12	15:32	40.18675	-73.19656	40.20849	-73.19617	43	21	NW	<2	B5	>5	Cloudy	Severe	4.1	348	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:32	15:33	40.20849	-73.19617	40.20959	-73.19618	41	17	NW	<2	B5	>5	Cloudy	Severe	4	354	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:33	15:47	40.20959	-73.19618	40.22450	-73.18535	41	15	NW	<2	B5	>5	Clear	Severe	4.5	9	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:47	15:48	40.22450	-73.18535	40.22405	-73.18389	41	16	NW	<2	B5	>5	Clear	Severe	4.1	133	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:48	16:00	40.22405	-73.18389	40.21350	-73.18228	41	17	NW	<2	B5	>5	Clear	Severe	4	187	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	16:18	40.21350	-73.18228	40.18877	-73.18291	41	18	NW	<2	B5	>5	Clear	Severe	4.5	185	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:18	16:19	40.18877	-73.18291	40.18759	-73.18295	42	14	NW	<2	B5	>5	Cloudy	Severe	5.1	183	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:19	16:29	40.18759	-73.18295	40.18537	-73.19594	42	15	NW	<2	B5	>5	Cloudy	Severe	3.9	229	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:29	16:30	40.18537	-73.19594	40.18688	-73.19685	42	19	NW	<2	B5	>5	Cloudy	Severe	4.1	323	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:30	16:49	40.18688	-73.19685	40.20820	-73.19653	42	20	NW	<2	B5	>5	Cloudy	Severe	3.9	358	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:49	16:51	40.20820	-73.19653	40.20968	-73.19647	42	18	NW	<2	B5	>5	Cloudy	Severe	4	355	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:51	17:00	40.20968	-73.19647	40.21683	-73.19666	42	20	NW	<2	B5	>5	Cloudy	Severe	2.7	340	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	17:15	40.21683	-73.19666	40.22270	-73.18273	42	16	NW	<2	B5	>5	Cloudy	Severe	3.3	28	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:15	17:17	40.22270	-73.18273	40.22051	-73.18240	42	14	NW	<2	B5	>5	Cloudy	Severe	4	190	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:17	17:43	40.22051	-73.18240	40.18998	-73.18321	42	13	NW	<2	B5	>5	Cloudy	Severe	4.3	180	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:43	17:45	40.18998	-73.18321	40.18718	-73.18330	42	12	NW	<2	B5	>5	Cloudy	Severe	4.2	181	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:45	17:55	40.18718	-73.18330	40.18515	-73.19611	42	12	NW	<2	B5	>5	Cloudy	Severe	3.9	229	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:55	17:56	40.18515	-73.19611	40.18606	-73.19704	42	13	NW	<2	B5	>5	Clear	Severe	4.2	317	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:56	18:00	40.18606	-73.19704	40.19044	-73.19736	42	18	NW	<2	B5	>5	Clear	Severe	4.1	344	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	18:15	40.19044	-73.19736	40.20782	-73.19695	42	18	NW	<2	B5	>5	Clear	Severe	4.1	344	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:15	18:16	40.20782	-73.19695	40.20910	-73.19689	42	14	NW	<2	B5	>5	Clear	Severe	4.4	356	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:16	18:32	40.20910	-73.19689	40.22339	-73.18403	41	14	NW	<2	B5	>5	Clear	Severe	4.4	356	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:32	18:33	40.22339	-73.18403	40.22241	-73.18316	42	12	NW	<2	B5	>5	Clear	Severe	4.3	176	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:33	19:00	40.22241	-73.18316	40.19220	-73.18352	42	12	NW	<2	B5	>5	Clear	Severe	4.3	176	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	19:02	40.19220	-73.18352	40.18971	-73.18358	44	16	NW	<2	B5	>5	Clear	Severe	4.6	185	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:02	19:04	40.18971	-73.18358	40.18752	-73.18365	44	16	NW	<2	B5	>5	Clear	Severe	4.6	185	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:04	19:16	40.18752	-73.18365	40.18682	-73.19768	44	16	NW	<2	B5	>5	Clear	Severe	4.6	185	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:16	19:17	40.18682	-73.19768	40.18689	-73.19770	44	16	NW	<2	B5	>5	Clear	Severe	4.4	3.8	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:17	19:34	40.18689	-73.19770	40.20725	-73.19731	44	15	NW	<2	B5	>5	Clear	Severe	4.4	3.8	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:34	19:36	40.20725	-73.19731	40.21017	-73.19717	44	15	N	<2	B5	>5	Clear	Severe	4.6	357	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:36	19:51	40.21017	-73.19717	40.22381	-73.18479	44	15	N	<2	B5	>5	Clear	Severe	4.6	357	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:51	19:52	40.22381	-73.18479	40.22312	-73.18376	44	17	NW	<2	B5	>5	Clear	Severe	4	163	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:52	20:00	40.22312	-73.18376	40.21566	-73.18330	44	17	NW	<2	B5	>5	Clear	Severe	4	163	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	20:21	40.21566	-73.18330	40.19002	-73.18396	44	18	NW	<2	B5	>5	Clear	Severe	4.3	183	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:21	20:22	40.19002	-73.18396	40.18796	-73.18400	44	17	NW	<2	B5	>5	Clear	Severe	3.9	192	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:22	20:33	40.18796	-73.18400	40.18426	-73.19584	44	17	NW	<2	B5	>5	Clear	Severe	4.1	186	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:33	20:34	40.18426	-73.19584	40.18587	-73.19761	42	18	NW	<2	B5	>5	Clear	Severe	4.2	333	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:34	20:54	40.18587	-73.19761	40.20749	-73.19764	42	16	NW	<2	B5	>5	Clear	Severe	4.3	343	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:54	20:56	40.20749	-73.19764	40.20998	-73.19756	42	17	NW	<2	B5	>5	Clear	Severe	4.4	357	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:56	21:00	40.20998	-73.19756	40.21356	-73.19554	42	15	NW	<2	B5	>5	Clear	Severe	4.5	10	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:10	40.21356	-73.19554	40.22448	-73.18653	42	16	NW	<2	B5	>5	Clear	Severe	4.6	18	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:10	21:11	40.22448	-73.18653	40.22402	-73.18499	42	12	NW	<2	B4	>5	Clear	Severe	4.3	130	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:11	21:42	40.22402	-73.18499	40.18960	-73.18426	42	11	NW	<2	B4	>5	Clear	Severe	4.2	163	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:42	21:43	40.18960	-73.18426	40.18795	-73.18432	42	11	NW	<2	B4	>5	Clear	None	4	189	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:43	22:00	40.18795	-73.18432	40.18582	-73.19357	42	16	NW	<2	B4	2-5	Clear	None	4.1	190	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:00	22:17	40.18582	-73.19357	40.18453	-73.19707	43	15	NW	<2	B3	0.5-1	Clear	None	3.9	125	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:17	22:18	40.18453	-73.19707	40.18551	-73.19776	43	14	NW	<2	B3	0.5-1	Clear	None	4.2	344	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:18	22:38	40.18551	-73.19776	40.20872	-73.19800	43	14	NNW	<2	B3	0.5-1	Clear	None	4.2	344	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:38	22:39	40.20872	-73.19800	40.20989	-73.19797	41	11	NNW	<2	B3	0.5-1	Clear	None	4.1	355	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:39	22:54	40.20989	-73.19797	40.22421	-73.18500	41	13	NNW	<2	B3	0.5-1	Clear	None	4.3	17	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:54	22:55	40.22421	-73.18500	40.22269	-73.18384	41	13	NW	<2	B3	0.5-1	Clear	None	4	181	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:55	23:00	40.22269	-73.18384	40.22029	-73.18384	41	12	NW	<2	B3	0.5-1	Clear	None	4.6	186	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	23:22	40.22029	-73.18384	40.18932	-73.18467	41	13	NW	<2	B3	0.5-1	Clear	None	4.5	187	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:22	23:23	40.18932	-73.18467	40.18715	-73.18476	44	13	NW	<2	B3	0.5-1	Clear	None	4.5	186	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:23	23:37	40.18715	-73.18476	40.18709	-73.19884	44	15	NW	<2	B3	0.5-1	Clear	None	4.5	186	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:37	23:40	40.18709	-73.19884	40.19078	-73.19871	44	13	NW	<2	B3	0.5-1	Clear	None	5	4	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:40	23:56	40.19078	-73.19871	40.20904	-73.19824	44	14	NW	<2	B3	0.5-1	Clear	None	4.3	354	Full power	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:56	23:57	40.20904	-73.19824	40.21023	-73.19823	43	17	NW	<2	B3	0.5-1	Clear	None	4.5	344	Silent	N/A
2022-12-20	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:57	00:00	40.21023	-73.19823	40.21336	-73.19764	43	16	NW	<2	B3	0.5-1	Clear	None	4.6	355	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	00:13	40.21434	-73.19697	40.21972	-73.18413	41	14	NW	<2	B3	0.5-1	Clear	None	5.1	20	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:13	00:15	40.21972	-73.18413	40.21830	-73.18422	41	14	NW	<2	B3	0.5-1	Clear	None	4.7	187	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:15	00:27	40.21830	-73.18422	40.20574	-73.18458	41	14	NW	<2	B3	0.5-1	Clear	None	4.1	187	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:27	01:00	40.20574	-73.18458	40.18418	-73.19677	41	13	NNW	<2	B3	0.5-1	Clear	None	4.6	187	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:00	02:00	40.18418	-73.19677	40.18525	-73.18547	42	11	N	<2	B3	0.5-1	Clear	None	4.4	299	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:00	03:00	40.18525	-73.18547	40.21552	-73.18364	42	16	N	<2	B3	0.5-1	Clear	None	4.8	299	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	04:00	40.21552	-73.18364	40.22376	-73.19083	42	12	NW	<2	B3	0.5-1	Clear	None	4.9	195	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.22376	-73.19083	40.20833	-73.19938	40	15	N	<2	B3	0.5-1	Clear	None	4.4	53	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.20833	-73.19938	40.18685	-73.20049	41	16	N	<2	B3	0.5-1	Clear	None	4.5	6	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	07:00	40.18685	-73.20049	40.19971	-73.18612	42	16	N	<2	B3	0.5-1	Clear	None	4.5	37	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	08:00	40.19971	-73.18612	40.21656	-73.18606	41	11	N	<2	B3	0.5-1	Clear	None	4.3	177	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	09:00	40.21656	-73.18606	40.22160	-73.19320	41	8	N	<2	B2	0.5-1	Clear	None	4.3	177	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.22160	-73.19320	40.20915	-73.20077	41	12	NNW	<2	B2	0.5-1	Clear	None	4.8	32	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	11:00	40.20915	-73.20077	40.18238	-73.20698	41	14	N	<2	B2	0.5-1	Clear	None	4.4	0	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:45	40.18238	-73.20698	40.21472	-73.19869	42	11.5	N	<2	B2	0.5-1	Clear	None	3.9	309	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:45	12:00	40.21472	-73.19869	40.21887	-73.18704	42	9	N	<2	B2	1-2	Clear	None	4.5	26	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	12:30	40.21887	-73.18704	40.18442	-73.19082	42	9	N	<2	B2	1-2	Cloudy	None	4.3	184	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:30	13:00	40.18442	-73.19082	40.20767	-73.20148	42	9	N	<2	B2	2-5	Cloudy	None	4.3	184	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	13:42	40.20767	-73.20148	40.18893	-73.18817	40	10	N	<2	B2	>5	Cloudy	Slight	4.3	356	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:42	13:43	40.18893	-73.18817	40.18768	-73.18820	40	10	N	<2	B2	>5	Cloudy	Moderate	4.3	187	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:43	13:49	40.18768	-73.18820	40.18487	-73.19441	40	10	N	<2	B2	>5	Cloudy	Moderate	4.3	187	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:49	14:00	40.18487	-73.19441	40.18995	-73.20234	40	8	N	<2	B2	>5	Cloudy	Moderate	4.5	269	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	14:51	40.18995	-73.20234	40.20091	-73.18824	40	6	N	<2	B2	>5	Cloudy	Moderate	4.6	176	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:51	15:00	40.20091	-73.18824	40.18946	-73.18853	40	6	N	<2	B2	>5	Cloudy	Moderate	4.5	183	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	16:00	40.18946	-73.18853	40.22053	-73.19546	40	7	N	<2	B3	>5	Cloudy	Severe	4.5	183	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	16:47	40.22053	-73.19546	40.18617	-73.19569	43	7	N	<2	B3	>5	Cloudy	Severe	4.3	29	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:47	16:48	40.18617	-73.19569	40.18661	-73.19568	43	6	N	<2	B3	>5	Cloudy	Severe	4.3	3	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:48	17:00	40.18661	-73.19568	40.20109	-73.19529	43	9	N	<2	B3	>5	Cloudy	Severe	4.5	0	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	17:05	40.20109	-73.19529	40.20711	-73.19512	43	8	N	<2	B3	>5	Cloudy	Severe	4.5	1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:05	17:07	40.20711	-73.19512	40.21016	-73.19497	43	6	N	<2	B3	>5	Cloudy	Severe	4.4	2	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:07	17:11	40.21016	-73.19497	40.21447	-73.19488	43	8	N	<2	B3	>5	Cloudy	Severe	4.2	1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:11	17:22	40.21447	-73.19488	40.22386	-73.18925	43	6	N	<2	B3	>5	Cloudy	Severe	4.2	4	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:22	17:23	40.22386	-73.18925	40.22158	-73.18832	41	5	N	<2	B3	>5	Cloudy	Severe	4	187	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:23	17:51	40.22158	-73.18832	40.18974	-73.18921	41	5	N	<2	B3	>5	Cloudy	Severe	4.2	180	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:51	17:53	40.18974	-73.18921	40.18695	-73.18931	41	8	N	<2	B3	>5	Cloudy	Severe	4.2	177	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:53	18:00	40.18695	-73.18931	40.18472	-73.19899	41	7	N	<2	B3	>5	Cloudy	Severe	4.1	178	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	18:03	40.18472	-73.19899	40.18637	-73.20280	41	7	N	<2	B3	>5	Clear	Severe	4.8	276	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:03	18:04	40.18637	-73.20280	40.18751	-73.20295	41	7	N	<2	B3	>5	Clear	Severe	4.8	0	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:04	18:22	40.18751	-73.20295	40.20923	-73.20250	41	7	N	<2	B3	>5	Clear	Severe	4.3	2.8	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:22	18:23	40.20923	-73.20250	40.21007	-73.20245	41	6	N	<2	B3	>5	Clear	Severe	4.2	2.8	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:23	18:37	40.21007	-73.20245	40.22429	-73.19166	41	6	N	<2	B3	>5	Clear	Severe	4.2	36	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:37	18:38	40.22429	-73.19166	40.22409	-73.19023	41	5	N	<2	B3	>5	Clear	Severe	4.5	151	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:38	19:00	40.22409	-73.19023	40.19720	-73.18938	41	5	N	<2	B3	>5	Clear	Severe	4.3	151	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	19:07	40.19720	-73.18938	40.18885	-73.18962	43	7	N	<2	B3	>5	Clear	Severe	4.3	177	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:07	19:09	40.18885	-73.18962	40.18705	-73.18968	43	7	N	<2	B3	>5	Clear	Severe	4.3	177	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:09	19:17	40.18705	-73.18968	40.18499	-73.20149	43	7	N	<2	B3	>5	Clear	Severe	4.3	177	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:17	19:18	40.18499	-73.20149	40.18554	-73.20280	43	7	N	<2	B3	>5	Clear	Severe	4	352	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:18	19:38	40.18554	-73.20280	40.20880	-73.20291	43	7	N	<2	B3	>5	Clear	Severe	4	352	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:38	19:40	40.20880	-73.20291	40.21139	-73.20279	43	7	N	<2	B3	>5	Clear	Severe	4.3	5.1	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:40	19:54	40.21139	-73.20279	40.22349	-73.18972	43	7	N	<2	B3	>5	Clear	Severe	4.3	5.1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:54	19:55	40.22349	-73.18972	40.22189	-73.18913	41	7	N	<2	B3	>5	Clear	Severe	4.5	175	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:55	20:00	40.22189	-73.18913	40.21815	-73.18923	41	7	N	<2	B3	>5	Clear	Severe	4.5	175	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	20:23	40.21815	-73.18923	40.18897	-73.18996	41	6	N	<2	B3	>5	Clear	Severe	4.4	177	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:23	20:24	40.18897	-73.18996	40.18786	-73.19000	44	4	N	<2	B3	>5	Clear	Severe	4.1	181	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:24	20:33	40.18786	-73.19000	40.18489	-73.20222	44	4	N	<2	B3	>5	Clear	Severe	4.4	181	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:33	20:34	40.18489	-73.20222	40.18567	-73.20355	44	6	N	<2	B3	>5	Clear	Severe	3.7	351	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:34	20:53	40.18567	-73.20355	40.20850	-73.20323	44	6	N	<2	B3	>5	Clear	Severe	3.5	5	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:53	20:55	40.20850	-73.20323	40.21093	-73.20310	44	4	N	<2	B3	>5	Clear	Severe	4.5	6	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:55	21:00	40.21093	-73.20310	40.21701	-73.19946	44	5	N	<2	B3	>5	Clear	Severe	4.6	5	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:00	21:08	40.21701	-73.19946	40.22378	-73.19115	44	4	N	<2	B3	>5	Clear	Severe	5	30	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:08	21:09	40.22378	-73.19115	40.22295	-73.19008	44	5	N	<2	B3	>5	Clear	Severe	4.2	183	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:09	21:37	40.22295	-73.19008	40.18819	-73.19030	44	6	N	<2	B3	>5	Clear	Severe	4.3	180	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:37	21:38	40.18819	-73.19030	40.18676	-73.19035	44	5	N	<2	B3	>5	Clear	None	4.3	181	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:38	21:48	40.18676	-73.19035	40.18504	-73.20263	44	4	N	<2	B3	>5	Clear	None	4.1	180	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:48	21:50	40.18504	-73.20263	40.18696	-73.20422	44	3	N	<2	B3	>5	Clear	None	4.1	2	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:50	21:55	40.18696	-73.20422	40.19412	-73.20400	44	5	N	<2	B3	2-5	Clear	None	4	1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	21:55	22:02	40.19412	-73.20400	40.20263	-73.20381	41	5	N	<2	B3	1-2	Clear	None	4.4	1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:02	22:07	40.20263	-73.20381	40.20878	-73.20364	41	5	N	<2	B3	0.5-1	Clear	None	4.4	1	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:07	22:09	40.20878	-73.20364	40.21128	-73.20349	41	6	N	<2	B3	0.5-1	Clear	None	4.4	3.7	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:09	22:22	40.21128	-73.20349	40.22367	-73.19141	41	6	N	<2	B3	0.5-1	Clear	None	4.4	10	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:22	22:23	40.22367	-73.19141	40.22312	-73.19049	41	5	N	<2	B3	0.5-1	Clear	None	4.4	131	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	22:23	22:40	40.22312	-73.19049	40.20384	-73.19026	41	4	N	<2	B3	0.5-1	Clear	None	4	169	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	22:51	40.20384	-73.19026	40.19028	-73.19058	41	5	N	<2	B3	0.5-1	Clear	None	4.5	182	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:51	22:53	40.19028	-73.19058	40.18781	-73.19068	43	5	N	<2	B2	0.5-1	Clear	None	4.5	197	Silent	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:53	22:56	40.18781	-73.19068	40.18460	-73.19252	43	5	N	<2	B2	0.5-1	Clear	None	4.6	202	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:56	23:00	40.18460	-73.19252	40.18450	-73.20118	43	5	N	<2	B2	0.5-1	Clear	None	5.1	271	Full power	N/A
2022-12-21	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.18450	-73.20118	40.19853	-73.19077	43	3	N	<2	B2	0.5-1	Clear	None	5	273	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	00:18	40.19695	-73.19081	40.18657	-73.20469	41	4	NE	<2	B3	0.5-1	Clear	None	4.4	182	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:18	00:21	40.18657	-73.20469	40.19039	-73.20472	41	4	NE	<2	B3	0.5-1	Clear	None	4.4	357	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:21	00:22	40.19039	-73.20472	40.19181	-73.20467	40	4	NE	<2	B3	0.5-1	Clear	None	4.2	356	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:22	00:50	40.19181	-73.20467	40.22392	-73.19291	40	4	NE	<2	B2	0.5-1	Clear	None	4.1	356	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	00:50	01:32	40.22392	-73.19291	40.18638	-73.20511	41	6	E	<2	B2	0.5-1	Clear	None	4.8	124	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:32	01:35	40.18638	-73.20511	40.19013	-73.20510	44	7	NE	<2	B2	0.5-1	Clear	None	4.5	358	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:35	01:51	40.19013	-73.20510	40.20847	-73.20459	44	7	NE	<2	B2	0.5-1	Clear	None	4.5	358	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:51	01:53	40.20847	-73.20459	40.21081	-73.20453	44	7	NE	<2	B2	0.5-1	Clear	None	4.5	358	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	01:53	02:08	40.21081	-73.20453	40.22229	-73.19086	44	7	NE	<2	B2	0.5-1	Clear	None	4.5	358	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:08	02:11	40.22229	-73.19086	40.21852	-73.19086	41	6	NNE	<2	B2	0.5-1	Clear	None	4.3	129	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:11	02:34	40.21852	-73.19086	40.18873	-73.19176	41	6	NNE	<2	B2	0.5-1	Clear	None	4.2	181	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:34	02:36	40.18873	-73.19176	40.18607	-73.19185	41	7	NE	<2	B2	0.5-1	Clear	None	5	189	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:36	02:46	40.18607	-73.19185	40.18568	-73.20480	41	6	NNE	<2	B2	0.5-1	Clear	None	4.8	212	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:46	02:49	40.18568	-73.20480	40.18952	-73.20542	41	6	NNE	<2	B2	0.5-1	Clear	None	4.8	212	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	02:49	03:00	40.18952	-73.20542	40.20218	-73.20508	41	10	E	<2	B2	0.5-1	Clear	None	4	359	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:00	03:05	40.20218	-73.20508	40.20797	-73.20493	41	10	E	<2	B2	0.5-1	Clear	None	4	13	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:05	03:07	40.20797	-73.20493	40.21024	-73.20490	41	9	E	<2	B2	0.5-1	Clear	None	4.4	13	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:07	03:26	40.21024	-73.20490	40.22247	-73.18096	41	9	E	<2	B2	0.5-1	Clear	None	4.4	13	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:26	03:29	40.22247	-73.18096	40.21886	-73.18067	41	10	E	<2	B2	0.5-1	Clear	None	4.5	180	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:29	03:51	40.21886	-73.18067	40.19134	-73.18144	41	10	E	<2	B2	0.5-1	Clear	None	4.5	180	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:51	03:53	40.19134	-73.18144	40.18838	-73.18154	41	10	E	<2	B2	0.5-1	Clear	None	4.5	180	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Triana, Felipe	RPS	03:53	04:00	40.18838	-73.18154	40.18411	-73.18576	41	10	E	<2	B2	0.5-1	Clear	None	4.5	180	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.18411	-73.18576	40.20571	-73.19267	42	10	E	<2	B2	0.5-1	Clear	None	4.8	241	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	06:00	40.20571	-73.19267	40.22379	-73.19793	40	4.7	E	<2	B2	0.5-1	Clear	None	4.5	180	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	06:00	07:00	40.22379	-73.19793	40.22523	-73.19645	40	7	E	<2	B2	0.5-1	Clear	None	4.1	62	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:00	07:28	40.22523	-73.19645	40.18930	-73.19347	40	7	E	<2	B2	0.5-1	Clear	None	4.2	103	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:28	07:29	40.18930	-73.19347	40.18807	-73.19352	42	8	E	<2	B2	0.5-1	Clear	None	4.8	184	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:29	07:40	40.18807	-73.19352	40.18541	-73.20700	42	8	E	<2	B2	0.5-1	Clear	None	4.8	225	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:40	07:42	40.18541	-73.20700	40.18787	-73.20784	42	8	E	<2	B2	0.5-1	Clear	None	4.2	241	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	07:42	08:00	40.18787	-73.20784	40.18385	-73.20749	42	7	E	<2	B2	0.5-1	Clear	None	4.7	274	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:00	08:02	40.18385	-73.20749	40.18635	-73.20785	42	7	E	<2	B2	0.5-1	Clear	None	4.7	274	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:02	08:05	40.18635	-73.20785	40.19014	-73.20757	42	8	SE	<2	B2	0.5-1	Clear	None	4.7	274	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:05	08:22	40.19014	-73.20757	40.20930	-73.20710	42	8	SE	<2	B2	0.5-1	Clear	None	4.7	274	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:22	08:23	40.20930	-73.20710	40.21053	-73.20719	41	9	SE	<2	B2	0.5-1	Clear	None	5.1	29	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:23	08:40	40.21053	-73.20719	40.22270	-73.19260	41	11	NE	<2	B2	0.5-1	Clear	None	5.1	30	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:40	08:43	40.22270	-73.19260	40.21890	-73.19298	41	13	NE	<2	B2	0.5-1	Clear	None	4.3	177	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Rangel, Zuemy; Triana, Felipe	RPS	08:43	09:00	40.21890	-73.19298	40.20419	-73.19341	41	12	NE	<2	B2	0.5-1	Clear	None	4.3	176	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	09:08	40.20419	-73.19341	40.18935	-73.19378	41	12	E	<2	B2	0.5-1	Clear	None	4.3	177	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:08	09:09	40.18935	-73.19378	40.18817	-73.19381	41	11	E	<2	B2	0.5-1	Clear	None	4.2	292	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:09	09:21	40.18817	-73.19381	40.18714	-73.20827	41	11	E	<2	B2	0.5-1	Clear	None	4.2	292	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:21	09:24	40.18714	-73.20827	40.19068	-73.20797	41	11	E	<2	B2	0.5-1	Clear	None	4.2	292	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:24	09:38	40.19068	-73.20797	40.20862	-73.20745	41	11	E	<2	B2	0.5-1	Clear	None	4.2	43	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:38	09:39	40.20862	-73.20745	40.20989	-73.20742	41	11	E	<2	B2	0.5-1	Clear	None	4.1	28	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:39	09:57	40.20989	-73.20742	40.22231	-73.19324	41	11	E	<2	B2	0.5-1	Clear	None	4.1	28	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:57	10:00	40.22231	-73.19324	40.21881	-73.19335	41	14	ENE	<2	B2	0.5-1	Clear	None	4.4	178	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	10:24	40.21881	-73.19335	40.18930	-73.19423	41	14	E	<2	B2	0.5-1	Clear	None	4.6	178	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:24	10:26	40.18930	-73.19423	40.18686	-73.19424	41	14	E	<2	B2	0.5-1	Clear	None	4.4	281	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:26	10:30	40.18686	-73.19424	40.18251	-73.19611	41	14	E	<2	B2	0.5-1	Clear	None	4.4	281	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:30	10:38	40.18251	-73.19611	40.18554	-73.20805	41	14	E	<2	B2	0.5-1	Clear	None	4.4	281	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:38	10:42	40.18554	-73.20805	40.19064	-73.20828	41	18	E	<2	B2	0.5-1	Clear	None	3.4	3	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:42	10:57	40.19064	-73.20828	40.20893	-73.20780	41	18	E	<2	B2	0.5-1	Clear	None	3.4	3	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:57	10:58	40.20893	-73.20780	40.21022	-73.20779	41	18	E	<2	B2	0.5-1	Clear	None	3.4	3	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	10:58	11:00	40.21022	-73.20779	40.21276	-73.20743	41	18	E	<2	B2	0.5-1	Clear	None	3.4	3	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:00	11:09	40.21276	-73.20743	40.22315	-73.19860	41	18	E	<2	B2	0.5-1	Clear	None	3.4	129	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:09	11:11	40.22315	-73.19860	40.22391	-73.19543	41	18	E	<2	B2	0.5-1	Clear	None	4.4	130	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:11	11:40	40.22391	-73.19543	40.18917	-73.19453	41	15	E	<2	B2	0.5-1	Clear	None	4.6	168	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Triana, Felipe	RPS	11:40	11:41	40.18917	-73.19453	40.18795	-73.19457	41	15	E	<2	B2	0.5-1	Clear	None	4.3	227	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:41	11:49	40.18795	-73.19457	40.18506	-73.20487	41	15	E	<2	B3	1-2	Clear	None	4.3	227	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:49	11:50	40.18506	-73.20487	40.18513	-73.20660	41	19	E	<2	B3	1-2	Clear	None	4.5	1	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	11:50	12:10	40.18513	-73.20660	40.20854	-73.20815	41	19	E	<2	B3	1-2	Clear	None	4.5	1	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:10	12:12	40.20854	-73.20815	40.21092	-73.20800	41	19	E	<2	B3	1-2	Clear	None	4.5	21	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:12	12:24	40.21092	-73.20800	40.22400	-73.19748	41	19	E	<2	B3	1-2	Clear	None	4.5	21	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:24	12:26	40.22400	-73.19748	40.22313	-73.19446	41	19	E	<2	B3	1-2	Clear	None	4.5	168	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:26	12:30	40.22313	-73.19446	40.21842	-73.19409	41	19	E	<2	B3	1-2	Clear	None	4.5	168	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:30	12:54	40.21842	-73.19409	40.18952	-73.19483	41	17	E	<2	B3	2-5	Cloudy	None	4.4	179	Full power	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:54	12:55	40.18952	-73.19483	40.18833	-73.19487	41	17	E	<2	B3	>5	Cloudy	None	4.4	191	Silent	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	12:55	13:00	40.18833	-73.19487	40.18225	-73.19616	41	17	E	<2	B3	>5	Cloudy	None	4.4	191	Standby	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	13:00	14:00	40.18225	-73.19616	40.20125	-73.18823	41	20	E	<2	B4	>5	Cloudy	None	4.8	184	Standby	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:00	14:30	40.20125	-73.18823	40.18560	-73.20554	41	23	E	<2	B4	>5	Cloudy	None	4.8	179	Standby	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Triana, Felipe	RPS	14:30	15:00	40.18560	-73.20554	40.18837	-73.23565	42	20	E	<2	B4	>5	Cloudy	Slight	2.7	275	Deploying/Retrieving	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:00	15:32	40.18837	-73.23565	40.19644	-73.26036	42	18	E	<2	B5	>5	Cloudy	Slight	1	285	Deploying/Retrieving	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:32	15:48	40.19644	-73.26036	40.21403	-73.29490	42	20	E	<2	B5	>5	Cloudy	Slight	4.4	286	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	15:48	16:00	40.21403	-73.29490	40.23231	-73.32683	38	17	E	<2	B5	>5	Cloudy	None	9.5	306	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.23231	-73.32683	40.31339	-73.49970	33	15	E	<2	B5	>5	Cloudy	None	9.4	302	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.31339	-73.49970	40.37570	-73.68722	28	14	E	<2	B5	>5	Cloudy	None	9.1	298	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	18:00	19:00	40.37570	-73.68722	40.44565	-73.87349	24.9	16	E	<2	B5	>5	Cloudy	None	9.8	297	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	19:00	20:00	40.44565	-73.87349	40.52908	-74.01190	24.9	21	ENE	2-4	B5	>5	Cloudy	None	7.6	313	Transit	N/A
2022-12-22	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	20:00	21:00	40.52908	-74.01190	40.66260	-74.06871	18	18	E	2-4	B5	>5	Precipitation	None	9.1	319	Transit	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:51	13:00	40.66270	-74.06872	40.66026	-74.06185	10	3	W	<2	B2	>5	Clear	Moderate	0.4	201	Transit	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	13:00	14:00	40.66026	-74.06185	40.54850	-74.03708	11	11	W	<2	B2	>5	Clear	Moderate	5.5	123	Transit	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	14:00	15:00	40.54850	-74.03708	40.50760	-74.05824	11	10	NW	<2	B3	>5	Clear	Severe	2.7	173	Standby	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	15:00	16:00	40.50760	-74.05824	40.56314	-74.03250	7	11	NW	<2	B3	>5	Clear	Severe	2.3	304	Transit	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.56314	-74.03250	40.69326	-74.02442	10	12	W	<2	B3	>5	Clear	Severe	8.1	6	Transit	N/A
2022-12-26	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	17:35	40.69326	-74.02442	40.70118	-73.97240	10	8	W	<2	B3	2-5	Clear	Severe	7.1	51	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	15:05	16:00	40.70484	-73.97483	40.65676	-74.05404	7	10	SW	<2	B3	2-5	Cloudy	None	4.6	266	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	16:40	40.65676	-74.05404	40.57986	-74.03761	10	12	W	<2	B3	>5	Cloudy	None	7.4	202	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:40	17:00	40.57986	-74.03761	40.54004	-74.02547	18	11	W	<2	B3	>5	Cloudy	None	8.1	173	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.54004	-74.02547	40.44823	-73.87854	20	8	W	<2	B3	>5	Cloudy	Moderate	8.2	156	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.44823	-73.87854	40.38969	-73.70571	21	12	W	<2	B3	>5	Cloudy	Severe	8.9	123	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:47	40.38969	-73.70571	40.36106	-73.55091	25	10	W	<2	B3	>5	Cloudy	Severe	9.1	101	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:47	20:00	40.36106	-73.55091	40.35569	-73.50661	27	11	W	<2	B3	>5	Cloudy	Severe	9.3	95	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	20:00	21:00	40.35569	-73.50661	40.30376	-73.32580	28.9	11	W	<2	B3	>5	Cloudy	Moderate	9.5	103	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:00	21:45	40.30376	-73.32580	40.24264	-73.19603	34	13	W	<2	B3	>5	Cloudy	Severe	9.1	121	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:45	21:50	40.24264	-73.19603	40.23825	-73.18141	39	11	W	<2	B3	2-5	Cloudy	None	9.1	124	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:50	22:00	40.23825	-73.18141	40.23423	-73.16785	39	11	W	<2	B3	1-2	Cloudy	None	9.1	111	Transit	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:00	22:40	40.23423	-73.16785	40.23807	-73.18448	42	15	WNW	<2	B3	0.5-1	Cloudy	None	1.1	139	Deploying/Retrieving	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:40	23:00	40.23807	-73.18448	40.24536	-73.18999	42	12	W	<2	B3	0.5-1	Cloudy	None	3.6	287	Soft Start	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	23:02	40.24536	-73.18999	40.24284	-73.18989	42	13	W	<2	B3	0.5-1	Cloudy	None	4	147	Soft Start	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:02	23:18	40.24284	-73.18989	40.22510	-73.19362	42	13	W	<2	B3	0.5-1	Cloudy	None	4.3	183	Full power	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:18	23:19	40.22510	-73.19362	40.22318	-73.19401	41	12	W	<2	B3	0.5-1	Cloudy	None	4.6	191	Silent	N/A
2022-12-27	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:19	00:00	40.22318	-73.19401	40.18422	-73.20697	41	12	W	<2	B3	0.5-1	Cloudy	None	4.6	190	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.18666	-73.21011	40.21951	-73.19860	43	10	WSW	<2	B3	0.5-1	Cloudy	None	4.8	353	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	01:00	02:00	40.21951	-73.19860	40.18162	-73.19932	41	12	W	<2	B3	0.5-1	Cloudy	None	4.8	49	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	02:00	03:00	40.18162	-73.19932	40.21841	-73.18138	41	14	W	<2	B3	0.5-1	Cloudy	None	4.6	271	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	03:00	04:00	40.21841	-73.18138	40.21331	-73.19768	41	12	WNW	<2	B3	0.5-1	Cloudy	None	4.4	189	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.21331	-73.19768	40.18036	-73.18896	41	13	NNW	<2	B3	0.5-1	Cloudy	None	4.3	348	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	05:00	06:00	40.18036	-73.18896	40.20914	-73.18237	42	14	NW	<2	B3	0.5-1	Cloudy	None	3.9	292	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas ,Yesenia; Dorantes, Lluvia	RPS	06:00	07:00	40.20914	-73.18237	40.22088	-73.19114	41	13	NW	<2	B3	0.5-1	Cloudy	None	4.2	188	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	07:00	08:00	40.22088	-73.19114	40.18782	-73.19738	41	5	N	<2	B2	0.5-1	Clear	None	4.6	52	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	08:00	08:27	40.18782	-73.19738	40.22512	-73.18368	43	4	NW	<2	B2	0.5-1	Clear	None	4.6	355	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	08:27	09:00	40.22512	-73.18368	40.18522	-73.18453	45	2	NE	<2	B2	0.5-1	Clear	None	4.5	172	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	09:45	40.18522	-73.18453	40.22444	-73.19030	45	2	E	<2	B2	0.5-1	Clear	None	4.5	184	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:45	10:00	40.22444	-73.19030	40.21612	-73.18302	41	1	WNW	<2	B1	0.5-1	Clear	None	4.4	90	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	11:00	40.21612	-73.18302	40.21378	-73.18825	41	3	S	<2	B1	0.5-1	Clear	None	4.4	90	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	11:00	11:36	40.21378	-73.18825	40.19307	-73.18423	41	5	SSW	<2	B2	0.5-1	Clear	None	4.5	1	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	11:36	12:00	40.19307	-73.18423	40.17341	-73.17639	41	6	SSW	<2	B2	2-5	Clear	None	4.5	178	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	13:00	40.17341	-73.17639	40.24458	-73.17059	42	6	SW	<2	B2	2-5	Clear	None	4.5	337	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	13:00	14:00	40.24458	-73.17059	40.19418	-73.16197	42	11	SW	<2	B3	>5	Clear	Severe	4.4	181	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	14:00	15:00	40.19418	-73.16197	40.20069	-73.17667	41	14	SW	<2	B3	>5	Cloudy	Severe	4.4	184	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	15:00	16:00	40.20069	-73.17667	40.24385	-73.16229	41	14	SSW	<2	B4	>5	Clear	Severe	4.4	357	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.24385	-73.16229	40.19840	-73.16257	41	15	SW	<2	B4	>5	Clear	Severe	4.5	329	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.19840	-73.16257	40.18747	-73.17740	41	19	SW	<2	B4	>5	Clear	Severe	4.3	188	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.18747	-73.17740	40.25138	-73.16257	41	17	SW	<2	B5	>5	Cloudy	Severe	4.5	349	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	19:45	40.25138	-73.16257	40.19921	-73.16411	41	22	SW	<2	B5	>5	Cloudy	Severe	4.1	195	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:45	20:00	40.19921	-73.16411	40.18131	-73.16459	41	22	SW	<2	B5	>5	Cloudy	Severe	4.1	190	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	20:00	21:00	40.18131	-73.16459	40.21189	-73.17823	41	22	SW	<2	B5	>5	Clear	Severe	4.3	142	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:00	21:48	40.21189	-73.17823	40.24692	-73.16299	41	20	SW	<2	B5	>5	Clear	Severe	4.5	352	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:48	22:00	40.24692	-73.16299	40.23331	-73.16341	41	23	SW	<2	B5	2-5	Clear	Severe	4	194	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:00	23:00	40.23331	-73.16341	40.16433	-73.16531	41	23	SW	<2	B5	0.5-1	Clear	None	4	194	Full power	N/A
2022-12-28	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	24:00	40.16433	-73.16531	40.22299	-73.17814	43	22	SW	<2	B5	0.5-1	Clear	None	4	249	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.23165	-73.17793	40.22039	-73.16401	41	18	SW	<2	B5	0.5-1	Clear	None	5.3	14	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	01:00	02:00	40.22039	-73.16401	40.18036	-73.17348	41	20	SW	<2	B5	0.5-1	Clear	None	4.5	188	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	02:00	03:00	40.18036	-73.17348	40.18242	-73.17955	41	19	SW	<2	B4	0.5-1	Clear	None	5.3	344	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	03:00	04:00	40.18242	-73.17955	40.21560	-73.17006	42	19	SW	<2	B4	0.5-1	Clear	None	4.8	357	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	04:00	05:00	40.21560	-73.17006	40.23778	-73.16115	41	18	SW	<2	B4	0.5-1	Clear	None	4.6	189	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	05:00	06:00	40.23778	-73.16115	40.16240	-73.16728	41	19	SW	<2	B4	0.5-1	Clear	None	4.7	190	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	06:00	07:00	40.16240	-73.16728	40.22986	-73.17871	43	19	SW	<2	B4	0.5-1	Cloudy	None	4.8	288	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	07:00	08:00	40.22986	-73.17871	40.22690	-73.16357	41	19	SW	<2	B4	0.5-1	Cloudy	None	4.5	352	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	08:00	09:00	40.22690	-73.16357	40.17435	-73.18072	41	18	SW	<2	B4	0.5-1	Cloudy	None	4.6	191	Full power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.17435	-73.18072	40.23300	-73.17894	41	13	SW	<2	B4	0.5-1	Cloudy	None	4.5	354	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	11:00	40.23300	-73.17894	40.20655	-73.16490	40	16	WSW	<2	B4	0.5-1	Cloudy	None	4.3	3	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	11:00	11:44	40.20655	-73.16490	40.17269	-73.18213	41	18	WSW	<2	B4	0.5-1	Cloudy	None	4.6	187	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	11:44	12:00	40.17269	-73.18213	40.18997	-73.18048	43	16	WSW	<2	B4	1-2	Clear	None	3.9	27	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	12:11	40.18997	-73.18048	40.20246	-73.18011	41	15	SW	<2	B4	2-5	Clear	None	4.2	356	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:11	13:00	40.20246	-73.18011	40.25849	-73.17036	41	18	SW	<2	B4	2-5	Clear	None	4.2	355	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	13:00	14:00	40.25849	-73.17036	40.18902	-73.16567	41	20	SW	<2	B5	>5	Cloudy	Severe	4.7	104	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	14:00	15:00	40.18902	-73.16567	40.20184	-73.18050	41	18	SW	<2	B5	>5	Cloudy	Severe	3.3	184	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	15:00	16:00	40.20184	-73.18050	40.24260	-73.16460	41	14	SW	<2	B4	>5	Cloudy	Severe	4.3	357	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	16:00	17:00	40.24260	-73.16460	40.17114	-73.16652	41	15	SW	<2	B4	>5	Cloudy	Severe	4.1	191	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	17:00	18:00	40.17114	-73.16652	40.22310	-73.18030	41	16	SW	<2	B4	>5	Cloudy	Severe	4.6	202	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	18:00	19:00	40.22310	-73.18030	40.22214	-73.16543	41	19	SW	<2	B4	>5	Cloudy	Severe	4.3	353	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley	RPS	19:00	20:00	40.22214	-73.16543	40.15884	-73.16779	41	20	SW	<2	B4	>5	Cloudy	Severe	4.2	189	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	20:00	21:00	40.15884	-73.16779	40.22774	-73.16623	41	18	SW	<2	B4	>5	Clear	Severe	4.5	351	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:00	21:48	40.22774	-73.16623	40.23614	-73.16548	41	18	SW	<2	B4	>5	Clear	Severe	3.9	350	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:48	21:55	40.23614	-73.16548	40.23057	-73.16565	41	18	SW	<2	B4	2-5	Clear	Severe	3.9	350	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Balderas, Yesenia	RPS	21:55	22:00	40.23057	-73.16565	40.22324	-73.16590	41	18	SW	<2	B4	1-2	Clear	Severe	3.9	350	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	22:00	23:00	40.22324	-73.16590	40.15925	-73.16751	41	22	SW	<2	B4	0.5-1	Clear	None	4	191	Full power	N/A
2022-12-29	*GO Discovery*	HRG	Visual	Muehlenweg, Ashley; Rangel, Zuemy	RPS	23:00	00:00	40.15925	-73.16751	40.18119	-73.17561	41	23	SW	<2	B4	0.5-1	Clear	None	3.9	188	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	00:00	01:00	40.18112	-73.17930	40.21880	-73.18330	41	20	SW	<2	B5	0.5-1	Clear	None	5.1	227	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	01:00	02:00	40.21880	-73.18330	40.23394	-73.18220	41	20	SW	<2	B5	0.5-1	Clear	None	4.3	356	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Muehlenweg, Ashley	RPS	02:00	03:00	40.23394	-73.18220	40.17902	-73.18589	41	20	SW	<2	B5	0.5-1	Clear	None	4.1	193	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	03:00	04:00	40.17902	-73.18589	40.21821	-73.16333	43	15	SW	<2	B4	0.5-1	Clear	None	5.6	28	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	04:00	05:00	40.21821	-73.16333	40.25167	-73.13633	42	16	SW	<2	B4	0.5-1	Clear	None	4.2	183	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	05:00	05:01	40.25167	-73.13633	40.25405	-73.13625	42	11	SW	<2	B4	0.5-1	Clear	None	4.7	258	Full power	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	05:01	05:22	40.25405	-73.13625	40.27449	-73.12436	42	11	SW	<2	B4	0.5-1	Clear	None	4.7	258	Silent	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	05:22	06:00	40.27449	-73.12436	40.29359	-73.09676	42	11	SW	<2	B4	0.5-1	Clear	None	4.7	258	Deploying/Retrieving	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	06:00	07:00	40.29359	-73.09676	40.31403	-73.14919	42	11	SW	<2	B4	0.5-1	Clear	None	3.3	284	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Dorantes, Lluvia	RPS	07:00	08:00	40.31403	-73.14919	40.34790	-73.32585	40	8	WSW	<2	B3	0.5-1	Clear	None	8	280	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Balderas, Yesenia; Rangel, Zuemy	RPS	08:00	09:00	40.34790	-73.32585	40.38482	-73.51811	32	7	WSW	<2	B3	0.5-1	Clear	None	8.9	285	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	09:00	10:00	40.38482	-73.51811	40.43484	-73.70460	26	9	SSW	<2	B3	0.5-1	Clear	None	9.1	293	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	10:00	11:00	40.43484	-73.70460	40.47988	-73.88976	29	8	SW	<2	B3	0.5-1	Clear	None	9.3	290	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia; Rangel, Zuemy	RPS	11:00	11:39	40.47988	-73.88976	40.51716	-73.98794	16	9	S	<2	B3	0.5-1	Clear	None	7.8	296	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Rangel, Zuemy	RPS	11:39	12:00	40.51716	-73.98794	40.55045	-74.02565	16	5	SSW	<2	B2	1-2	Clear	None	7.6	298	Transit	N/A
2022-12-30	*GO Discovery*	HRG	Visual	Dorantes, Lluvia	RPS	12:00	12:45	40.55045	-74.02565	40.61769	-74.06395	13	5	SSW	<2	B2	2-5	Clear	None	7.4	347	Transit	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:15	17:00	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Silent	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:09	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Deploying/Retrieving	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:09	17:16	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Soft Start	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:16	18:00	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Testing	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Testing	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Testing	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	20:00	21:00	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Testing	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:38	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Testing	N/A
2023-04-14	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:38	21:52	41.17042	-73.17548	41.17042	-73.17548	4	1	W	<2	B1	≥5000	Clear	Severe	0	181	Deploying/Retrieving	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Peña Mendoza, Valeria	RPS	14:00	15:00	41.17040	-73.17547	41.10847	-73.07830	4	12	SE	<2	B2	200-499	Fog	None	0.2	187	Transit	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	15:00	16:00	41.10847	-73.07830	41.08417	-73.01052	20	22	E	<2	B4	200-499	Fog	None	4.5	131	Transit	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Ruiz Villanueva, Arturo	RPS	16:00	17:00	41.08417	-73.01052	41.05458	-72.92343	24	12	E	<2	B3	≤ 199	Fog	None	3.9	125	Transit	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Ruiz Villanueva, Arturo	RPS	17:00	18:00	41.05458	-72.92343	41.02300	-72.84085	33	9	SE	<2	B2	≤ 199	Fog	None	4.4	130	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	18:00	18:45	41.02300	-72.84085	41.02468	-72.84938	36	1	E	<2	B2	200-499	Fog	None	3.1	107	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:45	19:00	41.02468	-72.84938	41.02460	-72.83440	36	2	WSW	<2	B2	500-999	Fog	None	2	98	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	41.02460	-72.83440	41.02463	-72.84407	39	5	SW	<2	B2	2000-4999	Cloudy	Slight	1.2	180	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	41.02463	-72.84407	41.02142	-72.83807	37	4	W	<2	B2	≥5000	Cloudy	Slight	3.2	89	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:48	41.02142	-72.83807	41.04677	-72.83900	38	15	W	<2	B1	≥5000	Cloudy	Severe	4.7	287	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	De la Rosa, Leo	RPS	21:48	22:46	41.04677	-72.83900	41.01857	-72.84935	36	15	W	<2	B1	≥5000	Cloudy	Severe	4	330	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	22:46	23:33	41.01857	-72.84935	41.01820	-72.84447	36	2	SW	<2	B1	≥5000	Clear	None	4.4	292	Standby	N/A
2023-04-17	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; De La Rosa, Leonardo Mario	RPS	23:33	00:00	41.01820	-72.84447	41.01953	-72.83798	36	11	E	<2	B1	≥5000	Clear	None	5	69	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	01:00	41.01953	-72.83798	41.02415	-72.84697	35	11	SSE	<2	B1	1000-1999	Clear	None	3.8	352	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:00	02:00	41.02415	-72.84697	41.02740	-72.99590	39	11	WNW	<2	B1	1000-1999	Clear	None	7.4	326	Transit	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	41.02740	-72.99590	41.06264	-73.19290	40	15	WSW	<2	B2	1000-1999	Cloudy	None	9.3	272	Transit	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	De la Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	04:00	41.06264	-73.19290	41.02917	-73.31258	29	22	WSW	<2	B2	1000-1999	Cloudy	None	9.2	285	Transit	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	De la Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	05:00	41.02917	-73.31258	41.02083	-73.30285	19	14	NW	<2	B3	1000-1999	Cloudy	None	3.9	333	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	41.02083	-73.30285	41.06420	-73.31590	34	13	ESE	<2	B3	1000-1999	Cloudy	None	4	149	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	De la Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	41.06420	-73.31590	41.04960	-73.30760	20	21	WSW	<2	B3	1000-1999	Cloudy	None	3.5	335	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	De la Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	41.04960	-73.30760	41.03438	-73.31860	28	26	WSW	<2	B3	1000-1999	Cloudy	None	4.6	135	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	41.03438	-73.31860	41.03377	-73.31748	20	15	S	<2	B3	1000-1999	Clear	None	4.4	70	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	10:00	41.03377	-73.31748	41.04385	-73.32913	22	16	NW	<2	B3	1000-1999	Clear	None	4.3	333	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	10:00	10:10	41.04385	-73.32913	41.03245	-73.33362	15	12	NW	<2	B3	2000-4999	Clear	None	4.2	331	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	10:10	11:00	41.03245	-73.33362	41.03618	-73.31522	17	10	ESE	<2	B3	≥5000	Clear	None	4.4	190	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	41.03618	-73.31522	41.02687	-73.33340	19	23	NNE	<2	B3	≥5000	Clear	Slight	4.6	251	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	41.02687	-73.33340	41.03293	-73.33208	27	18	NNE	<2	B3	≥5000	Clear	None	4.8	250	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	41.03293	-73.33208	41.03577	-73.31597	20	19	WSW	<2	B5	≥5000	Cloudy	None	3.9	249	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	41.03577	-73.31597	41.03445	-73.31872	20	23	W	<2	B5	≥5000	Cloudy	None	3.7	249	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	41.03445	-73.31872	41.04303	-73.31757	19	14	WSW	<2	B4	≥5000	Cloudy	None	4	236	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	41.04303	-73.31757	41.04312	-73.28588	20	19	WSW	<2	B5	≥5000	Cloudy	None	4.5	104	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	41.04312	-73.28588	41.03053	-73.30273	21	23	W	<2	B5	≥5000	Cloudy	None	0.6	256	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	41.03053	-73.30273	41.01700	-73.32490	24	24	W	<2	B5	≥5000	Cloudy	None	0.9	239	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	41.01700	-73.32490	41.02162	-73.27622	28	25	WSW	<2	B6	≥5000	Cloudy	Slight	1.2	223	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	41.02162	-73.27622	41.02850	-73.31128	30	22	W	<2	B5	≥5000	Cloudy	Severe	3.2	292	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	41.02850	-73.31128	41.04851	-73.30380	20	27	W	<2	B5	≥5000	Clear	Severe	3.8	314	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	De la Rosa, Leo	RPS	22:00	23:00	41.04851	-73.30380	41.04077	-73.32517	20	16	W	<2	B5	≥5000	Clear	Severe	2.1	319	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:40	41.04077	-73.32517	41.03902	-73.33148	20	10	WNW	<2	B5	≥5000	Clear	Severe	3	327	Standby	N/A
2023-04-18	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; De La Rosa, Leonardo Mario	RPS	23:40	00:00	41.03902	-73.33148	41.03323	-73.31072	22	25	WNW	<2	B4	≥5000	Clear	Severe	3	278	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	01:00	41.03323	-73.31072	41.03757	-73.31238	20	11	NNW	<2	B3	500-999	Clear	None	2.8	100	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	41.03757	-73.31238	41.03710	-73.32048	19	16	NE	<2	B3	500-999	Clear	None	3.5	250	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	03:00	41.03710	-73.32048	41.04557	-73.32190	17	11	WSW	<2	B3	500-999	Clear	None	2.7	142	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	41.04557	-73.32190	41.04498	-73.32875	16	13	WNW	<2	B3	500-999	Clear	None	3.1	105	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	41.04498	-73.32875	41.04127	-73.32615	17	21	WNW	<2	B3	500-999	Clear	None	4.5	184	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	41.04127	-73.32615	41.04241	-73.32514	19	10	S	<2	B3	500-999	Clear	None	3.1	129	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:30	41.04241	-73.32514	41.04241	-73.32514	19	14	WNW	<2	B2	500-999	Cloudy	None	4.2	20	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:30	07:00	41.04241	-73.32514	41.03293	-73.36675	19	10	WNW	<2	B2	500-999	Cloudy	None	4.2	285	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	41.03293	-73.36675	41.03068	-73.38397	22	11	WNW	<2	B2	500-999	Cloudy	None	8.6	245	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	08:00	09:00	41.03068	-73.38397	41.02850	-73.37860	18	9	N	<2	B2	500-999	Cloudy	None	3.4	74	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	10:00	41.02850	-73.37860	41.04215	-73.35792	17	9	N	<2	B2	500-999	Cloudy	None	1.4	263	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	10:00	10:08	41.04215	-73.35792	41.03910	-73.36563	18	9	NE	<2	B2	2000-4999	Cloudy	None	2.3	255	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	10:08	11:00	41.03910	-73.36563	41.02080	-73.41283	18	7	NE	<2	B2	≥5000	Cloudy	None	3	258	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	41.02080	-73.41283	40.99513	-73.47242	22	10	NNE	<2	B3	≥5000	Cloudy	None	3.4	255	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.99513	-73.47242	40.96810	-73.53380	31	12	N	<2	B3	≥5000	Cloudy	None	2.8	254	Standby	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.96810	-73.53380	40.94512	-73.58693	16	13	WSW	<2	B2	≥5000	Cloudy	None	3.3	253	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.94512	-73.58693	40.91893	-73.64785	15	10	WNW	<2	B3	≥5000	Cloudy	None	2.6	251	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.91893	-73.64785	40.82980	-73.77392	16	15	WNW	<2	B3	≥5000	Cloudy	None	4.3	238	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:20	40.82980	-73.77392	40.71247	-73.97568	11	16	WSW	<2	B3	≥5000	Cloudy	None	10	230	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:20	18:00	40.71247	-73.97568	40.62547	-74.05090	13	19	SSW	<2	B3	≥5000	Clear	None	12.2	219	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.62547	-74.05090	40.51033	-73.97687	15	13	SSW	<2	B3	≥5000	Clear	None	11.9	169	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.51033	-73.97687	40.46825	-73.87585	18	5	SSW	<2	B2	≥5000	Clear	None	5.9	115	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.46825	-73.87585	40.44018	-73.77322	17	9	SW	<2	B2	≥5000	Cloudy	Moderate	5.8	121	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.44018	-73.77322	40.41440	-73.66908	29	5	SSW	<2	B2	≥5000	Clear	Severe	5.8	117	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.41440	-73.66908	40.39413	-73.60098	16	8	SSW	<2	B3	≥5000	Clear	Severe	4.2	118	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:40	40.39413	-73.60098	40.37905	-73.55097	20	25	SE	<2	B4	≥5000	Clear	Severe	3.8	129	Transit	N/A
2023-04-19	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:40	00:00	40.37905	-73.55097	40.37150	-73.52117	25	21	SSE	<2	B4	2000-4999	Clear	None	4.4	111	Transit	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	01:00	40.37150	-73.52117	40.34908	-73.44327	25	25	SE	<2	B5	1000-1999	Clear	None	4.1	123	Transit	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.34908	-73.44327	40.32447	-73.34698	38	18	NE	<2	B5	500-999	Clear	None	4.2	121	Transit	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.32447	-73.34698	40.29843	-73.26768	33	11	S	<2	B4	500-999	Clear	None	4.2	111	Transit	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	04:00	40.29843	-73.26768	40.23925	-73.21808	38	10	S	<2	B3	500-999	Clear	None	4.1	133	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.23925	-73.21808	40.20340	-73.20623	34	6	S	<2	B2	500-999	Clear	None	3.8	184	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.20340	-73.20623	40.19123	-73.19992	42	4	N	<2	B2	500-999	Clear	None	2.8	178	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:00	07:00	40.19123	-73.19992	40.23205	-73.20158	43	4	N	<2	B2	500-999	Clear	None	3.1	12	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.23205	-73.20158	40.19133	-73.19900	42	6	N	<2	B2	500-999	Clear	None	2.9	191	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.19133	-73.19900	40.18375	-73.20318	40	8	E	<2	B2	500-999	Clear	None	2.5	192	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	10:00	40.18375	-73.20318	40.23215	-73.21232	40	14	NNE	<2	B3	500-999	Clear	None	2.7	5	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	10:00	10:07	40.23215	-73.21232	40.24667	-73.21240	42	10	NE	<2	B3	2000-4999	Clear	None	4.1	11	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	10:07	11:00	40.24667	-73.21240	40.26957	-73.18695	42	11	NE	<2	B3	≥5000	Clear	None	4.1	13	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.26957	-73.18695	40.28373	-73.11440	38	15	NE	<2	B3	≥5000	Clear	None	3.8	11	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.28373	-73.11440	40.29200	-73.06088	40	19	NNW	<2	B4	≥5000	Clear	Moderate	8.9	86	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.29200	-73.06088	40.29058	-73.06183	32	14	SSW	<2	B3	≥5000	Clear	Moderate	0.3	102	Deploying/Retrieving	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.29058	-73.06183	40.29117	-73.06043	30	10	SW	<2	B3	≥5000	Clear	Moderate	1.7	158	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.29117	-73.06043	40.28895	-73.06463	40	17	SE	<2	B4	≥5000	Clear	Moderate	2.1	115	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.28895	-73.06463	40.27910	-73.07440	40	13	NW	<2	B3	≥5000	Cloudy	None	0.9	207	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.27910	-73.07440	40.27705	-73.08857	40	10	SE	<2	B3	≥5000	Clear	Slight	0.2	236	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.27705	-73.08857	40.27737	-73.10110	40	6	SE	<2	B3	≥5000	Clear	Moderate	0.6	276	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.27737	-73.10110	40.29565	-73.06602	40	8	SSE	<2	B3	≥5000	Clear	Moderate	1.3	161	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.29565	-73.06602	40.29348	-73.05993	40	5	SSE	<2	B3	≥5000	Clear	Slight	0.9	297	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.29348	-73.05993	40.29312	-73.06150	40	7	SSW	<2	B3	≥5000	Clear	Slight	2.2	227	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.29312	-73.06150	40.29822	-73.06028	40	5	SSE	<2	B2	≥5000	Clear	Severe	2.2	108	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.29822	-73.06028	40.29180	-73.06137	40	10	SSE	<2	B2	≥5000	Clear	Severe	1.1	150	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.29180	-73.06137	40.29398	-73.06095	40	8	SSE	<2	B1	≥5000	Clear	Severe	3.2	323	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:37	40.29398	-73.06095	40.29340	-73.06035	40	9	SE	<2	B2	≥5000	Clear	Severe	0.4	21	Standby	N/A
2023-04-20	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:37	00:00	40.29340	-73.06035	40.29538	-73.05852	40	5	SSE	<2	B2	2000-4999	Clear	None	0.5	349	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	01:00	40.29538	-73.05852	40.29543	-73.05852	40	5	ESE	<2	B2	1000-1999	Clear	None	0.8	39	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.29543	-73.05852	40.28795	-73.06802	40	7	SW	<2	B2	500-999	Clear	None	0.9	50	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.28795	-73.06802	40.28415	-73.06973	40	7	S	<2	B2	500-999	Clear	None	2.4	219	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	04:00	40.28415	-73.06973	40.28658	-73.05840	40	5	S	<2	B1	500-999	Clear	None	1.2	91	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.28658	-73.05840	40.28875	-73.05412	38	7	S	<2	B1	500-999	Cloudy	None	0.9	92	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.28875	-73.05412	40.28135	-73.06488	40	6	S	<2	B1	500-999	Cloudy	None	4.9	104	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.28135	-73.06488	40.28968	-73.06812	40	4	W	<2	B1	500-999	Cloudy	None	1.1	210	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.28968	-73.06812	40.28772	-73.06968	40	2	NNE	<2	B1	500-999	Cloudy	None	0.8	135	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.28772	-73.06968	40.28987	-73.07683	40	5	SE	<2	B1	500-999	Clear	None	0.6	269	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	10:00	40.28987	-73.07683	40.29308	-73.07117	39	4	S	<2	B1	500-999	Clear	None	0.7	283	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	10:00	10:06	40.29308	-73.07117	40.29232	-73.07465	40	10	ESE	<2	B1	2000-4999	Clear	None	1	253	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	10:06	11:00	40.29232	-73.07465	40.28930	-73.07918	40	11	ESE	<2	B1	≥5000	Clear	None	0.9	264	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:40	40.28930	-73.07918	40.29295	-73.05497	40	13	NNE	<2	B2	≥5000	Clear	Slight	3.1	74	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:06	40.29295	-73.05497	40.29438	-73.05635	40	11	SSE	<2	B2	≥5000	Clear	Slight	0.2	182	Deploying/Retrieving	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:06	13:00	40.29438	-73.05635	40.29745	-73.05517	40	11	SSE	<2	B2	≥5000	Clear	Slight	0.2	182	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.29745	-73.05517	40.30272	-73.04635	38	9	NE	<2	B3	≥5000	Clear	Severe	2.5	357	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.30272	-73.04635	40.29238	-73.01935	39	8	NE	<2	B3	≥5000	Clear	Severe	2.8	143	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.29238	-73.01935	40.29332	-73.05380	40	15	E	<2	B3	≥5000	Clear	Slight	4.3	96	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.29332	-73.05380	40.29323	-73.05577	40	12	NNW	<2	B4	≥5000	Clear	Slight	0.7	292	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.29323	-73.05577	40.29325	-73.05612	40	18	NNE	<2	B5	≥5000	Clear	Slight	1.1	33	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.29325	-73.05612	40.29455	-73.05975	40	18	E	<2	B5	≥5000	Clear	Slight	2.4	155	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.29455	-73.05975	40.29457	-73.06333	40	17	SSE	<2	B5	≥5000	Clear	Slight	1.3	312	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.29457	-73.06333	40.29330	-73.05457	40	22	E	<2	B6	≥5000	Cloudy	Severe	1.4	9	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.29330	-73.05457	40.30465	-73.03585	40	22	E	<2	B6	≥5000	Clear	Severe	3	88	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.30465	-73.03585	40.31370	-72.98705	38	18	E	<2	B5	≥5000	Clear	Severe	2	68	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:40	40.31370	-72.98705	40.29628	-73.01507	40	10	E	<2	B5	≥5000	Clear	Slight	2	281	Standby	N/A
2023-04-21	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:40	00:00	40.29628	-73.01507	40.29960	-72.98992	40	17	E	<2	B5	2000-4999	Clear	None	3.5	163	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	01:00	40.29960	-72.98992	40.31953	-72.99383	41	18	E	<2	B5	1000-1999	Clear	None	3.2	90	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.31953	-72.99383	40.29113	-73.03568	43	11	SSW	<2	B5	500-999	Clear	None	4.4	262	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.29113	-73.03568	40.28062	-72.95905	41	20	E	<2	B5	500-999	Clear	None	3.7	91	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	04:00	40.28062	-72.95905	40.28478	-73.02480	38	15	NE	<2	B4	500-999	Cloudy	None	3.8	121	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.28478	-73.02480	40.29177	-72.96672	40	11	E	<2	B4	≤ 199	Fog	None	5	319	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.29177	-72.96672	40.29005	-72.98418	40	4	SW	<2	B4	≤ 199	Fog	None	6.6	283	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-04-22	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:22	40.29005	-72.98418	40.29292	-72.99995	40	11	NE	<2	B4	≤ 199	Fog	None	6.1	104	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:22	07:00	40.29292	-72.99995	40.29215	-73.07423	40	7	WSW	<2	B4	200-499	Clear	None	6.7	285	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.29215	-73.07423	40.29178	-72.95372	38	10	NE	<2	B4	200-499	Clear	None	6.7	99	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.29178	-72.95372	40.29498	-73.01698	43	5	SE	<2	B3	500-999	Clear	None	5.6	102	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	10:00	40.29498	-73.01698	40.29490	-72.93123	40	9	SE	<2	B3	500-999	Clear	None	5.8	100	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	10:00	10:05	40.29490	-72.93123	40.29673	-72.96627	40	5	WNW	<2	B3	2000-4999	Clear	None	4.6	33	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	10:05	11:00	40.29673	-72.96627	40.31400	-73.07663	40	6	W	<2	B3	≥5000	Clear	None	4.6	285	Standby	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.31400	-73.07663	40.34663	-73.25313	40	5	NW	<2	B3	≥5000	Clear	None	7.8	296	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.34663	-73.25313	40.31370	-72.98705	32	6	WSW	<2	B2	≥5000	Clear	Slight	7.8	298	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.31370	-72.98705	40.39422	-73.56547	27	4	S	<2	B3	≥5000	Cloudy	None	4.6	281	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.39422	-73.56547	40.43253	-73.73048	24	2	E	<2	B3	≥5000	Cloudy	Slight	7.7	300	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.43253	-73.73048	40.48077	-73.89440	28	6	NE	<2	B3	≥5000	Cloudy	Slight	7.6	301	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.48077	-73.89440	40.54808	-74.02463	14	9	NNE	<2	B4	≥5000	Cloudy	Slight	7.2	310	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.54808	-74.02463	40.66783	-74.04900	16	15	E	<2	B4	≥5000	Cloudy	Slight	7.9	358	Transit	N/A
2023-04-22	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.66783	-74.04900	40.70373	-73.97483	16	18	E	<2	B4	≥5000	Cloudy	Slight	8.4	34	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:30	17:00	40.70307	-73.97385	40.69235	-74.03340	8	9	NNW	<2	B1	≥5000	Cloudy	Slight	4.1	35	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.69235	-74.03340	40.64618	-74.11820	16	14	SSW	<2	B1	≥5000	Cloudy	None	8.8	222	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.64618	-74.11820	40.64623	-74.11883	14	4	SSW	<2	B1	≥5000	Cloudy	None	0.1	147	Standby	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.64623	-74.11883	40.55695	-74.02953	14	8	SW	<2	B1	≥5000	Cloudy	Moderate	5.5	122	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.55695	-74.02953	40.49000	-73.92240	14	14	NNW	<2	B2	≥5000	Cloudy	None	9.8	180	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:45	40.49000	-73.92240	40.44805	-73.79707	16	14	S	<2	B3	≥5000	Cloudy	None	5.6	128	Transit	N/A
2023-04-25	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:45	00:00	40.44805	-73.79707	40.43695	-73.74862	29	13	S	<2	B3	2000-4999	Cloudy	None	9.3	120	Transit	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	01:00	40.43695	-73.74862	40.39863	-73.57915	29	12	SSE	<2	B3	1000-1999	Clear	None	9.2	119	Transit	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.39863	-73.57915	40.35105	-73.36783	26	4	ENE	<2	B3	500-999	Clear	None	9.1	120	Transit	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.35105	-73.36783	40.31777	-73.15808	30	8	SSE	<2	B3	500-999	Clear	None	9.2	118	Transit	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:50	40.31777	-73.15808	40.29918	-73.04780	30	12	S	<2	B3	500-999	Clear	None	9.2	112	Transit	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:50	04:00	40.29918	-73.04780	40.29978	-73.06033	38	7	S	<2	B2	500-999	Clear	None	2.1	112	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	05:00	40.29978	-73.06033	40.30983	-73.00720	39	8	SW	<2	B2	500-999	Clear	None	4.6	285	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.30983	-73.00720	40.30755	-73.03123	43	1	E	<2	B2	500-999	Clear	None	3.9	90	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.30755	-73.03123	40.30792	-73.02022	42	4	E	<2	B2	500-999	Clear	None	3.9	273	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.30792	-73.02022	40.31645	-72.96067	40	4	E	<2	B2	500-999	Clear	None	3.9	90	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.31645	-72.96067	40.31338	-72.98212	39	4	NNE	<2	B2	500-999	Clear	None	3.2	93	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:59	40.31338	-72.98212	40.27142	-73.12588	40	6	NNE	<2	B2	500-999	Clear	None	3.2	274	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	09:59	10:44	40.27142	-73.12588	40.27993	-73.10702	39	6	E	<2	B2	≥5000	Clear	None	2.1	235	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	10:44	11:00	40.27993	-73.10702	40.27500	-73.11767	38	6	ESE	<2	B2	≥5000	Clear	Severe	3.5	230	Deploying/Retrieving	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.27500	-73.11767	40.25288	-73.18832	43	2	SSE	<2	B2	≥5000	Clear	Moderate	3.7	253	Deploying/Retrieving	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:07	40.25288	-73.18832	40.25005	-73.19687	38	8	S	<2	B2	≥5000	Clear	Moderate	2.8	262	Standby	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:07	12:24	40.25005	-73.19687	40.24447	-73.21383	38	7	SSE	<2	B2	≥5000	Clear	Moderate	2.8	258	Soft Start	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:24	13:00	40.24447	-73.21383	40.23872	-73.19300	34	9	SSW	<2	B3	≥5000	Clear	Moderate	2.8	260	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.23872	-73.19300	40.25675	-73.13203	38	21	E	<2	B4	≥5000	Clear	Moderate	3.7	80	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:06	40.25675	-73.13203	40.26210	-73.11602	38	12	E	<2	B4	≥5000	Cloudy	Moderate	3.5	82	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:06	14:11	40.26210	-73.11602	40.26478	-73.11067	38	10	E	<2	B3	≥5000	Cloudy	Moderate	3.4	72	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:11	14:34	40.26478	-73.11067	40.27793	-73.08713	38	9	E	<2	B3	≥5000	Cloudy	Moderate	3.6	65	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:34	14:37	40.27793	-73.08713	40.27953	-73.08425	38	13	E	<2	B3	≥5000	Cloudy	Moderate	3.5	70	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:37	15:00	40.27953	-73.08425	40.29413	-73.09462	38	7	E	<2	B3	≥5000	Cloudy	Moderate	3.7	66	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	15:14	40.29413	-73.09462	40.28287	-73.09907	38	6	ESE	<2	B3	≥5000	Cloudy	Moderate	4.6	293	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:14	15:19	40.28287	-73.09907	40.27922	-73.09555	40	14	E	<2	B3	≥5000	Cloudy	Moderate	3.7	159	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:19	15:44	40.27922	-73.09555	40.25983	-73.07718	40	15	E	<2	B3	≥5000	Cloudy	Slight	3.5	157	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:44	15:46	40.25983	-73.07718	40.25808	-73.07550	40	18	E	<2	B4	≥5000	Cloudy	Slight	3.6	157	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:46	16:00	40.25808	-73.07550	40.25382	-73.06342	40	18	E	<2	B4	≥5000	Cloudy	Slight	3.6	156	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:23	40.25382	-73.06342	40.26967	-73.07232	40	18	E	<2	B4	≥5000	Cloudy	Slight	3.5	55	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:23	16:27	40.26967	-73.07232	40.26695	-73.07713	40	11	ESE	<2	B4	≥5000	Cloudy	Slight	4.3	244	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:27	16:51	40.26695	-73.07713	40.25305	-73.10245	40	11	ESE	<2	B4	≥5000	Cloudy	Slight	4.5	248	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:51	16:52	40.25305	-73.10245	40.25305	-73.10245	40	13	ESE	<2	B4	≥5000	Clear	Moderate	3.6	247	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:52	17:41	40.25305	-73.10245	40.24958	-73.08927	40	13	ESE	<2	B4	≥5000	Clear	Moderate	3.5	247	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:41	17:46	40.24958	-73.08927	40.25428	-73.09367	40	9	ENE	<2	B4	≥5000	Cloudy	None	4.3	337	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:46	18:00	40.25428	-73.09367	40.26358	-73.10233	40	9	ENE	<2	B4	≥5000	Cloudy	None	4.2	336	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	18:09	40.26358	-73.10233	40.27298	-73.11107	40	9	E	<2	B3	≥5000	Cloudy	None	3.5	338	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:09	18:10	40.27298	-73.11107	40.27298	-73.11107	40	11	E	<2	B3	≥5000	Precipitation	None	3.4	339	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:10	19:00	40.27298	-73.11107	40.27553	-73.12300	40	11	E	<2	B3	≥5000	Precipitation	None	3.4	339	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	19:09	40.27553	-73.12300	40.27345	-73.11178	39	15	E	<2	B3	≥5000	Clear	Slight	3.4	98	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:09	19:13	40.27345	-73.11178	40.27043	-73.10900	38	17	SSE	<2	B3	≥5000	Clear	None	3.5	147	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:13	19:36	40.27043	-73.10900	40.25105	-73.09040	38	17	SSE	<2	B4	≥5000	Clear	None	3.5	156	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:36	19:38	40.25105	-73.09040	40.25007	-73.08948	38	17	SSE	<2	B4	≥5000	Clear	Moderate	3.6	158	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:38	20:00	40.25007	-73.08948	40.24483	-73.07277	40	17	SSE	<2	B4	≥5000	Clear	Moderate	3.6	157	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.24483	-73.07277	40.28242	-73.13365	41	9	ESE	<2	B3	≥5000	Clear	Severe	3.7	350	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:41	40.28242	-73.13365	40.26498	-73.11138	42	4	E	<2	B3	≥5000	Clear	Moderate	3.4	261	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:41	21:43	40.26498	-73.11138	40.26498	-73.11138	40	8	E	<2	B3	≥5000	Clear	Severe	3.5	76	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:43	22:00	40.26498	-73.11138	40.27947	-73.08445	40	8	E	<2	B3	≥5000	Clear	Severe	3.5	76	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:07	40.27947	-73.08445	40.28030	-73.08287	40	8	E	<2	B3	≥5000	Clear	Severe	3.5	76	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:07	22:09	40.28030	-73.08287	40.28088	-73.08184	40	6	E	<2	B3	≥5000	Clear	Severe	3.8	228	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:09	22:48	40.28088	-73.08184	40.28283	-73.09603	40	11	ESE	<2	B3	≥5000	Clear	Severe	3.9	228	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:48	22:51	40.28283	-73.09603	40.27830	-73.09448	42	14	ESE	<2	B3	≥5000	Clear	Severe	3.9	153	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:51	23:00	40.27830	-73.09448	40.27192	-73.08852	42	18	ESE	<2	B3	≥5000	Clear	Severe	3.9	153	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:16	40.27192	-73.08852	40.25937	-73.07655	45	19	SSE	<2	B3	≥5000	Clear	Severe	3.6	154	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:16	23:17	40.25937	-73.07655	40.25937	-73.07655	43	19	SSE	<2	B3	≥5000	Clear	Moderate	3.6	156	Silent	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:17	23:45	40.25937	-73.07655	40.24892	-73.05513	43	19	SSE	<2	B3	≥5000	Clear	Moderate	3.6	156	Testing	N/A
2023-04-26	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:45	00:00	40.24892	-73.05513	40.25807	-73.07495	43	12	SSE	<2	B3	2000-4999	Clear	None	3.7	35	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	00:02	40.25807	-73.07495	40.25807	-73.07495	43	6	SE	<2	B3	1000-1999	Clear	None	4.5	318	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:02	00:05	40.25807	-73.07495	40.26127	-73.07837	43	6	SE	<2	B3	1000-1999	Clear	None	4.5	318	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:05	00:32	40.26127	-73.07837	40.28102	-73.09713	43	8	SE	<2	B3	1000-1999	Clear	None	3.5	336	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:32	00:34	40.28102	-73.09713	40.28183	-73.09788	40	8	SE	<2	B3	500-999	Clear	None	3	335	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:34	01:00	40.28183	-73.09788	40.29565	-73.09440	40	8	SE	<2	B3	500-999	Clear	None	3	335	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.29565	-73.09440	40.30903	-73.01338	43	7	ESE	<2	B3	500-999	Clear	None	3.5	74	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:03	40.30903	-73.01338	40.31010	-73.00557	40	18	SSE	<2	B4	500-999	Cloudy	None	3.3	93	Testing	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:03	02:07	40.31010	-73.00557	40.31027	-73.00367	40	18	SSE	<2	B4	500-999	Cloudy	None	3.3	93	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:07	02:32	40.31027	-73.00367	40.31432	-72.97417	40	18	SSE	<2	B4	500-999	Cloudy	None	3.3	97	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:32	02:34	40.31432	-72.97417	40.31455	-72.97207	40	19	SE	<2	B4	500-999	Cloudy	None	3.5	93	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:34	03:00	40.31455	-72.97207	40.32295	-72.96062	40	18	SE	<2	B4	500-999	Cloudy	None	3.4	94	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:07	40.32295	-72.96062	40.31370	-72.97990	40	10	SE	<2	B3	500-999	Cloudy	None	3.5	300	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:07	03:10	40.31370	-72.97990	40.31365	-72.98055	40	8	SE	<2	B3	500-999	Cloudy	None	3.5	300	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:10	03:33	40.31365	-72.98055	40.30958	-73.00842	40	8	SE	<2	B3	500-999	Cloudy	None	3.5	300	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:33	03:36	40.30958	-73.00842	40.30910	-73.01137	40	9	SE	<2	B3	500-999	Clear	None	3.4	273	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:36	03:48	40.30910	-73.01137	40.30587	-73.02503	40	8	SE	<2	B3	500-999	Clear	None	3.4	273	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:48	04:00	40.30587	-73.02503	40.30150	-73.04997	40	6	SE	<2	B2	500-999	Clear	None	3.8	267	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.30150	-73.04997	40.28542	-73.09780	40	6	SSE	<2	B2	500-999	Clear	None	4.1	272	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.28542	-73.09780	40.22543	-73.12763	38	7	NW	<2	B3	500-999	Clear	None	3.8	210	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.22543	-73.12763	40.23878	-73.10382	38	10	S	<2	B3	500-999	Cloudy	None	3.5	212	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.23878	-73.10382	40.27927	-73.05987	38	4	S	<2	B3	500-999	Clear	None	4.1	45	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.27927	-73.05987	40.31325	-72.98275	40	3	SE	<2	B3	500-999	Cloudy	None	3.9	55	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:59	40.31325	-72.98275	40.31455	-72.97380	40	8	SSE	<2	B3	500-999	Cloudy	None	3.1	91	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	09:59	11:00	40.31455	-72.97380	40.30740	-73.02647	40	4	W	<2	B3	≥5000	Precipitation	None	3.3	271	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.30740	-73.02647	40.31475	-72.95878	43	7	ENE	<2	B3	≥5000	Precipitation	None	3.3	111	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.31475	-72.95878	40.30630	-72.03182	40	11	NNE	<2	B3	≥5000	Precipitation	None	3.5	124	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.30630	-72.03182	40.29587	-73.10383	40	10	S	<2	B3	≥5000	Cloudy	None	3.4	271	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.29587	-73.10383	40.30388	-73.05062	39	13	S	<2	B3	≥5000	Cloudy	Moderate	4.3	274	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.30388	-73.05062	40.30630	-73.03182	39	19	SE	<2	B4	≥5000	Cloudy	Moderate	3.2	84	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.30630	-73.03182	40.32647	-72.91132	40	14	WNW	<2	B4	≥5000	Cloudy	Slight	3.4	271	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.32647	-72.91132	40.31398	-72.99487	40	8	S	<2	B3	≥5000	Cloudy	None	3.8	291	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.31398	-72.99487	40.29410	-72.99453	40	7	ESE	<2	B3	≥5000	Cloudy	Slight	4	261	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	19:21	40.29410	-72.99453	40.31027	-72.98445	41	11	ESE	<2	B3	≥5000	Cloudy	Slight	3.3	93	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:21	19:29	40.31027	-72.98445	40.30973	-72.98987	40	9	E	<2	B3	≥5000	Cloudy	Slight	2.8	4	Soft Start	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:29	19:39	40.30973	-72.98987	40.31032	-72.98448	40	12	E	<2	B3	≥5000	Cloudy	Slight	3.3	170	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:39	19:41	40.31032	-72.98448	40.31160	-72.98473	40	6	E	<2	B3	≥5000	Cloudy	Slight	3.8	5	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:41	20:00	40.31160	-72.98473	40.32548	-72.98845	40	6	E	<2	B3	≥5000	Cloudy	Slight	3.1	3	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	20:02	40.32548	-72.98845	40.32690	-72.98887	40	8	E	<2	B3	≥5000	Cloudy	Moderate	2.5	1	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:02	20:04	40.32690	-72.98887	40.32820	-72.98918	40	8	E	<2	B3	≥5000	Cloudy	Moderate	2.5	3	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:04	20:38	40.32820	-72.98918	40.32973	-73.00077	40	8	E	<2	B3	≥5000	Cloudy	Moderate	2.6	1	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:38	20:49	40.32973	-73.00077	40.32385	-72.99842	40	9	SE	<2	B3	≥5000	Cloudy	None	2	168	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:49	21:00	40.32385	-72.99842	40.31777	-72.99693	40	10	SE	<2	B3	≥5000	Cloudy	None	2	173	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:18	40.31777	-72.99693	40.30472	-72.99320	43	8	SSE	<2	B3	≥5000	Cloudy	None	2.2	180	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:18	21:21	40.30472	-72.99320	40.30472	-72.99320	43	9	S	<2	B3	≥5000	Cloudy	None	2.2	181	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:21	22:00	40.30472	-72.99320	40.30830	-73.00903	43	9	S	<2	B3	≥5000	Cloudy	None	2.2	181	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:01	40.30830	-73.00903	40.30830	-73.00903	43	6	S	<2	B2	≥5000	Cloudy	None	2.1	69	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:01	22:09	40.30830	-73.00903	40.31063	-73.00010	43	6	S	<2	B2	≥5000	Cloudy	None	2.1	69	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:09	22:31	40.31063	-73.00010	40.31343	-72.98208	43	7	S	<2	B2	≥5000	Cloudy	None	1.9	69	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:31	22:48	40.31343	-72.98208	40.31613	-72.97297	42	9	SE	<2	B2	≥5000	Cloudy	None	2.1	91	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:48	23:00	40.31613	-72.97297	40.32175	-72.97670	42	6	SE	<2	B2	≥5000	Cloudy	None	2.2	348	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:04	40.32175	-72.97670	40.32257	-72.98123	40	7	SSE	<2	B3	≥5000	Cloudy	None	2.7	329	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:04	23:06	40.32257	-72.98123	40.32257	-72.98123	40	8	SE	<2	B3	≥5000	Cloudy	None	2.7	276	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:06	23:29	40.32257	-72.98123	40.31875	-73.00742	40	8	SE	<2	B3	≥5000	Cloudy	None	2.7	276	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:29	23:31	40.31875	-73.00742	40.31875	-73.00742	40	9	SE	<2	B3	≥5000	Cloudy	None	2.7	274	Silent	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:31	23:45	40.31875	-73.00742	40.31507	-73.01818	40	9	SE	<2	B3	≥5000	Cloudy	None	2.7	274	Testing	N/A
2023-04-27	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:45	00:00	40.31507	-73.01818	40.30947	-73.00770	40	11	SE	<2	B3	2000-4999	Clear	None	1.8	209	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	00:06	40.30947	-73.00770	40.31022	-73.00233	40	11	SE	<2	B4	1000-1999	Clear	None	1.8	95	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:06	00:35	40.31022	-73.00233	40.31400	-72.97733	40	11	SE	<2	B4	1000-1999	Clear	None	2.2	90	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:35	00:37	40.31400	-72.97733	40.31420	-73.97627	40	15	ESE	<2	B4	500-999	Clear	None	2.5	90	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:37	01:00	40.31420	-73.97627	40.31610	-72.96600	40	15	ESE	<2	B4	500-999	Clear	None	2.5	90	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:12	40.31610	-72.96600	40.31383	-72.97865	43	8	NE	<2	B4	500-999	Clear	None	2.6	90	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:12	01:16	40.31383	-72.97865	40.31355	-72.98050	43	9	WSW	<2	B4	500-999	Clear	None	3.5	272	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:16	01:44	40.31355	-72.98050	40.30923	-73.00957	43	9	WSW	<2	B4	500-999	Clear	None	3.1	270	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:44	01:45	40.30923	-73.00957	40.30902	-73.01123	43	10	WSW	<2	B4	500-999	Clear	None	2.9	274	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:45	01:59	40.30902	-73.01123	40.30718	-73.02577	43	10	WSW	<2	B4	500-999	Clear	None	3	272	Testing	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:59	03:00	40.30718	-73.02577	40.29245	-73.08500	40	7	WSW	<2	B4	500-999	Clear	None	3.1	273	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	40.29245	-73.08500	40.26147	-73.10970	40	7	S	<2	B2	500-999	Clear	None	2.8	261	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.26147	-73.10970	40.25150	-73.11458	40	5	S	<2	B3	500-999	Clear	None	2.3	214	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.25150	-73.11458	40.29740	-73.08412	40	7	E	<2	B3	500-999	Clear	None	3	273	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.29740	-73.08412	40.24360	-73.09090	40	7	E	<2	B3	500-999	Clear	None	3.9	325	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.24360	-73.09090	40.27438	-73.08937	44	12	E	<2	B3	500-999	Cloudy	None	3.7	197	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.27438	-73.08937	40.29877	-73.02253	40	6	E	<2	B3	500-999	Cloudy	None	4.2	19	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:55	40.29877	-73.02253	40.29203	-72.95697	43	17	E	<2	B3	500-999	Cloudy	None	3.1	105	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	09:55	10:00	40.29203	-72.95697	40.29370	-72.96203	42	11	E	<2	B3	≥5000	Clear	None	3.5	9	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	40.29370	-72.96203	40.32227	-72.98763	42	14	E	<2	B3	≥5000	Clear	Slight	4.1	288	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.32227	-72.98763	40.30073	-72.98177	42	8	E	<2	B4	≥5000	Clear	Slight	3.1	4	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:22	40.30073	-72.98177	40.29485	-72.97367	40	12	WSW	<2	B4	≥5000	Cloudy	Moderate	3.4	179	Silent	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:22	13:00	40.29485	-72.97367	40.31022	-73.00233	40	15	SSE	<2	B4	≥5000	Cloudy	Slight	3.3	287	Deploying/Retrieving	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:37	40.31022	-73.00233	40.30113	-73.07820	40	16	W	<2	B5	≥5000	Cloudy	None	2.2	90	Deploying/Retrieving	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:37	14:00	40.30113	-73.07820	40.30663	-73.12232	40	12	E	<2	B5	≥5000	Cloudy	None	9.8	283	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.30663	-73.12232	40.35342	-73.35192	38	17	E	<2	B4	≥5000	Cloudy	None	9.7	298	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.35342	-73.35192	40.39482	-73.56480	32	12	ENE	<2	B4	≥5000	Cloudy	None	9.7	286	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.39482	-73.56480	40.44562	-73.76015	24	9	ESE	<2	B5	≥5000	Cloudy	None	9.7	297	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.44562	-73.76015	40.50978	-73.96117	27	11	E	<2	B5	≥5000	Cloudy	None	9.8	309	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.50978	-73.96117	40.65492	-74.05463	17	15	ENE	<2	B5	≥5000	Cloudy	None	9.8	308	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.65492	-74.05463	40.77987	-73.92803	15	21	ENE	<2	B5	≥5000	Cloudy	None	9.4	26	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.77987	-73.92803	40.84308	-73.76243	15	23	E	<2	B3	≥5000	Cloudy	None	11.8	89	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:38	40.84308	-73.76243	40.90783	-73.66587	15	12	ENE	<2	B2	≥5000	Cloudy	None	9.2	43	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:38	22:00	40.90783	-73.66587	40.93023	-73.61713	15	30	ENE	<2	B4	2000-4999	Precipitation	None	9	71	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:48	40.93023	-73.61713	41.00300	-73.46060	18	24	ENE	<2	B3	2000-4999	Precipitation	None	9.1	71	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	22:48	23:46	41.00300	-73.46060	41.06798	-73.30205	24	27	E	<2	B4	2000-4999	Precipitation	None	9.2	74	Transit	N/A
2023-04-28	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:46	00:00	41.06798	-73.30205	41.08533	-73.26725	16	25	ENE	<2	B4	2000-4999	Cloudy	None	9.1	71	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-04-29	*Brooks McCall*	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:54	41.08533	-73.26725	41.17038	-73.17543	15	28	ENE	<2	B4	500-999	Cloudy	None	8.9	70	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:46	17:05	41.16205	-73.17658	41.11803	-73.19560	8	15	SSW	<2	B3	≥5000	Precipitation	None	9.6	208	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:05	18:00	41.11803	-73.19560	41.05172	-73.33537	12	27	WSW	<2	B5	≥5000	Cloudy	None	8.5	246	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	41.05172	-73.33537	40.98548	-73.50147	12	31	W	<2	B5	≥5000	Cloudy	Slight	8.1	253	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.98548	-73.50147	40.90697	-73.67525	13	27	SW	<2	B5	≥5000	Cloudy	Slight	8.8	246	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.90697	-73.67525	40.80383	-73.78420	13	27	SW	<2	B5	≥5000	Cloudy	Slight	8.9	254	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.80383	-73.78420	40.78107	-73.92457	14	10	WSW	<2	B1	≥5000	Cloudy	Slight	8.4	219	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.78107	-73.92457	40.70502	-73.99857	20	7	WSW	<2	B1	≥5000	Cloudy	Slight	3.2	239	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:53	40.70502	-73.99857	40.59552	-74.04217	16	27	W	<2	B3	≥5000	Clear	Slight	6.8	263	Transit	N/A
2023-05-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:53	00:00	40.59552	-74.04217	40.58383	-74.03853	15	18	SSW	<2	B3	2000-4999	Clear	None	9.6	178	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	01:00	40.58383	-74.03853	40.48495	-73.90568	15	20	SSW	<2	B3	2000-4999	Clear	None	9.8	180	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.48495	-73.90568	40.41827	-73.69177	18	9	ESE	<2	B3	500-999	Clear	None	10	129	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.41827	-73.69177	40.37472	-73.50695	24	14	S	<2	B3	500-999	Cloudy	None	9.4	122	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	40.37472	-73.50695	40.51570	-73.51765	26	15	E	<2	B3	500-999	Cloudy	None	9.1	77	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.51570	-73.51765	40.50970	-73.47185	26	9	E	<2	B3	500-999	Cloudy	None	9.1	13	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.50970	-73.47185	40.53460	-73.51018	26	9	N	<2	B3	500-999	Cloudy	None	10	129	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.53460	-73.51018	40.46102	-73.44883	26	16	N	<2	B3	500-999	Cloudy	None	5.6	129	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.46102	-73.44883	40.40383	-73.38860	24	16	ESE	<2	B3	500-999	Clear	None	5.1	159	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.40383	-73.38860	40.48652	-73.42013	29	13	S	<2	B3	500-999	Clear	None	5.4	1	Transit	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:50	40.48652	-73.42013	40.54840	-73.46145	19	9	W	<2	B4	500-999	Cloudy	None	5.4	356	Standby	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:50	10:00	40.54840	-73.46145	40.54868	-73.47655	16	17	W	<2	B4	≥5000	Cloudy	None	4.8	283	Standby	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	40.54868	-73.47655	40.51827	-73.49053	16	17	W	<2	B4	≥5000	Cloudy	None	5	286	Standby	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.51827	-73.49053	40.45025	-73.40787	40	14	ESE	<2	B4	≥5000	Cloudy	None	5.5	150	Standby	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.45025	-73.40787	40.41073	-73.34462	38	12	ESE	<2	B3	≥5000	Cloudy	None	3.6	150	Deploying/Retrieving	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:25	40.41073	-73.34462	40.39835	-73.31020	32	10	W	<2	B4	≥5000	Clear	Severe	4.3	131	Deploying/Retrieving	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:25	13:40	40.39835	-73.31020	40.39115	-73.29025	32	11	WSW	<2	B4	≥5000	Clear	Severe	4.2	129	Soft Start	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.39115	-73.29025	40.38217	-73.27403	32	9	WSW	<2	B4	≥5000	Clear	Severe	4.1	128	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.38217	-73.27403	40.32433	-73.24210	36	7	WSW	<2	B4	≥5000	Clear	Severe	3.5	156	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:10	40.32433	-73.24210	40.32597	-73.25808	38	13	WSW	<2	B3	≥5000	Clear	Moderate	3.5	258	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:10	15:17	40.32597	-73.25808	40.33168	-73.26483	38	10	WSW	<2	B3	≥5000	Cloudy	Slight	3.7	326	Silent	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:17	16:00	40.33168	-73.26483	40.36297	-73.30260	38	10	WSW	<2	B3	≥5000	Cloudy	Slight	3.6	333	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.36297	-73.30260	40.41080	-73.36045	30	6	SSW	<2	B3	≥5000	Clear	Moderate	3.8	330	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:34	40.41080	-73.36045	40.43952	-73.39513	25	5	WSW	<2	B3	≥5000	Cloudy	Slight	3.9	329	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:34	17:35	40.43952	-73.39513	40.44083	-73.39668	28	2	WSW	<2	B3	≥5000	Cloudy	Slight	3.9	330	Silent	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:35	18:00	40.44083	-73.39668	40.44032	-73.41277	28	2	WSW	<2	B3	≥5000	Cloudy	Slight	4	331	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.44032	-73.41277	40.39317	-73.35513	27	13	S	<2	B3	≥5000	Cloudy	Slight	3.8	154	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.39317	-73.35513	40.34615	-73.29840	28	13	S	<2	B3	≥5000	Cloudy	Moderate	3.8	148	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.34615	-73.29840	40.32762	-73.26003	32	13	S	<2	B3	≥5000	Clear	Severe	3.8	149	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:02	40.32762	-73.26003	40.32762	-73.26003	34	7	WSW	<2	B3	≥5000	Clear	Severe	3.8	333	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:02	21:05	40.32762	-73.26003	40.33133	-73.26432	34	7	WSW	<2	B3	≥5000	Clear	Severe	3.8	333	Silent	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:05	22:00	40.33133	-73.26432	40.36690	-73.30732	34	4	WSW	<2	B3	≥5000	Cloudy	Moderate	3.3	339	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.36690	-73.30732	40.40995	-73.35942	34	5	WSW	<2	B2	≥5000	Cloudy	Moderate	3.3	330	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:44	40.40995	-73.35942	40.43943	-73.39505	29	9	WSW	<2	B2	≥5000	Cloudy	None	3.3	329	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:44	23:46	40.43943	-73.39505	40.44043	-73.39627	28	7	WSW	<2	B2	≥5000	Cloudy	None	3.2	333	Silent	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:46	23:53	40.44043	-73.39627	40.44475	-73.40342	28	6	WSW	<2	B2	≥5000	Cloudy	None	3.2	331	Full Power	N/A
2023-05-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:53	00:00	40.44475	-73.40342	40.44147	-73.40990	27	12	SW	<2	B3	2000-4999	Cloudy	None	3.8	295	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	00:40	40.44147	-73.40990	40.43167	-73.38548	27	8	SSW	<2	B3	1000-1999	Cloudy	None	3.7	203	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:40	00:45	40.43167	-73.38548	40.43487	-73.38958	28	14	WSW	<2	B3	500-999	Cloudy	None	2.8	324	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:45	01:00	40.43487	-73.38958	40.43862	-73.39978	28	14	WSW	<2	B3	500-999	Cloudy	None	3.8	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:29	40.43862	-73.39978	40.43252	-73.38667	24	8	NNE	<2	B3	500-999	Cloudy	None	3.6	259	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:29	01:33	40.43252	-73.38667	40.43502	-73.38970	28	13	W	<2	B3	500-999	Cloudy	None	3.5	326	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:33	02:00	40.43502	-73.38970	40.45877	-73.41850	28	13	W	<2	B3	500-999	Cloudy	None	3.6	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.45877	-73.41850	40.49518	-73.46273	27	14	W	<2	B3	500-999	Cloudy	None	3.8	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	40.49518	-73.46273	40.54183	-73.51925	28	10	NW	<2	B3	500-999	Cloudy	None	3.6	330	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:01	40.54183	-73.51925	40.54183	-73.51925	13	12	NNW	<2	B3	500-999	Cloudy	None	3.6	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:01	04:03	40.54183	-73.51925	40.54463	-73.52273	13	12	NNW	<2	B3	500-999	Cloudy	None	3.6	331	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:03	04:42	40.54463	-73.52273	40.54418	-73.52303	13	12	NNW	<2	B3	500-999	Cloudy	None	3.5	329	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:42	04:46	40.54418	-73.52303	40.54055	-73.51905	16	11	NNW	<2	B3	500-999	Cloudy	None	4.3	150	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:46	05:00	40.54055	-73.51905	40.53283	-73.50950	16	10	NNW	<2	B3	500-999	Cloudy	None	4.5	151	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.53283	-73.50950	40.48128	-73.44648	28	6	S	<2	B3	500-999	Cloudy	None	4.5	148	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:05	40.48128	-73.44648	40.43447	-73.38998	28	8	S	<2	B3	500-999	Cloudy	None	3.7	150	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:05	07:07	40.43447	-73.38998	40.43242	-73.38737	30	6	W	<2	B2	500-999	Cloudy	None	3.2	150	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:07	08:00	40.43242	-73.38737	40.43662	-73.39322	30	8	W	<2	B2	500-999	Cloudy	None	3.3	148	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:17	40.43662	-73.39322	40.43538	-73.38765	28	11	N	<2	B2	500-999	Cloudy	None	4.1	58	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:17	08:22	40.43538	-73.38765	40.43507	-73.39057	28	14	N	<2	B3	500-999	Cloudy	None	3.8	139	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:22	09:00	40.43507	-73.39057	40.40845	-73.35827	28	14	N	<2	B3	500-999	Cloudy	None	3.8	139	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:50	40.40845	-73.35827	40.37118	-73.31323	28	12	N	<2	B3	500-999	Cloudy	None	4.5	151	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:50	10:00	40.37118	-73.31323	40.35768	-73.29697	28	14	N	<2	B3	≥5000	Cloudy	None	3.7	151	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:45	40.35768	-73.29697	40.32987	-73.26355	34	5	W	<2	B3	≥5000	Cloudy	None	3.6	150	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:45	10:47	40.32987	-73.26355	40.32825	-73.26165	35	8	E	<2	B3	≥5000	Cloudy	Slight	3.6	152	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:47	11:00	40.32825	-73.26165	40.32317	-73.25533	35	8	E	<2	B3	≥5000	Cloudy	Slight	3.6	150	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.32317	-73.25533	40.27487	-73.19675	32	9	WNW	<2	B3	2000-4999	Precipitation	None	3.7	149	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.27487	-73.19675	40.43487	-73.38958	40	4	N	<2	B4	2000-4999	Cloudy	None	3.7	151	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.43487	-73.38958	40.30380	-73.23778	38	15	NNE	<2	B5	2000-4999	Precipitation	None	3.8	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.30380	-73.23778	40.31518	-73.28223	36	10	NE	<2	B5	≥5000	Cloudy	None	3.9	336	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:36	40.31518	-73.28223	40.28388	-73.25487	36	13	ENE	<2	B4	≥5000	Cloudy	Slight	3.5	156	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:36	16:00	40.28388	-73.25487	40.26568	-73.23772	36	13	ENE	<2	B4	≥5000	Cloudy	Slight	3.4	163	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.26568	-73.23772	40.22143	-73.19477	37	8	ENE	<2	B4	≥5000	Cloudy	Slight	3.3	156	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.22143	-73.19477	40.24892	-73.19112	40	11	E	<2	B4	≥5000	Cloudy	Slight	3.3	159	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.24892	-73.19112	40.24475	-73.27192	36	11	E	<2	B4	≥5000	Cloudy	None	3.1	345	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.24475	-73.27192	40.23375	-73.28352	38	6	SSE	<2	B4	≥5000	Cloudy	None	4.1	266	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:56	40.23375	-73.28352	40.29170	-73.26508	35	10	ENE	<2	B4	≥5000	Cloudy	Moderate	3.4	33	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:56	21:00	40.29170	-73.26508	40.29493	-73.26410	36	2	SE	<2	B3	≥5000	Cloudy	Severe	3.7	26	Soft Start	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:06	40.29493	-73.26410	40.30195	-73.26155	36	3	ESE	<2	B3	≥5000	Cloudy	Severe	3.7	27	Soft Start	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:06	21:33	40.30195	-73.26155	40.32963	-73.26133	36	3	S	<2	B2	≥5000	Cloudy	Severe	3.6	23	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:33	21:36	40.32963	-73.26133	40.33170	-73.26395	34	4	SW	<2	B2	≥5000	Cloudy	Severe	4.5	329	Silent	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:36	22:00	40.33170	-73.26395	40.37705	-73.34217	34	4	SW	<2	B2	≥5000	Cloudy	Severe	4	336	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.37705	-73.34217	40.39088	-73.33535	34	4	SW	<2	B1	≥5000	Cloudy	Severe	4.5	336	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:54	40.39088	-73.33535	40.43168	-73.38470	30	6	SSW	<2	B3	≥5000	Clear	Severe	3.8	331	Full Power	N/A
2023-05-04	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:54	00:00	40.43168	-73.38470	40.43585	-73.38978	28	11	SW	<2	B3	2000-4999	Cloudy	None	3.5	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	00:04	40.43585	-73.38978	40.43982	-73.39445	28	7	SW	<2	B3	2000-4999	Cloudy	None	3.6	328	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:04	00:06	40.43982	-73.39445	40.44072	-73.39557	28	7	SW	<2	B3	2000-4999	Cloudy	None	3.5	331	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:06	01:00	40.44072	-73.39557	40.42003	-73.40267	28	6	SW	<2	B3	1000-1999	Cloudy	None	3.5	329	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:23	40.42003	-73.40267	40.43180	-73.38477	29	7	ENE	<2	B3	500-999	Cloudy	None	3.6	151	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:23	01:28	40.43180	-73.38477	40.43473	-73.38833	24	8	NW	<2	B3	500-999	Cloudy	None	3.3	330	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:28	02:00	40.43473	-73.38833	40.43020	-73.40302	24	7	NW	<2	B3	500-999	Cloudy	None	3.3	332	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:29	40.43020	-73.40302	40.43155	-73.38457	26	7	SW	<2	B3	500-999	Cloudy	None	3.5	140	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:29	02:34	40.43155	-73.38457	40.43465	-73.38817	26	7	SW	<2	B3	500-999	Cloudy	None	3.2	330	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:34	03:00	40.43465	-73.38817	40.44965	-73.40643	26	6	SW	<2	B3	500-999	Cloudy	None	3.2	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:18	40.44965	-73.40643	40.46383	-73.42367	22	6	NW	<2	B3	500-999	Cloudy	None	3.2	328	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:18	03:20	40.46383	-73.42367	40.46383	-73.42367	24	4	NW	<2	B3	500-999	Cloudy	None	3.1	330	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:20	04:00	40.46383	-73.42367	40.48947	-73.45473	24	4	NW	<2	B3	500-999	Cloudy	None	3.1	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	05:00	40.48947	-73.45473	40.52713	-73.50040	19	4	NW	<2	B3	500-999	Cloudy	None	3.1	332	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:11	40.52713	-73.50040	40.54207	-73.51847	22	6	WNW	<2	B3	500-999	Cloudy	None	3.7	329	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:11	05:13	40.54207	-73.51847	40.54207	-73.51847	16	5	W	<2	B2	500-999	Cloudy	None	3.7	327	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:13	05:57	40.54207	-73.51847	40.54517	-73.52393	16	5	W	<2	B2	500-999	Cloudy	None	3.7	327	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:57	06:00	40.54517	-73.52393	40.54517	-73.52393	15	3	SSW	<2	B2	500-999	Cloudy	None	4	144	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:03	40.54517	-73.52393	40.54038	-73.51805	15	3	SSW	<2	B2	500-999	Cloudy	None	4	144	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:03	07:00	40.54038	-73.51805	40.49080	-73.45732	15	6	SSW	<2	B2	500-999	Cloudy	None	4	144	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.49080	-73.45732	40.44925	-73.40742	21	5	SSW	<2	B2	500-999	Clear	None	3.9	150	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:18	40.44925	-73.40742	40.43130	-73.38528	28	8	SW	<2	B2	500-999	Clear	None	4	154	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:18	08:19	40.43130	-73.38528	40.43130	-73.38528	26	7	SW	<2	B2	500-999	Clear	None	3.8	148	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:19	09:00	40.43130	-73.38528	40.44523	-73.39295	26	7	SW	<2	B2	500-999	Clear	None	3.8	148	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:40	40.44523	-73.39295	40.43978	-73.39573	24	4	SW	<2	B2	1000-1999	Clear	None	2.8	83	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:40	09:46	40.43978	-73.39573	40.43735	-73.39262	22	4	SW	<2	B2	2000-4999	Clear	None	3.5	83	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:46	09:50	40.43735	-73.39262	40.43257	-73.38708	22	4	SW	<2	B2	2000-4999	Clear	None	3.5	150	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:50	10:00	40.43257	-73.38708	40.42733	-73.38088	25	4	SW	<2	B2	≥5000	Clear	None	3.8	150	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	40.42733	-73.38088	40.38995	-73.33560	25	5	SW	<2	B2	≥5000	Clear	Moderate	3.6	150	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.38995	-73.33560	40.34313	-73.27892	28	7	WSW	<2	B2	≥5000	Clear	Moderate	3.5	154	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:17	40.34313	-73.27892	40.32912	-73.26210	33	6	SW	<2	B2	≥5000	Clear	Moderate	3.6	153	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:17	12:19	40.32912	-73.26210	40.32783	-73.26065	35	8	W	<2	B2	≥5000	Clear	Moderate	3.5	150	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:19	13:00	40.32783	-73.26065	40.32233	-73.25052	35	9	WSW	<2	B2	≥5000	Clear	Moderate	3.3	151	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:08	40.32233	-73.25052	40.32752	-73.25922	35	4	NNE	<2	B2	≥5000	Clear	Severe	4.3	305	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:08	13:13	40.32752	-73.25922	40.33083	-73.26285	35	4	NNE	<2	B2	≥5000	Clear	Severe	4.2	333	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:13	14:00	40.33083	-73.26285	40.33108	-73.25015	35	4	NNE	<2	B2	≥5000	Clear	Severe	3.9	348	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:43	40.33108	-73.25015	40.32685	-73.25815	34	5	E	<2	B2	≥5000	Clear	Moderate	3.4	144	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:43	14:49	40.32685	-73.25815	40.33155	-73.26413	34	8	N	<2	B2	≥5000	Clear	Slight	4	336	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:49	15:00	40.33155	-73.26413	40.33980	-73.27388	34	8	N	<2	B2	≥5000	Clear	Slight	4.2	325	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.33980	-73.27388	40.38122	-73.32408	32	7	NNE	<2	B2	≥5000	Clear	None	4	332	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.38122	-73.32408	40.42362	-73.37543	32	1	WNW	<2	B1	≥5000	Clear	Severe	3.4	332	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:23	40.42362	-73.37543	40.44020	-73.39542	25	1	SSW	<2	B1	≥5000	Clear	Severe	3.4	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:23	17:24	40.44020	-73.39542	40.44020	-73.39542	25	2	SSW	<2	B1	≥5000	Clear	Severe	3.6	331	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:24	18:00	40.44020	-73.39542	40.42758	-73.40262	25	2	SSW	<2	B1	≥5000	Clear	Severe	3.6	331	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:26	40.42758	-73.40262	40.43168	-73.38518	26	11	SSE	<2	B2	≥5000	Clear	Slight	2.9	152	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:26	18:29	40.43168	-73.38518	40.43443	-73.38838	27	4	SSE	<2	B2	≥5000	Clear	Slight	4.1	328	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:29	19:00	40.43443	-73.38838	40.45618	-73.41482	27	5	SSE	<2	B2	≥5000	Clear	Slight	3.8	331	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.45618	-73.41482	40.50185	-73.47020	23	4	SSE	<2	B2	≥5000	Clear	Slight	3.7	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:53	40.50185	-73.47020	40.54615	-73.52417	18	6	SSE	<2	B2	≥5000	Clear	Moderate	3.8	330	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:53	20:55	40.54615	-73.52417	40.54615	-73.52417	16	6	SSE	<2	B3	≥5000	Clear	Severe	3.6	329	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:55	21:00	40.54615	-73.52417	40.54670	-73.52500	16	6	SSE	<2	B3	≥5000	Clear	Severe	3.6	329	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:51	40.54670	-73.52500	40.52145	-73.56345	16	6	SSE	<2	B3	≥5000	Clear	Severe	3.5	318	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:51	21:56	40.52145	-73.56345	40.52252	-73.55805	19	5	SSE	<2	B2	≥5000	Clear	Severe	3.4	318	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:56	22:00	40.52252	-73.55805	40.52257	-73.55788	19	7	SSE	<2	B2	≥5000	Clear	Severe	3.5	88	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:33	40.52257	-73.55788	40.53368	-73.50318	19	7	SSE	<2	B2	≥5000	Clear	Severe	4	88	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:33	22:34	40.53368	-73.50318	40.53405	-73.50135	19	7	SSE	<2	B2	≥5000	Clear	Severe	4.1	88	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:34	23:00	40.53405	-73.50135	40.54023	-73.48202	19	7	SSE	<2	B2	≥5000	Clear	Severe	4.1	88	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:19	40.54023	-73.48202	40.53383	-73.50395	16	7	WNW	<2	B3	≥5000	Clear	Severe	4.2	338	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:19	23:23	40.53383	-73.50395	40.53270	-73.50913	13	8	WSW	<2	B3	≥5000	Clear	Slight	3.9	267	Silent	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:23	23:55	40.53270	-73.50913	40.52383	-73.55290	13	9	W	<2	B3	≥5000	Clear	Slight	3.9	267	Full Power	N/A
2023-05-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:55	00:00	40.52383	-73.55290	40.52275	-73.55842	19	11	SSW	<2	B3	2000-4999	Cloudy	None	3.9	268	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:13	40.52275	-73.55842	40.52288	-73.57840	19	13	SSW	<2	B3	2000-4999	Cloudy	None	3.9	268	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:13	00:47	40.52288	-73.57840	40.52132	-73.56298	19	4	S	<2	B3	1000-1999	Clear	None	3.8	292	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:47	00:51	40.52132	-73.56298	40.52240	-73.55755	19	3	S	<2	B2	500-999	Clear	None	3.6	89	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:51	01:00	40.52240	-73.55755	40.52382	-73.55067	19	5	S	<2	B2	500-999	Clear	None	3.5	89	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:30	40.52382	-73.55067	40.53303	-73.50488	16	4	E	<2	B2	500-999	Clear	None	3.7	88	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:30	01:32	40.53303	-73.50488	40.53372	-73.50163	16	5	S	<2	B2	500-999	Clear	None	3.8	87	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:32	02:00	40.53372	-73.50163	40.55495	-73.51435	16	5	S	<2	B2	500-999	Clear	None	4.1	86	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:20	40.55495	-73.51435	40.54365	-73.52207	14	10	SW	<2	B3	500-999	Clear	None	3.5	302	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:24	40.54365	-73.52207	40.54085	-73.51885	14	7	NE	<2	B3	500-999	Clear	None	4.2	142	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:24	03:00	40.54085	-73.51885	40.51830	-73.49157	15	6	NE	<2	B3	500-999	Clear	None	3.5	147	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	04:00	40.51830	-73.49157	40.46377	-73.42463	18	12	NE	<2	B2	500-999	Clear	None	3.5	149	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	04:48	40.46377	-73.42463	40.43293	-73.38813	24	8	NE	<2	B2	500-999	Clear	None	4.1	160	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:48	04:51	40.43293	-73.38813	40.43090	-73.38565	22	8	NE	<2	B2	500-999	Clear	None	3.9	160	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:51	05:00	40.43090	-73.38565	40.42870	-73.38353	22	8	NE	<2	B2	500-999	Clear	None	3.9	160	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:59	40.42870	-73.38353	40.44228	-73.39943	26	6	ENE	<2	B2	500-999	Clear	None	3.6	150	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:59	06:00	40.44228	-73.39943	40.43968	-73.39602	24	6	ENE	<2	B2	500-999	Clear	None	3.6	150	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:04	40.43968	-73.39602	40.43780	-73.39338	24	6	ENE	<2	B2	500-999	Clear	None	3.6	150	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:04	07:00	40.43780	-73.39338	40.39703	-73.34455	24	5	SW	<2	B2	500-999	Clear	None	3.6	152	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.39703	-73.34455	40.36032	-73.30033	22	8	SW	<2	B2	500-999	Clear	None	3.6	150	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:40	40.36032	-73.30033	40.32652	-73.26092	33	10	SW	<2	B3	500-999	Clear	None	3.1	146	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:40	08:42	40.32652	-73.26092	40.32652	-73.26092	35	10	SW	<2	B3	500-999	Clear	None	3.1	163	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:42	09:34	40.32652	-73.26092	40.32842	-73.25907	35	10	SW	<2	B3	500-999	Clear	None	3.1	163	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:34	09:40	40.32842	-73.25907	40.33188	-73.26320	34	10	SW	<2	B3	2000-4999	Clear	None	3.8	333	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.33188	-73.26320	40.34630	-73.28065	34	10	SW	<2	B3	2000-4999	Clear	None	3.8	333	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	40.34630	-73.28065	40.38143	-73.32290	32	9	NW	<2	B3	≥5000	Clear	Moderate	3.6	326	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:43	40.38143	-73.32290	40.41618	-73.36483	35	9	NNW	<2	B3	≥5000	Clear	Moderate	3.4	328	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:43	11:57	40.41618	-73.36483	40.43090	-73.37728	21	10	NW	<2	B3	≥5000	Clear	Moderate	3.3	330	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:57	12:18	40.43090	-73.37728	40.44035	-73.39372	24	9	NW	<2	B3	≥5000	Clear	Moderate	3.2	329	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:18	12:20	40.44035	-73.39372	40.44132	-73.39473	30	7	N	<2	B3	≥5000	Clear	Moderate	3.2	328	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	13:00	40.44132	-73.39473	40.44433	-73.40855	30	8	N	<2	B3	≥5000	Clear	Moderate	3.1	334	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:08	40.44433	-73.40855	40.44190	-73.39857	26	6	NW	<2	B3	≥5000	Clear	Severe	4.1	116	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:08	13:14	40.44190	-73.39857	40.43960	-73.39562	26	7	NW	<2	B3	≥5000	Clear	Severe	3.5	146	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:14	14:00	40.43960	-73.39562	40.40922	-73.35895	26	7	NW	<2	B3	≥5000	Clear	Severe	3.6	150	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.40922	-73.35895	40.36287	-73.30280	30	6	S	<2	B3	≥5000	Clear	Moderate	3.5	150	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:43	40.36287	-73.30280	40.32935	-73.26268	32	8	WSW	<2	B3	≥5000	Clear	Slight	3.6	147	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:43	15:45	40.32935	-73.26268	40.32788	-73.26088	34	9	SSW	<2	B3	≥5000	Clear	Slight	3.5	152	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:45	16:00	40.32788	-73.26088	40.31492	-73.25623	34	9	SSW	<2	B3	≥5000	Clear	Slight	3.5	148	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:40	40.31492	-73.25623	40.33368	-73.27332	35	8	WSW	<2	B3	≥5000	Clear	Slight	4	232	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:40	16:44	40.33368	-73.27332	40.33302	-73.26887	34	6	W	<2	B3	≥5000	Clear	Moderate	4.3	114	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:44	17:00	40.33302	-73.26887	40.33007	-73.24973	34	6	W	<2	B3	≥5000	Clear	Moderate	3.8	114	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:15	40.33007	-73.24973	40.32603	-73.22512	34	7	W	<2	B3	≥5000	Clear	Moderate	3.7	114	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:15	17:17	40.32603	-73.22512	40.32603	-73.22512	35	6	WSW	<2	B3	≥5000	Clear	Moderate	3.6	115	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:17	18:00	40.32603	-73.22512	40.33850	-73.24725	35	6	WSW	<2	B3	≥5000	Clear	Moderate	3.6	115	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:09	40.33850	-73.24725	40.32927	-73.24167	33	13	SW	<2	B3	≥5000	Clear	Slight	4	233	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:09	18:13	40.32927	-73.24167	40.32795	-73.23702	33	7	SSW	<2	B3	≥5000	Clear	Slight	3.5	119	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:13	18:57	40.32795	-73.23702	40.31440	-73.18587	33	7	SW	<2	B3	≥5000	Clear	Slight	3.5	120	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:57	18:58	40.31440	-73.18587	40.31415	-73.18445	37	7	SSW	<2	B3	≥5000	Clear	Slight	3.3	121	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:58	19:00	40.31415	-73.18445	40.31338	-73.18205	37	7	SSW	<2	B3	≥5000	Clear	Slight	3.4	122	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:49	40.31338	-73.18205	40.31605	-73.20022	37	8	SSW	<2	B3	≥5000	Clear	Slight	3.3	122	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:49	19:54	40.31605	-73.20022	40.31598	-73.19413	37	8	SSW	<2	B3	≥5000	Clear	Severe	3.9	105	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:54	20:00	40.31598	-73.19413	40.31597	-73.18890	37	8	SSW	<2	B3	≥5000	Clear	Severe	3.3	103	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.31597	-73.18890	40.31608	-73.12253	37	8	SSW	<2	B3	≥5000	Clear	Severe	3.2	103	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:05	40.31608	-73.12253	40.31630	-73.11323	38	10	SSW	<2	B3	≥5000	Clear	Severe	3	102	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:05	21:07	40.31630	-73.11323	40.31630	-73.11323	38	8	SSW	<2	B3	≥5000	Clear	Severe	3	95	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:07	21:59	40.31630	-73.11323	40.31987	-73.13310	38	8	SSW	<2	B3	≥5000	Clear	Severe	3	95	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:59	22:00	40.31987	-73.13310	40.31987	-73.13310	36	9	SSW	<2	B2	≥5000	Clear	Severe	3.5	142	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:02	40.31987	-73.13310	40.31650	-73.12348	36	9	SSW	<2	B2	≥5000	Clear	Severe	3.5	142	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:02	23:00	40.31650	-73.12348	40.30228	-73.06497	36	9	SSW	<2	B2	≥5000	Clear	Severe	3.5	142	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:16	40.30228	-73.06497	40.29760	-73.04558	38	14	SSW	<2	B4	≥5000	Clear	Severe	3.1	120	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:16	23:17	40.29760	-73.04558	40.29760	-73.04558	38	14	SSW	<2	B4	≥5000	Clear	Severe	3.2	119	Silent	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:17	23:37	40.29760	-73.04558	40.29873	-73.04943	38	14	SSW	<2	B4	≥5000	Clear	Severe	3.2	119	Full Power	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:37	23:55	40.29873	-73.04943	40.29840	-73.03167	40	21	WNW	<2	B4	≥5000	Clear	Severe	3.5	293	Deploying/Retrieving	N/A
2023-05-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	23:55	00:00	40.29840	-73.03167	40.29978	-73.02213	40	13	WSW	<2	B4	2000-4999	Clear	None	4.5	92	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	01:00	40.29978	-73.02213	40.31435	-72.96648	40	13	WSW	<2	B4	2000-4999	Clear	None	4.6	92	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.31435	-72.96648	40.30468	-73.00585	40	13	SSE	<2	B4	500-999	Clear	None	3.8	83	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.30468	-73.00585	40.30165	-73.02367	40	19	SW	<2	B5	500-999	Clear	None	1.5	265	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	40.30165	-73.02367	40.29820	-73.01990	40	11	SW	<2	B4	500-999	Clear	None	1.4	268	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.29820	-73.01990	40.27995	-73.04608	38	11	SW	<2	B3	500-999	Clear	None	2.2	133	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:14	40.27995	-73.04608	40.28635	-73.02570	33	10	NNE	<2	B3	500-999	Clear	None	2	189	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:14	05:30	40.28635	-73.02570	40.29257	-73.00738	30	5	S	<2	B3	500-999	Clear	None	3.6	80	Deploying/Retrieving	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:30	05:35	40.29257	-73.00738	40.29473	-73.00115	32	5	S	<2	B3	500-999	Clear	None	3.4	79	Standby	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:35	05:46	40.29473	-73.00115	40.30040	-72.99397	28	3	S	<2	B2	500-999	Clear	None	3.3	79	Soft Start	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:46	06:00	40.30040	-72.99397	40.29828	-73.01053	24	6	NNW	<2	B2	500-999	Clear	None	3.2	334	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:21	40.29828	-73.01053	40.29688	-73.04153	24	6	NNW	<2	B2	500-999	Clear	None	3.2	334	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:21	06:27	40.29688	-73.04153	40.29845	-73.04785	22	7	NW	<2	B2	500-999	Clear	None	3.9	301	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:27	07:00	40.29845	-73.04785	40.30867	-73.08992	22	10	N	<2	B2	500-999	Clear	None	3.6	302	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:00	07:29	40.30867	-73.08992	40.31832	-73.13048	20	12	NNW	<2	B2	500-999	Clear	None	3.6	299	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:29	07:31	40.31832	-73.13048	40.31848	-73.13085	20	12	NNW	<2	B2	500-999	Clear	None	3.6	299	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:31	08:00	40.31848	-73.13085	40.31822	-73.13898	20	12	NNW	<2	B2	500-999	Clear	None	3.6	299	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:06	40.31822	-73.13898	40.31735	-73.12463	38	8	NW	<2	B2	500-999	Clear	None	4.6	83	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:06	09:00	40.31735	-73.12463	40.29942	-73.05047	38	9	NW	<2	B2	500-999	Clear	None	3.2	121	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:06	40.29942	-73.05047	40.29827	-73.04598	40	10	NW	<2	B3	1000-1999	Clear	None	3.8	121	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:06	09:09	40.29827	-73.04598	40.29827	-73.04598	40	10	NW	<2	B3	1000-1999	Clear	None	3.8	121	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:09	09:34	40.29827	-73.04598	40.29732	-73.04077	40	10	NW	<2	B3	1000-1999	Clear	None	3.8	121	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:34	09:41	40.29732	-73.04077	40.29962	-73.05087	40	13	NW	<2	B3	2000-4999	Clear	None	3.7	303	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:41	10:00	40.29962	-73.05087	40.30490	-73.07172	40	14	NW	<2	B3	2000-4999	Clear	None	3.7	300	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:41	40.30490	-73.07172	40.31840	-73.12757	39	14	NW	<2	B3	≥5000	Clear	Severe	3.7	302	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:41	10:43	40.31840	-73.12757	40.31840	-73.12757	39	11	NW	<2	B3	≥5000	Clear	Severe	3.9	300	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:43	11:00	40.31840	-73.12757	40.32315	-73.13938	39	11	NW	<2	B3	≥5000	Clear	Severe	3.9	300	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:44	40.32315	-73.13938	40.31627	-73.11570	38	11	NW	<2	B3	≥5000	Clear	Severe	3.9	350	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:44	11:50	40.31627	-73.11570	40.31637	-73.11873	38	16	NNE	<2	B3	≥5000	Clear	Severe	3.9	285	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:50	12:00	40.31637	-73.11873	40.31628	-73.13560	39	15	NNE	<2	B3	≥5000	Clear	Severe	3.8	285	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:47	40.31628	-73.13560	40.31603	-73.19823	38	14	NNE	<2	B3	≥5000	Clear	Severe	3.9	283	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:47	12:49	40.31603	-73.19823	40.31598	-73.20108	38	13	NNE	<2	B3	≥5000	Clear	Severe	3.8	282	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:49	13:00	40.31598	-73.20108	40.31617	-73.21703	38	13	NNE	<2	B3	≥5000	Clear	Severe	3.8	280	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:47	40.31617	-73.21703	40.31647	-73.20357	36	12	WNW	<2	B3	≥5000	Clear	Severe	3.8	299	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:47	13:53	40.31647	-73.20357	40.31652	-73.19565	36	3	NW	<2	B3	≥5000	Clear	Severe	3.6	97	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:53	14:00	40.31652	-73.19565	40.31655	-73.18908	36	4	NW	<2	B3	≥5000	Clear	Severe	3.7	103	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:52	40.31655	-73.18908	40.31693	-73.11563	35	5	NW	<2	B3	≥5000	Clear	Moderate	3.8	102	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:52	14:54	40.31693	-73.11563	40.31718	-73.11272	38	6	NW	<2	B3	≥5000	Clear	Moderate	3.8	95	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:54	15:00	40.31718	-73.11272	40.31747	-73.10710	38	6	SW	<2	B3	≥5000	Clear	Moderate	3.7	95	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:38	40.31747	-73.10710	40.31683	-73.11182	38	5	SW	<2	B3	≥5000	Clear	Slight	3.6	111	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:38	15:43	40.31683	-73.11182	40.31692	-73.11823	39	13	W	<2	B3	≥5000	Clear	Slight	3.5	289	Silent	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:43	16:00	40.31692	-73.11823	40.31687	-73.13960	39	14	W	<2	B3	≥5000	Clear	Slight	3.6	285	Full Power	N/A
2023-05-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:46	40.31687	-73.13960	40.31672	-73.19847	36	9	WNW	<2	B2	≥5000	Clear	Slight	3.4	282	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:46	16:48	40.31672	-73.19847	40.31670	-73.20018	38	7	W	<2	B2	≥5000	Clear	Slight	3.5	282	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:48	17:00	40.31670	-73.20018	40.31440	-73.21398	38	7	W	<2	B2	≥5000	Clear	Slight	3.5	283	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:43	40.31440	-73.21398	40.31385	-73.18287	38	9	SW	<2	B2	≥5000	Clear	Slight	3.7	229	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:43	17:48	40.31385	-73.18287	40.31530	-73.18835	36	9	WNW	<2	B2	≥5000	Clear	Slight	3.6	301	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:48	18:00	40.31530	-73.18835	40.31833	-73.19980	36	9	WNW	<2	B2	≥5000	Clear	Slight	3.4	304	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:31	40.31833	-73.19980	40.32923	-73.24117	34	13	SW	<2	B3	≥5000	Clear	Slight	3.5	304	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:31	18:33	40.32923	-73.24117	40.32968	-73.24298	34	13	SW	<2	B3	≥5000	Cloudy	Slight	3.6	302	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:33	18:35	40.32968	-73.24298	40.33033	-73.24565	34	13	SW	<2	B3	≥5000	Cloudy	Slight	3.6	300	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:35	18:57	40.33033	-73.24565	40.33070	-73.27032	34	13	SW	<2	B3	≥5000	Cloudy	Slight	3.6	300	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:57	19:00	40.33070	-73.27032	40.32822	-73.26980	34	16	SSW	<2	B4	≥5000	Cloudy	Moderate	3.4	205	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:23	40.32822	-73.26980	40.32995	-73.24142	34	18	SSW	<2	B4	≥5000	Cloudy	Moderate	3.4	170	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:23	19:26	40.32995	-73.24142	40.32857	-73.23682	34	13	S	<2	B4	≥5000	Cloudy	Moderate	3.6	124	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:26	20:00	40.32857	-73.23682	40.31798	-73.19732	34	14	S	<2	B4	≥5000	Cloudy	Moderate	3.6	127	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:10	40.31798	-73.19732	40.31460	-73.18482	34	12	S	<2	B4	≥5000	Cloudy	Severe	3.5	122	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:10	20:11	40.31460	-73.18482	40.31417	-73.18325	35	15	S	<2	B4	≥5000	Cloudy	Severe	3.4	123	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:11	20:48	40.31417	-73.18325	40.31482	-73.18433	35	15	S	<2	B4	≥5000	Cloudy	Severe	3.4	123	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:48	20:51	40.31482	-73.18433	40.31578	-73.18820	35	11	SSW	<2	B4	≥5000	Clear	Severe	3.9	298	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:51	21:00	40.31578	-73.18820	40.31855	-73.19858	35	12	SSW	<2	B4	≥5000	Clear	Severe	4	304	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:31	40.31855	-73.19858	40.32978	-73.24102	35	9	SSW	<2	B3	≥5000	Clear	Severe	3.9	301	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:31	21:32	40.32978	-73.24102	40.32978	-73.24102	35	9	SSW	<2	B4	≥5000	Clear	Severe	3.8	301	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:32	22:00	40.32978	-73.24102	40.31940	-73.23703	35	9	SSW	<2	B4	≥5000	Clear	Severe	3.8	301	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:22	40.31940	-73.23703	40.32615	-73.22853	35	8	SSW	<2	B3	≥5000	Cloudy	Moderate	3.8	135	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:22	22:26	40.32615	-73.22853	40.32667	-73.23203	34	7	SSW	<2	B3	≥5000	Cloudy	Moderate	3.5	295	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:26	22:56	40.32667	-73.23203	40.33350	-73.27405	34	6	SSW	<2	B3	≥5000	Cloudy	Moderate	3.5	295	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:56	22:58	40.33350	-73.27405	40.33352	-73.27435	34	6	SSW	<2	B3	≥5000	Cloudy	Moderate	3.5	295	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:58	23:00	40.33352	-73.27435	40.33373	-73.27580	34	6	SSW	<2	B3	≥5000	Cloudy	Moderate	3.5	295	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:24	40.33373	-73.27580	40.33442	-73.27443	34	6	SSW	<2	B3	≥5000	Cloudy	Moderate	3.8	292	Full Power	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:24	23:28	40.33442	-73.27443	40.33348	-73.26900	34	9	SSE	<2	B4	≥5000	Cloudy	None	3.6	114	Silent	N/A
2023-05-07	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:28	00:00	40.33348	-73.26900	40.32718	-73.22992	34	9	SSE	<2	B4	≥5000	Cloudy	None	3.5	115	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:01	40.32718	-73.22992	40.32693	-73.22787	34	14	SSW	<2	B4	2000-4999	Cloudy	None	3.5	114	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:01	00:03	40.32693	-73.22787	40.32667	-73.22617	34	14	SSW	<2	B4	2000-4999	Cloudy	None	3.5	113	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:03	00:31	40.32667	-73.22617	40.32692	-73.22927	34	14	SSW	<2	B4	2000-4999	Cloudy	None	3.4	114	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:31	00:34	40.32692	-73.22927	40.32708	-73.23087	34	15	W	<2	B5	500-999	Cloudy	None	3.8	290	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:34	01:00	40.32708	-73.23087	40.33025	-73.25072	34	15	W	<2	B5	500-999	Cloudy	None	4	291	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:06	40.33025	-73.25072	40.33368	-73.27202	22	15	W	<2	B5	500-999	Cloudy	None	3.8	297	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:06	01:08	40.33368	-73.27202	40.33392	-73.27373	33	20	WSW	<2	B5	500-999	Cloudy	None	3.7	293	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:08	01:44	40.33392	-73.27373	40.32658	-73.26068	33	20	WSW	<2	B5	500-999	Cloudy	None	3.8	300	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:44	01:49	40.32658	-73.26068	40.32968	-73.26440	32	20	WSW	<2	B5	500-999	Cloudy	None	3.9	329	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:49	02:00	40.32968	-73.26440	40.33860	-73.27438	32	20	WSW	<2	B5	500-999	Cloudy	None	3.8	329	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:14	40.33860	-73.27438	40.33328	-73.27455	32	16	WSW	<2	B5	500-999	Cloudy	None	3.7	337	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:14	02:18	40.33328	-73.27455	40.33242	-73.26898	32	12	SW	<2	B5	500-999	Cloudy	None	3.9	116	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:18	02:49	40.33242	-73.26898	40.32587	-73.22803	32	12	SW	<2	B5	500-999	Cloudy	None	3.5	119	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:49	02:51	40.32587	-73.22803	40.32548	-73.22563	34	14	SSW	<2	B5	500-999	Cloudy	None	3.8	113	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:51	03:00	40.32548	-73.22563	40.32342	-73.21942	34	14	SSW	<2	B5	500-999	Cloudy	None	3.8	112	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:17	40.32342	-73.21942	40.32713	-73.22730	30	8	W	<2	B5	500-999	Cloudy	None	3.5	133	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:17	03:22	40.32713	-73.22730	40.32818	-73.23372	35	11	W	<2	B5	500-999	Cloudy	None	3.4	295	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:22	03:54	40.32818	-73.23372	40.33430	-73.27233	35	11	W	<2	B5	500-999	Cloudy	None	3.5	293	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:54	03:56	40.33430	-73.27233	40.33430	-73.27233	33	11	W	<2	B5	500-999	Cloudy	None	3.3	289	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:56	04:00	40.33430	-73.27233	40.33438	-73.27322	33	11	W	<2	B5	500-999	Cloudy	None	3.3	289	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:14	40.33438	-73.27322	40.33312	-73.27653	33	11	W	<2	B5	500-999	Cloudy	None	3.5	290	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:14	04:20	40.33312	-73.27653	40.33202	-73.27007	33	14	SW	<2	B5	500-999	Cloudy	None	3.6	115	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:20	04:52	40.33202	-73.27007	40.32602	-73.23198	34	15	SW	<2	B5	500-999	Cloudy	None	3.4	116	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:52	04:54	40.32602	-73.23198	40.32515	-73.22667	28	11	ESE	<2	B5	500-999	Cloudy	None	3.6	112	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:54	05:00	40.32515	-73.22667	40.32350	-73.22160	28	11	ESE	<2	B5	500-999	Cloudy	None	3.7	115	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:26	40.32350	-73.22160	40.32753	-73.22607	28	8	ESE	<2	B5	500-999	Cloudy	None	3.2	144	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:26	05:30	40.32753	-73.22607	40.32827	-73.23043	35	12	NW	<2	B4	500-999	Precipitation	None	3.5	298	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:30	06:00	40.32827	-73.23043	40.33392	-73.26660	35	12	NW	<2	B4	500-999	Precipitation	None	3.5	291	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	06:00	06:02	40.33392	-73.26660	40.33472	-73.27155	35	12	NW	<2	B4	500-999	Precipitation	None	3.5	294	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:02	06:04	40.33472	-73.27155	40.33508	-73.27363	35	12	NW	<2	B4	500-999	Precipitation	None	3.7	294	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:04	06:51	40.33508	-73.27363	40.32705	-73.26142	35	12	NW	<2	B4	500-999	Precipitation	None	3.8	296	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:51	06:57	40.32705	-73.26142	40.33003	-73.26492	34	5	NW	<2	B3	1000-1999	Cloudy	None	3.1	330	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:57	07:00	40.33003	-73.26492	40.33027	-73.26521	34	5	NW	<2	B3	1000-1999	Cloudy	None	3.1	330	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.33027	-73.26521	40.37463	-73.31860	34	5	NW	<2	B3	1000-1999	Cloudy	None	3.1	330	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.37463	-73.31860	40.42787	-73.38295	31	5	NW	<2	B3	1000-1999	Cloudy	None	3.8	329	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:15	40.42787	-73.38295	40.44047	-73.39837	30	10	NW	<2	B3	2000-4999	Cloudy	None	3.8	330	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:15	09:17	40.44047	-73.39837	40.43732	-73.39860	30	10	NW	<2	B3	2000-4999	Cloudy	None	3.8	330	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:17	09:24	40.43732	-73.39860	40.44755	-73.40218	30	10	NW	<2	B3	2000-4999	Cloudy	None	3.8	330	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:24	09:40	40.44755	-73.40218	40.47160	-73.40847	30	10	NW	<2	B3	2000-4999	Cloudy	None	3.5	330	Full Power	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.47160	-73.40847	40.47810	-73.40750	30	10	NW	<2	B2	≥5000	Clear	None	3.5	330	Silent	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	10:03	40.47810	-73.40750	40.47810	-73.40750	23	6	N	<2	B2	≥5000	Clear	Severe	4.3	111	Deploying/Retrieving	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:03	11:00	40.47810	-73.40750	40.45092	-73.38775	23	6	N	<2	B2	≥5000	Clear	Severe	4.3	111	Standby	N/A
2023-05-08	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.45092	-73.38775	40.44460	-73.57532	28	6	N	<2	B2	≥5000	Clear	Severe	1.7	173	Transit	N/A
2023-05-08	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:38	40.44460	-73.57532	40.45270	-73.71628	19	11	NNE	<2	B2	≥5000	Clear	Severe	10	287	Transit	N/A
2023-05-08	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:38	13:00	40.45270	-73.71628	40.45633	-73.79563	28	11	NNE	<2	B2	≥5000	Clear	Severe	9.7	283	Transit	N/A
2023-05-08	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.45633	-73.79563	40.51212	-73.97090	29	21	NNE	<2	B2	≥5000	Clear	Severe	9.6	294	Transit	N/A
2023-05-08	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.51212	-73.97090	40.66507	-74.04577	14	9	W	<2	B2	≥5000	Clear	Severe	10.4	311	Transit	N/A
2023-05-08	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:40	40.66507	-74.04577	40.70207	-73.97317	15	15	NNW	<2	B3	≥5000	Clear	Moderate	9.6	43	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.70185	-73.97295	40.69512	-74.02210	15	7	NW	<2	B1	500-999	Clear	None	2	43	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.69512	-74.02210	40.52102	-73.99955	20	5	NW	<2	B1	500-999	Clear	None	9.7	252	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:44	40.52102	-73.99955	40.46132	-73.83337	20	11	N	<2	B2	500-999	Clear	None	11.3	129	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:44	10:00	40.46132	-73.83337	40.45262	-73.78197	23	11	E	<2	B3	2000-4999	Cloudy	None	9.6	114	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	40.45262	-73.78197	40.44732	-73.60708	24	11	ENE	<2	B3	≥5000	Cloudy	Severe	9.6	118	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:42	40.44732	-73.60708	40.49285	-73.49222	22	21	ENE	<2	B4	≥5000	Cloudy	Slight	8.7	88	Transit	N/A
2023-05-09	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:42	12:00	40.49285	-73.49222	40.50863	-73.47347	18	20	ENE	<2	B4	≥5000	Cloudy	Slight	3.7	72	Deploying/Retrieving	N/A
2023-05-09	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:27	40.50863	-73.47347	40.52368	-73.45528	21	21	NE	<2	B4	≥5000	Cloudy	Moderate	3.7	55	Deploying/Retrieving	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:27	12:38	40.52368	-73.45528	40.52803	-73.44938	26	21	NE	<2	B4	≥5000	Cloudy	Moderate	2.1	56	Standby	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:38	12:48	40.52803	-73.44938	40.53327	-73.44370	22	18	NE	<2	B4	≥5000	Cloudy	Moderate	2	62	Soft Start	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:48	13:00	40.53327	-73.44370	40.53597	-73.46160	21	10	NE	<2	B3	≥5000	Cloudy	Severe	4.6	338	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:27	40.53597	-73.46160	40.53232	-73.49988	16	4	NE	<2	B3	≥5000	Cloudy	None	3.9	282	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:27	13:34	40.53232	-73.49988	40.53065	-73.50838	16	2	ENE	<2	B2	≥5000	Cloudy	None	3.7	268	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:34	14:00	40.53065	-73.50838	40.52605	-73.53133	16	4	E	<2	B2	≥5000	Cloudy	None	3.7	268	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:12	40.52605	-73.53133	40.52090	-73.55652	16	7	E	<2	B2	≥5000	Cloudy	None	3.6	272	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:12	14:13	40.52090	-73.55652	40.52090	-73.55652	16	9	E	<2	B2	≥5000	Cloudy	None	3.7	269	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:13	14:56	40.52090	-73.55652	40.52370	-73.54370	16	9	E	<2	B2	≥5000	Cloudy	None	3.7	269	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:56	15:00	40.52370	-73.54370	40.52518	-73.55012	17	6	E	<2	B2	≥5000	Cloudy	None	3.8	298	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:02	40.52518	-73.55012	40.52547	-73.55165	17	6	E	<2	B2	≥5000	Cloudy	None	3.7	299	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:02	16:00	40.52547	-73.55165	40.54137	-73.62490	17	6	E	<2	B2	≥5000	Cloudy	None	3.7	298	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:14	40.54137	-73.62490	40.54460	-73.63997	12	6	E	<2	B2	≥5000	Cloudy	Slight	3.3	298	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:14	16:15	40.54460	-73.63997	40.54460	-73.63997	12	5	E	<2	B3	≥5000	Cloudy	Slight	3.3	299	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:15	16:49	40.54460	-73.63997	40.54532	-73.64243	12	5	E	<2	B3	≥5000	Cloudy	Slight	3.3	299	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:49	16:54	40.54532	-73.64243	40.54438	-73.63817	12	8	SE	<2	B3	≥5000	Cloudy	Slight	3.1	122	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:54	18:00	40.54438	-73.63817	40.52798	-73.56263	12	10	SE	<2	B3	≥5000	Cloudy	Slight	3.2	120	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:09	40.52798	-73.56263	40.52495	-73.54860	17	10	ESE	<2	B3	≥5000	Cloudy	Slight	3.4	119	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:09	18:11	40.52495	-73.54860	40.52420	-73.54507	17	10	ESE	<2	B3	≥5000	Cloudy	Slight	3.4	120	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:11	18:53	40.52420	-73.54507	40.52453	-73.54577	17	10	ESE	<2	B3	≥5000	Cloudy	Slight	3.5	118	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:53	18:58	40.52453	-73.54577	40.52563	-73.55108	17	6	S	<2	B3	≥5000	Cloudy	Slight	3	298	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:58	20:00	40.52563	-73.55108	40.53918	-73.61340	17	6	S	<2	B3	≥5000	Cloudy	Slight	3	300	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:28	40.53918	-73.61340	40.54492	-73.64017	13	8	S	<2	B3	≥5000	Clear	Severe	2.8	300	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:28	20:30	40.54492	-73.64017	40.54520	-73.64165	12	6	S	<2	B3	≥5000	Cloudy	Severe	2.7	296	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:30	21:00	40.54520	-73.64165	40.54147	-73.62832	12	6	S	<2	B3	≥5000	Cloudy	Severe	2.6	298	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:01	40.54147	-73.62832	40.54147	-73.62832	13	9	ESE	<2	B3	≥5000	Clear	Severe	3.8	92	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:01	21:05	40.54147	-73.62832	40.54233	-73.62160	13	9	ESE	<2	B3	≥5000	Clear	Severe	3.8	92	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:05	21:46	40.54233	-73.62160	40.54957	-73.56283	13	10	SE	<2	B3	≥5000	Clear	Severe	3.8	92	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:46	21:49	40.54957	-73.56283	40.54957	-73.56283	15	6	SE	<2	B3	≥5000	Clear	Severe	3.6	96	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:49	22:00	40.54957	-73.56283	40.54688	-73.55207	15	6	SE	<2	B3	≥5000	Clear	Severe	3.6	96	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:25	40.54688	-73.55207	40.54918	-73.56740	15	7	SE	<2	B2	≥5000	Clear	Slight	3.6	65	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:25	22:29	40.54918	-73.56740	40.54888	-73.57195	15	5	SE	<2	B2	≥5000	Clear	Slight	3.4	330	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:29	23:00	40.54888	-73.57195	40.54458	-73.60437	15	5	SE	<2	B2	≥5000	Clear	Slight	3.4	330	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:16	40.54458	-73.60437	40.54210	-73.62440	13	6	W	<2	B3	≥5000	Clear	Slight	3.3	273	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:16	23:18	40.54210	-73.62440	40.54185	-73.62645	13	4	NE	<2	B3	≥5000	Clear	Slight	3.4	272	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:18	23:52	40.54185	-73.62645	40.54252	-73.62220	13	4	SE	<2	B3	≥5000	Clear	Slight	3.3	271	Full Power	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:52	23:57	40.54252	-73.62220	40.54252	-73.62220	12	9	SE	<2	B2	≥5000	Clear	None	3.2	93	Silent	N/A
2023-05-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:57	00:00	40.54252	-73.62220	40.54312	-73.61767	12	9	SE	<2	B2	≥5000	Clear	None	3.2	93	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:00	00:44	40.54312	-73.61767	40.54927	-73.56847	12	7	SE	<2	B2	≥5000	Clear	None	3.2	90	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:44	00:45	40.54927	-73.56847	40.54927	-73.56847	12	7	SE	<2	B2	500-999	Clear	None	3.1	91	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:45	01:00	40.54927	-73.56847	40.55557	-73.56240	12	7	SE	<2	B2	500-999	Clear	None	3.1	91	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:44	40.55557	-73.56240	40.54848	-73.58192	8	6	SE	<2	B2	500-999	Clear	None	3.5	337	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:44	01:50	40.54848	-73.58192	40.54840	-73.57640	11	12	ESE	<2	B3	500-999	Clear	None	3	101	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:50	02:00	40.54840	-73.57640	40.54813	-73.56520	11	12	ESE	<2	B3	500-999	Clear	None	2.9	104	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:30	40.54813	-73.56520	40.54738	-73.53153	12	12	ESE	<2	B3	500-999	Clear	None	3	103	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:30	02:31	40.54738	-73.53153	40.54732	-73.52942	13	12	ESE	<2	B3	500-999	Clear	None	3.1	106	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:31	03:00	40.54732	-73.52942	40.54877	-73.51665	13	12	ESE	<2	B3	500-999	Clear	None	3.1	104	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:04	40.54877	-73.51665	40.54733	-73.52775	14	10	S	<2	B3	500-999	Clear	None	3.4	306	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:04	03:13	40.54733	-73.52775	40.54757	-73.53432	14	10	S	<2	B3	500-999	Clear	None	3.4	286	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:13	03:48	40.54757	-73.53432	40.54860	-73.57908	15	8	SW	<2	B3	500-999	Clear	None	3.5	285	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:48	03:50	40.54860	-73.57908	40.54860	-73.57908	12	6	SW	<2	B3	500-999	Cloudy	None	3.5	285	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:50	04:00	40.54860	-73.57908	40.55112	-73.59165	12	6	SW	<2	B3	500-999	Cloudy	None	3.5	285	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:13	40.55112	-73.59165	40.54875	-73.58270	11	6	W	<2	B3	500-999	Cloudy	None	3.2	270	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:13	04:19	40.54875	-73.58270	40.54867	-73.57645	12	6	SE	<2	B3	500-999	Cloudy	None	3.3	103	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:19	04:54	40.54867	-73.57645	40.54760	-73.53133	12	6	SE	<2	B3	500-999	Cloudy	None	3.4	105	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:54	04:56	40.54760	-73.53133	40.54758	-73.52967	12	2	ENE	<2	B3	500-999	Cloudy	None	3.6	104	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:56	05:00	40.54758	-73.52967	40.54787	-73.52505	12	5	NE	<2	B3	500-999	Cloudy	None	3.6	105	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:34	40.54787	-73.52505	40.54968	-73.54418	12	5	ENE	<2	B3	500-999	Cloudy	None	4.1	85	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:34	05:39	40.54968	-73.54418	40.54817	-73.53923	11	6	ENE	<2	B3	500-999	Cloudy	None	3.8	136	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:39	06:00	40.54817	-73.53923	40.54155	-73.51493	11	4	ENE	<2	B3	500-999	Cloudy	None	3.5	123	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:04	40.54155	-73.51493	40.53947	-73.50695	15	4	ENE	<2	B3	500-999	Cloudy	None	3.5	123	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:04	06:06	40.53947	-73.50695	40.53910	-73.50570	15	4	ENE	<2	B3	500-999	Cloudy	None	3.5	123	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:06	06:33	40.53910	-73.50570	40.53868	-73.50402	15	4	ENE	<2	B3	500-999	Cloudy	None	3.5	123	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:33	06:39	40.53868	-73.50402	40.54042	-73.51023	15	3	ENE	<2	B3	500-999	Cloudy	None	3.5	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:39	07:00	40.54042	-73.51023	40.54935	-73.54320	15	3	ENE	<2	B3	500-999	Cloudy	None	3.5	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	07:03	40.54935	-73.54320	40.54965	-73.54442	15	3	ENE	<2	B3	500-999	Cloudy	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:03	07:05	40.54965	-73.54442	40.54972	-73.54478	15	3	ENE	<2	B3	500-999	Cloudy	None	3.8	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:05	07:28	40.54972	-73.54478	40.55017	-73.54560	15	3	ENE	<2	B3	500-999	Cloudy	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:28	07:34	40.55017	-73.54560	40.54810	-73.53765	16	3	ENE	<2	B3	500-999	Cloudy	None	3.8	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:34	07:58	40.54810	-73.53765	40.53930	-73.50518	16	3	ENE	<2	B3	500-999	Cloudy	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:58	08:00	40.53930	-73.50518	40.53923	-73.50507	16	3	ENE	<2	B3	500-999	Clear	None	3.8	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:00	08:42	40.53923	-73.50507	40.53965	-73.50598	16	3	ENE	<2	B2	500-999	Clear	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:42	08:47	40.53965	-73.50598	40.54075	-73.51087	16	2	ENE	<2	B2	500-999	Clear	None	3.8	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:47	09:00	40.54075	-73.51087	40.54407	-73.52273	16	2	ENE	<2	B2	500-999	Clear	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:12	40.54407	-73.52273	40.54962	-73.54352	16	2	ENE	<2	B2	500-999	Clear	None	3.8	302	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:12	09:13	40.54962	-73.54352	40.54973	-73.54387	12	2	ENE	<2	B2	500-999	Clear	None	3.5	303	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:13	09:38	40.54973	-73.54387	40.54837	-73.54063	12	2	ENE	<2	B2	500-999	Clear	None	3.5	303	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:38	09:40	40.54837	-73.54063	40.54837	-73.54063	15	2	E	<2	B2	2000-4999	Clear	None	3.6	123	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	09:44	40.54837	-73.54063	40.54783	-73.53892	15	2	E	<2	B2	≥5000	Clear	None	3.6	123	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:44	10:00	40.54783	-73.53892	40.54045	-73.51165	15	2	E	<2	B2	≥5000	Clear	Slight	3.6	123	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:09	40.54045	-73.51165	40.53938	-73.50755	16	2	E	<2	B2	≥5000	Clear	Moderate	3.5	120	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:09	10:11	40.53938	-73.50755	40.53852	-73.50402	16	2	E	<2	B2	≥5000	Clear	Severe	3.6	121	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:11	10:48	40.53852	-73.50402	40.53958	-73.50500	16	2	E	<2	B2	≥5000	Clear	Severe	3.6	122	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:48	10:54	40.53958	-73.50500	40.54140	-73.51157	16	2	E	<2	B2	≥5000	Clear	Severe	3.2	302	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:54	11:00	40.54140	-73.51157	40.54233	-73.51510	16	2	E	<2	B2	≥5000	Clear	Severe	3.2	304	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.54233	-73.51510	40.54933	-73.54098	16	1	E	<2	B1	≥5000	Clear	Severe	3.2	303	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:22	40.54933	-73.54098	40.54988	-73.54265	15	2	E	<2	B1	≥5000	Clear	Severe	3.4	301	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:22	11:59	40.54988	-73.54265	40.54933	-73.54575	14	1	E	<2	B1	≥5000	Clear	Severe	3.4	300	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:59	12:04	40.54933	-73.54575	40.54750	-73.53882	14	6	ESE	<2	B1	≥5000	Clear	Severe	3.9	115	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:04	12:28	40.54750	-73.53882	40.53905	-73.50750	15	4	ESE	<2	B1	≥5000	Clear	Severe	3.9	122	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:28	13:00	40.53905	-73.50750	40.54815	-73.50667	15	4	ESE	<2	B1	≥5000	Clear	Severe	3.8	123	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.55738	-73.52160	40.55738	-73.52160	13	1	WSW	<2	B1	≥5000	Clear	Severe	3.3	323	Transit	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.57718	-73.53315	40.57408	-73.50687	4	1	SE	<2	B1	≥5000	Clear	Moderate	3.7	1	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.57408	-73.50687	40.57002	-73.54697	10	4	SW	<2	B2	≥5000	Clear	Slight	3.7	24	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.57002	-73.54697	40.55313	-73.62512	10	6	SW	<2	B2	≥5000	Clear	Slight	4	264	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.55313	-73.62512	40.57225	-73.68308	11	8	SW	<2	B3	≥5000	Clear	Slight	3.7	290	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:43	40.57225	-73.68308	40.52172	-73.68355	8	17	S	<2	B3	≥5000	Clear	Slight	4	193	Standby	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:43	18:53	40.52172	-73.68355	40.52405	-73.69597	17	16	S	<2	B4	≥5000	Clear	Moderate	3.7	209	Soft Start	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:53	19:00	40.52405	-73.69597	40.53167	-73.68857	18	7	S	<2	B4	≥5000	Clear	Moderate	4.3	16	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:13	40.53167	-73.68857	40.54370	-73.67928	17	12	S	<2	B4	≥5000	Clear	Moderate	4.5	53	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:13	19:16	40.54370	-73.67928	40.54752	-73.67913	14	8	S	<2	B4	≥5000	Clear	Moderate	4.1	16	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:16	19:46	40.54752	-73.67913	40.57360	-73.67903	14	8	S	<2	B4	≥5000	Clear	Moderate	4.2	11	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:46	19:47	40.57360	-73.67903	40.57433	-73.67905	7	14	S	<2	B4	≥5000	Clear	Severe	3.2	14	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:47	20:00	40.57433	-73.67905	40.56940	-73.68400	7	14	S	<2	B4	≥5000	Clear	Severe	3.1	8	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:22	40.56940	-73.68400	40.57343	-73.67867	10	24	S	<2	B5	≥5000	Clear	Severe	3.7	187	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:22	20:24	40.57343	-73.67867	40.57212	-73.67888	8	20	SSW	<2	B5	≥5000	Clear	Severe	3.5	196	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:24	20:50	40.57212	-73.67888	40.54452	-73.67902	8	20	SSW	<2	B5	≥5000	Clear	Severe	3.6	200	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:50	20:51	40.54452	-73.67902	40.54382	-73.67905	14	26	SSW	<2	B5	≥5000	Clear	Severe	3.4	192	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:51	21:00	40.54382	-73.67905	40.54080	-73.68325	14	26	SSW	<2	B5	≥5000	Clear	Severe	3.3	200	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:28	40.54080	-73.68325	40.54533	-73.67845	16	17	SSW	<2	B5	≥5000	Clear	Severe	2.9	242	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:28	21:32	40.54533	-73.67845	40.54830	-73.67885	15	17	SW	<2	B5	≥5000	Clear	Severe	2.9	2	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:32	21:49	40.54830	-73.67885	40.54652	-73.67855	15	18	WSW	<2	B5	≥5000	Clear	Severe	2.8	1	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:49	21:51	40.54652	-73.67855	40.54652	-73.67855	14	15	SW	<2	B5	≥5000	Clear	Severe	4.5	3	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:51	22:00	40.54652	-73.67855	40.55482	-73.67878	14	15	SW	<2	B5	≥5000	Clear	Severe	4.5	3	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:15	40.55482	-73.67878	40.57473	-73.68052	14	18	SW	<2	B5	≥5000	Clear	Severe	4.5	3	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:15	22:17	40.57473	-73.68052	40.57472	-73.68072	14	18	SW	<2	B5	≥5000	Clear	Severe	4.5	3	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:17	22:44	40.57472	-73.68072	40.57230	-73.67848	14	19	SW	<2	B5	≥5000	Clear	Severe	4.5	3	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:44	22:45	40.57230	-73.67848	40.57217	-73.67863	12	19	SW	<2	B5	≥5000	Clear	Severe	2.9	194	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:45	23:00	40.57217	-73.67863	40.56002	-73.67890	12	20	SW	<2	B5	≥5000	Clear	Severe	2.9	194	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:18	40.56002	-73.67890	40.54535	-73.67918	12	25	SSW	<2	B5	≥5000	Clear	Moderate	3.1	192	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:18	23:19	40.54535	-73.67918	40.54535	-73.67918	16	26	SSW	<2	B5	≥5000	Clear	Moderate	2.9	195	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:19	23:52	40.54535	-73.67918	40.54450	-73.67945	16	26	SSW	<2	B5	≥5000	Clear	Moderate	2.9	195	Full Power	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:52	23:55	40.54450	-73.67945	40.54765	-73.67923	14	15	SW	<2	B5	≥5000	Clear	None	4.4	6	Silent	N/A
2023-05-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:55	00:00	40.54765	-73.67923	40.55378	-73.67917	14	12	SW	<2	B5	≥5000	Clear	None	4	16	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:19	40.55378	-73.67917	40.57362	-73.67912	13	15	SW	<2	B4	≥5000	Clear	None	3.8	14	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:19	00:21	40.57362	-73.67912	40.57457	-73.67973	7	17	SW	<2	B4	1000-1999	Clear	None	3.6	1	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:21	00:50	40.57457	-73.67973	40.57338	-73.67822	7	17	SW	<2	B4	1000-1999	Clear	None	3.4	336	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:50	00:51	40.57338	-73.67822	40.57190	-73.67837	8	24	SSW	<2	B5	500-999	Clear	None	3.4	208	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:51	01:00	40.57190	-73.67837	40.56543	-73.67848	8	24	SSW	<2	B5	500-999	Clear	None	3.7	199	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:17	40.56543	-73.67848	40.54522	-73.67863	7	22	SSW	<2	B5	500-999	Clear	None	3.7	193	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:17	01:19	40.54522	-73.67863	40.54432	-73.67867	13	23	SSW	<2	B5	500-999	Clear	None	3.5	192	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:19	01:53	40.54432	-73.67867	40.54678	-73.70418	13	22	SSW	<2	B5	500-999	Clear	None	3.6	193	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:53	01:57	40.54678	-73.70418	40.54655	-73.70033	16	15	SSW	<2	B5	500-999	Clear	None	3.3	103	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:57	02:33	40.54655	-73.70033	40.54573	-73.65700	16	8	SW	<2	B5	500-999	Clear	None	3.1	108	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:33	02:34	40.54573	-73.65700	40.54557	-73.65563	13	7	SW	<2	B5	500-999	Clear	None	3.2	108	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:34	02:58	40.54557	-73.65563	40.54617	-73.65105	13	8	SW	<2	B5	500-999	Clear	None	3.3	113	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:58	03:00	40.54617	-73.65105	40.54617	-73.65105	14	9	SW	<2	B5	500-999	Clear	None	2.8	260	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:03	40.54617	-73.65105	40.54593	-73.65893	14	9	SW	<2	B5	500-999	Clear	None	2.8	260	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:03	03:38	40.54593	-73.65893	40.54665	-73.70303	14	11	SW	<2	B5	500-999	Clear	None	3.3	286	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:38	03:39	40.54665	-73.70303	40.54665	-73.70303	15	8	W	<2	B5	500-999	Clear	None	3.5	285	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:39	04:00	40.54665	-73.70303	40.54678	-73.70792	15	8	W	<2	B5	500-999	Clear	None	3.5	285	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; De La Rosa, Leonardo Mario	RPS	04:00	04:02	40.54678	-73.70792	40.54678	-73.70792	15	8	W	<2	B3	500-999	Clear	None	3.5	285	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; De La Rosa, Leonardo Mario	RPS	04:02	04:07	40.54678	-73.70792	40.54673	-73.69788	15	8	W	<2	B3	500-999	Clear	None	3.5	285	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:07	04:40	40.54673	-73.69788	40.54603	-73.64982	15	5	S	<2	B3	500-999	Clear	None	3.7	105	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:40	04:42	40.54603	-73.64982	40.54853	-73.64805	15	5	S	<2	B2	500-999	Clear	None	3.2	77	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:42	05:00	40.54853	-73.64805	40.55085	-73.64992	15	5	S	<2	B2	500-999	Clear	None	3.2	80	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:14	40.55085	-73.64992	40.54635	-73.66693	14	7	S	<2	B2	500-999	Clear	None	3.4	295	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:14	05:17	40.54635	-73.66693	40.54612	-73.66402	15	5	SW	<2	B2	500-999	Clear	None	3.6	107	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:17	05:41	40.54612	-73.66402	40.54325	-73.63023	15	6	SW	<2	B2	500-999	Clear	None	3.7	109	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:41	05:42	40.54325	-73.63023	40.54325	-73.63023	12	5	SW	<2	B2	500-999	Clear	None	4	111	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:42	06:00	40.54325	-73.63023	40.54103	-73.61245	12	5	SW	<2	B2	500-999	Clear	None	4	111	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:10	40.54103	-73.61245	40.54328	-73.62907	12	10	SW	<2	B3	500-999	Clear	None	3.1	50	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:10	06:15	40.54328	-73.62907	40.54352	-73.63223	12	10	SW	<2	B3	500-999	Clear	None	3.1	50	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:15	06:40	40.54352	-73.63223	40.54657	-73.66708	12	10	SW	<2	B3	500-999	Clear	None	3.1	50	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:40	06:42	40.54657	-73.66708	40.54667	-73.66920	12	21	W	<2	B4	500-999	Clear	None	3.7	288	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:42	07:07	40.54667	-73.66920	40.54660	-73.66788	12	21	W	<2	B4	500-999	Clear	None	3.8	288	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:07	07:10	40.54660	-73.66788	40.54630	-73.66372	11	10	NW	<2	B4	500-999	Clear	None	4	102	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:10	07:34	40.54630	-73.66372	40.54342	-73.63020	11	11	NW	<2	B4	500-999	Clear	None	4	110	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:34	07:36	40.54342	-73.63020	40.54317	-73.62765	12	7	NW	<2	B4	500-999	Clear	None	4	111	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:36	07:38	40.54317	-73.62765	40.54295	-73.62558	12	6	NW	<2	B4	500-999	Clear	None	4.1	110	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:38	07:41	40.54295	-73.62558	40.54307	-73.62028	12	8	NW	<2	B4	500-999	Clear	None	4.1	113	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:41	08:00	40.54307	-73.62028	40.54532	-73.60142	12	7	NW	<2	B4	500-999	Clear	None	3.9	95	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:16	40.54532	-73.60142	40.54977	-73.56645	12	8	NW	<2	B4	500-999	Clear	None	4.1	95	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:16	08:18	40.54977	-73.56645	40.54992	-73.56578	12	8	NW	<2	B4	500-999	Clear	None	4.1	95	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:18	09:00	40.54992	-73.56578	40.55283	-73.57747	12	8	NW	<2	B4	500-999	Clear	None	4.1	95	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:13	40.55283	-73.57747	40.54928	-73.57983	12	6	W	<2	B3	500-999	Clear	None	2.8	299	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:13	09:15	40.54928	-73.57983	40.54922	-73.57592	12	9	NW	<2	B3	1000-1999	Clear	None	4.1	106	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:15	09:40	40.54922	-73.57592	40.54833	-73.53783	12	9	NW	<2	B3	1000-1999	Clear	None	3.7	103	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	09:49	40.54833	-73.53783	40.54822	-73.53150	11	8	NW	<2	B2	2000-4999	Clear	None	3.6	104	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:49	09:51	40.54822	-73.53150	40.54822	-73.53150	14	3	N	<2	B2	2000-4999	Clear	None	3.7	106	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:51	10:00	40.54822	-73.53150	40.55045	-73.52157	14	3	N	<2	B2	2000-4999	Clear	None	3.7	106	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:29	40.55045	-73.52157	40.54973	-73.54130	14	3	N	<2	B2	≥5000	Clear	None	2.5	36	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:29	10:32	40.54973	-73.54130	40.54882	-73.53815	14	7	N	<2	B2	≥5000	Cloudy	Moderate	4.6	124	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:32	10:56	40.54882	-73.53815	40.54153	-73.51168	14	7	N	<2	B2	≥5000	Cloudy	Moderate	3.9	121	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:56	10:57	40.54153	-73.51168	40.54153	-73.51168	15	10	W	<2	B2	≥5000	Cloudy	Severe	3.6	119	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:57	11:00	40.54153	-73.51168	40.53988	-73.50592	15	10	W	<2	B2	≥5000	Cloudy	Severe	3.6	119	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:41	40.53988	-73.50592	40.53942	-73.52170	15	10	W	<2	B2	≥5000	Cloudy	Severe	3.5	121	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:41	11:47	40.53942	-73.52170	40.54570	-73.52257	15	6	N	<2	B2	≥5000	Cloudy	Severe	3.9	358	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:47	12:06	40.54570	-73.52257	40.56718	-73.52448	15	8	N	<2	B2	≥5000	Cloudy	Severe	4.1	9	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:06	12:08	40.56718	-73.52448	40.56910	-73.52468	15	8	N	<2	B2	≥5000	Cloudy	Severe	4	9	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:08	12:27	40.56910	-73.52468	40.57302	-73.52487	15	8	N	<2	B2	≥5000	Cloudy	Severe	4	7	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:27	12:35	40.57302	-73.52487	40.56553	-73.52412	12	5	WSW	<2	B2	≥5000	Cloudy	Severe	3.8	185	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:35	12:59	40.56553	-73.52412	40.56553	-73.52230	12	9	WSW	<2	B2	≥5000	Cloudy	Severe	3.4	190	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:59	13:00	40.56553	-73.52230	40.54257	-73.52230	16	5	WSW	<2	B2	≥5000	Clear	Severe	3.2	188	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:01	40.54257	-73.52230	40.54257	-73.52203	16	5	WSW	<2	B2	≥5000	Clear	Severe	3.2	188	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:01	13:24	40.54257	-73.52203	40.53763	-73.52145	16	5	WSW	<2	B2	≥5000	Clear	Severe	3.3	189	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:24	13:31	40.53763	-73.52145	40.54467	-73.52208	14	8	NNE	<2	B2	≥5000	Clear	Severe	4	10	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:31	13:50	40.54467	-73.52208	40.56678	-73.52412	14	7	NW	<2	B2	≥5000	Clear	Severe	4.1	7	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:50	13:52	40.56678	-73.52412	40.56830	-73.52422	10	6	WNW	<2	B2	≥5000	Clear	Severe	4	8	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:52	14:00	40.56830	-73.52422	40.57327	-73.52670	10	6	WNW	<2	B2	≥5000	Clear	Severe	4	11	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:25	40.57327	-73.52670	40.55257	-73.52537	10	6	W	<2	B3	≥5000	Clear	Moderate	4	315	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:25	14:29	40.55257	-73.52537	40.55473	-73.52075	14	10	W	<2	B3	≥5000	Clear	Moderate	3.8	87	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:29	14:44	40.55473	-73.52075	40.56357	-73.50212	14	10	W	<2	B3	≥5000	Clear	Moderate	4	73	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:44	14:46	40.56357	-73.50212	40.56357	-73.50212	12	10	W	<2	B3	≥5000	Clear	Moderate	3.9	71	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:46	15:00	40.56357	-73.50212	40.56912	-73.48680	12	10	W	<2	B3	≥5000	Clear	Moderate	3.9	71	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:09	40.56912	-73.48680	40.56600	-73.49763	12	5	W	<2	B3	≥5000	Clear	Slight	3.9	11	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:09	15:15	40.56600	-73.49763	40.56275	-73.50405	12	17	WSW	<2	B3	≥5000	Clear	Slight	4.1	239	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:15	15:32	40.56275	-73.50405	40.55387	-73.52262	12	17	WSW	<2	B3	≥5000	Clear	Slight	4.2	251	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:32	15:34	40.55387	-73.52262	40.55302	-73.52440	14	15	WSW	<2	B3	≥5000	Clear	Slight	3.3	252	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:34	15:59	40.55302	-73.52440	40.55300	-73.52495	14	15	WSW	<2	B3	≥5000	Clear	Slight	3.3	247	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:59	16:00	40.55300	-73.52495	40.55300	-73.52495	15	6	SW	<2	B3	≥5000	Clear	Slight	4	72	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:02	40.55300	-73.52495	40.55482	-73.52097	15	6	SW	<2	B3	≥5000	Clear	Slight	4	72	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:02	16:18	40.55482	-73.52097	40.56412	-73.50168	15	6	SW	<2	B3	≥5000	Clear	Slight	4.1	69	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:18	16:19	40.56412	-73.50168	40.56412	-73.50168	12	5	WSW	<2	B3	≥5000	Clear	Slight	4	69	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:19	16:55	40.56412	-73.50168	40.55727	-73.50788	12	5	WSW	<2	B3	≥5000	Clear	Slight	4	69	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:55	16:57	40.55727	-73.50788	40.55962	-73.50717	13	8	WSW	<2	B3	≥5000	Clear	Slight	4.4	25	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:57	17:22	40.55962	-73.50717	40.58485	-73.49943	13	8	WSW	<2	B3	≥5000	Clear	Slight	4.3	27	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:22	17:24	40.58485	-73.49943	40.58612	-73.50008	8	8	WSW	<2	B3	≥5000	Clear	Moderate	3.4	24	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:24	17:49	40.58612	-73.50008	40.58552	-73.49877	8	8	WSW	<2	B3	≥5000	Clear	Moderate	3.6	332	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:49	17:51	40.58552	-73.49877	40.58405	-73.49943	10	12	SSW	<2	B3	≥5000	Clear	Moderate	3.4	206	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:51	18:00	40.58405	-73.49943	40.57675	-73.50168	10	15	WSW	<2	B3	≥5000	Clear	Moderate	3.4	212	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:17	40.57675	-73.50168	40.55768	-73.50768	11	17	SSW	<2	B3	≥5000	Clear	Moderate	3.8	207	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:17	18:19	40.55768	-73.50768	40.55648	-73.50805	14	17	SSW	<2	B3	≥5000	Clear	Moderate	3.6	206	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:19	18:37	40.55648	-73.50805	40.55657	-73.50768	14	17	SSW	<2	B3	≥5000	Clear	Moderate	3.6	205	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:37	18:39	40.55657	-73.50768	40.55965	-73.50685	14	10	SSW	<2	B3	≥5000	Clear	Moderate	4.1	25	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:39	19:00	40.55965	-73.50685	40.57805	-73.50115	14	10	SSW	<2	B3	≥5000	Clear	Moderate	3.6	26	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:07	40.57805	-73.50115	40.58492	-73.49908	10	12	SSW	<2	B3	≥5000	Clear	Moderate	3.5	25	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:07	19:08	40.58492	-73.49908	40.58573	-73.49910	8	10	SSW	<2	B4	≥5000	Clear	Moderate	3.3	22	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:08	19:38	40.58573	-73.49910	40.58467	-73.49853	8	10	SSW	<2	B4	≥5000	Clear	Moderate	2.9	4	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:38	19:39	40.58467	-73.49853	40.58353	-73.49918	8	20	SSW	<2	B4	≥5000	Clear	Moderate	3.4	223	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:39	19:59	40.58353	-73.49918	40.56478	-73.50510	8	20	SSW	<2	B4	≥5000	Clear	Moderate	3.2	205	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:59	20:00	40.56478	-73.50510	40.56387	-73.50577	13	21	SSW	<2	B4	≥5000	Clear	Severe	3.4	208	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:44	40.56387	-73.50577	40.56428	-73.50158	13	21	SSW	<2	B4	≥5000	Clear	Severe	3.2	237	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:44	20:47	40.56428	-73.50158	40.56248	-73.50528	13	20	SW	<2	B4	≥5000	Clear	Severe	3.1	253	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:47	21:00	40.56248	-73.50528	40.55777	-73.51512	13	20	SW	<2	B4	≥5000	Clear	Severe	3.1	249	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:08	40.55777	-73.51512	40.55410	-73.52280	13	11	SW	<2	B4	≥5000	Clear	Severe	3	250	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:08	21:09	40.55410	-73.52280	40.55345	-73.52417	13	11	SW	<2	B4	≥5000	Clear	Severe	2.9	250	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:09	22:00	40.55345	-73.52417	40.53925	-73.53062	13	12	WSW	<2	B4	≥5000	Clear	Severe	2.9	252	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:18	40.53925	-73.53062	40.55992	-73.52302	13	12	WSW	<2	B4	≥5000	Clear	Severe	2.9	252	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:18	22:22	40.55992	-73.52302	40.56192	-73.52373	13	12	WSW	<2	B4	≥5000	Clear	Severe	3.1	359	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:22	22:40	40.56192	-73.52373	40.57925	-73.53178	13	12	WSW	<2	B4	≥5000	Clear	Severe	3.1	359	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:40	22:42	40.57925	-73.53178	40.57913	-73.53203	13	10	WSW	<2	B3	≥5000	Clear	Severe	2.2	140	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:42	23:00	40.57913	-73.53203	40.57858	-73.52462	13	10	WSW	<2	B3	≥5000	Clear	Severe	2.8	140	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:05	40.57858	-73.52462	40.57818	-73.52853	9	15	WSW	<2	B5	≥5000	Clear	Severe	3.9	342	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:05	23:06	40.57818	-73.52853	40.57708	-73.52835	9	23	SSW	<2	B5	≥5000	Clear	Severe	3	209	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:06	23:24	40.57708	-73.52835	40.55955	-73.52263	9	19	S	<2	B5	≥5000	Clear	Severe	3.3	178	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:24	23:26	40.55955	-73.52263	40.55815	-73.52213	13	15	S	<2	B5	≥5000	Clear	Moderate	3.7	177	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:26	23:50	40.55815	-73.52213	40.55828	-73.52207	13	16	S	<2	B5	≥5000	Clear	Moderate	3.6	178	Full Power	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:50	23:54	40.55828	-73.52207	40.56150	-73.52313	13	13	WSW	<2	B5	≥5000	Clear	None	4	357	Silent	N/A
2023-05-11	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:54	00:00	40.56150	-73.52313	40.56747	-73.52518	13	14	WSW	<2	B5	≥5000	Clear	None	3.9	357	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:09	40.56747	-73.52518	40.57868	-73.52905	11	14	SW	<2	B5	2000-4999	Clear	None	4.2	359	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:09	00:11	40.57868	-73.52905	40.57975	-73.53067	8	13	SW	<2	B5	2000-4999	Clear	None	4.1	353	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:11	00:30	40.57975	-73.53067	40.57837	-73.52818	8	13	SW	<2	B5	2000-4999	Clear	None	3.1	292	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:30	00:31	40.57837	-73.52818	40.57837	-73.52818	9	13	SW	<2	B5	500-999	Clear	None	3.2	190	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:31	00:49	40.57837	-73.52818	40.55975	-73.52227	9	13	SW	<2	B5	500-999	Clear	None	3.2	190	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:49	00:50	40.55975	-73.52227	40.55857	-73.52185	12	22	S	<2	B5	500-999	Clear	None	3.7	177	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:50	01:00	40.55857	-73.52185	40.55297	-73.51990	12	22	S	<2	B5	500-999	Clear	None	3.6	179	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:16	40.55297	-73.51990	40.55668	-73.51695	12	12	S	<2	B5	500-999	Clear	None	3.6	173	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:16	01:20	40.55668	-73.51695	40.55668	-73.51695	12	12	S	<2	B5	500-999	Clear	None	4	75	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:20	01:27	40.55668	-73.51695	40.56030	-73.50948	12	12	S	<2	B5	500-999	Clear	None	4	75	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:27	01:28	40.56030	-73.50948	40.56100	-73.50797	13	13	S	<2	B5	500-999	Clear	None	3.9	72	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:28	01:53	40.56100	-73.50797	40.56418	-73.50148	13	13	S	<2	B5	500-999	Clear	None	3.9	72	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:53	01:58	40.56418	-73.50148	40.56253	-73.50493	12	10	WSW	<2	B5	500-999	Clear	None	3	257	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:58	02:03	40.56253	-73.50493	40.55935	-73.51133	12	11	WSW	<2	B5	500-999	Clear	None	3.3	250	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:03	02:05	40.55935	-73.51133	40.55873	-73.51312	13	12	WSW	<2	B5	500-999	Clear	None	3.2	247	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:05	02:10	40.55873	-73.51312	40.55590	-73.51822	13	15	SSW	<2	B5	500-999	Clear	None	3.2	244	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:10	02:12	40.55590	-73.51822	40.55540	-73.51923	15	10	SW	<2	B5	500-999	Clear	None	3.3	250	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:12	02:37	40.55540	-73.51923	40.55552	-73.51965	15	9	SW	<2	B5	500-999	Clear	None	3.3	250	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:37	02:41	40.55552	-73.51965	40.55727	-73.51602	13	11	SSW	<2	B4	500-999	Clear	None	4.1	67	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:41	02:46	40.55727	-73.51602	40.56082	-73.50887	13	10	SSW	<2	B4	500-999	Clear	None	3.4	66	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:46	02:48	40.56082	-73.50887	40.56160	-73.50738	13	10	SSW	<2	B4	500-999	Clear	None	3.5	69	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:48	03:00	40.56160	-73.50738	40.56140	-73.49872	13	10	SSW	<2	B4	500-999	Clear	None	3.4	69	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:06	40.56140	-73.49872	40.56152	-73.50662	14	14	SW	<2	B4	500-999	Clear	None	3.6	56	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:06	03:11	40.56152	-73.50662	40.55992	-73.51003	14	18	SW	<2	B4	500-999	Clear	None	3.6	56	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:11	03:20	40.55992	-73.51003	40.55443	-73.52093	14	18	SW	<2	B4	500-999	Clear	None	3.6	56	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:20	03:21	40.55443	-73.52093	40.55425	-73.52123	14	18	SW	<2	B4	500-999	Clear	None	3.2	56	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:21	03:55	40.55425	-73.52123	40.54040	-73.50987	14	18	SW	<2	B4	500-999	Clear	None	3.2	56	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:55	03:58	40.54040	-73.50987	40.54075	-73.51107	14	18	SW	<2	B4	500-999	Clear	None	3.2	56	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:58	04:00	40.54075	-73.51107	40.54177	-73.51513	14	15	SW	<2	B4	500-999	Clear	None	3.2	305	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	04:23	40.54177	-73.51513	40.54965	-73.54402	14	15	SW	<2	B4	500-999	Clear	None	3.2	305	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:23	04:25	40.54965	-73.54402	40.54980	-73.54435	12	12	SW	<2	B3	500-999	Clear	None	3.2	305	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:25	04:48	40.54980	-73.54435	40.54583	-73.53035	12	12	SW	<2	B3	500-999	Clear	None	3.2	305	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:48	04:51	40.54583	-73.53035	40.54583	-73.53035	11	8	ESE	<2	B3	500-999	Clear	None	3.6	129	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:51	05:00	40.54583	-73.53035	40.54387	-73.52315	11	8	ESE	<2	B3	500-999	Clear	None	3.6	129	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:02	40.54387	-73.52315	40.54200	-73.51633	12	8	ESE	<2	B3	500-999	Clear	None	3.7	122	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:02	05:03	40.54200	-73.51633	40.54152	-73.51457	13	7	ESE	<2	B3	500-999	Clear	None	3.6	124	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:03	06:00	40.54152	-73.51457	40.53790	-73.49375	13	7	ESE	<2	B3	500-999	Clear	None	3.6	121	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:12	40.53790	-73.49375	40.54143	-73.51247	16	11	ESE	<2	B3	500-999	Clear	None	3.6	121	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:12	06:17	40.54143	-73.51247	40.54280	-73.51795	14	9	N	<2	B3	500-999	Clear	None	3.4	299	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:17	06:23	40.54280	-73.51795	40.54490	-73.52530	14	10	N	<2	B3	500-999	Clear	None	3.4	302	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:23	06:24	40.54490	-73.52530	40.54525	-73.52633	15	9	N	<2	B3	500-999	Clear	None	2.8	305	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:24	07:05	40.54525	-73.52633	40.54873	-73.57228	15	8	N	<2	B3	500-999	Clear	None	2.4	308	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:05	07:12	40.54873	-73.57228	40.54785	-73.57893	16	8	N	<2	B3	500-999	Clear	None	3.1	271	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:12	07:44	40.54785	-73.57893	40.54268	-73.61992	16	8	N	<2	B3	500-999	Clear	None	3.1	280	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:44	07:46	40.54268	-73.61992	40.54262	-73.62032	16	8	N	<2	B3	500-999	Clear	None	3.1	280	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:46	08:00	40.54262	-73.62032	40.53918	-73.63092	16	8	N	<2	B3	500-999	Clear	None	3.1	280	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:29	40.53918	-73.63092	40.53492	-73.59428	14	5	WSW	<2	B3	500-999	Clear	None	4	221	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:29	08:34	40.53492	-73.59428	40.53542	-73.59718	14	11	WSW	<2	B3	500-999	Clear	None	4	221	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:34	09:00	40.53542	-73.59718	40.54263	-73.63020	14	11	WSW	<2	B3	500-999	Clear	None	4	221	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:09	40.54263	-73.63020	40.54457	-73.63900	16	11	WSW	<2	B3	500-999	Clear	None	4	221	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:09	09:10	40.54457	-73.63900	40.54457	-73.63900	12	10	NW	<2	B3	1000-1999	Clear	None	3.5	293	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:10	09:40	40.54457	-73.63900	40.54552	-73.65680	12	6	NW	<2	B2	1000-1999	Clear	None	3.5	293	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	09:43	40.54552	-73.65680	40.54543	-73.65535	12	6	NW	<2	B2	2000-4999	Clear	None	3.5	293	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:43	09:57	40.54543	-73.65535	40.54383	-73.63653	12	6	NW	<2	B2	2000-4999	Clear	None	3.5	293	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:57	09:58	40.54383	-73.63653	40.54383	-73.63653	12	10	NW	<2	B3	≥5000	Cloudy	Moderate	4	109	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:58	10:00	40.54383	-73.63653	40.54383	-73.63653	12	10	NW	<2	B3	≥5000	Cloudy	Moderate	4	109	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:33	40.54383	-73.63653	40.54322	-73.62960	12	10	NW	<2	B3	≥5000	Cloudy	Moderate	4	109	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:33	10:39	40.54322	-73.62960	40.54403	-73.63865	12	10	W	<2	B3	≥5000	Cloudy	Severe	3.7	289	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:39	10:54	40.54403	-73.63865	40.54567	-73.65897	12	10	W	<2	B3	≥5000	Cloudy	Severe	3.8	287	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:54	10:56	40.54567	-73.65897	40.54578	-73.66037	11	10	W	<2	B3	≥5000	Cloudy	Severe	3.9	280	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:56	10:57	40.54578	-73.66037	40.54610	-73.66387	11	10	W	<2	B3	≥5000	Cloudy	Severe	3.9	280	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:57	11:00	40.54610	-73.66387	40.54615	-73.66495	11	12	W	<2	B3	≥5000	Cloudy	Severe	3.8	286	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:03	40.54615	-73.66495	40.54627	-73.67165	11	15	W	<2	B3	≥5000	Cloudy	Severe	3.8	285	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:03	11:24	40.54627	-73.67165	40.54673	-73.70145	8	17	W	<2	B3	≥5000	Cloudy	Severe	3.8	286	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:24	11:26	40.54673	-73.70145	40.54672	-73.70375	8	13	W	<2	B3	≥5000	Cloudy	Severe	3.9	283	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:26	12:05	40.54672	-73.70375	40.53782	-73.69347	9	14	W	<2	B3	≥5000	Clear	Severe	4	282	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:05	12:10	40.53782	-73.69347	40.54223	-73.69725	9	9	W	<2	B3	≥5000	Clear	Severe	3.3	336	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:10	12:37	40.54223	-73.69725	40.56383	-73.71605	9	8	W	<2	B3	≥5000	Clear	Severe	3.4	341	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:37	12:38	40.56383	-73.71605	40.56488	-73.71698	9	7	W	<2	B3	≥5000	Clear	Severe	3.6	338	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:38	13:00	40.56488	-73.71698	40.57330	-73.70297	9	8	W	<2	B3	≥5000	Clear	Severe	3.3	339	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:24	40.57330	-73.70297	40.56003	-73.70410	8	6	SW	<2	B3	≥5000	Clear	Severe	3.9	114	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:24	13:29	40.56003	-73.70410	40.56045	-73.70970	13	8	WNW	<2	B3	≥5000	Clear	Severe	3.3	287	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:29	14:00	40.56045	-73.70970	40.56303	-73.73942	13	7	W	<2	B3	≥5000	Clear	Severe	3.4	288	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:33	40.56303	-73.73942	40.56733	-73.78967	12	5	W	<2	B3	≥5000	Clear	Moderate	3.5	290	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:33	15:00	40.56733	-73.78967	40.54780	-73.79722	12	8	W	<2	B3	≥5000	Clear	Moderate	3.5	289	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.54780	-73.79722	40.57938	-73.77535	12	14	WSW	<2	B3	≥5000	Clear	Slight	3.2	194	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:07	40.57938	-73.77535	40.57968	-73.77120	8	9	SW	<2	B2	≥5000	Clear	Slight	1.1	224	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:07	16:10	40.57968	-73.77120	40.57968	-73.77120	8	10	SW	<2	B2	≥5000	Clear	Slight	0.8	102	Deploying/Retrieving	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:10	17:00	40.57968	-73.77120	40.56813	-73.76362	8	10	SW	<2	B2	≥5000	Clear	Slight	0.8	102	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:40	40.56813	-73.76362	40.55765	-73.78417	10	7	S	<2	B2	≥5000	Clear	Slight	2.9	134	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:40	17:52	40.55765	-73.78417	40.55992	-73.79023	10	8	SW	<2	B2	≥5000	Clear	Slight	2.6	308	Deploying/Retrieving	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:52	18:00	40.55992	-73.79023	40.56063	-73.79422	10	8	SSW	<2	B2	≥5000	Clear	Slight	2.6	306	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:09	40.56063	-73.79422	40.55730	-73.79212	10	12	SSW	<2	B3	≥5000	Cloudy	Slight	2.5	294	Standby	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:09	18:19	40.55730	-73.79212	40.56455	-73.78408	10	12	S	<2	B3	≥5000	Cloudy	Slight	4.3	87	Soft Start	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:19	18:19	40.56455	-73.78408	40.56455	-73.78408	10	10	SSW	<2	B3	≥5000	Cloudy	Slight	3.2	19	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:19	18:23	40.56455	-73.78408	40.56772	-73.78338	10	10	SSW	<2	B3	≥5000	Cloudy	Slight	3.2	19	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:23	18:33	40.56772	-73.78338	40.57827	-73.78157	10	10	SSW	<2	B3	≥5000	Cloudy	Slight	3.3	19	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:33	18:35	40.57827	-73.78157	40.57922	-73.78237	8	10	SSW	<2	B3	≥5000	Cloudy	Slight	3.1	5	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:35	18:57	40.57922	-73.78237	40.57923	-73.78087	8	10	SSW	<2	B3	≥5000	Cloudy	Slight	2.6	317	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:57	18:59	40.57923	-73.78087	40.57767	-73.78130	8	19	S	<2	B4	≥5000	Cloudy	Slight	3.3	222	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:59	19:13	40.57767	-73.78130	40.56273	-73.78437	8	19	S	<2	B4	≥5000	Cloudy	Slight	3.1	199	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:13	19:16	40.56273	-73.78437	40.56132	-73.78640	11	17	S	<2	B4	≥5000	Cloudy	Moderate	3.4	217	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:16	19:38	40.56132	-73.78640	40.56173	-73.78402	11	17	S	<2	B4	≥5000	Cloudy	Moderate	3.6	248	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:38	19:44	40.56173	-73.78402	40.56782	-73.78302	10	10	S	<2	B4	≥5000	Cloudy	Moderate	3.9	17	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:44	19:54	40.56782	-73.78302	40.57807	-73.78120	10	10	S	<2	B4	≥5000	Cloudy	Moderate	3.8	21	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:54	19:55	40.57807	-73.78120	40.57902	-73.78187	8	9	SSW	<2	B4	≥5000	Cloudy	Moderate	3.4	6	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:55	20:17	40.57902	-73.78187	40.57923	-73.78030	8	9	SSW	<2	B4	≥5000	Cloudy	Moderate	3.1	326	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:17	20:18	40.57923	-73.78030	40.57848	-73.78065	8	14	S	<2	B4	≥5000	Cloudy	Slight	2.6	238	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:18	20:31	40.57848	-73.78065	40.56608	-73.78325	8	14	S	<2	B4	≥5000	Cloudy	Slight	2.5	205	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:31	20:32	40.56608	-73.78325	40.56493	-73.78347	10	19	S	<2	B4	≥5000	Cloudy	Slight	3.7	200	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-12	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:32	21:00	40.56493	-73.78347	40.56000	-73.79467	10	19	S	<2	B4	≥5000	Cloudy	Slight	3.7	200	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:10	40.56000	-73.79467	40.56735	-73.79127	11	8	SSW	<2	B3	≥5000	Cloudy	Severe	3.9	309	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:10	21:14	40.56735	-73.79127	40.56693	-73.78715	10	7	SSW	<2	B3	≥5000	Cloudy	Severe	3.6	109	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:14	22:00	40.56693	-73.78715	40.56253	-73.73463	10	5	SSW	<2	B3	≥5000	Cloudy	Severe	3.6	111	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:14	40.56253	-73.73463	40.55987	-73.70480	10	8	SSW	<2	B3	≥5000	Cloudy	Severe	3.1	110	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:14	22:16	40.55987	-73.70480	40.55985	-73.70455	10	13	SSW	<2	B3	≥5000	Cloudy	Moderate	3.1	110	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:16	22:48	40.55985	-73.70455	40.56068	-73.70730	10	13	SSW	<2	B3	≥5000	Cloudy	Moderate	3.1	110	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:48	22:52	40.56068	-73.70730	40.56085	-73.71095	10	16	SSW	<2	B4	≥5000	Clear	Moderate	3.1	110	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:52	23:00	40.56085	-73.71095	40.56157	-7.71973	10	16	SSW	<2	B4	≥5000	Clear	Moderate	3.1	110	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:56	40.56157	-73.71973	40.56755	-73.79042	12	10	SSW	<2	B4	≥5000	Clear	Slight	3.2	288	Full Power	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:56	23:58	40.56755	-73.79042	40.56795	-73.79230	8	9	WSW	<2	B3	≥5000	Clear	None	3.6	289	Silent	N/A
2023-05-12	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:58	00:00	40.56795	-73.79230	40.56948	-73.79483	8	9	SW	<2	B3	≥5000	Clear	None	3.7	308	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:15	40.56948	-73.79483	40.56782	-73.79392	8	7	SW	<2	B3	≥5000	Clear	None	3.9	227	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:15	00:21	40.56782	-73.79392	40.56720	-73.78718	9	5	SSW	<2	B3	2000-4999	Clear	None	4.5	111	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:21	01:00	40.56720	-73.78718	40.56320	-73.74055	10	5	SSW	<2	B3	2000-4999	Clear	None	3.7	110	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:19	40.56320	-73.74055	40.56038	-73.70685	9	7	SSW	<2	B3	1000-1999	Clear	None	3.8	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:19	01:21	40.56038	-73.70685	40.56027	-73.70520	12	5	SSW	<2	B3	500-999	Clear	None	3.7	110	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:21	01:46	40.56027	-73.70520	40.55978	-73.70463	12	4	SSW	<2	B3	500-999	Clear	None	3.6	111	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:46	01:51	40.55978	-73.70463	40.56030	-73.71110	12	10	SW	<2	B3	500-999	Clear	None	3.7	290	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:51	02:49	40.56030	-73.71110	40.56722	-73.78975	12	10	SW	<2	B3	500-999	Clear	None	3.6	290	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:49	02:51	40.56722	-73.78975	40.56738	-73.79062	10	7	SW	<2	B2	500-999	Clear	None	3.4	291	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:51	03:00	40.56738	-73.79062	40.57068	-73.79427	10	7	W	<2	B2	500-999	Clear	None	3.3	306	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:08	40.57068	-73.79427	40.56902	-73.79488	8	5	W	<2	B2	500-999	Clear	None	3.7	325	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:08	03:12	40.56902	-73.79488	40.56840	-73.78805	8	4	W	<2	B2	500-999	Clear	None	4.1	113	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:12	04:00	40.56840	-73.78805	40.56192	-73.71212	8	4	W	<2	B2	500-999	Clear	None	3.6	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:15	40.56192	-73.71212	40.56130	-73.70490	12	6	SW	<2	B2	500-999	Clear	None	3.6	110	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:15	04:17	40.56130	-73.70490	40.56130	-73.70490	12	6	SW	<2	B2	500-999	Clear	None	3.6	109	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:17	04:39	40.56130	-73.70490	40.56100	-73.70310	12	6	SW	<2	B2	500-999	Clear	None	3.6	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:39	04:44	40.56100	-73.70310	40.56153	-73.70937	10	4	W	<2	B2	500-999	Clear	None	3.9	291	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:44	05:00	40.56153	-73.70937	40.56253	-73.72070	10	4	W	<2	B2	500-999	Clear	None	3.9	288	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:42	40.56253	-73.72070	40.56855	-73.79023	10	9	W	<2	B2	500-999	Clear	None	4	289	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:42	05:44	40.56855	-73.79023	40.56885	-73.79158	10	8	W	<2	B2	500-999	Clear	None	3.4	293	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:44	05:58	40.56885	-73.79158	40.56923	-73.79478	10	8	W	<2	B2	500-999	Clear	None	3.7	305	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:58	06:00	40.56923	-73.79478	40.56922	-73.79448	10	8	W	<2	B2	500-999	Clear	None	3.7	305	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:03	40.56922	-73.79448	40.56868	-73.78853	10	8	W	<2	B2	500-999	Clear	None	3.7	305	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:03	07:00	40.56868	-73.78853	40.56282	-73.71942	9	8	W	<2	B2	500-999	Clear	None	3.4	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	07:09	40.56282	-73.71942	40.56178	-73.70555	12	8	W	<2	B2	500-999	Cloudy	None	3.4	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:09	07:11	40.56178	-73.70555	40.56172	-73.70525	12	8	W	<2	B2	500-999	Cloudy	None	3.4	108	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:11	07:49	40.56172	-73.70525	40.56153	-73.70662	13	8	W	<2	B2	500-999	Cloudy	None	3.4	108	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:49	07:53	40.56153	-73.70662	40.56182	-73.70937	13	8	W	<2	B2	500-999	Cloudy	None	3.2	290	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:53	08:00	40.56182	-73.70937	40.56277	-73.72037	13	8	W	<2	B2	500-999	Cloudy	None	3.2	290	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:00	09:00	40.56277	-73.72037	40.56850	-73.78758	13	8	W	<2	B2	500-999	Cloudy	None	3.2	290	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:00	09:01	40.56850	-73.78758	40.56850	-73.78758	9	5	WSW	<2	B2	500-999	Cloudy	None	3.3	289	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:01	09:03	40.56850	-73.78758	40.56890	-73.79132	9	5	WSW	<2	B2	500-999	Cloudy	None	3.3	289	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:03	09:19	40.56890	-73.79132	40.56968	-73.79068	9	5	WSW	<2	B2	500-999	Cloudy	None	3.2	289	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:19	09:23	40.56968	-73.79068	40.56952	-73.78875	9	5	WSW	<2	B2	1000-1999	Cloudy	None	3.2	109	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:23	09:40	40.56952	-73.78875	40.56753	-73.76477	9	5	WSW	<2	B2	1000-1999	Cloudy	None	3.2	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.56753	-73.76477	40.56522	-73.73775	11	2	S	<2	B2	≥5000	Cloudy	None	3.6	110	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:26	40.56522	-73.73775	40.56257	-73.70640	11	3	S	<2	B2	≥5000	Cloudy	None	3.6	110	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:26	10:28	40.56257	-73.70640	40.56257	-73.70640	11	5	S	<2	B2	≥5000	Cloudy	None	3.7	109	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:28	10:53	40.56257	-73.70640	40.56240	-73.69247	11	5	S	<2	B2	≥5000	Cloudy	None	3.7	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:53	11:00	40.56240	-73.69247	40.56160	-73.69970	11	7	N	<2	B2	≥5000	Cloudy	None	3.7	273	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.56160	-73.69970	40.56715	-73.73452	11	7	N	<2	B2	≥5000	Cloudy	None	3.7	277	Standby	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:09	40.56715	-73.73452	40.57283	-73.73545	11	6	N	<2	B2	≥5000	Cloudy	None	3.3	195	Standby	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:09	12:20	40.57283	-73.73545	40.54875	-73.73977	14	10	N	<2	B2	≥5000	Cloudy	None	3	195	Soft Start	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:36	40.54875	-73.73977	40.55973	-73.73937	14	11	W	<2	B2	≥5000	Cloudy	None	3.5	265	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:36	12:41	40.55973	-73.73937	40.56428	-73.73907	12	6	W	<2	B2	≥5000	Cloudy	None	3.7	27	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:41	12:52	40.56428	-73.73907	40.57563	-73.73830	10	5	W	<2	B2	≥5000	Cloudy	None	3.7	16	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:52	12:53	40.57563	-73.73830	40.57655	-73.73915	10	7	W	<2	B2	≥5000	Cloudy	None	3.3	359	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:53	13:00	40.57655	-73.73915	40.57307	-73.74312	10	9	W	<2	B2	≥5000	Cloudy	None	2.8	320	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:31	40.57307	-73.74312	40.56323	-73.73887	10	6	W	<2	B2	≥5000	Cloudy	None	3.8	161	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:31	13:33	40.56323	-73.73887	40.56168	-73.73893	13	1	WSW	<2	B1	≥5000	Cloudy	None	3.8	195	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:33	13:58	40.56168	-73.73893	40.55955	-73.73898	13	2	WSW	<2	B1	≥5000	Cloudy	None	3.8	194	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	13:58	14:02	40.55955	-73.73898	40.56442	-73.73897	12	3	W	<2	B1	≥5000	Cloudy	None	4.3	0	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:02	14:13	40.56442	-73.73897	40.57580	-73.73817	12	3	W	<2	B1	≥5000	Cloudy	None	3.8	13	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:13	14:14	40.57580	-73.73817	40.57580	-73.73817	8	3	ESE	<2	B1	≥5000	Cloudy	None	3.7	15	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:14	14:36	40.57580	-73.73817	40.57755	-73.73572	8	3	ESE	<2	B1	≥5000	Cloudy	None	3.7	15	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:36	14:40	40.57755	-73.73572	40.57580	-73.73777	8	8	ESE	<2	B1	≥5000	Cloudy	None	3.8	260	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	14:52	40.57580	-73.73777	40.56290	-73.73878	8	8	ESE	<2	B1	≥5000	Cloudy	None	3.5	216	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:52	14:54	40.56290	-73.73878	40.56102	-73.73895	10	8	WSW	<2	B1	≥5000	Cloudy	None	3.8	196	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:54	15:00	40.56102	-73.73895	40.55822	-73.73747	10	8	WSW	<2	B1	≥5000	Cloudy	None	3.7	197	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:13	40.55822	-73.73747	40.56472	-73.71677	13	6	SW	<2	B2	≥5000	Cloudy	None	3.8	136	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:13	15:16	40.56472	-73.71677	40.56240	-73.71463	11	6	SW	<2	B2	≥5000	Cloudy	None	4	137	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:16	15:39	40.56240	-73.71463	40.54123	-73.69607	11	6	SW	<2	B2	≥5000	Cloudy	None	3.9	158	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:39	15:41	40.54123	-73.69607	40.53940	-73.69447	15	9	SW	<2	B2	≥5000	Cloudy	None	4.1	158	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:41	16:00	40.53940	-73.69447	40.53682	-73.70928	15	9	SW	<2	B2	≥5000	Cloudy	None	4.1	160	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:11	40.53682	-73.70928	40.54603	-73.70462	17	8	W	<2	B2	≥5000	Cloudy	None	4	334	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:11	16:14	40.54603	-73.70462	40.54595	-73.70030	15	6	SW	<2	B2	≥5000	Cloudy	None	4.4	100	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:14	16:46	40.54595	-73.70030	40.54525	-73.65488	15	6	SW	<2	B2	≥5000	Cloudy	None	3.9	109	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:46	16:48	40.54525	-73.65488	40.54525	-73.65488	12	7	WNW	<2	B2	≥5000	Cloudy	None	3.8	103	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:48	16:57	40.54525	-73.65488	40.54545	-73.64237	12	7	WNW	<2	B2	≥5000	Cloudy	None	3.8	103	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:57	17:01	40.54545	-73.64237	40.54467	-73.63827	12	6	WSW	<2	B2	≥5000	Cloudy	None	3.4	117	Silent	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:01	18:00	40.54467	-73.63827	40.52977	-73.56968	12	6	WSW	<2	B2	≥5000	Cloudy	None	3.5	117	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:13	40.52977	-73.56968	40.52517	-73.54812	18	4	SW	<2	B2	≥5000	Cloudy	None	3.5	120	Full Power	N/A
2023-05-13	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:13	18:15	40.52517	-73.54812	40.52480	-73.54647	17	8	SW	<2	B2	≥5000	Cloudy	None	3.6	119	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:15	19:00	40.52480	-73.54647	40.52258	-73.54773	17	8	SW	<2	B2	≥5000	Cloudy	None	3.5	119	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:56	40.52258	-73.54773	40.50940	-73.48022	17	4	SW	<2	B2	≥5000	Cloudy	None	3.8	89	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:56	20:01	40.50940	-73.48022	40.50583	-73.47628	18	7	SSW	<2	B2	≥5000	Cloudy	None	3.6	153	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:01	20:07	40.50583	-73.47628	40.50147	-73.47155	19	9	SSW	<2	B2	≥5000	Cloudy	None	3.4	153	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:07	20:08	40.50147	-73.47155	40.50045	-73.47043	18	10	SSW	<2	B2	≥5000	Cloudy	None	3.5	154	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:08	20:31	40.50045	-73.47043	40.48423	-73.45000	18	10	SSW	<2	B2	≥5000	Cloudy	None	3.5	152	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:31	20:37	40.48423	-73.45000	40.48008	-73.44493	19	14	SSW	<2	B2	≥5000	Cloudy	None	3.5	149	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:37	21:00	40.48008	-73.44493	40.46435	-73.42602	20	14	SSW	<2	B2	≥5000	Cloudy	None	3.5	151	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:21	40.46435	-73.42602	40.44762	-73.40575	23	6	S	<2	B2	≥5000	Cloudy	None	3.6	151	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:21	21:24	40.44762	-73.40575	40.44582	-73.40338	27	7	SSW	<2	B2	≥5000	Cloudy	None	3.6	151	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:24	21:29	40.44582	-73.40338	40.44158	-73.39813	27	6	SSW	<2	B2	≥5000	Cloudy	None	3.6	151	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:29	21:31	40.44158	-73.39813	40.44028	-73.39655	27	8	SSW	<2	B2	≥5000	Cloudy	None	3.6	150	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:31	22:00	40.44028	-73.39655	40.42810	-73.37588	27	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	150	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:13	40.42810	-73.37588	40.43868	-73.39470	25	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	150	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:13	22:17	40.43868	-73.39470	40.43882	-73.39482	25	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	150	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:17	22:47	40.43882	-73.39482	40.45978	-73.41987	25	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	150	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:47	22:51	40.45978	-73.41987	40.46277	-73.42377	25	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	322	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:51	23:00	40.46277	-73.42377	40.46672	-73.42848	25	8	SSW	<2	B2	≥5000	Cloudy	None	3.7	322	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:14	40.46672	-73.42848	40.47635	-73.44010	26	13	SW	<2	B2	≥5000	Cloudy	None	3.1	327	Full Power	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:14	23:16	40.47635	-73.44010	40.47710	-73.44103	24	9	SW	<2	B2	≥5000	Cloudy	None	3	328	Silent	N/A
2023-05-13	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:16	00:00	40.47710	-73.44103	40.50182	-73.47042	24	9	SW	<2	B2	≥5000	Cloudy	None	3.1	330	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:49	40.50182	-73.47042	40.50673	-73.47832	18	13	W	<2	B2	≥5000	Cloudy	None	2.7	332	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:49	00:51	40.50673	-73.47832	40.50603	-73.47680	19	10	WNW	<2	B2	500-999	Cloudy	None	3.6	132	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:51	00:56	40.50603	-73.47680	40.50237	-73.47227	19	10	WNW	<2	B2	500-999	Cloudy	None	3.7	135	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:56	00:57	40.50237	-73.47227	40.50155	-73.47103	20	8	ESE	<2	B2	500-999	Cloudy	None	3.4	151	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:57	01:00	40.50155	-73.47103	40.49952	-73.46810	20	8	ESE	<2	B2	500-999	Cloudy	None	3.5	133	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:07	40.49952	-73.46810	40.49472	-73.46225	20	8	ESE	<2	B2	500-999	Cloudy	None	3.5	150	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:07	01:09	40.49472	-73.46225	40.49420	-73.45980	21	10	SE	<2	B2	500-999	Cloudy	None	3.4	148	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:09	01:17	40.49420	-73.45980	40.49747	-73.46440	21	9	NW	<2	B2	500-999	Cloudy	None	3.2	91	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:17	01:18	40.49747	-73.46440	40.49797	-73.46515	21	8	NNW	<2	B2	500-999	Cloudy	None	3.6	323	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:18	01:25	40.49797	-73.46515	40.50307	-73.47148	21	8	NNW	<2	B2	500-999	Cloudy	None	3.6	322	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:25	01:26	40.50307	-73.47148	40.50338	-73.47188	18	13	NNW	<2	B3	500-999	Cloudy	None	2.8	328	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:26	02:00	40.50338	-73.47188	40.52727	-73.50120	18	13	NNW	<2	B3	500-999	Cloudy	None	2.8	331	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:09	40.52727	-73.50120	40.53512	-73.51055	17	11	NNW	<2	B3	500-999	Clear	None	3.7	330	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:09	02:12	40.53512	-73.51055	40.53788	-73.51370	17	10	NNW	<2	B3	500-999	Clear	None	3.8	330	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:12	02:20	40.53788	-73.51370	40.54392	-73.52105	17	9	NNW	<2	B3	500-999	Clear	None	3.9	333	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:21	40.54392	-73.52105	40.54482	-73.52218	17	11	NNW	<2	B3	500-999	Clear	None	4.1	329	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:21	02:41	40.54482	-73.52218	40.53800	-73.51673	17	9	NNW	<2	B3	500-999	Clear	None	4	329	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:41	02:44	40.53800	-73.51673	40.53598	-73.51303	17	5	NNE	<2	B2	500-999	Clear	None	4.1	125	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:44	02:54	40.53598	-73.51303	40.52967	-73.50500	17	5	NNE	<2	B2	500-999	Clear	None	3.8	148	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:54	02:55	40.52967	-73.50500	40.52967	-73.50500	17	4	NE	<2	B2	500-999	Clear	None	3.2	141	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:55	03:00	40.52967	-73.50500	40.52703	-73.50153	17	4	NE	<2	B2	500-999	Clear	None	3.2	141	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:24	40.52703	-73.50153	40.51100	-73.48203	17	5	NE	<2	B2	500-999	Clear	None	3.2	146	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:24	03:25	40.51100	-73.48203	40.51100	-73.48203	17	5	N	<2	B2	500-999	Clear	None	3	139	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:25	04:00	40.51100	-73.48203	40.48515	-73.45095	17	5	N	<2	B2	500-999	Clear	None	3	139	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:03	40.48515	-73.45095	40.48348	-73.44903	19	7	N	<2	B2	500-999	Clear	None	3.7	141	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:03	04:08	40.48348	-73.44903	40.47993	-73.44477	19	7	N	<2	B2	500-999	Clear	None	3.6	141	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:08	04:15	40.47993	-73.44477	40.47445	-73.43810	19	7	N	<2	B2	500-999	Clear	None	3.7	141	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:15	04:16	40.47445	-73.43810	40.47445	-73.43810	19	4	N	<2	B2	500-999	Clear	None	3.8	140	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:16	04:26	40.47445	-73.43810	40.46602	-73.42782	19	4	N	<2	B2	500-999	Clear	None	3.8	140	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:26	04:28	40.46602	-73.42782	40.46602	-73.42782	24	4	N	<2	B2	500-999	Clear	None	3.7	139	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:28	05:00	40.46602	-73.42782	40.47953	-73.43135	24	4	N	<2	B2	500-999	Clear	None	3.7	139	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:14	40.47953	-73.43135	40.48465	-73.45013	23	8	WNW	<2	B2	500-999	Clear	None	4.3	330	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:14	05:16	40.48465	-73.45013	40.48362	-73.44888	20	7	NW	<2	B3	500-999	Clear	None	3.7	150	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:16	06:00	40.48362	-73.44888	40.45192	-73.41005	20	7	NW	<2	B3	500-999	Clear	None	3.7	138	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:23	40.45192	-73.41005	40.43178	-73.38573	20	7	NW	<2	B3	500-999	Clear	None	3.7	138	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:23	06:25	40.43178	-73.38573	40.43160	-73.38558	20	7	NW	<2	B3	500-999	Clear	None	3.7	138	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:25	07:00	40.43160	-73.38558	40.45013	-73.39640	20	7	NW	<2	B3	500-999	Clear	None	3.7	138	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:00	07:35	40.45013	-73.39640	40.46383	-73.42473	25	10	NW	<2	B3	500-999	Clear	None	3.2	329	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:35	07:38	40.46383	-73.42473	40.46148	-73.42238	25	13	E	<2	B3	500-999	Clear	None	3.9	166	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:38	08:00	40.46148	-73.42238	40.44515	-73.40243	25	14	E	<2	B3	500-999	Clear	None	3.7	152	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:04	40.44515	-73.40243	40.44100	-73.39767	27	15	E	<2	B4	500-999	Clear	None	3.6	135	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:04	08:06	40.44100	-73.39767	40.44100	-73.39767	27	15	E	<2	B4	500-999	Clear	None	3.7	136	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:06	08:22	40.44100	-73.39767	40.43928	-73.39280	27	15	E	<2	B4	500-999	Clear	None	3.7	136	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:22	08:26	40.43928	-73.39280	40.43828	-73.39105	27	20	E	<2	B4	500-999	Clear	None	3.1	140	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:26	09:00	40.43828	-73.39105	40.40760	-73.35375	27	20	E	<2	B4	500-999	Clear	None	3.1	140	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:37	40.40760	-73.35375	40.38293	-73.32418	27	16	E	<2	B4	500-999	Clear	None	3.1	140	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:37	10:00	40.38293	-73.32418	40.36798	-73.30610	30	17	NE	<2	B4	≥5000	Cloudy	None	3.6	130	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	10:52	40.36798	-73.30610	40.33092	-73.26150	30	13	NE	<2	B4	≥5000	Cloudy	Moderate	3.4	130	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:52	10:54	40.33092	-73.26150	40.32988	-73.26032	34	10	SW	<2	B4	≥5000	Cloudy	Moderate	3.5	134	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:54	11:00	40.32988	-73.26032	40.32805	-73.25478	31	10	SW	<2	B4	≥5000	Cloudy	Moderate	3.5	156	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:04	40.32805	-73.25478	40.32942	-73.24790	31	16	S	<2	B4	≥5000	Cloudy	Moderate	3.6	81	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:04	11:08	40.32942	-73.24790	40.32885	-73.24257	35	10	S	<2	B4	≥5000	Cloudy	Severe	3.8	93	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:08	11:14	40.32885	-73.24257	40.32750	-73.23362	30	15	SE	<2	B4	≥5000	Cloudy	Moderate	3.8	115	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:14	11:16	40.32750	-73.23362	40.32725	-73.23192	30	13	E	<2	B5	≥5000	Cloudy	Moderate	3.6	115	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:16	11:48	40.32725	-73.23192	40.32933	-73.24433	30	13	SE	<2	B5	≥5000	Cloudy	Moderate	3.5	115	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:48	11:54	40.32933	-73.24433	40.32748	-73.23755	30	18	SE	<2	B5	≥5000	Cloudy	Moderate	3.5	125	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:54	12:35	40.32748	-73.23755	40.31417	-73.18715	30	16	SE	<2	B5	≥5000	Cloudy	Severe	3.5	118	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:35	12:37	40.31417	-73.18715	40.31377	-73.18573	33	11	SE	<2	B5	≥5000	Cloudy	Severe	3.2	121	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:37	12:59	40.31377	-73.18573	40.31668	-73.31668	33	11	SE	<2	B5	≥5000	Cloudy	Severe	3.5	122	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:59	13:03	40.31668	-73.31668	40.31670	-73.15507	36	15	ESE	<2	B5	≥5000	Cloudy	Severe	3.6	104	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:03	13:15	40.31670	-73.15507	40.31672	-73.14097	36	18	ESE	<2	B5	≥5000	Cloudy	Severe	3.5	104	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:15	13:16	40.31672	-73.14097	40.31667	-73.13893	37	14	E	<2	B5	≥5000	Cloudy	Moderate	3.6	97	Silent	N/A
2023-05-14	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:16	13:48	40.31667	-73.13893	40.31638	-73.14392	37	14	E	<2	B5	≥5000	Cloudy	Moderate	3.3	107	Full Power	N/A
2023-05-14	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:48	13:54	40.31638	-73.14392	40.31628	-73.15143	37	10	E	<2	B5	≥5000	Cloudy	Moderate	3.9	283	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:54	14:00	40.31628	-73.15143	40.31627	-73.15368	37	10	ENE	<2	B5	≥5000	Cloudy	Moderate	3.7	282	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:05	40.31627	-73.15368	40.31627	-73.15368	38	12	ENE	<2	B5	≥5000	Cloudy	Severe	3.7	280	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:05	14:07	40.31627	-73.15368	40.31617	-73.16815	38	12	NE	<2	B5	≥5000	Cloudy	Severe	3.7	280	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:07	15:00	40.31617	-73.16815	40.32070	-73.13873	38	12	NE	<2	B5	≥5000	Cloudy	Severe	3.6	279	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:04	40.32070	-73.13873	40.31893	-73.13128	36	13	E	<2	B4	≥5000	Cloudy	Moderate	3.4	117	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:04	15:12	40.31893	-73.13128	40.31712	-73.12355	37	12	E	<2	B4	≥5000	Cloudy	Moderate	3.3	122	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	16:00	40.31712	-73.12355	40.30463	-73.07157	37	13	E	<2	B4	≥5000	Cloudy	Moderate	3.3	119	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:19	40.30463	-73.07157	40.29845	-73.04645	38	12	ESE	<2	B4	≥5000	Clear	Moderate	3.3	120	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:19	16:21	40.29845	-73.04645	40.29845	-73.04645	40	10	ESE	<2	B4	≥5000	Clear	Moderate	3.3	120	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:21	17:00	40.29845	-73.04645	40.30097	-73.02317	40	10	ESE	<2	B4	≥5000	Clear	Moderate	3.3	120	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:13	40.30097	-73.02317	40.29840	-73.04275	40	2	S	<2	B3	≥5000	Clear	Moderate	4.5	277	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:13	17:18	40.29840	-73.04275	40.29958	-73.04812	40	4	S	<2	B3	≥5000	Clear	Moderate	3.8	305	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:18	18:00	40.29958	-73.04812	40.31188	-73.09875	40	4	S	<2	B3	≥5000	Clear	Moderate	3.9	297	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:19	40.31188	-73.09875	40.31880	-73.12713	40	6	SW	<2	B3	≥5000	Clear	Slight	3.7	300	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:19	18:22	40.31880	-73.12713	40.31963	-73.13038	40	8	SW	<2	B3	≥5000	Clear	Slight	3.6	301	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:22	18:49	40.31963	-73.13038	40.31770	-73.12578	40	8	SW	<2	B3	≥5000	Clear	Slight	3.6	302	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:49	18:53	40.31770	-73.12578	40.31655	-73.12030	40	8	S	<2	B3	≥5000	Clear	Slight	3.6	115	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:53	19:00	40.31655	-73.12030	40.31423	-73.11052	40	8	S	<2	B3	≥5000	Clear	Slight	3.8	119	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:02	40.31423	-73.11052	40.31377	-73.10863	39	9	S	<2	B3	≥5000	Clear	Slight	3.9	120	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:02	19:05	40.31377	-73.10863	40.31270	-73.10415	39	9	S	<2	B3	≥5000	Clear	Slight	3.7	121	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:05	19:11	40.31270	-73.10415	40.31083	-73.09657	39	9	S	<2	B3	≥5000	Clear	Slight	4	121	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:11	19:49	40.31083	-73.09657	40.29818	-73.04490	39	9	S	<2	B3	≥5000	Clear	Slight	3.9	119	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:49	19:50	40.29818	-73.04490	40.29768	-73.04273	40	11	S	<2	B3	≥5000	Clear	Moderate	4.1	124	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:50	20:18	40.29768	-73.04273	40.29907	-73.04322	40	11	S	<2	B3	≥5000	Clear	Moderate	4.1	120	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:18	20:23	40.29907	-73.04322	40.30037	-73.04880	40	9	SW	<2	B3	≥5000	Clear	Severe	3.6	291	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:23	21:00	40.30037	-73.04880	40.31112	-73.09312	40	9	SW	<2	B3	≥5000	Clear	Severe	3.6	303	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:25	40.31112	-73.09312	40.31942	-73.12712	39	4	SSW	<2	B3	≥5000	Clear	Severe	3.7	300	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:25	21:27	40.31942	-73.12712	40.32018	-73.13013	38	4	SSW	<2	B3	≥5000	Clear	Severe	3.7	301	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:27	21:35	40.32018	-73.13013	40.31657	-73.13748	38	7	SSW	<2	B3	≥5000	Clear	Severe	3.8	301	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:35	21:37	40.31657	-73.13748	40.31667	-73.13962	38	12	SW	<2	B3	≥5000	Clear	Severe	3.5	278	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:37	21:44	40.31667	-73.13962	40.31660	-73.15147	38	11	SW	<2	B3	≥5000	Clear	Severe	3.4	277	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:44	21:46	40.31660	-73.15147	40.31660	-73.15147	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:46	22:00	40.31660	-73.15147	40.31582	-73.18645	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:10	40.31582	-73.18645	40.31610	-73.18715	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:10	22:15	40.31610	-73.18715	40.31685	-73.18998	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:15	22:56	40.31685	-73.18998	40.33060	-73.24293	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:56	22:58	40.33060	-73.24293	40.33068	-73.24318	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:58	23:00	40.33068	-73.24318	40.33062	-73.24280	38	11	SSW	<2	B3	≥5000	Clear	Severe	3.7	285	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:35	40.33062	-73.24280	40.32808	-73.22582	37	10	WSW	<2	B3	≥5000	Clear	Severe	3.6	299	Full Power	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:35	23:39	40.32808	-73.22582	40.32882	-73.23045	34	8	WSW	<2	B3	≥5000	Clear	Slight	3.3	300	Silent	N/A
2023-05-14	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:39	00:00	40.32882	-73.23045	40.33207	-73.25132	34	8	WSW	<2	B3	≥5000	Clear	Slight	3.6	296	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:00	00:11	40.33207	-73.25132	40.33543	-73.27097	34	11	WSW	<2	B3	≥5000	Clear	None	3.6	293	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:11	00:13	40.33543	-73.27097	40.33615	-73.27532	34	10	W	<2	B3	≥5000	Clear	None	3.6	297	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:13	00:51	40.33615	-73.27532	40.32910	-73.25873	34	10	WNW	<2	B3	≥5000	Clear	None	3.6	296	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:51	00:55	40.32910	-73.25873	40.33217	-73.26248	33	10	W	<2	B3	500-999	Clear	None	3.4	333	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:55	01:00	40.33217	-73.26248	40.33383	-73.26450	33	10	W	<2	B3	500-999	Clear	None	3.6	332	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.33383	-73.26450	40.37863	-73.31868	33	10	W	<2	B3	500-999	Clear	None	3.6	331	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.37863	-73.31868	40.42013	-73.36885	33	10	W	<2	B3	500-999	Clear	None	3.6	330	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:23	40.42013	-73.36885	40.44158	-73.39487	33	8	WNW	<2	B3	500-999	Clear	None	3.1	330	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:23	03:25	40.44158	-73.39487	40.44185	-73.39525	33	8	WNW	<2	B3	500-999	Clear	None	3.1	330	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:25	04:00	40.44185	-73.39525	40.43262	-73.38483	33	8	WNW	<2	B3	500-999	Clear	None	3.1	330	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:01	40.43262	-73.38483	40.43262	-73.38483	27	10	NNW	<2	B3	500-999	Clear	None	3.5	342	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:01	04:05	40.43262	-73.38483	40.43498	-73.38762	27	10	NNW	<2	B3	500-999	Clear	None	3.5	342	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:05	05:00	40.43498	-73.38762	40.46632	-73.42562	27	10	NNW	<2	B3	500-999	Clear	None	3.7	333	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.46632	-73.42562	40.51270	-73.48208	26	10	NNW	<2	B3	500-999	Clear	None	3	330	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:35	40.51270	-73.48208	40.54360	-73.51947	26	14	NNW	<2	B3	500-999	Clear	None	3	330	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:35	06:36	40.54360	-73.51947	40.54468	-73.52065	16	7	N	<2	B3	500-999	Clear	None	3.5	332	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	06:36	07:00	40.54468	-73.52065	40.54703	-73.50247	16	8	N	<2	B3	500-999	Clear	None	3.6	331	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.54703	-73.50247	40.53200	-73.50197	19	7	N	<2	B3	500-999	Clear	None	3.8	156	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:20	07:25	40.53200	-73.50197	40.53073	-73.50790	16	3	N	<2	B3	500-999	Clear	None	3.8	271	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:25	08:00	40.53073	-73.50790	40.52253	-73.54830	16	5	N	<2	B3	500-999	Clear	None	3.8	268	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:01	40.52253	-73.54830	40.52103	-73.55620	18	7	NW	<2	B3	500-999	Clear	None	3.7	261	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:01	08:03	40.52103	-73.55620	40.52070	-73.55775	18	7	NW	<2	B3	500-999	Clear	None	3.7	260	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:03	08:36	40.52070	-73.55775	40.52615	-73.55243	18	7	NW	<2	B3	500-999	Clear	None	3.7	260	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:36	08:43	40.52615	-73.55243	40.52648	-73.55385	18	9	NNW	<2	B3	500-999	Clear	None	3.8	300	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:43	09:37	40.52648	-73.55385	40.54065	-73.61878	18	9	NNW	<2	B3	500-999	Clear	None	3.8	300	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:37	09:53	40.54065	-73.61878	40.54503	-73.63955	12	8	N	<2	B3	≥5000	Clear	None	4.1	294	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:53	09:55	40.54503	-73.63955	40.54503	-73.63955	12	9	N	<2	B3	≥5000	Clear	Severe	4	295	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:55	10:29	40.54503	-73.63955	40.54485	-73.64327	12	9	N	<2	B3	≥5000	Clear	Severe	4	295	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:29	10:32	40.54485	-73.64327	40.54380	-73.63793	12	6	E	<2	B3	≥5000	Clear	Severe	4.1	105	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:32	11:00	40.54380	-73.63793	40.53592	-73.60145	12	6	E	<2	B3	≥5000	Clear	Severe	4.2	109	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:34	40.53592	-73.60145	40.52480	-73.55075	16	6	NE	<2	B3	≥5000	Clear	Severe	4.3	117	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:34	11:36	40.52480	-73.55075	40.52438	-73.54892	18	8	NNE	<2	B3	≥5000	Clear	Severe	3.6	120	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:36	12:30	40.52438	-73.54892	40.51965	-73.53840	19	7	NNE	<2	B3	≥5000	Clear	Severe	3.5	119	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:30	13:00	40.51965	-73.53840	40.51922	-73.55823	20	5	N	<2	B2	≥5000	Clear	Severe	2.8	244	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:03	40.51922	-73.55823	40.51975	-73.55503	20	3	N	<2	B2	≥5000	Clear	Severe	3.9	90	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:03	13:08	40.51975	-73.55503	40.52082	-73.55017	20	3	N	<2	B2	≥5000	Clear	Severe	3.9	86	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:08	13:40	40.52082	-73.55017	40.53003	-73.50455	20	3	N	<2	B2	≥5000	Clear	Severe	4.1	88	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:40	13:41	40.53003	-73.50455	40.53033	-73.50302	18	2	SW	<2	B2	≥5000	Clear	Severe	4	87	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:41	14:00	40.53033	-73.50302	40.53525	-73.48860	18	2	SW	<2	B2	≥5000	Clear	Severe	4	91	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:10	40.53525	-73.48860	40.53288	-73.50248	16	3	W	<2	B2	≥5000	Clear	Moderate	2.7	288	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:10	14:15	40.53288	-73.50248	40.53168	-73.50870	19	10	W	<2	B2	≥5000	Clear	Moderate	3.5	265	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:15	14:56	40.53168	-73.50870	40.52187	-73.55713	19	10	W	<2	B2	≥5000	Clear	Moderate	3.5	260	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:56	14:58	40.52187	-73.55713	40.52108	-73.56125	19	16	WSW	<2	B3	≥5000	Cloudy	Slight	3.6	269	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:58	15:00	40.52108	-73.56125	40.52067	-73.56357	19	16	WSW	<2	B3	≥5000	Cloudy	Slight	3.6	268	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:34	40.52067	-73.56357	40.52413	-73.54830	19	16	WSW	<2	B3	≥5000	Cloudy	Slight	3.6	269	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:34	15:39	40.52413	-73.54830	40.52543	-73.55428	17	16	WSW	<2	B4	≥5000	Cloudy	Slight	3.3	298	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:39	16:00	40.52543	-73.55428	40.53042	-73.57700	17	16	WSW	<2	B4	≥5000	Cloudy	Slight	3.5	298	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:45	40.53042	-73.57700	40.54433	-73.64080	16	8	WSW	<2	B3	≥5000	Cloudy	None	3.7	298	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:45	16:47	40.54433	-73.64080	40.54465	-73.64222	12	8	WSW	<2	B3	≥5000	Cloudy	Slight	3.9	300	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:47	17:00	40.54465	-73.64222	40.55323	-73.63713	12	9	W	<2	B3	≥5000	Cloudy	Slight	3.9	299	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:25	40.55323	-73.63713	40.54368	-73.62823	11	11	WSW	<2	B3	≥5000	Cloudy	Slight	4.2	106	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:25	17:28	40.54368	-73.62823	40.54383	-73.63237	13	18	W	<2	B4	≥5000	Cloudy	Slight	3.5	282	Silent	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:28	17:54	40.54383	-73.63237	40.54667	-73.66652	13	15	W	<2	B4	≥5000	Cloudy	Slight	3.6	288	Full Power	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:54	18:00	40.54667	-73.66652	40.54735	-73.67375	15	18	W	<2	B4	≥5000	Cloudy	Slight	3.5	290	Deploying/Retrieving	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:28	40.54735	-73.67375	40.55082	-73.70505	14	16	SW	<2	B4	≥5000	Cloudy	Slight	3.6	291	Deploying/Retrieving	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:28	18:59	40.55082	-73.70505	40.54263	-73.74567	14	11	SW	<2	B4	≥5000	Cloudy	Slight	2.2	292	Standby	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:59	20:00	40.54263	-73.74567	40.50415	-73.94395	16	20	SSW	<2	B4	≥5000	Cloudy	Slight	4.6	266	Transit	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.50415	-73.94395	40.67397	-74.03992	8	24	W	<2	B5	≥5000	Cloudy	Severe	10	280	Transit	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.67397	-74.03992	40.79152	-73.91308	12	4	SW	<2	B3	≥5000	Clear	Severe	10.4	41	Transit	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.79152	-73.91308	40.85957	-73.74825	18	4	SW	<2	B1	≥5000	Clear	Moderate	8.2	40	Transit	N/A
2023-05-15	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	00:00	40.85957	-73.74825	40.94935	-73.58363	18	6	NW	<2	B2	≥5000	Clear	Severe	9.5	44	Transit	N/A
2023-05-16	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:04	40.94935	-73.58363	40.95225	-73.57380	17	6	SSW	<2	B2	≥5000	Clear	None	9.5	81	Transit	N/A
2023-05-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:04	01:00	40.95225	-73.57380	41.00767	-73.40123	17	5	SSW	<2	B2	≥5000	Clear	None	9.5	82	Transit	N/A
2023-05-16	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	41.00767	-73.40123	41.10292	-73.22305	28	4	SW	<2	B2	500-999	Clear	None	9.5	78	Transit	N/A
2023-05-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:35	41.10292	-73.22305	41.17018	-73.17528	16	9	SW	<2	B2	500-999	Clear	None	9.8	67	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:50	10:00	41.17043	-73.17548	41.13520	-73.18663	8	8	N	<2	B3	≥5000	Clear	None	0.1	317	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	11:00	41.13520	-73.18663	41.06475	-73.30302	8	9	NW	<2	B3	≥5000	Cloudy	Severe	8.2	205	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	41.06475	-73.30302	40.97882	-73.50775	12	9	NNW	<2	B4	≥5000	Clear	Severe	9.8	253	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.97882	-73.50775	40.89418	-73.70012	22	17	NNW	<2	B5	≥5000	Clear	Severe	9.8	254	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.89418	-73.70012	40.80388	-73.82192	21	6	NNW	<2	B5	≥5000	Clear	Severe	9.3	250	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.80388	-73.82192	40.70477	-73.99892	23	6	NW	<2	B5	≥5000	Clear	Severe	9.6	274	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.70477	-73.99892	40.55195	-74.02940	16	6	W	<2	B3	≥5000	Clear	Moderate	11.4	245	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.55195	-74.02940	40.51277	-73.86840	16	6	N	<2	B3	≥5000	Clear	Slight	9.4	179	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.51277	-73.86840	40.55533	-73.72805	13	9	ENE	<2	B3	≥5000	Clear	Slight	7.5	66	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:39	40.55533	-73.72805	40.55447	-73.68338	14	16	ENE	<2	B3	≥5000	Clear	Slight	3.8	102	Transit	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:39	19:00	40.55447	-73.68338	40.53407	-73.67498	13	6	NW	<2	B3	≥5000	Clear	Slight	3.8	131	Deploying/Retrieving	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:35	40.53407	-73.67498	40.50675	-73.66937	16	10	N	<2	B3	≥5000	Clear	Moderate	3.6	181	Deploying/Retrieving	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:35	19:48	40.50675	-73.66937	40.49812	-73.66703	17	9	NNW	<2	B3	≥5000	Clear	Severe	2.5	183	Standby	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:48	19:58	40.49812	-73.66703	40.49147	-73.66297	18	11	NNW	<2	B4	≥5000	Clear	Severe	2.3	180	Soft Start	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:58	21:00	40.49147	-73.66297	40.52575	-73.68193	19	11	NNW	<2	B4	≥5000	Clear	Severe	3.3	119	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:16	40.52575	-73.68193	40.53843	-73.69347	16	25	NNW	<2	B4	≥5000	Clear	Severe	3.6	333	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:16	21:21	40.53843	-73.69347	40.54230	-73.69688	16	19	NNW	<2	B4	≥5000	Clear	Severe	3.8	342	Silent	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:21	21:46	40.54230	-73.69688	40.56448	-73.71617	16	25	N	<2	B4	≥5000	Clear	Severe	3.7	338	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:46	21:50	40.56448	-73.71617	40.56690	-73.71835	12	23	N	<2	B4	≥5000	Clear	Severe	3.7	341	Silent	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:50	22:00	40.56690	-73.71835	40.57032	-73.72765	12	18	N	<2	B4	≥5000	Clear	Severe	3.7	341	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:56	40.57032	-73.72765	40.56493	-73.71477	12	14	NNW	<2	B3	≥5000	Clear	Severe	3.8	280	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:56	23:00	40.56493	-73.71477	40.56502	-73.71473	12	12	NNW	<2	B3	≥5000	Clear	None	3.8	280	Silent	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:28	40.56502	-73.71473	40.54103	-73.69412	12	12	NNW	<2	B3	≥5000	Clear	None	3.4	161	Full Power	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:28	23:31	40.54103	-73.69412	40.53945	-13.69282	16	14	N	<2	B3	≥5000	Clear	None	3.3	163	Silent	N/A
2023-05-17	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:31	00:00	40.53945	-73.69282	40.55183	-73.69682	16	14	N	<2	B4	≥5000	Clear	None	3.3	155	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:06	40.55183	-73.69682	40.55190	-73.70492	14	13	N	<2	B3	≥5000	Clear	None	3.8	307	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:06	00:59	40.55190	-73.70492	40.56178	-73.69843	13	14	NNW	<2	B3	2000-4999	Clear	None	3.9	239	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:59	01:00	40.56178	-73.69843	40.56270	-73.70555	12	13	NNW	<2	B3	500-999	Clear	None	3.6	297	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:02	40.56270	-73.70555	40.56303	-73.70948	13	14	NNW	<2	B3	500-999	Clear	None	3.7	289	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:02	02:00	40.56303	-73.70948	40.56920	-73.78167	13	14	NNW	<2	B3	500-999	Clear	None	3.8	290	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:07	40.56920	-73.78167	40.56998	-73.79180	10	11	N	<2	B3	500-999	Clear	None	3.5	287	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:07	02:09	40.56998	-73.79180	40.57005	-73.79457	10	7	N	<2	B3	500-999	Clear	None	3.5	282	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:09	02:56	40.57005	-73.79457	40.57018	-73.79455	10	8	N	<2	B3	500-999	Clear	None	3.6	283	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:56	03:00	40.57018	-73.79455	40.56963	-73.78795	8	18	N	<2	B4	500-999	Clear	None	4.1	99	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:01	40.56963	-73.78795	40.56963	-73.78795	8	18	N	<2	B4	500-999	Clear	None	4.1	96	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:01	03:57	40.56963	-73.78795	40.56252	-73.70275	8	18	N	<2	B4	500-999	Clear	None	4.1	96	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:57	03:59	40.56252	-73.70275	40.56228	-73.69882	12	16	N	<2	B4	500-999	Clear	None	4.2	95	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:59	04:55	40.56228	-73.69882	40.56255	-73.70270	12	16	N	<2	B4	500-999	Clear	None	4.2	96	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:55	04:59	40.56255	-73.70270	40.56310	-73.70812	12	12	N	<2	B4	500-999	Clear	None	3.7	287	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	04:59	05:59	40.56310	-73.70812	40.57018	-73.79110	12	7	N	<2	B4	500-999	Clear	None	3.7	289	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	05:59	06:01	40.57018	-73.79110	40.57025	-73.79515	12	12	N	<2	B4	500-999	Clear	None	3.7	290	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:01	06:40	40.57025	-73.79515	40.56692	-73.78925	12	12	N	<2	B4	500-999	Clear	None	3.7	290	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:40	06:44	40.56692	-73.78925	40.56673	-73.78713	12	12	N	<2	B4	500-999	Clear	None	3.7	290	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:44	07:43	40.56673	-73.78713	40.55980	-73.70565	12	12	N	<2	B4	500-999	Clear	None	3.7	290	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:43	07:45	40.55980	-73.70565	40.55970	-73.70498	12	12	N	<2	B4	500-999	Clear	None	3.8	110	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:45	08:00	40.55970	-73.70498	40.56905	-73.69933	12	12	N	<2	B4	500-999	Clear	None	3.8	110	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:13	40.56905	-73.69933	40.56540	-73.71418	12	12	N	<2	B4	500-999	Clear	None	4.1	330	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:13	08:17	40.56540	-73.71418	40.56355	-73.71283	14	8	N	<2	B3	500-999	Clear	None	3.8	164	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:17	08:42	40.56355	-73.71283	40.54213	-73.69398	14	8	N	<2	B3	500-999	Clear	None	3.8	164	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:42	08:43	40.54213	-73.69398	40.54187	-73.69388	14	8	N	<2	B3	500-999	Clear	None	3.2	160	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:43	09:30	40.54187	-73.69388	40.54440	-73.69657	14	8	N	<2	B3	500-999	Clear	None	3.2	160	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:30	09:33	40.54440	-73.69657	40.54440	-73.69657	18	9	N	<2	B4	≥5000	Clear	None	3.9	345	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:33	09:55	40.54440	-73.69657	40.56515	-73.71460	18	9	N	<2	B4	≥5000	Clear	None	3.9	345	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:55	09:57	40.56515	-73.71460	40.56677	-73.71607	13	14	NNE	<2	B4	≥5000	Clear	Severe	4	340	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:57	10:22	40.56677	-73.71607	40.56488	-73.71757	13	14	NNE	<2	B4	≥5000	Clear	Severe	4	340	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:22	10:25	40.56488	-73.71757	40.56175	-73.71483	12	10	NNE	<2	B4	≥5000	Clear	Severe	3.5	144	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:25	10:54	40.56175	-73.71483	40.54088	-73.69665	12	10	NNE	<2	B4	≥5000	Clear	Severe	3.2	137	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:54	10:56	40.54088	-73.69665	40.53995	-73.69588	16	7	NNE	<2	B4	≥5000	Clear	Severe	3	139	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:56	11:00	40.53995	-73.69588	40.53530	-73.69212	16	6	NNE	<2	B4	≥5000	Clear	Severe	3.1	161	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:32	40.53530	-73.69212	40.53968	-73.69415	16	8	NE	<2	B4	≥5000	Clear	Severe	3.3	166	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:32	11:36	40.53968	-73.69415	40.54330	-73.69723	9	3	NE	<2	B4	≥5000	Clear	Severe	3.8	339	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:36	11:58	40.54330	-73.69723	40.56390	-73.71525	9	8	NE	<2	B4	≥5000	Clear	Severe	3.8	342	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:58	12:00	40.56390	-73.71525	40.56523	-73.71643	10	8	NE	<2	B4	≥5000	Clear	Severe	4	337	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:39	40.56523	-73.71643	40.56165	-73.70453	10	8	NE	<2	B4	≥5000	Clear	Severe	4	339	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:39	12:42	40.56165	-73.70453	40.56215	-73.71022	18	8	NE	<2	B4	≥5000	Clear	Severe	4.6	289	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:42	13:00	40.56215	-73.71022	40.56415	-73.73345	18	9	NE	<2	B4	≥5000	Clear	Severe	4.1	288	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:44	40.56415	-73.73345	40.56905	-73.79060	12	11	ESE	<2	B4	≥5000	Clear	Severe	3.1	290	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:44	13:46	40.56905	-73.79060	40.56915	-73.79200	9	7	SE	<2	B4	≥5000	Clear	Moderate	3.8	292	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:46	14:00	40.56915	-73.79200	40.56495	-73.79978	9	8	SE	<2	B4	≥5000	Clear	Moderate	3.8	289	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:11	40.56495	-73.79978	40.56497	-73.78748	12	13	E	<2	B4	≥5000	Clear	Severe	3.7	167	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:11	14:15	40.56497	-73.78748	40.56932	-73.78670	10	13	E	<2	B4	≥5000	Clear	Moderate	3.8	13	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:15	14:24	40.56932	-73.78670	40.57723	-73.78522	10	13	E	<2	B4	≥5000	Clear	Moderate	3.8	16	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:24	14:25	40.57723	-73.78522	40.57905	-73.78565	8	14	E	<2	B4	≥5000	Clear	Moderate	3.7	16	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:25	14:57	40.57905	-73.78565	40.56292	-73.78820	8	14	E	<2	B4	≥5000	Clear	Moderate	3.3	313	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:57	15:00	40.56292	-73.78820	40.56663	-73.78682	10	15	ESE	<2	B4	≥5000	Clear	Moderate	3.8	52	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:01	40.56663	-73.78682	40.56792	-73.78660	10	15	ESE	<2	B4	≥5000	Clear	Moderate	3.8	20	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:01	15:10	40.56792	-73.78660	40.57703	-73.78485	10	15	ESE	<2	B4	≥5000	Clear	Moderate	3.9	18	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:10	15:12	40.57703	-73.78485	40.57890	-73.78480	9	10	ESE	<2	B4	≥5000	Clear	Moderate	3.8	19	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	15:35	40.57890	-73.78480	40.57900	-73.78285	9	10	ESE	<2	B4	≥5000	Clear	Moderate	3.6	0	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:35	15:39	40.57900	-73.78285	40.57687	-73.78515	9	9	SE	<2	B4	≥5000	Clear	Moderate	3.7	264	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:39	15:48	40.57687	-73.78515	40.56710	-73.78685	9	9	SE	<2	B4	≥5000	Clear	Moderate	3.1	198	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:48	15:52	40.56710	-73.78685	40.56533	-73.78717	10	14	SE	<2	B4	≥5000	Clear	Moderate	3.6	196	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:52	16:00	40.56533	-73.78717	40.55633	-73.78882	10	14	SE	<2	B4	≥5000	Clear	Moderate	3.7	203	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:12	40.55633	-73.78882	40.56300	-73.78253	12	10	ESE	<2	B4	≥5000	Clear	Moderate	3.9	200	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:12	16:17	40.56300	-73.78253	40.56763	-73.78167	10	10	SE	<2	B4	≥5000	Clear	Moderate	3.9	18	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:17	16:26	40.56763	-73.78167	40.57797	-73.77972	10	10	SE	<2	B4	≥5000	Clear	Moderate	3.9	21	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:26	16:29	40.57797	-73.77972	40.58003	-73.77938	10	10	SE	<2	B4	≥5000	Clear	Moderate	3.9	21	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:29	16:38	40.58003	-73.77938	40.58132	-73.78505	10	10	SSE	<2	B4	≥5000	Clear	Moderate	3.8	17	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:38	16:43	40.58132	-73.78505	40.57767	-73.78427	8	15	SE	<2	B4	≥5000	Clear	Slight	3.6	188	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:43	16:52	40.57767	-73.78427	40.56712	-73.78638	8	8	SSE	<2	B4	≥5000	Clear	Slight	3.5	197	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:52	16:54	40.56712	-73.78638	40.56498	-73.78702	10	9	SSE	<2	B4	≥5000	Clear	Slight	3.6	205	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:54	16:57	40.56498	-73.78702	40.56348	-73.78333	10	9	SSW	<2	B4	≥5000	Clear	Slight	3.7	206	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:57	17:15	40.56348	-73.78333	40.56818	-73.78257	10	6	SSE	<2	B4	≥5000	Clear	Slight	3.9	20	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:15	17:24	40.56818	-73.78257	40.57732	-73.78082	10	11	SE	<2	B4	≥5000	Clear	Slight	4	21	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:24	17:26	40.57732	-73.78082	40.57998	-73.78215	8	8	SSE	<2	B4	≥5000	Clear	Slight	3.9	23	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:26	17:31	40.57998	-73.78215	40.57830	-73.78543	8	9	SSE	<2	B4	≥5000	Clear	Slight	3.6	309	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:31	17:32	40.57830	-73.78543	40.57728	-73.78573	8	8	SSE	<2	B4	≥5000	Clear	Slight	3.5	208	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:32	17:41	40.57728	-73.78573	40.56783	-73.78760	8	10	SSE	<2	B4	≥5000	Clear	Slight	3.7	203	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:41	17:43	40.56783	-73.78760	40.56603	-73.78838	10	11	SSE	<2	B4	≥5000	Clear	Slight	3.8	205	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:43	18:00	40.56603	-73.78838	40.56273	-73.78330	10	10	SSE	<2	B4	≥5000	Clear	Slight	3.8	218	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:03	40.56273	-73.78330	40.56887	-73.78212	10	9	SSE	<2	B4	≥5000	Clear	Slight	4.1	19	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:03	18:12	40.56887	-73.78212	40.57745	-73.78040	10	9	SSE	<2	B4	≥5000	Clear	Slight	4	22	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:12	18:14	40.57745	-73.78040	40.57928	-73.78107	8	8	S	<2	B4	≥5000	Clear	Slight	3.4	27	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:14	18:20	40.57928	-73.78107	40.57928	-73.78107	8	8	S	<2	B4	≥5000	Clear	Slight	3.7	330	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:21	40.57928	-73.78107	40.57718	-73.78553	8	17	SSE	<2	B4	≥5000	Clear	Moderate	3.4	191	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:21	18:31	40.57718	-73.78553	40.56627	-73.78740	8	17	SSE	<2	B4	≥5000	Clear	Moderate	3.4	191	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:31	18:32	40.56627	-73.78740	40.56490	-73.78778	10	17	SSE	<2	B4	≥5000	Clear	Moderate	3.6	200	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:32	18:46	40.56490	-73.78778	40.56245	-73.78298	10	17	SSE	<2	B4	≥5000	Clear	Moderate	3.6	215	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:46	18:51	40.56245	-73.78298	40.56778	-73.78193	11	8	S	<2	B4	≥5000	Clear	Moderate	4.1	22	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:51	19:00	40.56778	-73.78193	40.57770	-73.77998	11	8	S	<2	B4	≥5000	Clear	Moderate	3.9	20	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:02	40.57770	-73.77998	40.57952	-73.78038	8	10	SSE	<2	B4	≥5000	Clear	Severe	3.8	27	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:02	19:08	40.57952	-73.78038	40.57850	-73.78540	8	10	SSE	<2	B4	≥5000	Clear	Severe	3.7	342	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:08	19:10	40.57850	-73.78540	40.57620	-73.78515	8	15	SSW	<2	B4	≥5000	Clear	Severe	3.2	195	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:10	19:18	40.57620	-73.78515	40.56715	-73.78645	8	15	SSW	<2	B4	≥5000	Clear	Severe	3.7	190	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:18	19:20	40.56715	-73.78645	40.56575	-73.78695	8	15	SSW	<2	B4	≥5000	Clear	Severe	3.6	203	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:38	40.56575	-73.78695	40.56590	-73.78158	8	15	SSW	<2	B4	≥5000	Clear	Severe	3.6	210	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:38	19:41	40.56590	-73.78158	40.56885	-73.78098	11	10	SE	<2	B4	≥5000	Clear	Severe	3.7	22	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:41	19:50	40.56885	-73.78098	40.57747	-73.77945	11	10	SE	<2	B4	≥5000	Clear	Severe	4.1	19	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:50	19:54	40.57747	-73.77945	40.57990	-73.78193	11	10	SE	<2	B4	≥5000	Clear	Severe	3.5	27	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:54	19:57	40.57990	-73.78193	40.57820	-73.78408	9	13	ESE	<2	B4	≥5000	Clear	Severe	3.6	284	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:57	19:58	40.57820	-73.78408	40.57662	-73.78422	9	13	ESE	<2	B4	≥5000	Clear	Severe	3.2	197	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:58	20:08	40.57662	-73.78422	40.56707	-73.78592	9	13	ESE	<2	B4	≥5000	Clear	Severe	3.7	196	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:08	20:09	40.56707	-73.78592	40.56533	-73.78635	10	15	S	<2	B4	≥5000	Clear	Severe	3.5	204	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:09	20:24	40.56533	-73.78635	40.56263	-73.78183	10	15	S	<2	B4	≥5000	Clear	Severe	3.5	204	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:24	20:28	40.56263	-73.78183	40.56758	-73.76425	11	9	SE	<2	B4	≥5000	Clear	Severe	4.3	21	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:28	20:38	40.56758	-73.76425	40.57892	-73.77895	11	9	SE	<2	B4	≥5000	Clear	Severe	3.6	20	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:38	20:39	40.57892	-73.77895	40.58040	-73.77960	7	7	SSE	<2	B4	≥5000	Clear	Severe	4.2	11	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:39	20:46	40.58040	-73.77960	40.57985	-73.78457	7	7	SSE	<2	B4	≥5000	Clear	Severe	4.1	340	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:46	20:48	40.57985	-73.78457	40.57750	-73.78385	7	14	S	<2	B4	≥5000	Clear	Severe	2.9	180	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:48	20:59	40.57750	-73.78385	40.56742	-73.78533	8	14	S	<2	B4	≥5000	Clear	Severe	3.6	187	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	20:59	21:01	40.56742	-73.78533	40.56495	-73.78613	10	13	SSW	<2	B4	≥5000	Clear	Severe	3.8	206	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:01	21:15	40.56495	-73.78613	40.56318	-73.78137	10	11	S	<2	B4	≥5000	Clear	Severe	3.8	207	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:15	21:19	40.56318	-73.78137	40.56757	-73.78055	10	10	S	<2	B4	≥5000	Clear	Severe	4	23	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:19	21:29	40.56757	-73.78055	40.57758	-73.77883	10	10	SSE	<2	B4	≥5000	Clear	Severe	4.1	21	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:29	21:30	40.57758	-73.77883	40.57895	-73.77983	10	10	SSE	<2	B4	≥5000	Clear	Severe	3.8	6	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:30	21:33	40.57895	-73.77983	40.57900	-73.78237	10	10	SSE	<2	B4	≥5000	Clear	Severe	3.5	326	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:33	21:35	40.57900	-73.78237	40.57762	-73.78312	10	6	SSE	<2	B4	≥5000	Clear	Severe	2.6	257	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:35	21:48	40.57762	-73.78312	40.56673	-73.78520	10	18	SSE	<2	B4	≥5000	Clear	Severe	2.7	195	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:48	21:50	40.56673	-73.78520	40.56497	-73.78578	10	17	SSW	<2	B4	≥5000	Clear	Severe	3.3	201	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:50	22:00	40.56497	-73.78578	40.55777	-73.78362	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	208	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:06	40.55777	-73.78362	40.56277	-73.78110	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	208	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:06	22:11	40.56277	-73.78110	40.56748	-73.78020	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	208	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:11	22:21	40.56748	-73.78020	40.57888	-73.77962	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	208	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:21	22:23	40.57888	-73.77962	40.57898	-73.77977	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	190	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:23	22:26	40.57898	-73.77977	40.56667	-73.78282	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	190	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:26	22:27	40.56667	-73.78282	40.57723	-73.78329	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.2	190	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:27	22:39	40.57723	-73.78329	40.56603	-73.78510	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	190	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:39	22:41	40.56603	-73.78510	40.56482	-73.78552	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.1	207	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:41	22:54	40.56482	-73.78552	40.56193	-73.78092	10	11	SSW	<2	B3	≥5000	Clear	Severe	3.4	207	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-18	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:54	23:00	40.56193	-73.78092	40.56678	-73.77998	10	11	SSW	<2	B4	≥5000	Clear	Severe	2.8	15	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:10	40.56678	-73.77998	40.57805	-73.77795	10	9	S	<2	B4	≥5000	Clear	Severe	3.5	20	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:10	23:12	40.57805	-73.77795	40.57978	-73.77912	8	9	S	<2	B4	≥5000	Clear	Severe	3.7	11	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:12	23:15	40.57978	-73.77912	40.57895	-73.78195	8	8	S	<2	B4	≥5000	Clear	Severe	3.5	317	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:15	23:17	40.57895	-73.78195	40.57732	-73.78245	8	8	SE	<2	B4	≥5000	Clear	Severe	3	217	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:17	23:28	40.57732	-73.78245	40.56657	-73.78483	8	8	S	<2	B4	≥5000	Clear	Severe	3.6	205	Full Power	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:28	23:30	40.56657	-73.78483	40.56433	-73.78573	10	8	SSE	<2	B4	≥5000	Clear	Severe	3.7	209	Silent	N/A
2023-05-18	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:30	00:00	40.56433	-73.78573	40.56470	-73.80492	10	10	SSE	<2	B4	≥5000	Clear	Severe	3.6	217	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:07	40.56470	-73.80492	40.56733	-73.79727	9	10	SE	<2	B4	≥5000	Clear	None	4	41	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:07	00:12	40.56733	-73.79727	40.56675	-73.79137	9	14	ESE	<2	B4	2000-4999	Clear	None	2.9	114	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:12	00:16	40.56675	-73.79137	40.56632	-73.78633	9	14	ESE	<2	B4	2000-4999	Clear	None	3.9	108	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:16	01:00	40.56632	-73.78633	40.56135	-73.72762	9	14	ESE	<2	B4	2000-4999	Clear	None	4	108	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:11	40.56135	-73.72762	40.55957	-73.70785	10	13	SE	<2	B4	1000-1999	Clear	None	3.8	110	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:11	01:13	40.55957	-73.70785	40.55943	-73.70587	12	21	SSE	<2	B4	500-999	Clear	None	3.9	108	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:13	01:33	40.55943	-73.70587	40.55937	-73.70370	12	21	SSE	<2	B4	500-999	Clear	None	4	109	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:33	01:39	40.55937	-73.70370	40.55998	-73.71013	13	9	SSW	<2	B4	500-999	Clear	None	3.4	289	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:39	02:00	40.55998	-73.71013	40.56235	-73.73767	13	9	SSW	<2	B4	500-999	Clear	None	3.4	289	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:47	40.56235	-73.73767	40.56673	-73.78898	13	5	WSW	<2	B4	500-999	Clear	None	3.4	291	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:47	02:49	40.56673	-73.78898	40.56712	-73.79035	10	11	WSW	<2	B4	500-999	Clear	None	2.9	293	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:49	03:00	40.56712	-73.79035	40.56982	-73.79533	10	13	WSW	<2	B4	500-999	Clear	None	2.9	319	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:08	40.56982	-73.79533	40.56510	-73.78817	9	15	S	<2	B4	500-999	Clear	None	2.7	275	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:08	03:12	40.56510	-73.78817	40.56468	-73.78298	11	15	S	<2	B4	500-999	Clear	None	4.1	111	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:12	04:12	40.56468	-73.78298	40.55847	-73.71000	11	15	S	<2	B4	500-999	Clear	None	3.5	116	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:12	04:14	40.55847	-73.71000	40.55837	-73.70855	13	13	SSE	<2	B4	500-999	Clear	None	3.1	112	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:14	04:37	40.55837	-73.70855	40.55937	-73.70590	13	13	SSE	<2	B4	500-999	Clear	None	3	111	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:37	04:42	40.55937	-73.70590	40.55973	-73.71047	13	12	E	<2	B4	500-999	Clear	None	3.4	275	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:42	05:00	40.55973	-73.71047	40.56157	-73.73185	13	12	E	<2	B4	500-999	Clear	None	3.4	277	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:41	40.56157	-73.73185	40.56637	-73.78828	13	5	NE	<2	B4	500-999	Clear	None	3.7	289	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:41	05:42	40.56637	-73.78828	40.56637	-73.78828	11	12	E	<2	B4	500-999	Clear	None	3.3	277	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:42	06:00	40.56637	-73.78828	40.56570	-73.79577	11	12	E	<2	B4	500-999	Clear	None	3.3	277	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:03	40.56570	-73.79577	40.56478	-73.78653	11	12	E	<2	B3	500-999	Clear	None	3.6	178	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:03	06:06	40.56478	-73.78653	40.56437	-73.78258	11	10	E	<2	B3	500-999	Clear	None	4	110	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:06	06:58	40.56437	-73.78258	40.55828	-73.71065	11	10	E	<2	B3	500-999	Clear	None	4	110	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:58	06:59	40.55828	-73.71065	40.55807	-73.70740	11	10	E	<2	B3	500-999	Clear	None	3.9	109	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:59	07:20	40.55807	-73.70740	40.55928	-73.70888	11	10	E	<2	B3	500-999	Clear	None	3.9	109	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:20	07:24	40.55928	-73.70888	40.55948	-73.71082	11	10	E	<2	B3	500-999	Clear	None	3.9	109	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:24	08:00	40.55948	-73.71082	40.56277	-73.74910	11	10	E	<2	B3	500-999	Clear	None	3.9	109	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:24	40.56277	-73.74910	40.56615	-73.78990	13	9	S	<2	B3	500-999	Clear	None	3.6	277	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:24	08:25	40.56615	-73.78990	40.56623	-73.79027	13	8	S	<2	B3	500-999	Clear	None	3.6	277	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:25	08:55	40.56623	-73.79027	40.56568	-73.78777	13	8	S	<2	B3	500-999	Clear	None	3.6	277	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:55	09:00	40.56568	-73.78777	40.56568	-73.78777	13	8	S	<2	B3	1000-1999	Clear	None	3.8	110	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:30	40.56568	-73.78777	40.56143	-73.73830	13	8	S	<2	B3	1000-1999	Clear	None	3.8	110	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:30	10:00	40.56143	-73.73830	40.55893	-73.70943	14	10	SE	<2	B4	≥5000	Clear	None	3.3	109	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:01	40.55893	-73.70943	40.55893	-73.70943	13	10	S	<2	B4	≥5000	Clear	Severe	3.3	107	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:01	10:24	40.55893	-73.70943	40.55882	-73.70628	13	10	S	<2	B4	≥5000	Clear	Severe	3.3	107	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:24	10:28	40.55882	-73.70628	40.55927	-73.71157	13	8	ESE	<2	B4	≥5000	Clear	Severe	3.9	278	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:28	11:00	40.55927	-73.71157	40.56260	-73.75047	13	8	ESE	<2	B4	≥5000	Clear	Severe	4	278	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:24	40.56260	-73.75047	40.56567	-73.78700	12	6	ESE	<2	B3	≥5000	Clear	Severe	3.9	288	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:24	11:26	40.56567	-73.78700	40.56583	-73.78878	11	6	S	<2	B3	≥5000	Clear	Severe	3.6	291	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:26	11:48	40.56583	-73.78878	40.56358	-73.77987	11	6	S	<2	B3	≥5000	Clear	Severe	3.6	291	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:48	11:52	40.56358	-73.77987	40.56765	-73.77917	11	6	E	<2	B3	≥5000	Clear	Severe	3.8	25	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:52	12:02	40.56765	-73.77917	40.57810	-73.77723	11	7	E	<2	B3	≥5000	Clear	Severe	3.8	22	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:02	12:03	40.57810	-73.77723	40.57903	-73.77747	8	4	E	<2	B3	≥5000	Clear	Severe	3.8	21	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:03	12:06	40.57903	-73.77747	40.57892	-73.78110	8	3	E	<2	B3	≥5000	Clear	Severe	3.3	346	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:06	12:09	40.57892	-73.78110	40.57770	-73.78198	9	5	E	<2	B3	≥5000	Clear	Severe	3.8	249	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:09	12:19	40.57770	-73.78198	40.56658	-73.78407	9	7	SE	<2	B3	≥5000	Clear	Severe	3.8	218	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:19	12:20	40.56658	-73.78407	40.56545	-73.78433	11	7	S	<2	B3	≥5000	Clear	Severe	3.3	201	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:27	40.56545	-73.78433	40.56357	-73.78052	11	8	S	<2	B3	≥5000	Clear	Severe	3.1	206	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:27	12:31	40.56357	-73.78052	40.56792	-73.77940	12	8	ESE	<2	B3	≥5000	Clear	Severe	4	29	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:31	12:41	40.56792	-73.77940	40.57798	-73.77753	12	8	ESE	<2	B3	≥5000	Clear	Severe	3.7	20	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:41	12:42	40.57798	-73.77753	40.57908	-73.77615	7	8	ESE	<2	B3	≥5000	Clear	Severe	3.7	18	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:42	12:46	40.57908	-73.77615	40.57900	-73.78142	7	3	ESE	<2	B3	≥5000	Clear	Severe	3.2	349	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:46	12:49	40.57900	-73.78142	40.57685	-73.78192	7	4	SE	<2	B3	≥5000	Clear	Severe	3	225	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:49	12:59	40.57685	-73.78192	40.56658	-73.78392	8	6	SE	<2	B3	≥5000	Clear	Severe	3.5	205	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:59	13:01	40.56658	-73.78392	40.56548	-73.78407	9	7	SE	<2	B3	≥5000	Clear	Severe	3.4	202	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:01	13:13	40.56548	-73.78407	40.56365	-73.78327	9	6	SE	<2	B3	≥5000	Clear	Severe	3.5	199	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:13	13:19	40.56365	-73.78327	40.56890	-73.78357	10	3	ESE	<2	B3	≥5000	Clear	Severe	3.9	323	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:19	13:27	40.56890	-73.78357	40.57763	-73.78195	10	3	ESE	<2	B3	≥5000	Clear	Severe	3.8	20	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:27	13:29	40.57763	-73.78195	40.57860	-73.78222	10	4	ESE	<2	B3	≥5000	Clear	Severe	3.6	18	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:29	13:47	40.57860	-73.78222	40.57962	-73.77962	10	2	SE	<2	B3	≥5000	Clear	Severe	3	340	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:47	13:49	40.57962	-73.77962	40.57768	-73.78025	7	4	SSE	<2	B3	≥5000	Clear	Moderate	3	226	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:49	14:00	40.57768	-73.78025	40.57012	-73.78177	7	7	S	<2	B3	≥5000	Clear	Moderate	3.6	195	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:01	40.57012	-73.78177	40.57012	-73.78177	10	7	S	<2	B3	≥5000	Cloudy	Moderate	3.2	192	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:01	14:02	40.57012	-73.78177	40.56510	-73.78250	10	7	S	<2	B3	≥5000	Cloudy	Moderate	3.2	192	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:02	14:25	40.56510	-73.78250	40.56483	-73.78787	10	7	S	<2	B3	≥5000	Cloudy	Moderate	3.9	197	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:25	14:30	40.56483	-73.78787	40.56923	-73.78713	11	6	SE	<2	B3	≥5000	Cloudy	Moderate	3.6	9	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:30	14:38	40.56923	-73.78713	40.57700	-73.78567	10	6	SE	<2	B3	≥5000	Cloudy	Moderate	3.6	9	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:38	14:39	40.57700	-73.78567	40.57810	-73.78563	9	7	SE	<2	B3	≥5000	Cloudy	Moderate	3.4	8	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:39	14:59	40.57810	-73.78563	40.57977	-73.77850	9	7	SE	<2	B3	≥5000	Cloudy	Moderate	3.2	335	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	14:59	15:00	40.57977	-73.77850	40.57945	-73.77905	8	14	S	<2	B4	≥5000	Cloudy	Moderate	3.9	251	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:02	40.57945	-73.77905	40.57753	-73.77992	8	14	S	<2	B4	≥5000	Cloudy	Moderate	3.7	237	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:02	15:13	40.57753	-73.77992	40.56680	-73.78203	8	14	S	<2	B4	≥5000	Cloudy	Moderate	3.6	201	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:13	15:14	40.56680	-73.78203	40.56513	-73.78225	10	12	S	<2	B4	≥5000	Cloudy	Moderate	3.7	204	Silent	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:14	15:53	40.56513	-73.78225	40.56868	-73.78687	10	12	S	<2	B4	≥5000	Cloudy	Moderate	3.8	194	Full Power	N/A
2023-05-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:53	15:56	40.56868	-73.78687	40.56840	-73.78363	10	13	SE	<2	B4	≥5000	Cloudy	Moderate	3.5	107	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:56	16:00	40.56840	-73.78363	40.56808	-73.78067	10	13	SE	<2	B4	≥5000	Cloudy	Moderate	3.4	113	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:03	40.56808	-73.78067	40.56750	-73.77437	10	11	SE	<2	B4	≥5000	Cloudy	Moderate	3.6	112	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:03	16:05	40.56750	-73.77437	40.56725	-73.77132	10	10	SSE	<2	B4	≥5000	Cloudy	Moderate	4.1	108	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:05	16:09	40.56725	-73.77132	40.56550	-73.76690	10	10	SSE	<2	B4	≥5000	Cloudy	Moderate	4.1	109	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:09	16:11	40.56550	-73.76690	40.56508	-73.76328	10	10	SSE	<2	B4	≥5000	Cloudy	Moderate	3.4	125	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:11	16:22	40.56508	-73.76328	40.56377	-73.74912	10	9	SE	<2	B4	≥5000	Cloudy	Moderate	4.2	115	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:22	16:25	40.56377	-73.74912	40.56362	-73.74612	10	10	S	<2	B4	≥5000	Cloudy	Moderate	3.6	108	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:25	16:54	40.56362	-73.74612	40.56380	-73.74782	10	7	SE	<2	B4	≥5000	Cloudy	Moderate	3.3	113	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:54	16:57	40.56380	-73.74782	40.56428	-73.75278	12	5	SSW	<2	B5	≥5000	Cloudy	Slight	3.6	287	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:57	17:04	40.56428	-73.75278	40.56517	-73.76117	12	12	S	<2	B5	≥5000	Cloudy	Slight	3.7	292	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:04	17:09	40.56517	-73.76117	40.56572	-73.76710	12	10	SE	<2	B5	≥5000	Cloudy	Slight	3.7	293	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:09	17:39	40.56572	-73.76710	40.56345	-73.73967	12	8	SE	<2	B5	≥5000	Cloudy	Slight	3.6	291	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:39	17:44	40.56345	-73.73967	40.56258	-73.73308	12	15	SSE	<2	B5	≥5000	Cloudy	Slight	3.9	112	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:44	18:00	40.56258	-73.73308	40.56075	-73.71085	12	14	SSE	<2	B5	≥5000	Cloudy	Slight	3.8	107	Full Power	N/A
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:15	40.56075	-73.71085	40.55430	-73.70313	12	17	SE	<2	B5	≥5000	Cloudy	Slight	3.6	109	Silent	N/A
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:15	19:00	40.55430	-73.70313	40.57143	-73.71378	13	13	SE	<2	B5	≥5000	Cloudy	Slight	3.5	332	Deploying/Retrieving	N/A
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:11	40.57143	-73.71378	40.57415	-73.71603	10	12	ESE	<2	B5	≥5000	Cloudy	None	1.1	12	Deploying/Retrieving	N/A
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:11	20:00	40.57415	-73.71603	40.51762	-73.84535	10	14	SSW	<2	B5	≥5000	Cloudy	None	2.6	269	Transit	N/A
2023-05-19	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.51762	-73.84535	40.53727	-74.02035	13	20	SSW	<2	B5	≥5000	Cloudy	Severe	8.6	256	Transit	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.53727	-74.02035	40.69927	-74.00177	16	7	SSE	<2	B5	≥5000	Cloudy	Severe	10.3	345	Transit	N/A
2023-05-19	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.69927	-74.00177	40.80295	-73.78565	16	7	SSE	<2	B3	≥5000	Clear	Moderate	9.8	63	Transit	N/A
2023-05-19	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	00:00	40.80295	-73.78565	40.88893	-73.71510	10	5	E	<2	B3	≥5000	Clear	Slight	9.2	51	Transit	N/A
2023-05-20	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:09	40.88893	-73.71510	40.90160	-73.68560	10	5	E	<2	B3	≥5000	Clear	None	9.3	63	Transit	N/A
2023-05-20	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:09	01:00	40.90160	-73.68560	40.95912	-73.54845	12	13	ESE	<2	B3	2000-4999	Clear	None	8.9	74	Transit	N/A
2023-05-20	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.95912	-73.54845	41.03457	-73.38542	23	9	NNE	<2	B3	500-999	Clear	None	8.5	73	Transit	N/A
2023-05-20	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	41.03457	-73.38542	41.10220	-73.23180	17	15	ESE	<2	B3	500-999	Clear	None	8.3	77	Transit	N/A
2023-05-20	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:40	41.10220	-73.23180	41.17050	-73.17552	18	10	E	<2	B3	500-999	Clear	None	8.8	65	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:05	01:00	41.17003	-73.17620	41.07397	-73.26825	9	5	NW	<2	B1	1000-1999	Clear	None	7.7	210	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	41.07397	-73.26825	40.99688	-73.46718	17	10	W	<2	B1	500-999	Clear	None	9.7	263	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	03:00	40.99688	-73.46718	40.91258	-73.66080	29	7	W	<2	B1	500-999	Clear	None	9.9	250	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	04:00	40.91258	-73.66080	40.80402	-73.81838	26	8	W	<2	B1	500-999	Clear	None	8.2	255	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	05:00	40.80402	-73.81838	40.76365	-73.95187	22	2	WNW	<2	B1	500-999	Clear	None	9	278	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	05:00	06:00	40.76365	-73.95187	40.75421	-73.96055	14	11	SSW	<2	B1	500-999	Clear	None	9.8	227	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.75421	-73.96055	40.47515	-73.86022	16	11	SSW	<2	B1	500-999	Cloudy	None	9.8	227	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:00	08:00	40.47515	-73.86022	40.56482	-73.77285	18	8	NNE	<2	B1	500-999	Cloudy	None	9.6	59	Transit	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.56482	-73.77285	40.53723	-73.75647	10	4	NE	<2	B1	500-999	Cloudy	None	5.8	30	Standby	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:30	40.53723	-73.75647	40.55608	-73.75688	17	4	NE	<2	B1	1000-1999	Cloudy	None	2.1	15	Deploying/Retrieving	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:30	09:50	40.55608	-73.75688	40.56458	-73.76545	18	6	NE	<2	B2	≥5000	Cloudy	None	2.1	15	Deploying/Retrieving	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:50	10:05	40.56458	-73.76545	40.55387	-73.76395	18	6	NE	<2	B2	≥5000	Cloudy	None	2.1	192	Soft Start	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:05	10:34	40.55387	-73.76395	40.56377	-73.78688	15	5	NE	<2	B2	≥5000	Cloudy	Moderate	2.6	179	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:34	10:38	40.56377	-73.78688	40.57750	-73.78618	10	8	NE	<2	B2	≥5000	Cloudy	Moderate	3.7	17	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:38	10:48	40.57750	-73.78618	40.57727	-73.78450	10	8	NE	<2	B2	≥5000	Cloudy	Moderate	3.7	11	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:48	10:50	40.57727	-73.78450	40.57952	-73.78565	10	5	NE	<2	B2	≥5000	Cloudy	Moderate	3.7	18	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:50	11:00	40.57952	-73.78565	40.57818	-73.78965	10	5	NE	<2	B2	≥5000	Cloudy	Moderate	3.6	305	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:18	40.57818	-73.78965	40.57883	-73.77897	8	1	NNE	<2	B2	≥5000	Cloudy	Slight	3.6	200	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:18	11:20	40.57883	-73.77897	40.57685	-73.77957	10	5	NNE	<2	B2	≥5000	Cloudy	Slight	3.6	211	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:30	40.57685	-73.77957	40.56627	-73.78162	10	3	NNE	<2	B2	≥5000	Cloudy	Slight	3.5	198	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:30	11:32	40.56627	-73.78162	40.56467	-73.78200	11	3	NNE	<2	B2	≥5000	Cloudy	Slight	4	202	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:32	12:01	40.56467	-73.78200	40.56372	-73.78703	11	3	NNE	<2	B2	≥5000	Cloudy	Slight	4	201	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:01	12:06	40.56372	-73.78703	40.56825	-73.78588	9	7	NNE	<2	B2	≥5000	Cloudy	Slight	3.6	41	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:06	12:14	40.56825	-73.78588	40.57735	-73.78400	9	14	NNE	<2	B2	≥5000	Cloudy	Slight	3.9	25	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:14	12:16	40.57735	-73.78400	40.57907	-73.78478	8	17	NNE	<2	B2	≥5000	Cloudy	Slight	3.8	25	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:16	12:45	40.57907	-73.78478	40.57955	-73.77730	8	11	NNE	<2	B2	≥5000	Cloudy	Slight	3.5	320	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:45	12:47	40.57955	-73.77730	40.57690	-73.77925	8	6	N	<2	B2	≥5000	Cloudy	Moderate	4	231	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:47	12:57	40.57690	-73.77925	40.56543	-73.78153	8	5	N	<2	B2	≥5000	Cloudy	Moderate	3.9	201	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:57	13:00	40.56543	-73.78153	40.56348	-73.78192	8	5	N	<2	B2	≥5000	Cloudy	Moderate	4	201	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:30	40.56348	-73.78192	40.56455	-73.78647	8	4	N	<2	B2	≥5000	Cloudy	Moderate	4	202	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:30	13:34	40.56455	-73.78647	40.56785	-73.78562	10	9	NNE	<2	B1	≥5000	Clear	Moderate	3.8	45	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:34	13:43	40.56785	-73.78562	40.57748	-73.78380	10	15	NNE	<2	B1	≥5000	Clear	Moderate	3.7	29	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:43	13:45	40.57748	-73.78380	40.57943	-73.78502	8	14	NNE	<2	B1	≥5000	Clear	Moderate	3.7	19	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:45	14:00	40.57943	-73.78502	40.57450	-73.78432	8	11	NNE	<2	B1	≥5000	Clear	Moderate	3.5	315	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:14	40.57450	-73.78432	40.57962	-73.77615	10	8	NE	<2	B2	≥5000	Clear	Moderate	3.7	85	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:14	14:17	40.57962	-73.77615	40.57713	-73.77713	8	7	NE	<2	B2	≥5000	Clear	Moderate	3.9	216	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:17	14:26	40.57713	-73.77713	40.56598	-73.77923	8	7	NE	<2	B2	≥5000	Clear	Moderate	3.9	195	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:26	14:28	40.56598	-73.77923	40.56422	-73.77955	10	6	E	<2	B2	≥5000	Clear	Moderate	3.9	193	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:28	14:50	40.56422	-73.77955	40.56388	-73.78487	10	6	E	<2	B2	≥5000	Clear	Moderate	3.9	194	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:50	14:55	40.56388	-73.78487	40.56835	-73.78405	11	11	ENE	<2	B2	≥5000	Clear	Moderate	3.9	18	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:55	15:00	40.56835	-73.78405	40.57288	-73.78310	11	11	ENE	<2	B2	≥5000	Clear	Moderate	3.9	14	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:04	40.57288	-73.78310	40.57767	-73.78235	8	14	ENE	<2	B2	≥5000	Clear	Slight	3.8	21	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:04	15:06	40.57767	-73.78235	40.57945	-73.78348	8	14	ENE	<2	B2	≥5000	Clear	Slight	3.8	18	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:06	15:33	40.57945	-73.78348	40.58003	-73.77805	8	14	ENE	<2	B2	≥5000	Clear	Slight	3.4	307	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:33	15:36	40.58003	-73.77805	40.57747	-73.77888	8	9	S	<2	B2	≥5000	Cloudy	Slight	3.4	235	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:36	15:46	40.57747	-73.77888	40.56638	-73.76667	8	9	S	<2	B2	≥5000	Cloudy	Slight	3.8	195	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:46	15:47	40.56638	-73.76667	40.56638	-73.76667	10	12	SE	<2	B2	≥5000	Cloudy	Slight	3.9	200	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:47	16:00	40.56638	-73.76667	40.55452	-73.78337	10	12	SE	<2	B2	≥5000	Cloudy	Slight	3.9	200	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:14	40.55452	-73.78337	40.56527	-73.78883	13	6	SSW	<2	B1	≥5000	Cloudy	Slight	3.8	258	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:14	16:18	40.56527	-73.78883	40.56770	-73.78552	9	2	SE	<2	B1	≥5000	Cloudy	Slight	4	68	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:18	16:26	40.56770	-73.78552	40.57278	-73.78325	9	6	ESE	<2	B1	≥5000	Cloudy	Slight	3.9	46	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:26	16:29	40.57278	-73.78325	40.57952	-73.78410	7	5	ESE	<2	B1	≥5000	Cloudy	Slight	3.7	24	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:29	17:00	40.57952	-73.78410	40.56255	-73.78568	7	4	S	<2	B1	≥5000	Cloudy	Slight	3.6	333	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:04	40.56255	-73.78568	40.56803	-73.78473	11	5	S	<2	B1	≥5000	Cloudy	Slight	3.9	17	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:04	17:13	40.56803	-73.78473	40.57738	-73.78320	11	6	S	<2	B1	≥5000	Cloudy	Slight	4	18	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:13	17:15	40.57738	-73.78320	40.57947	-73.78443	8	5	SSE	<2	B1	≥5000	Cloudy	Slight	3.9	10	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:15	17:40	40.57947	-73.78443	40.56167	-73.78547	8	5	S	<2	B1	≥5000	Cloudy	Slight	3.6	328	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.56167	-73.78547	40.56432	-73.76785	8	5	S	<2	B1	≥5000	Cloudy	Slight	4.1	65	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:18	40.56432	-73.76785	40.54847	-73.76937	12	14	SE	<2	B2	≥5000	Cloudy	Slight	2.9	168	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:18	18:28	40.54847	-73.76937	40.54175	-73.77542	14	12	ESE	<2	B2	≥5000	Cloudy	Slight	2.8	200	Soft Start	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:28	18:54	40.54175	-73.77542	40.56332	-73.78525	14	8	ESE	<2	B2	≥5000	Cloudy	Slight	3.9	258	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:54	18:59	40.56332	-73.78525	40.56770	-73.78445	10	7	ESE	<2	B2	≥5000	Cloudy	Moderate	3.6	21	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:59	19:09	40.56770	-73.78445	40.57787	-73.78290	10	7	ESE	<2	B2	≥5000	Cloudy	Moderate	3.7	20	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:09	19:11	40.57787	-73.78290	40.57952	-73.78467	8	6	SE	<2	B2	≥5000	Cloudy	Moderate	3.7	357	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:11	19:39	40.57952	-73.78467	40.58018	-73.77732	8	6	SE	<2	B2	≥5000	Cloudy	Moderate	3.8	315	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:39	19:42	40.58018	-73.77732	40.57770	-73.78032	8	10	SE	<2	B2	≥5000	Cloudy	Moderate	4.3	237	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:42	19:55	40.57770	-73.78032	40.56723	-73.78262	8	10	SE	<2	B2	≥5000	Cloudy	Moderate	3.3	223	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:55	19:57	40.56723	-73.78262	40.56552	-73.78340	10	11	SE	<2	B2	≥5000	Cloudy	Severe	3.1	200	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:57	20:28	40.56552	-73.78340	40.58067	-73.77550	10	11	SE	<2	B2	≥5000	Cloudy	Severe	3.2	212	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:28	20:31	40.58067	-73.77550	40.57790	-73.77847	7	10	SSE	<2	B3	≥5000	Cloudy	Severe	4.2	242	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:31	20:42	40.57790	-73.77847	40.56610	-73.78070	8	10	SSE	<2	B3	≥5000	Cloudy	Severe	4	211	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:42	20:44	40.56610	-73.78070	40.56467	-73.78103	10	12	SE	<2	B3	≥5000	Cloudy	Severe	3.8	201	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:44	21:00	40.56467	-73.78103	40.57343	-73.77408	10	12	SE	<2	B3	≥5000	Cloudy	Severe	3.7	204	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:09	40.57343	-73.77408	40.58002	-73.77690	11	6	E	<2	B3	≥5000	Cloudy	Moderate	4.1	33	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:09	21:13	40.58002	-73.77690	40.57810	-73.77848	8	13	SE	<2	B3	≥5000	Cloudy	Moderate	4.1	246	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:13	21:25	40.57810	-73.77848	40.56677	-73.78020	8	13	SE	<2	B3	≥5000	Cloudy	Moderate	3.4	205	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:25	21:27	40.56677	-73.78020	40.56497	-73.78042	10	10	SSE	<2	B3	≥5000	Cloudy	Moderate	3.4	201	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:27	21:50	40.56497	-73.78042	40.58013	-73.77633	10	9	E	<2	B3	≥5000	Cloudy	Moderate	3.1	189	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:50	21:54	40.58013	-73.77633	40.57840	-73.77728	7	4	WNW	<2	B3	≥5000	Cloudy	Moderate	3.4	225	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:54	22:00	40.57840	-73.77728	40.57840	-73.77728	7	6	S	<2	B3	≥5000	Cloudy	Moderate	3.5	212	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:06	40.57840	-73.77728	40.56548	-73.78042	11	12	NE	<2	B3	≥5000	Cloudy	Moderate	3.8	61	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:06	22:09	40.56548	-73.78042	40.56462	-73.78018	11	12	NE	<2	B3	≥5000	Cloudy	Moderate	3.5	61	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:09	22:30	40.56462	-73.78018	40.58028	-73.77592	11	12	NE	<2	B3	≥5000	Cloudy	Moderate	3.5	61	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:30	22:34	40.58028	-73.77592	40.57747	-73.77742	10	11	NE	<2	B3	≥5000	Cloudy	Slight	3.5	214	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:34	22:46	40.57747	-73.77742	40.56518	-73.77975	10	10	NE	<2	B3	≥5000	Cloudy	Slight	3.5	214	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:46	22:49	40.56518	-73.77975	40.56390	-73.78015	10	10	NE	<2	B3	≥5000	Cloudy	Slight	3.5	201	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:49	22:59	40.56390	-73.78015	40.56822	-73.77857	10	10	NE	<2	B3	≥5000	Cloudy	Slight	3.5	165	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	22:59	23:03	40.56822	-73.77857	40.57303	-73.77798	10	10	E	<2	B3	≥5000	Cloudy	None	4.3	341	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:03	23:07	40.57303	-73.77798	40.57988	-73.77860	10	5	ESE	<2	B3	≥5000	Cloudy	None	4.2	17	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:07	23:09	40.57988	-73.77860	40.57988	-73.77860	8	7	E	<2	B4	≥5000	Cloudy	None	4.2	333	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:09	23:36	40.57988	-73.77860	40.56673	-73.78787	8	7	E	<2	B4	≥5000	Cloudy	None	4.2	333	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:36	23:40	40.56673	-73.78787	40.57075	-73.78603	10	6	NE	<2	B5	≥5000	Cloudy	None	4.4	37	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:40	23:46	40.57075	-73.78603	40.57788	-73.78522	10	5	ENE	<2	B5	≥5000	Cloudy	None	4.4	25	Full Power	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:46	23:49	40.57788	-73.78522	40.57875	-73.78798	8	9	ENE	<2	B5	≥5000	Cloudy	None	3.8	342	Silent	N/A
2023-05-22	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:49	00:00	40.57875	-73.78798	40.57102	-73.78998	8	10	SSE	<2	B5	≥5000	Cloudy	None	3.5	276	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:12	40.57102	-73.78998	40.56298	-73.78810	9	13	ESE	<2	B5	≥5000	Cloudy	None	3.1	185	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:12	00:16	40.56298	-73.78810	40.56728	-73.78135	10	14	ESE	<2	B4	≥5000	Cloudy	None	2.7	148	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:16	00:20	40.56728	-73.78135	40.57147	-73.78050	9	9	ENE	<2	B4	1000-1999	Cloudy	None	4	22	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:20	00:28	40.57147	-73.78050	40.57798	-73.78005	9	7	E	<2	B4	1000-1999	Cloudy	None	3.9	22	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:28	00:31	40.57798	-73.78005	40.57777	-73.78318	7	12	E	<2	B4	500-999	Cloudy	None	3.8	344	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:31	00:33	40.57777	-73.78318	40.57592	-73.78293	7	5	NE	<2	B4	500-999	Cloudy	None	3.3	216	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:33	00:37	40.57592	-73.78293	40.57255	-73.78015	8	11	SSE	<2	B4	500-999	Cloudy	None	3.7	182	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:37	00:44	40.57255	-73.78015	40.56608	-73.77290	9	9	E	<2	B4	500-999	Cloudy	None	3.4	155	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:44	00:47	40.56608	-73.77290	40.56522	-73.77207	10	15	ESE	<2	B4	500-999	Cloudy	None	3.5	150	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:47	01:00	40.56522	-73.77207	40.56413	-73.76738	10	15	ESE	<2	B4	500-999	Cloudy	None	3.5	164	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:21	40.56413	-73.76738	40.56568	-73.79003	12	13	ESE	<2	B4	500-999	Cloudy	None	4.2	58	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:21	01:25	40.56568	-73.79003	40.56505	-73.78407	10	19	ESE	<2	B4	500-999	Cloudy	None	3.8	110	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:25	02:25	40.56505	-73.78407	40.55852	-73.70905	10	18	ESE	<2	B4	500-999	Cloudy	None	4.1	110	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:25	02:27	40.55852	-73.70905	40.55825	-73.70802	12	16	ESE	<2	B4	500-999	Cloudy	None	3.5	116	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:27	02:41	40.55825	-73.70802	40.56075	-73.70433	12	16	ESE	<2	B4	500-999	Cloudy	None	3.6	132	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:41	02:45	40.56075	-73.70433	40.56127	-73.70938	12	7	ESE	<2	B4	500-999	Cloudy	None	4	292	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:45	03:00	40.56127	-73.70938	40.56275	-73.72730	12	7	ESE	<2	B4	500-999	Cloudy	None	4	289	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:40	40.56275	-73.72730	40.56820	-73.56820	12	10	SE	<2	B4	500-999	Cloudy	None	4	289	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:40	03:43	40.56820	-73.56820	40.56837	-73.79348	12	10	SE	<2	B4	500-999	Cloudy	None	3.9	289	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:43	03:55	40.56837	-73.79348	40.56403	-73.78130	12	10	SE	<2	B4	500-999	Cloudy	None	3.9	289	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:55	04:00	40.56403	-73.78130	40.56363	-73.77552	12	10	SE	<2	B4	500-999	Cloudy	None	3.8	289	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	04:56	40.56363	-73.77552	40.55818	-73.71215	12	10	SE	<2	B4	500-999	Cloudy	None	3.8	289	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:56	04:58	40.55818	-73.71215	40.55792	-73.70802	12	15	ESE	<2	B4	500-999	Cloudy	None	3.7	108	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:58	05:00	40.55792	-73.70802	40.55780	-73.70640	12	16	ESE	<2	B4	500-999	Cloudy	None	3.6	108	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:19	40.55780	-73.70640	40.55847	-73.70587	12	15	ESE	<2	B4	500-999	Cloudy	None	3.7	111	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:19	05:24	40.55847	-73.70587	40.55873	-73.71148	12	9	E	<2	B4	500-999	Cloudy	None	3.7	283	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	05:24	06:00	40.55873	-73.71148	40.56322	-73.76095	12	9	E	<2	B4	500-999	Cloudy	None	3.8	280	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:18	40.56322	-73.76095	40.56547	-73.78735	16	8	E	<2	B4	500-999	Cloudy	None	3.8	120	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:18	06:19	40.56547	-73.78735	40.56548	-73.78795	16	8	E	<2	B3	500-999	Cloudy	None	3.8	120	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:19	06:38	40.56548	-73.78795	40.56438	-73.78653	16	8	E	<2	B3	500-999	Cloudy	None	3.8	120	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:38	06:44	40.56438	-73.78653	40.56382	-73.78195	16	8	E	<2	B3	500-999	Cloudy	None	3.5	102	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:44	07:36	40.56382	-73.78195	40.55747	-73.70742	16	8	E	<2	B3	500-999	Cloudy	None	3.5	102	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:36	07:38	40.55747	-73.70742	40.55745	-73.70708	14	8	E	<2	B3	500-999	Cloudy	None	3.5	128	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:38	08:00	40.55745	-73.70708	40.55798	-73.70595	14	8	E	<2	B3	500-999	Cloudy	None	3.5	128	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:04	40.55798	-73.70595	40.55857	-73.71233	13	9	NE	<2	B3	500-999	Cloudy	None	4	281	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:04	08:54	40.55857	-73.71233	40.56483	-73.78520	13	9	NE	<2	B3	500-999	Cloudy	None	4	282	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:54	08:56	40.56483	-73.78520	40.56510	-73.78800	10	5	N	<2	B3	1000-1999	Cloudy	None	4.2	283	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:56	09:16	40.56510	-73.78800	40.56395	-73.78758	10	5	N	<2	B3	1000-1999	Cloudy	None	4.2	283	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:16	09:21	40.56395	-73.78758	40.56352	-73.78165	10	6	E	<2	B3	2000-4999	Cloudy	None	3.7	92	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:21	09:30	40.56352	-73.78165	40.56220	-73.76623	10	6	E	<2	B3	2000-4999	Cloudy	None	4	99	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:30	10:11	40.56220	-73.76623	40.55742	-73.71050	12	6	E	<2	B3	≥5000	Cloudy	None	3.9	101	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:11	10:14	40.55742	-73.71050	40.55717	-73.70738	13	8	NE	<2	B3	≥5000	Cloudy	None	3.9	100	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:14	10:32	40.55717	-73.70738	40.55773	-73.70610	13	8	NE	<2	B3	≥5000	Cloudy	None	3.7	100	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:32	10:37	40.55773	-73.70610	40.55830	-73.71303	13	3	N	<2	B3	≥5000	Cloudy	Slight	4.5	280	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:37	11:00	40.55830	-73.71303	40.56022	-73.73545	13	3	N	<2	B3	≥5000	Cloudy	Slight	4.4	282	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:33	40.56022	-73.73545	40.56445	-73.78488	13	7	NNE	<2	B3	≥5000	Cloudy	Slight	3.5	288	Full Power	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:33	11:35	40.56445	-73.78488	40.56453	-73.78647	10	5	NE	<2	B3	≥5000	Cloudy	Moderate	3.4	286	Silent	N/A
2023-05-23	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:35	11:55	40.56453	-73.78647	40.56383	-73.78793	10	8	NE	<2	B3	≥5000	Cloudy	Moderate	3.4	287	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:55	12:00	40.56383	-73.78793	40.56913	-73.78693	10	8	N	<2	B3	≥5000	Cloudy	Moderate	3.7	20	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:05	40.56913	-73.78693	40.57353	-73.78612	9	7	N	<2	B3	≥5000	Cloudy	Moderate	3.7	22	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:05	12:07	40.57353	-73.78612	40.57610	-73.78590	9	10	N	<2	B3	≥5000	Cloudy	Moderate	3.7	21	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:07	12:37	40.57610	-73.78590	40.58102	-73.78027	9	9	N	<2	B3	≥5000	Cloudy	Moderate	3.6	11	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:37	12:42	40.58102	-73.78027	40.57683	-73.78260	7	3	SSW	<2	B3	≥5000	Cloudy	Severe	4	265	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:42	12:51	40.57683	-73.78260	40.56802	-73.78430	8	4	SSW	<2	B3	≥5000	Cloudy	Severe	3.6	199	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:51	12:53	40.56802	-73.78430	40.56558	-73.78473	10	7	ESE	<2	B3	≥5000	Cloudy	Severe	3.7	203	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:53	13:00	40.56558	-73.78473	40.55957	-73.78512	11	6	ESE	<2	B3	≥5000	Cloudy	Severe	3.6	204	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:09	40.55957	-73.78512	40.56403	-73.78125	11	8	SE	<2	B3	≥5000	Cloudy	Severe	3.1	127	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:09	13:15	40.56403	-73.78125	40.56860	-73.78273	11	6	SE	<2	B3	≥5000	Cloudy	Severe	4.1	324	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:15	13:20	40.56860	-73.78273	40.57508	-73.78158	11	4	NE	<2	B3	≥5000	Cloudy	Severe	3.8	19	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:22	40.57508	-73.78158	40.57838	-73.77947	8	4	NNE	<2	B2	≥5000	Cloudy	Severe	3.9	23	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:22	13:31	40.57838	-73.77947	40.57855	-73.78340	8	4	NNE	<2	B2	≥5000	Cloudy	Severe	3.5	46	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:31	13:35	40.57855	-73.78340	40.57472	-73.78413	8	7	SSE	<2	B2	≥5000	Cloudy	Severe	3.2	195	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:35	13:42	40.57472	-73.78413	40.56793	-73.78535	8	11	S	<2	B2	≥5000	Cloudy	Severe	3.5	204	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:42	13:44	40.56793	-73.78535	40.56598	-73.78583	10	7	E	<2	B2	≥5000	Cloudy	Moderate	3.7	204	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:44	13:56	40.56598	-73.78583	40.56517	-73.78112	10	8	S	<2	B2	≥5000	Cloudy	Moderate	3.6	202	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:56	14:00	40.56517	-73.78112	40.56548	-73.78140	10	5	ENE	<2	B2	≥5000	Cloudy	Moderate	4.2	338	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:01	40.56548	-73.78140	40.56995	-73.78173	9	4	E	<2	B3	≥5000	Clear	Moderate	4.3	345	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:01	14:04	40.56995	-73.78173	40.57432	-73.78070	9	4	E	<2	B3	≥5000	Clear	Moderate	4	23	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:04	14:07	40.57432	-73.78070	40.57727	-73.77927	8	4	E	<2	B3	≥5000	Clear	Moderate	4	22	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:07	14:16	40.57727	-73.77927	40.57683	-73.78400	8	5	SE	<2	B3	≥5000	Clear	Moderate	3.6	40	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:16	14:20	40.57683	-73.78400	40.57250	-73.78487	8	5	SE	<2	B3	≥5000	Clear	Moderate	3.7	189	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:25	40.57250	-73.78487	40.56815	-73.78573	8	5	SE	<2	B3	≥5000	Clear	Moderate	3.6	183	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:25	14:27	40.56815	-73.78573	40.56510	-73.78640	12	8	SE	<2	B3	≥5000	Clear	Moderate	3.8	187	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:27	14:41	40.56510	-73.78640	40.56337	-73.78208	12	8	SE	<2	B3	≥5000	Clear	Moderate	3.7	185	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:41	14:46	40.56337	-73.78208	40.56800	-73.78130	10	7	E	<2	B3	≥5000	Clear	Moderate	3.8	13	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:46	14:49	40.56800	-73.78130	40.57192	-73.78062	10	7	E	<2	B3	≥5000	Clear	Moderate	3.9	25	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:49	14:53	40.57192	-73.78062	40.57417	-73.77858	9	7	E	<2	B3	≥5000	Clear	Moderate	3.9	22	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:53	15:00	40.57417	-73.77858	40.56853	-73.77660	9	7	SE	<2	B3	≥5000	Clear	Moderate	2.5	114	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:12	40.56853	-73.77660	40.56505	-73.78613	10	16	ESE	<2	B3	≥5000	Clear	Slight	3.3	191	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	15:15	40.56505	-73.78613	40.56860	-73.78623	10	16	ESE	<2	B3	≥5000	Clear	Slight	4.3	347	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:15	15:19	40.56860	-73.78623	40.57263	-73.78570	10	13	ESE	<2	B3	≥5000	Clear	Slight	3.9	16	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:19	15:20	40.57263	-73.78570	40.57402	-73.78550	10	13	ESE	<2	B3	≥5000	Clear	Slight	3.9	21	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:31	40.57402	-73.78550	40.57573	-73.77597	8	9	ESE	<2	B3	≥5000	Clear	Slight	3.9	20	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:31	15:42	40.57402	-73.78550	40.57327	-73.78508	8	9	ESE	<2	B3	≥5000	Clear	Slight	3.3	146	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:42	15:45	40.57327	-73.78508	40.57653	-73.78450	8	11	E	<2	B3	≥5000	Clear	Slight	4.2	14	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:45	15:47	40.57653	-73.78450	40.57870	-73.78512	8	11	E	<2	B3	≥5000	Clear	Slight	4.1	20	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:47	16:00	40.57870	-73.78512	40.57318	-73.79232	8	11	E	<2	B3	≥5000	Clear	Slight	4.1	337	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:05	40.57318	-73.79232	40.56867	-73.78655	9	10	E	<2	B4	≥5000	Clear	Slight	3.5	197	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:05	16:09	40.56867	-73.78655	40.57270	-73.78445	9	15	E	<2	B4	≥5000	Clear	Slight	3.8	67	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:09	16:13	40.57270	-73.78445	40.57710	-73.78417	9	12	ESE	<2	B5	≥5000	Cloudy	Slight	4.3	3	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:13	16:15	40.57710	-73.78417	40.57925	-73.78533	9	12	E	<2	B5	≥5000	Cloudy	Slight	4	5	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:15	16:37	40.57925	-73.78533	40.56723	-73.78605	9	13	E	<2	B5	≥5000	Cloudy	Slight	4.1	331	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:37	16:42	40.56723	-73.78605	40.57122	-73.78413	10	6	ESE	<2	B5	≥5000	Cloudy	Slight	3.7	48	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:42	16:47	40.57122	-73.78413	40.57732	-73.78318	10	6	ESE	<2	B5	≥5000	Cloudy	Slight	4	22	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:47	16:50	40.57732	-73.78318	40.57918	-73.78542	10	14	ESE	<2	B5	≥5000	Cloudy	Slight	4	3	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:50	17:08	40.57918	-73.78542	40.56838	-73.78648	10	10	ESE	<2	B5	≥5000	Cloudy	Slight	4.1	306	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:08	17:13	40.56838	-73.78648	40.57302	-73.78547	9	18	ESE	<2	B5	≥5000	Cloudy	Slight	3.6	67	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:13	17:17	40.57302	-73.78547	40.57705	-73.78543	9	12	ESE	<2	B5	≥5000	Cloudy	Slight	4	12	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:17	17:19	40.57705	-73.78543	40.57908	-73.78700	9	15	ESE	<2	B5	≥5000	Cloudy	Slight	4	358	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:19	17:41	40.57908	-73.78700	40.56597	-73.78755	9	12	ESE	<2	B5	≥5000	Cloudy	Slight	4.1	328	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:41	17:46	40.56597	-73.78755	40.57037	-73.78555	10	11	E	<2	B5	≥5000	Cloudy	Slight	3.8	48	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:46	17:50	40.57037	-73.78555	40.57495	-73.78463	10	12	ESE	<2	B5	≥5000	Cloudy	Slight	4	23	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:50	17:52	40.57495	-73.78463	40.57738	-73.78625	8	15	E	<2	B5	≥5000	Cloudy	Slight	3.8	11	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:52	18:00	40.57738	-73.78625	40.57450	-73.79093	8	11	ESE	<2	B5	≥5000	Cloudy	Slight	4.1	329	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:32	40.57450	-73.79093	40.56763	-73.78517	8	18	ESE	<2	B5	≥5000	Cloudy	Slight	3.1	193	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:32	18:36	40.56763	-73.78517	40.57245	-73.78437	10	11	E	<2	B5	≥5000	Cloudy	Slight	3.8	20	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:36	18:41	40.57245	-73.78437	40.57728	-73.78367	10	11	E	<2	B5	≥5000	Cloudy	Slight	3.8	20	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:41	18:44	40.57728	-73.78367	40.57880	-73.78645	8	13	E	<2	B5	≥5000	Cloudy	Slight	3.8	6	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:44	19:00	40.57880	-73.78645	40.56825	-73.78663	8	13	E	<2	B5	≥5000	Cloudy	Slight	3.8	284	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:04	40.56825	-73.78663	40.57168	-73.78410	9	18	E	<2	B5	≥5000	Cloudy	Moderate	3.4	73	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:04	19:09	40.57168	-73.78410	40.57727	-73.78327	9	18	E	<2	B5	≥5000	Cloudy	Moderate	3.7	30	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:09	19:11	40.57727	-73.78327	40.57892	-73.78482	8	13	E	<2	B5	≥5000	Cloudy	Moderate	3.7	356	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:11	19:29	40.57892	-73.78482	40.56858	-73.78467	8	13	E	<2	B5	≥5000	Cloudy	Moderate	4	318	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:29	19:33	40.56858	-73.78467	40.57197	-73.78283	9	21	E	<2	B5	≥5000	Cloudy	Moderate	3.4	57	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:33	19:37	40.57197	-73.78283	40.57665	-73.78258	9	21	E	<2	B5	≥5000	Cloudy	Moderate	3.7	23	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:37	19:39	40.57665	-73.78258	40.57735	-73.78393	8	11	E	<2	B5	≥5000	Cloudy	Moderate	3.8	336	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:39	20:00	40.57735	-73.78393	40.56540	-73.78510	8	11	E	<2	B5	≥5000	Cloudy	Moderate	3.9	305	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:04	40.56540	-73.78510	40.56872	-73.78353	10	18	E	<2	B5	≥5000	Cloudy	Severe	3.6	52	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:04	20:08	40.56872	-73.78353	40.57305	-73.78348	10	18	E	<2	B5	≥5000	Cloudy	Severe	3.7	23	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:08	20:10	40.57305	-73.78348	40.57358	-73.78603	8	10	E	<2	B5	≥5000	Cloudy	Severe	3.7	339	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:10	20:22	40.57358	-73.78603	40.56770	-73.78485	8	10	E	<2	B5	≥5000	Cloudy	Severe	3.6	269	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:22	20:26	40.56770	-73.78485	40.57110	-73.78302	10	16	ESE	<2	B5	≥5000	Cloudy	Severe	3.5	41	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:26	20:30	40.57110	-73.78302	40.57430	-73.77430	10	16	ESE	<2	B5	≥5000	Cloudy	Severe	3.7	24	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:30	20:32	40.57430	-73.77430	40.57593	-73.78542	8	13	E	<2	B5	≥5000	Cloudy	Severe	3.7	358	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:32	20:50	40.57593	-73.78542	40.56453	-73.78698	8	13	E	<2	B5	≥5000	Cloudy	Severe	4	291	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:50	20:53	40.56453	-73.78698	40.56885	-73.78267	10	16	ESE	<2	B5	≥5000	Cloudy	Severe	3.1	142	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:53	20:57	40.56885	-73.78267	40.57305	-73.78187	9	13	E	<2	B5	≥5000	Cloudy	Severe	3.8	22	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:57	20:59	40.57305	-73.78187	40.57475	-73.78077	8	13	E	<2	B5	≥5000	Cloudy	Severe	3.8	26	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	20:59	21:02	40.57475	-73.78077	40.57787	-73.78012	8	12	ENE	<2	B5	≥5000	Cloudy	Severe	3.6	45	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:02	21:04	40.57787	-73.78012	40.57852	-73.78190	8	12	ENE	<2	B5	≥5000	Cloudy	Severe	3.7	346	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:04	21:18	40.57852	-73.78190	40.57053	-73.78108	9	8	SSE	<2	B5	≥5000	Cloudy	Severe	3.6	286	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:18	21:21	40.57053	-73.78108	40.57360	-73.77908	9	16	E	<2	B5	≥5000	Cloudy	Severe	3.3	64	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:21	21:25	40.57360	-73.77908	40.57773	-73.77882	8	9	ESE	<2	B5	≥5000	Cloudy	Severe	3.8	18	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:25	21:27	40.57773	-73.77882	40.57913	-73.78115	8	13	ESE	<2	B5	≥5000	Cloudy	Severe	3.9	355	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:27	21:43	40.57913	-73.78115	40.57077	-73.78012	8	8	ESE	<2	B5	≥5000	Cloudy	Severe	4.1	299	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:43	21:46	40.57077	-73.78012	40.57373	-73.77883	9	14	E	<2	B5	≥5000	Cloudy	Severe	3.5	58	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:46	21:50	40.57373	-73.77883	40.57780	-73.77832	9	6	ENE	<2	B5	≥5000	Cloudy	Severe	3.9	18	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:50	21:52	40.57780	-73.77832	40.57955	-73.78025	8	7	E	<2	B5	≥5000	Cloudy	Severe	3.9	5	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:52	22:00	40.57955	-73.78025	40.56950	-73.78655	8	9	E	<2	B5	≥5000	Cloudy	Severe	4.1	304	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:13	40.56950	-73.78655	40.56765	-73.78203	8	9	E	<2	B4	≥5000	Cloudy	Severe	3.8	185	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:13	22:15	40.56765	-73.78203	40.56998	-73.78135	8	9	E	<2	B4	≥5000	Cloudy	Severe	3.8	185	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:15	22:23	40.56998	-73.78135	40.57803	-73.78103	9	8	E	<2	B4	≥5000	Cloudy	Severe	3.8	185	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:23	22:25	40.57803	-73.78103	40.57853	-73.78252	9	8	E	<2	B4	≥5000	Cloudy	Severe	3.8	302	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:25	22:28	40.57853	-73.78252	40.57585	-73.78485	9	7	E	<2	B4	≥5000	Cloudy	Moderate	3.8	302	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:28	22:31	40.57585	-73.78485	40.57352	-73.78527	9	7	E	<2	B4	≥5000	Cloudy	Moderate	3.5	192	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:31	22:34	40.57352	-73.78527	40.57030	-73.78595	9	7	E	<2	B4	≥5000	Cloudy	Moderate	3.5	181	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:34	22:36	40.57030	-73.78595	40.56843	-73.78603	9	7	E	<2	B4	≥5000	Cloudy	Moderate	3.5	181	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:36	22:41	40.56843	-73.78603	40.56748	-73.78127	9	7	E	<2	B4	≥5000	Clear	Moderate	3.2	145	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:41	22:46	40.56748	-73.78127	40.57405	-73.77838	9	7	E	<2	B4	≥5000	Clear	Moderate	3.7	55	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:46	22:49	40.57405	-73.77838	40.57633	-73.77862	9	7	E	<2	B4	≥5000	Clear	Moderate	3.8	55	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:49	22:52	40.57633	-73.77862	40.57728	-73.78048	9	7	E	<2	B4	≥5000	Clear	Moderate	3.8	55	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:52	23:00	40.57728	-73.78048	40.57212	-73.78463	8	7	S	<2	B4	≥5000	Clear	Moderate	3.8	199	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:10	40.57212	-73.78463	40.56687	-73.77947	8	7	S	<2	B4	≥5000	Clear	Moderate	3.5	199	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:10	23:13	40.56687	-73.77947	40.57032	-73.77853	9	8	E	<2	B4	≥5000	Clear	Severe	3.6	45	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:13	23:19	40.57032	-73.77853	40.57655	-73.77795	9	5	ESE	<2	B4	≥5000	Clear	Severe	4.1	22	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:19	23:21	40.57655	-73.77795	40.57803	-73.78023	8	7	ENE	<2	B4	≥5000	Clear	Severe	4	6	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:21	23:55	40.57803	-73.78023	40.57450	-73.77033	8	4	E	<2	B4	≥5000	Clear	Severe	4.1	302	Full Power	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:55	23:58	40.57450	-73.77033	40.57503	-73.77517	11	6	SE	<2	B4	≥5000	Clear	None	4.3	290	Silent	N/A
2023-05-23	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:58	00:00	40.57503	-73.77517	40.57553	-73.77983	11	6	ESE	<2	B4	≥5000	Clear	None	4.3	294	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:07	40.57553	-73.77983	40.57635	-73.78863	9	7	SE	<2	B4	≥5000	Clear	None	4.4	292	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:07	00:09	40.57635	-73.78863	40.57588	-73.79158	8	5	SSE	<2	B4	≥5000	Clear	None	4.3	283	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:09	00:13	40.57588	-73.79158	40.57347	-73.79493	8	4	SSE	<2	B4	≥5000	Clear	None	4.1	262	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:13	00:19	40.57347	-73.79493	40.56823	-73.79402	8	8	SSE	<2	B4	2000-4999	Clear	None	3.6	220	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:19	00:24	40.56823	-73.79402	40.56762	-73.78807	8	13	SE	<2	B4	2000-4999	Clear	None	2.9	126	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:24	01:00	40.56762	-73.78807	40.56472	-73.75457	8	13	SE	<2	B4	2000-4999	Clear	None	3.1	111	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:14	40.56472	-73.75457	40.56362	-73.73100	12	12	ESE	<2	B3	1000-1999	Clear	None	3.2	109	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:14	01:17	40.56362	-73.73100	40.56507	-73.72715	12	13	E	<2	B3	500-999	Clear	None	3.3	63	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:17	01:33	40.56507	-73.72715	40.56372	-73.73877	12	13	E	<2	B3	500-999	Clear	None	3.4	46	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:33	01:37	40.56372	-73.73877	40.56313	-73.73460	12	13	ESE	<2	B3	500-999	Clear	None	2.9	121	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:37	01:59	40.56313	-73.73460	40.56080	-73.70787	12	13	E	<2	B3	500-999	Clear	None	3.2	106	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:59	02:01	40.56080	-73.70787	40.56045	-73.70533	12	12	E	<2	B3	500-999	Clear	None	3.3	106	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:01	02:16	40.56045	-73.70533	40.56170	-73.70247	12	12	E	<2	B3	500-999	Clear	None	3.3	113	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:16	02:20	40.56170	-73.70247	40.56247	-73.71008	12	7	E	<2	B3	500-999	Clear	None	4.5	286	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	03:00	40.56247	-73.71008	40.56618	-73.75493	12	4	E	<2	B3	500-999	Clear	None	3.6	290	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:24	40.56618	-73.75493	40.56992	-73.79543	12	8	E	<2	B3	500-999	Clear	None	3.6	220	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:24	03:26	40.56992	-73.79543	40.57035	-73.79610	12	8	E	<2	B3	500-999	Clear	None	3.6	220	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:26	03:41	40.57035	-73.79610	40.56602	-73.78753	12	8	E	<2	B3	500-999	Clear	None	3.6	220	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:41	03:46	40.56602	-73.78753	40.56585	-73.77983	12	8	E	<2	B3	500-999	Clear	None	3.6	220	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:46	04:47	40.56585	-73.77983	40.55957	-73.70915	12	8	E	<2	B3	500-999	Clear	None	3.3	108	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:47	04:49	40.55957	-73.70915	40.55943	-73.70725	12	5	E	<2	B3	500-999	Clear	None	3.6	100	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:49	05:00	40.55943	-73.70725	40.55625	-73.70172	12	5	E	<2	B3	500-999	Clear	None	3.5	100	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:07	40.55625	-73.70172	40.56193	-73.70228	13	2	ESE	<2	B3	500-999	Clear	None	3.4	143	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:07	05:11	40.56193	-73.70228	40.56258	-73.70817	12	4	NE	<2	B3	500-999	Clear	None	4	284	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:11	06:00	40.56258	-73.70817	40.56830	-73.77640	12	4	NE	<2	B3	500-999	Clear	None	4	283	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:08	40.56830	-73.77640	40.56990	-73.79402	12	4	NE	<2	B3	500-999	Clear	None	4	283	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:08	06:10	40.56990	-73.79402	40.56993	-73.79458	12	6	NNE	<2	B3	500-999	Clear	None	4	283	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:10	06:29	40.56993	-73.79458	40.56852	-73.79013	12	6	NNE	<2	B3	500-999	Clear	None	4	283	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:29	06:33	40.56852	-73.79013	40.56825	-73.78828	12	6	NNE	<2	B3	500-999	Clear	None	4	110	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:33	07:32	40.56825	-73.78828	40.56112	-73.70527	12	5	NNE	<2	B3	500-999	Clear	None	4	110	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:32	07:34	40.56112	-73.70527	40.56085	-73.70285	12	6	NNE	<2	B3	500-999	Cloudy	None	4	100	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:34	07:54	40.56085	-73.70285	40.56288	-73.70347	12	6	NNE	<2	B3	500-999	Cloudy	None	4	100	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:54	07:59	40.56288	-73.70347	40.56337	-73.70877	12	4	NNE	<2	B3	500-999	Cloudy	None	3.8	102	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:59	08:00	40.56337	-73.70877	40.56340	-73.70905	12	4	NNE	<2	B3	500-999	Cloudy	None	3.8	102	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:00	08:57	40.56340	-73.70905	40.57085	-73.79532	12	4	NNE	<2	B3	500-999	Cloudy	None	3.8	102	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:57	08:59	40.57085	-73.79532	40.57102	-73.79568	12	4	NNE	<2	B3	1000-1999	Cloudy	None	4	327	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:59	09:15	40.57102	-73.79568	40.56983	-73.79493	12	4	NNE	<2	B3	1000-1999	Cloudy	None	4	327	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:15	09:21	40.56983	-73.79493	40.56930	-73.78893	9	7	N	<2	B3	2000-4999	Cloudy	None	3.5	101	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:21	09:30	40.56930	-73.78893	40.56787	-73.77208	9	7	N	<2	B3	2000-4999	Cloudy	None	3.5	101	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:30	10:23	40.56787	-73.77208	40.56228	-73.70665	9	7	N	<2	B3	≥5000	Cloudy	None	3.5	101	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:23	10:25	40.56228	-73.70665	40.56200	-73.70328	12	5	E	<2	B3	≥5000	Cloudy	Severe	3.5	103	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:25	10:53	40.56200	-73.70328	40.55755	-73.70752	12	2	E	<2	B3	≥5000	Cloudy	Severe	3.5	103	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:53	10:56	40.55755	-73.70752	40.55797	-73.71255	13	2	N	<2	B3	≥5000	Cloudy	Severe	4.2	283	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:56	11:00	40.55797	-73.71255	40.55837	-73.71705	13	2	N	<2	B3	≥5000	Cloudy	Severe	4.2	290	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:52	40.55837	-73.71705	40.56407	-73.78385	13	2	N	<2	B2	≥5000	Cloudy	Severe	4.2	290	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:52	11:54	40.56407	-73.78385	40.56427	-73.78643	11	3	NNW	<2	B2	≥5000	Clear	Severe	3.4	287	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:54	12:11	40.56427	-73.78643	40.56903	-73.77893	11	2	NNW	<2	B2	≥5000	Clear	Severe	3.5	286	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:11	12:14	40.56903	-73.77893	40.57187	-73.77855	11	2	N	<2	B2	≥5000	Clear	Severe	3.8	22	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:14	12:16	40.57187	-73.77855	40.57482	-73.77810	11	2	N	<2	B2	≥5000	Clear	Severe	3.9	19	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:16	12:18	40.57482	-73.77810	40.57653	-73.78113	11	2	N	<2	B2	≥5000	Clear	Severe	3.9	19	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:18	12:25	40.57653	-73.78113	40.57697	-73.78468	11	2	N	<2	B2	≥5000	Clear	Severe	3.7	357	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:25	12:27	40.57697	-73.78468	40.57437	-73.78510	10	2	N	<2	B2	≥5000	Clear	Severe	3.7	202	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:27	12:31	40.57437	-73.78510	40.57045	-73.78602	10	2	N	<2	B2	≥5000	Clear	Severe	4	202	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:31	12:33	40.57045	-73.78602	40.56822	-73.78648	10	2	N	<2	B2	≥5000	Clear	Severe	4	202	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:33	12:41	40.56822	-73.78648	40.56953	-73.78140	10	2	N	<2	B2	≥5000	Clear	Severe	3.9	203	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:41	12:45	40.56953	-73.78140	40.57413	-73.78028	9	2	NNE	<2	B2	≥5000	Clear	Severe	4	24	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:45	12:49	40.57413	-73.78028	40.57760	-73.77963	9	2	NNE	<2	B2	≥5000	Clear	Severe	3.9	23	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:49	12:51	40.57760	-73.77963	40.57943	-73.78043	9	2	NNE	<2	B2	≥5000	Clear	Severe	4	19	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:51	12:57	40.57943	-73.78043	40.57593	-73.78417	8	2	NNE	<2	B2	≥5000	Clear	Severe	3.6	321	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-24	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:57	13:00	40.57593	-73.78417	40.57425	-73.78228	8	4	ESE	<2	B1	≥5000	Clear	Severe	3.4	144	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:02	40.57425	-73.78228	40.57277	-73.78060	8	4	ESE	<2	B1	≥5000	Clear	Severe	3.6	153	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:02	13:09	40.57277	-73.78060	40.56698	-73.77438	8	4	S	<2	B1	≥5000	Clear	Severe	3.6	153	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:09	13:11	40.56698	-73.77438	40.56588	-73.77323	10	4	S	<2	B1	≥5000	Clear	Severe	3.3	156	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:11	13:22	40.56588	-73.77323	40.56363	-73.76912	10	4	S	<2	B1	≥5000	Clear	Severe	3.6	152	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:22	13:27	40.56363	-73.76912	40.56735	-73.77307	11	4	WNW	<2	B1	≥5000	Clear	Severe	3.8	333	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:27	13:33	40.56735	-73.77307	40.57390	-73.78030	11	3	WNW	<2	B1	≥5000	Clear	Severe	4.2	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:33	13:35	40.57390	-73.78030	40.57527	-73.78167	8	4	ENE	<2	B1	≥5000	Clear	Moderate	4.2	334	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:35	13:47	40.57527	-73.78167	40.57443	-73.78355	8	2	SE	<2	B1	≥5000	Clear	Moderate	4.1	341	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:47	13:51	40.57443	-73.78355	40.57193	-73.78065	8	4	SSE	<2	B1	≥5000	Clear	Moderate	3.5	140	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:51	13:57	40.57193	-73.78065	40.56713	-73.77540	8	5	S	<2	B1	≥5000	Clear	Moderate	3.6	153	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	13:57	14:00	40.56713	-73.77540	40.56507	-73.77297	10	3	S	<2	B2	≥5000	Clear	Moderate	3.5	143	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:12	40.56507	-73.77297	40.56495	-73.77088	10	3	S	<2	B2	≥5000	Clear	Moderate	3.6	143	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:12	14:15	40.56495	-73.77088	40.56748	-73.77370	8	5	S	<2	B2	≥5000	Clear	Moderate	4.1	328	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:15	14:22	40.56748	-73.77370	40.57338	-73.78013	8	5	S	<2	B2	≥5000	Clear	Moderate	4.1	327	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:22	14:24	40.57338	-73.78013	40.57502	-73.78150	8	5	S	<2	B2	≥5000	Clear	Moderate	4	325	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:24	14:35	40.57502	-73.78150	40.57528	-73.78410	8	5	S	<2	B2	≥5000	Clear	Moderate	3.9	355	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:35	14:40	40.57528	-73.78410	40.57185	-73.78015	7	4	S	<2	B2	≥5000	Clear	Moderate	3.6	140	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	14:47	40.57185	-73.78015	40.56683	-73.77462	7	4	S	<2	B2	≥5000	Clear	Moderate	3.7	148	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:47	14:48	40.56683	-73.77462	40.56572	-73.77342	10	4	SE	<2	B2	≥5000	Clear	Moderate	3.6	145	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:48	15:00	40.56572	-73.77342	40.56288	-73.76725	10	4	SE	<2	B2	≥5000	Clear	Moderate	3.6	145	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:02	40.56288	-73.76725	40.56450	-73.77003	12	4	SW	<2	B2	≥5000	Clear	Slight	3.7	346	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:02	15:06	40.56450	-73.77003	40.56745	-73.77410	12	4	SW	<2	B2	≥5000	Clear	Slight	4.1	315	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:06	15:12	40.56745	-73.77410	40.57292	-73.78008	12	4	SW	<2	B2	≥5000	Clear	Slight	4	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	15:15	40.57292	-73.78008	40.57482	-73.78228	9	5	SW	<2	B2	≥5000	Clear	Slight	3.8	328	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:15	15:25	40.57482	-73.78228	40.57602	-73.78420	9	5	SW	<2	B2	≥5000	Clear	Slight	3.6	348	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:25	15:29	40.57602	-73.78420	40.57313	-73.78017	8	8	S	<2	B2	≥5000	Clear	Slight	3.4	136	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:29	15:38	40.57313	-73.78017	40.56672	-73.77312	8	8	S	<2	B2	≥5000	Clear	Slight	3.6	154	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:38	15:39	40.56672	-73.77312	40.56572	-73.77203	11	9	S	<2	B2	≥5000	Clear	Slight	3.6	154	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:39	16:00	40.56572	-73.77203	40.55527	-73.77353	11	9	S	<2	B2	≥5000	Clear	Slight	3.6	152	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:07	40.55527	-73.77353	40.56298	-73.77403	13	4	SSW	<2	B2	≥5000	Clear	Slight	4.1	318	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:07	16:12	40.56298	-73.77403	40.56792	-73.77647	12	4	S	<2	B2	≥5000	Clear	Slight	3.7	33	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:12	16:17	40.56792	-73.77647	40.57233	-73.78120	11	5	S	<2	B2	≥5000	Clear	Slight	4	334	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:17	16:19	40.57233	-73.78120	40.57398	-73.78300	8	4	SW	<2	B2	≥5000	Clear	Slight	4	332	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:19	16:50	40.57398	-73.78300	40.57793	-73.78353	8	4	SSE	<2	B2	≥5000	Clear	Slight	3.9	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:50	16:56	40.57793	-73.78353	40.57337	-73.77997	8	11	SSW	<2	B2	≥5000	Clear	Slight	3.3	210	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:56	17:04	40.57337	-73.77997	40.56683	-73.77278	10	7	S	<2	B2	≥5000	Clear	Slight	3.8	157	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:04	17:06	40.56683	-73.77278	40.56503	-73.77077	11	6	S	<2	B2	≥5000	Clear	Slight	3.8	151	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:06	17:19	40.56503	-73.77077	40.56425	-73.76963	11	7	SSE	<2	B2	≥5000	Clear	Slight	3.8	152	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:19	17:24	40.56425	-73.76963	40.56745	-73.77437	11	3	SSW	<2	B2	≥5000	Clear	Slight	3.5	278	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:24	17:30	40.56745	-73.77437	40.57315	-73.78055	10	5	S	<2	B2	≥5000	Clear	Slight	4	334	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:30	17:33	40.57315	-73.78055	40.57485	-73.78193	8	6	S	<2	B3	≥5000	Clear	Slight	3.9	333	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:33	17:53	40.57485	-73.78193	40.56458	-73.77215	8	6	S	<2	B3	≥5000	Clear	Slight	3.8	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:53	17:58	40.56458	-73.77215	40.56762	-73.77515	11	6	SSE	<2	B3	≥5000	Clear	Slight	3.7	19	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:58	18:00	40.56762	-73.77515	40.56955	-73.77737	11	6	S	<2	B3	≥5000	Clear	Slight	4.1	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:03	40.56955	-73.77738	40.57247	-73.78060	10	5	S	<2	B3	≥5000	Clear	Slight	4	332	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:03	18:06	40.57247	-73.78060	40.57372	-73.78338	10	5	S	<2	B3	≥5000	Clear	Slight	4	332	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:06	18:23	40.57372	-73.78338	40.56483	-73.77333	10	5	S	<2	B3	≥5000	Clear	Slight	3.8	333	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:23	18:26	40.56483	-73.77333	40.56785	-73.77593	11	7	S	<2	B3	≥5000	Clear	Slight	3.4	277	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:26	18:31	40.56785	-73.77593	40.57265	-73.78057	11	7	S	<2	B3	≥5000	Clear	Slight	3.6	19	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:31	18:34	40.57265	-73.78057	40.57493	-73.78055	9	8	SSW	<2	B3	≥5000	Clear	Slight	4	332	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:34	18:45	40.57493	-73.78055	40.57635	-73.77270	9	8	SSW	<2	B3	≥5000	Clear	Slight	3.9	356	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:45	18:50	40.57635	-73.77270	40.57248	-73.77572	11	16	W	<2	B3	≥5000	Clear	Moderate	3.9	17	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:50	19:00	40.57248	-73.77572	40.56230	-73.78313	11	16	W	<2	B3	≥5000	Clear	Moderate	3.9	224	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:03	40.56230	-73.78313	40.56012	-73.78313	11	19	S	<2	B3	≥5000	Clear	Moderate	4	223	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:03	19:15	40.56012	-73.78313	40.55668	-73.76965	11	19	S	<2	B3	≥5000	Clear	Moderate	4	223	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:15	19:19	40.55668	-73.76965	40.56023	-73.76905	12	13	SW	<2	B4	≥5000	Clear	Moderate	4.1	41	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:19	19:28	40.56023	-73.76905	40.57127	-73.76750	12	13	SW	<2	B4	≥5000	Clear	Moderate	4.2	20	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:28	19:30	40.57127	-73.76750	40.57310	-73.76705	9	12	SE	<2	B4	≥5000	Clear	Moderate	4.1	11	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:30	19:41	40.57310	-73.76705	40.57350	-73.75547	9	12	SE	<2	B4	≥5000	Clear	Moderate	3.9	34	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:41	19:45	40.57350	-73.75547	40.56978	-73.75545	8	19	SSW	<2	B5	≥5000	Clear	Moderate	3.4	171	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:45	19:56	40.56978	-73.75545	40.55895	-73.75740	8	19	SSW	<2	B5	≥5000	Clear	Moderate	3.5	203	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:56	19:58	40.55895	-73.75740	40.55692	-73.75733	13	17	S	<2	B5	≥5000	Clear	Moderate	3.6	201	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:58	20:09	40.55692	-73.75733	40.56053	-73.74307	13	17	S	<2	B5	≥5000	Clear	Moderate	3.4	169	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:09	20:13	40.56053	-73.74307	40.56392	-73.74308	13	12	S	<2	B5	≥5000	Clear	Severe	3.9	24	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:13	20:24	40.56392	-73.74308	40.57533	-73.74257	13	12	S	<2	B5	≥5000	Clear	Severe	3.6	15	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:24	20:26	40.57533	-73.74257	40.57667	-73.74415	9	11	S	<2	B5	≥5000	Clear	Severe	3.7	354	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:26	20:35	40.57667	-73.74415	40.57465	-73.74923	9	11	S	<2	B5	≥5000	Clear	Severe	3.7	316	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:35	20:38	40.57465	-73.74923	40.57415	-73.74533	8	19	SSE	<2	B5	≥5000	Clear	Severe	3.7	139	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:38	20:48	40.57415	-73.74533	40.57340	-73.73108	8	19	SSE	<2	B5	≥5000	Clear	Severe	3.9	108	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:48	20:50	40.57340	-73.73108	40.57345	-73.72845	9	18	SSE	<2	B5	≥5000	Clear	Severe	3.8	107	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:50	21:00	40.57345	-73.72845	40.57837	-73.73577	9	18	SSE	<2	B5	≥5000	Clear	Severe	3.7	90	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:03	40.57837	-73.73577	40.57702	-73.73727	8	9	SSE	<2	B5	≥5000	Clear	Severe	3.2	261	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:03	21:04	40.57702	-73.73727	40.57595	-73.73737	8	13	SSW	<2	B5	≥5000	Clear	Severe	3.1	198	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:04	21:16	40.57595	-73.73737	40.56368	-73.73830	8	14	SSW	<2	B5	≥5000	Clear	Severe	3.4	195	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:16	21:18	40.56368	-73.73830	40.56175	-73.73878	13	19	SSW	<2	B5	≥5000	Clear	Moderate	3.7	196	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:18	21:25	40.56175	-73.73878	40.55988	-73.73635	13	9	SE	<2	B5	≥5000	Clear	Moderate	3.7	222	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:25	21:30	40.55988	-73.73635	40.56492	-73.73588	13	13	S	<2	B5	≥5000	Clear	Moderate	4	42	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:30	22:00	40.56492	-73.73588	40.56078	-73.72043	9	9	SSW	<2	B5	≥5000	Clear	Moderate	3.6	18	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:15	40.56078	-73.72043	40.56390	-73.73608	14	6	S	<2	B5	≥5000	Clear	Moderate	3.5	101	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:15	22:19	40.56390	-73.73608	40.56447	-73.73603	14	10	S	<2	B5	≥5000	Clear	Moderate	3.5	101	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:19	22:31	40.56447	-73.73603	40.57853	-73.73872	14	10	S	<2	B5	≥5000	Clear	Moderate	3.8	101	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:31	22:33	40.57853	-73.73872	40.57847	-73.73888	14	10	S	<2	B5	≥5000	Clear	Moderate	3.8	250	Silent	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:33	22:39	40.57847	-73.73888	40.57618	-73.74072	14	10	S	<2	B5	≥5000	Clear	Moderate	3.7	250	Full Power	N/A
2023-05-24	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:39	22:40	40.57618	-73.74072	40.57492	-73.74075	14	10	S	<2	B4	≥5000	Clear	Moderate	3.7	250	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-24	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:40	22:51	40.57492	-73.74075	40.56118	-73.74120	14	10	S	<2	B4	≥5000	Clear	Moderate	3.7	250	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:51	22:54	40.56118	-73.74120	40.56103	-73.74112	14	10	S	<2	B4	≥5000	Clear	Moderate	3.5	82	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:54	22:59	40.56103	-73.74112	40.56203	-73.73645	14	10	S	<2	B4	≥5000	Clear	Moderate	3.5	82	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:59	23:00	40.56203	-73.73645	40.56282	-73.73632	13	10	S	<2	B4	≥5000	Clear	Moderate	3.5	82	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:01	40.56282	-73.73632	40.56378	-73.73622	13	10	S	<2	B4	≥5000	Clear	Moderate	3.5	82	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:01	23:12	40.56378	-73.73622	40.57542	-73.73528	13	4	SSE	<2	B4	≥5000	Clear	Moderate	4.2	18	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:12	23:14	40.57542	-73.73528	40.57800	-73.73522	9	3	SSW	<2	B4	≥5000	Clear	None	4	16	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:14	23:19	40.57800	-73.73522	40.57785	-73.73962	9	5	SSW	<2	B4	≥5000	Clear	None	3.6	349	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:19	23:21	40.57785	-73.73962	40.57553	-73.74035	9	12	SSW	<2	B4	≥5000	Clear	None	3.3	225	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:21	23:32	40.57553	-73.74035	40.56420	-73.74127	9	14	SSW	<2	B4	≥5000	Clear	None	3.8	202	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:32	23:35	40.56420	-73.74127	40.56015	-73.74143	12	17	ENE	<2	B5	≥5000	Cloudy	None	4.3	199	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:35	23:42	40.56015	-73.74143	40.56122	-73.73637	12	11	N	<2	B5	≥5000	Cloudy	None	4.1	181	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:42	23:45	40.56122	-73.73637	40.56395	-73.73647	13	16	NNE	<2	B5	≥5000	Cloudy	None	3.8	9	Silent	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:45	23:57	40.56395	-73.73647	40.57523	-73.73577	13	5	NNE	<2	B5	≥5000	Cloudy	None	3.6	15	Full Power	N/A
2023-05-24	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:57	00:00	40.57523	-73.73577	40.57672	-73.73773	9	5	NNE	<2	B3	≥5000	Cloudy	None	3.5	5	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:02	40.57672	-73.73773	40.57593	-73.74160	9	1	N	<2	B3	≥5000	Cloudy	None	3.4	299	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:02	00:04	40.57593	-73.74160	40.57488	-73.74188	9	0	E	<2	B2	≥5000	Cloudy	None	3.3	239	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:04	00:15	40.57488	-73.74188	40.56520	-73.74255	9	2	S	<2	B2	≥5000	Cloudy	None	3.1	190	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:15	00:18	40.56520	-73.74255	40.56130	-73.74287	12	3	ENE	<2	B3	2000-4999	Cloudy	None	3.6	195	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:18	00:41	40.56130	-73.74287	40.55250	-73.72890	12	5	ENE	<2	B3	2000-4999	Cloudy	None	3.6	194	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:41	00:46	40.55250	-73.72890	40.55742	-73.72803	14	17	N	<2	B3	500-999	Cloudy	None	3.3	12	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:46	00:55	40.55742	-73.72803	40.56473	-73.72682	14	17	N	<2	B3	500-999	Cloudy	None	4.1	22	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:55	00:57	40.56473	-73.72682	40.56790	-73.72902	11	25	N	<2	B3	500-999	Cloudy	None	4	19	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:57	01:00	40.56790	-73.72902	40.56557	-73.73080	11	20	N	<2	B3	500-999	Cloudy	None	4.2	268	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:24	40.56557	-73.73080	40.56383	-73.71418	11	11	N	<2	B3	500-999	Cloudy	None	4.3	192	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:24	01:27	40.56383	-73.71418	40.56435	-73.71773	11	12	N	<2	B4	500-999	Cloudy	None	4	294	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:27	01:56	40.56435	-73.71773	40.56817	-73.76252	11	12	N	<2	B4	500-999	Cloudy	None	4.1	288	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:56	01:59	40.56817	-73.76252	40.56837	-73.76540	10	14	N	<2	B4	500-999	Cloudy	None	4	287	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:59	02:22	40.56837	-73.76540	40.56425	-73.78693	10	14	N	<2	B4	500-999	Cloudy	None	3.9	287	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:22	02:26	40.56425	-73.78693	40.56365	-73.78158	10	11	NNE	<2	B4	500-999	Cloudy	None	3.2	124	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:26	03:00	40.56365	-73.78158	40.56072	-73.74723	10	17	NNE	<2	B4	500-999	Cloudy	None	3.3	114	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:25	40.56072	-73.74723	40.55748	-73.70830	13	14	N	<2	B4	500-999	Cloudy	None	3.4	91	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:25	03:27	40.55748	-73.70830	40.55740	-73.70802	14	14	N	<2	B4	500-999	Cloudy	None	3.4	133	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:27	03:39	40.55740	-73.70802	40.56092	-73.70847	14	14	N	<2	B4	500-999	Cloudy	None	3.4	133	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:39	03:44	40.56092	-73.70847	40.56103	-73.71043	14	17	N	<2	B5	500-999	Cloudy	None	3.4	133	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:44	04:39	40.56103	-73.71043	40.56910	-73.79598	14	17	N	<2	B5	500-999	Cloudy	None	3.4	133	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:39	04:41	40.56910	-73.79598	40.56925	-73.79618	14	14	N	<2	B5	500-999	Cloudy	None	3.6	338	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:41	05:00	40.56925	-73.79618	40.56663	-73.79542	14	14	N	<2	B5	500-999	Cloudy	None	3.6	338	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:01	40.56663	-73.79542	40.56608	-73.78968	9	14	NNE	<2	B5	500-999	Cloudy	None	3.4	111	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:01	05:04	40.56608	-73.78968	40.56582	-73.78503	9	17	NNE	<2	B5	500-999	Cloudy	None	3.5	111	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:04	06:00	40.56582	-73.78503	40.55985	-73.71572	10	8	NNE	<2	B5	500-999	Cloudy	None	3.5	110	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:04	40.55985	-73.71572	40.55903	-73.70742	10	11	NNE	<2	B5	500-999	Cloudy	None	3.5	93	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:04	06:07	40.55903	-73.70742	40.55922	-73.70390	12	11	NNE	<2	B5	500-999	Cloudy	None	3.5	90	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:07	06:33	40.55922	-73.70390	40.55722	-73.71037	12	15	N	<2	B5	500-999	Cloudy	None	3.5	90	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:33	06:37	40.55722	-73.71037	40.55722	-73.71037	12	26	N	<2	B5	500-999	Cloudy	None	3.5	289	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:37	07:28	40.55722	-73.71037	40.56378	-73.78665	12	26	N	<2	B5	500-999	Cloudy	None	3.5	289	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:28	07:30	40.56378	-73.78665	40.56382	-73.78720	12	28	N	<2	B5	500-999	Cloudy	None	3.5	289	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:30	08:00	40.56382	-73.78720	40.56833	-73.79313	12	28	N	<2	B5	500-999	Cloudy	None	3.5	289	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:03	40.56833	-73.79313	40.56797	-73.78823	8	22	N	<2	B5	500-999	Cloudy	None	3.6	89	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:03	09:03	40.56797	-73.78823	40.56107	-73.70773	8	22	N	<2	B5	500-999	Cloudy	None	3.6	89	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:03	09:06	40.56107	-73.70773	40.56075	-73.70435	12	18	N	<2	B5	2000-4999	Clear	None	3.8	93	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:06	09:30	40.56075	-73.70435	40.54785	-73.71677	12	18	N	<2	B5	2000-4999	Clear	None	3.8	94	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:30	09:32	40.54785	-73.71677	40.54785	-73.71677	14	20	N	<2	B5	≥5000	Clear	Moderate	3.1	358	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:32	09:38	40.54785	-73.71677	40.55443	-73.71673	14	20	N	<2	B5	≥5000	Clear	Moderate	3.1	358	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:38	09:50	40.55443	-73.71673	40.56598	-73.71470	14	20	N	<2	B5	≥5000	Clear	Severe	3.4	15	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:50	09:52	40.56598	-73.71470	40.56787	-73.71438	11	18	N	<2	B5	≥5000	Clear	Severe	3.8	13	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:52	10:10	40.56787	-73.71438	40.57073	-73.73525	11	18	N	<2	B5	≥5000	Clear	Severe	3.7	12	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:10	10:13	40.57073	-73.73525	40.56757	-73.73575	10	15	N	<2	B5	≥5000	Clear	Severe	4.1	188	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:13	10:23	40.56757	-73.73575	40.55618	-73.73772	10	15	N	<2	B5	≥5000	Clear	Severe	4.3	191	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:23	10:24	40.55618	-73.73772	40.55488	-73.73793	14	15	N	<2	B5	≥5000	Clear	Severe	4.2	190	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:24	10:39	40.55488	-73.73793	40.55912	-73.73490	14	15	N	<2	B5	≥5000	Clear	Severe	4.2	190	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:39	10:44	40.55912	-73.73490	40.56408	-73.73480	11	25	N	<2	B5	≥5000	Clear	Severe	3.4	4	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:44	10:56	40.56408	-73.73480	40.57458	-73.73385	11	25	N	<2	B5	≥5000	Clear	Severe	3.5	8	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:56	10:58	40.57458	-73.73385	40.57690	-73.73438	8	29	N	<2	B5	≥5000	Clear	Severe	3.5	15	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	10:58	11:04	40.57690	-73.73438	40.57797	-73.74072	8	18	N	<2	B4	≥5000	Clear	Severe	3.4	332	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:04	11:06	40.57797	-73.74072	40.57507	-73.74147	8	16	N	<2	B4	≥5000	Clear	Severe	3.8	243	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:06	11:18	40.57507	-73.74147	40.56317	-73.74247	8	15	N	<2	B4	≥5000	Clear	Severe	4.1	196	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:18	11:19	40.56317	-73.74247	40.56150	-73.74257	12	15	N	<2	B4	≥5000	Clear	Severe	3.4	196	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:19	11:32	40.56150	-73.74257	40.55992	-73.73575	12	13	N	<2	B4	≥5000	Clear	Severe	3.5	195	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:32	11:35	40.55992	-73.73575	40.56395	-73.73505	13	13	N	<2	B4	≥5000	Clear	Severe	3.5	51	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:35	11:46	40.56395	-73.73505	40.57577	-73.73420	13	29	N	<2	B4	≥5000	Clear	Severe	3.6	19	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:46	11:48	40.57577	-73.73420	40.57745	-73.73510	9	29	N	<2	B4	≥5000	Clear	Severe	3.5	17	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:48	11:54	40.57745	-73.73510	40.57707	-73.74113	9	17	N	<2	B4	≥5000	Clear	Severe	3.5	330	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:54	11:56	40.57707	-73.74113	40.57463	-73.74115	9	19	N	<2	B4	≥5000	Clear	Severe	3.6	202	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:56	12:07	40.57463	-73.74115	40.56302	-73.74213	9	17	N	<2	B4	≥5000	Clear	Severe	4.1	196	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:07	12:09	40.56302	-73.74213	40.56032	-73.74240	13	17	N	<2	B5	≥5000	Clear	Severe	3.6	198	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:09	12:22	40.56032	-73.74240	40.56032	-73.73600	13	17	N	<2	B5	≥5000	Clear	Severe	3.6	198	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:22	12:26	40.56032	-73.73600	40.56405	-73.73547	12	21	NNE	<2	B5	≥5000	Clear	Severe	3.2	23	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:26	12:38	40.56405	-73.73547	40.57575	-73.73467	12	27	NNE	<2	B5	≥5000	Clear	Severe	3.7	16	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:38	12:40	40.57575	-73.73467	40.57798	-73.73645	9	28	N	<2	B5	≥5000	Clear	Severe	3.7	12	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	12:46	40.57798	-73.73645	40.57625	-73.74222	9	17	N	<2	B5	≥5000	Clear	Severe	3.9	316	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:46	12:47	40.57625	-73.74222	40.57458	-73.74228	9	13	N	<2	B5	≥5000	Clear	Severe	3.8	194	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:47	12:59	40.57458	-73.74228	40.56333	-73.74317	9	16	N	<2	B5	≥5000	Clear	Severe	4.2	196	Full Power	N/A
2023-05-25	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:59	13:02	40.56333	-73.74317	40.56083	-73.74342	13	17	N	<2	B6	≥5000	Clear	Severe	3.4	197	Silent	N/A
2023-05-25	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:02	13:11	40.56083	-73.74342	40.55907	-73.73828	13	17	N	<2	B6	≥5000	Clear	Severe	3.5	197	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:11	13:15	40.55907	-73.73828	40.56370	-73.73825	13	24	N	<2	B6	≥5000	Clear	Severe	3.6	5	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:15	13:25	40.56370	-73.73825	40.57535	-73.73737	13	26	NNE	<2	B6	≥5000	Clear	Severe	4.1	14	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:25	13:27	40.57535	-73.73737	40.57727	-73.73800	9	22	NNE	<2	B4	≥5000	Clear	Moderate	4.1	18	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:27	13:50	40.57727	-73.73800	40.57672	-73.74007	9	18	NNW	<2	B4	≥5000	Clear	Moderate	3.8	321	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:50	13:52	40.57672	-73.74007	40.57500	-73.74007	8	14	NNE	<2	B4	≥5000	Clear	Moderate	3.2	197	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:52	14:00	40.57500	-73.74007	40.57100	-73.74043	8	17	NNE	<2	B4	≥5000	Clear	Moderate	4	194	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:04	40.57100	-73.74043	40.56277	-73.74107	10	14	N	<2	B4	≥5000	Clear	Moderate	3.5	182	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:04	14:06	40.56277	-73.74107	40.56135	-73.74122	13	14	N	<2	B4	≥5000	Clear	Moderate	3.3	183	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:06	14:15	40.56135	-73.74122	40.55885	-73.73600	13	14	N	<2	B4	≥5000	Clear	Moderate	3.4	181	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:15	14:20	40.55885	-73.73600	40.56365	-73.73582	14	14	N	<2	B4	≥5000	Clear	Moderate	3.1	11	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:31	40.56365	-73.73582	40.57538	-73.73488	14	14	N	<2	B4	≥5000	Clear	Moderate	3.8	16	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:31	14:33	40.57538	-73.73488	40.57753	-73.73425	9	15	N	<2	B3	≥5000	Clear	Moderate	3.7	19	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:33	14:40	40.57753	-73.73425	40.57633	-73.73977	9	11	N	<2	B3	≥5000	Clear	Moderate	3.5	29	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	14:42	40.57633	-73.73977	40.57437	-73.73982	10	11	N	<2	B3	≥5000	Clear	Moderate	3.2	194	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:42	14:54	40.57437	-73.73982	40.56333	-73.74062	10	11	N	<2	B3	≥5000	Clear	Moderate	3.3	195	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:54	14:57	40.56333	-73.74062	40.56105	-73.74077	12	11	N	<2	B3	≥5000	Clear	Moderate	3.3	196	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:57	15:00	40.56105	-73.74077	40.55908	-73.74125	12	11	N	<2	B3	≥5000	Clear	Moderate	3.2	196	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:08	40.55908	-73.74125	40.55835	-73.73572	13	8	NE	<2	B4	≥5000	Clear	Slight	3.9	212	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:08	15:14	40.55835	-73.73572	40.56405	-73.73682	14	14	N	<2	B4	≥5000	Clear	Slight	3.8	0	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:14	15:24	40.56405	-73.73682	40.57598	-73.73593	13	17	NE	<2	B4	≥5000	Clear	Slight	4.2	20	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:24	15:28	40.57598	-73.73593	40.57782	-73.73828	8	22	N	<2	B4	≥5000	Clear	Slight	3.8	20	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:28	15:50	40.57782	-73.73828	40.57833	-73.73640	8	22	N	<2	B4	≥5000	Clear	Slight	3.7	285	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:50	15:54	40.57833	-73.73640	40.57522	-73.73717	8	14	N	<2	B4	≥5000	Clear	Slight	3.8	249	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:54	16:00	40.57522	-73.73717	40.57062	-73.73757	8	14	N	<2	B4	≥5000	Clear	Slight	3.9	196	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:04	40.57062	-73.73757	40.56355	-73.73813	11	6	E	<2	B3	≥5000	Clear	Slight	4.1	197	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:04	16:06	40.56355	-73.73813	40.56137	-73.73837	11	10	N	<2	B3	≥5000	Clear	Slight	4.1	197	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:06	16:22	40.56137	-73.73837	40.55912	-73.73678	11	8	N	<2	B3	≥5000	Clear	Slight	4.1	199	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:22	16:27	40.55912	-73.73678	40.56348	-73.73727	13	12	N	<2	B3	≥5000	Clear	Slight	3.8	350	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:27	16:38	40.56348	-73.73727	40.57550	-73.73613	13	15	NNE	<2	B3	≥5000	Clear	Slight	3.7	13	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:38	16:41	40.57550	-73.73613	40.57725	-73.73540	9	15	NNE	<2	B3	≥5000	Clear	Slight	3.8	19	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:41	16:47	40.57725	-73.73540	40.57812	-73.73873	9	11	NE	<2	B3	≥5000	Clear	Slight	3.4	42	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:47	16:51	40.57812	-73.73873	40.57485	-73.73603	8	5	N	<2	B3	≥5000	Clear	Slight	3.4	185	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:51	17:01	40.57485	-73.73603	40.56302	-73.73713	8	8	N	<2	B3	≥5000	Clear	Slight	3.9	185	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:01	17:03	40.56302	-73.73713	40.56122	-73.73773	13	5	NNE	<2	B3	≥5000	Clear	Slight	4.2	197	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:03	17:18	40.56122	-73.73773	40.55910	-73.73807	13	5	NNW	<2	B3	≥5000	Clear	Slight	4.1	219	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:18	17:23	40.55910	-73.73807	40.56352	-73.73760	13	17	NNE	<2	B3	≥5000	Clear	Slight	3.6	21	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:23	17:34	40.56352	-73.73760	40.57543	-73.73637	13	12	NNE	<2	B3	≥5000	Clear	Slight	3.6	19	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:34	17:37	40.57543	-73.73637	40.57655	-73.73473	9	9	ESE	<2	B2	≥5000	Clear	Slight	3.5	44	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:37	17:43	40.57655	-73.73473	40.57867	-73.73628	9	10	NNW	<2	B2	≥5000	Clear	Slight	3.2	64	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:43	17:46	40.57867	-73.73628	40.57578	-73.73650	9	10	N	<2	B2	≥5000	Clear	Slight	3.6	222	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:46	17:56	40.57578	-73.73650	40.56362	-73.73745	9	5	NNW	<2	B2	≥5000	Clear	Slight	4	194	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:56	17:58	40.56362	-73.73745	40.56105	-73.73797	13	6	NNW	<2	B2	≥5000	Clear	Slight	4.1	195	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:58	18:00	40.56105	-73.73797	40.55962	-73.74002	13	3	NNW	<2	B2	≥5000	Clear	Slight	4	215	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:12	40.55962	-73.74002	40.55910	-73.73830	13	5	N	<2	B2	≥5000	Clear	Slight	4	260	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:12	18:17	40.55910	-73.73830	40.56417	-73.73795	13	12	N	<2	B3	≥5000	Clear	Slight	3.5	16	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:17	18:28	40.56417	-73.73795	40.57557	-73.73620	13	12	N	<2	B3	≥5000	Clear	Slight	3.8	17	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:28	18:31	40.57557	-73.73620	40.57680	-73.73380	8	12	NNE	<2	B3	≥5000	Clear	Slight	3.8	55	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:31	18:37	40.57680	-73.73380	40.57817	-73.73705	8	12	NNE	<2	B3	≥5000	Clear	Slight	3.7	67	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:37	18:39	40.57817	-73.73705	40.57562	-73.73748	8	2	N	<2	B2	≥5000	Clear	Slight	3.6	224	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:39	18:51	40.57562	-73.73748	40.56298	-73.73863	8	2	N	<2	B2	≥5000	Clear	Slight	3.9	199	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:51	18:53	40.56298	-73.73863	40.56070	-73.73927	13	6	NNW	<2	B2	≥5000	Clear	Slight	4.1	195	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:53	19:09	40.56070	-73.73927	40.56045	-73.73997	13	6	NNW	<2	B2	≥5000	Clear	Slight	4.2	212	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:09	19:12	40.56045	-73.73997	40.56385	-73.73940	13	14	NNE	<2	B2	≥5000	Clear	Slight	3.4	28	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:12	19:23	40.56385	-73.73940	40.57533	-73.73900	13	14	NNE	<2	B2	≥5000	Clear	Slight	3.7	18	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:23	19:26	40.57533	-73.73900	40.57625	-73.74227	8	12	N	<2	B2	≥5000	Clear	Moderate	3.5	346	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:26	19:40	40.57625	-73.74227	40.57357	-73.74835	8	12	N	<2	B2	≥5000	Clear	Moderate	3.7	285	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	19:44	40.57357	-73.74835	40.57400	-73.74448	9	16	NNE	<2	B2	≥5000	Clear	Moderate	3.8	84	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:44	19:53	40.57400	-73.74448	40.57348	-73.73077	9	16	NNE	<2	B2	≥5000	Clear	Moderate	3.9	100	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:53	19:55	40.57348	-73.73077	40.57365	-73.72772	9	13	NNE	<2	B2	≥5000	Clear	Moderate	4.1	107	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:55	20:06	40.57365	-73.72772	40.57753	-73.73537	9	13	NNE	<2	B2	≥5000	Clear	Moderate	3.4	70	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:06	20:08	40.57753	-73.73537	40.57567	-73.73570	8	8	NNE	<2	B2	≥5000	Clear	Severe	3.8	216	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:08	20:18	40.57567	-73.73570	40.56337	-73.73677	8	8	NNE	<2	B2	≥5000	Clear	Severe	4	200	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:18	20:21	40.56337	-73.73677	40.56092	-73.73672	12	6	NNE	<2	B2	≥5000	Clear	Severe	4.2	196	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:21	20:49	40.56092	-73.73672	40.56018	-73.74005	12	6	NNE	<2	B2	≥5000	Clear	Severe	4.2	184	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:49	20:53	40.56018	-73.74005	40.56362	-73.73975	13	13	N	<2	B3	≥5000	Clear	Severe	3.7	14	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:53	21:00	40.56362	-73.73975	40.57088	-73.73917	13	13	N	<2	B3	≥5000	Clear	Severe	3.7	20	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:04	40.57088	-73.73917	40.57508	-73.74175	10	9	NNE	<2	B2	≥5000	Clear	Severe	3.8	18	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:04	21:06	40.57508	-73.74175	40.57658	-73.73550	9	16	N	<2	B2	≥5000	Clear	Severe	3.8	44	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:06	21:13	40.57658	-73.73550	40.57802	-73.73842	9	8	N	<2	B2	≥5000	Clear	Severe	4	81	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:13	21:16	40.57802	-73.73842	40.57552	-73.73930	9	11	NNE	<2	B2	≥5000	Clear	Severe	3.8	225	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:16	21:26	40.57552	-73.73930	40.56352	-73.74025	9	10	NNE	<2	B2	≥5000	Clear	Severe	4	198	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:26	21:28	40.56352	-73.74025	40.56008	-73.74190	12	6	NE	<2	B2	≥5000	Clear	Severe	4.2	197	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:28	21:42	40.56008	-73.74190	40.56432	-73.74045	12	4	NNE	<2	B2	≥5000	Clear	Severe	4.2	228	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:42	21:47	40.56432	-73.74045	40.57513	-73.73928	12	14	NNE	<2	B2	≥5000	Clear	Severe	3.7	19	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:47	21:57	40.57513	-73.73928	40.57872	-73.73470	9	13	NNE	<2	B2	≥5000	Clear	Severe	3.7	33	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:57	22:00	40.57872	-73.73470	40.57640	-73.73772	9	12	NNE	<2	B2	≥5000	Clear	Severe	3.6	294	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:08	40.57640	-73.73772	40.57337	-73.73910	9	4	N	<2	B2	≥5000	Clear	Severe	3.8	189	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:08	22:11	40.57337	-73.73910	40.57307	-73.73912	9	4	N	<2	B2	≥5000	Clear	Severe	3.8	189	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:11	22:21	40.57307	-73.73912	40.55970	-73.74263	9	4	N	<2	B2	≥5000	Clear	Severe	3.8	185	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:21	22:24	40.55970	-73.74263	40.55958	-73.74285	11	6	N	<2	B2	≥5000	Clear	Severe	3.8	274	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:24	22:36	40.55958	-73.74285	40.56022	-73.74038	11	6	N	<2	B2	≥5000	Clear	Severe	3.8	274	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:36	22:41	40.56022	-73.74038	40.56468	-73.74003	11	9	N	<2	B3	≥5000	Clear	Severe	3.6	16	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:41	22:52	40.56468	-73.74003	40.57585	-73.73478	11	9	N	<2	B3	≥5000	Clear	Severe	3.6	16	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:52	22:54	40.57585	-73.73478	40.57582	-73.73460	11	9	N	<2	B3	≥5000	Clear	Severe	3.6	89	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:54	23:00	40.57582	-73.73460	40.57872	-73.73470	11	9	N	<2	B3	≥5000	Clear	Severe	3.6	89	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:03	40.57872	-73.73470	40.57668	-73.73780	9	12	NNE	<2	B3	≥5000	Clear	Severe	3.6	294	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:03	23:05	40.57668	-73.73780	40.57525	-73.73845	9	8	NNE	<2	B3	≥5000	Clear	Severe	3.9	212	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:05	23:15	40.57525	-73.73845	40.56407	-73.73890	9	7	NE	<2	B3	≥5000	Clear	Severe	4.1	209	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:15	23:18	40.56407	-73.73890	40.56230	-73.73655	13	4	ENE	<2	B3	≥5000	Clear	Severe	3.7	167	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:18	23:35	40.56230	-73.73655	40.55968	-73.74327	13	5	NNE	<2	B3	≥5000	Clear	Severe	3.6	134	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:35	23:39	40.55968	-73.74327	40.56408	-73.74292	13	9	NNE	<2	B2	≥5000	Clear	Severe	3.4	16	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:39	23:50	40.56408	-73.74292	40.57517	-73.74250	13	7	NNE	<2	B2	≥5000	Clear	Severe	3.8	15	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:50	23:52	40.57517	-73.74250	40.57733	-73.74193	8	6	NNE	<2	B2	≥5000	Clear	Severe	3.7	9	Silent	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:52	23:56	40.57733	-73.74193	40.57822	-73.73793	8	11	NE	<2	B2	≥5000	Clear	Severe	3.7	33	Full Power	N/A
2023-05-25	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:56	00:00	40.57822	-73.73793	40.57582	-73.73772	9	5	SE	<2	B1	≥5000	Clear	Slight	3.1	148	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:10	40.57582	-73.73772	40.56338	-73.73915	10	0	SE	<2	B1	≥5000	Clear	Slight	3.2	216	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:10	00:13	40.56338	-73.73915	40.56080	-73.73877	13	4	E	<2	B1	≥5000	Clear	None	4.1	196	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:13	00:16	40.56080	-73.73877	40.55997	-73.73595	13	4	E	<2	B1	≥5000	Clear	None	3.7	165	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:16	00:30	40.55997	-73.73595	40.56125	-73.72040	13	9	ENE	<2	B2	2000-4999	Clear	None	3.1	87	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:30	00:35	40.56125	-73.72040	40.55845	-73.71787	11	6	E	<2	B2	2000-4999	Clear	None	3.7	158	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:35	00:46	40.55845	-73.71787	40.54835	-73.70900	11	6	E	<2	B2	2000-4999	Clear	None	3.7	159	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:46	00:49	40.54835	-73.70900	40.54622	-73.70713	14	7	S	<2	B2	500-999	Clear	None	3.6	157	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:49	00:50	40.54622	-73.70713	40.54622	-73.70713	14	6	S	<2	B2	500-999	Clear	None	3.6	160	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:50	00:55	40.54622	-73.70713	40.54372	-73.70230	14	6	S	<2	B2	500-999	Clear	None	3.6	160	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:55	01:00	40.54372	-73.70230	40.54355	-73.70002	14	2	S	<2	B2	500-999	Clear	None	3.3	116	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:29	40.54355	-73.70002	40.54278	-73.65830	16	3	S	<2	B2	500-999	Clear	None	3.3	98	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:29	01:33	40.54278	-73.65830	40.54477	-73.65478	16	7	S	<2	B2	500-999	Clear	None	3.5	105	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:33	01:55	40.54477	-73.65478	40.54367	-73.66965	16	4	S	<2	B2	500-999	Clear	None	3.8	24	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:55	01:59	40.54367	-73.66965	40.54313	-73.66478	15	2	SSE	<2	B2	500-999	Clear	None	3.5	114	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:59	02:25	40.54313	-73.66478	40.54037	-73.63233	15	2	SSE	<2	B2	500-999	Clear	None	3.4	109	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:25	02:27	40.54037	-73.63233	40.54078	-73.62952	15	6	SSW	<2	B2	500-999	Clear	None	3.4	110	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:27	02:50	40.54078	-73.62952	40.54237	-73.64358	15	3	SSW	<2	B2	500-999	Clear	None	3.5	66	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:50	02:55	40.54237	-73.64358	40.54120	-73.63863	15	4	SSW	<2	B2	500-999	Clear	None	3.4	120	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:55	03:00	40.54120	-73.63863	40.54018	-73.63418	15	4	SSW	<2	B2	500-999	Clear	None	3.5	120	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:59	40.54018	-73.63418	40.52367	-73.55808	17	5	N	<2	B2	500-999	Clear	None	3.5	120	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:59	04:00	40.52367	-73.55808	40.52315	-73.55575	20	5	NNE	<2	B2	500-999	Clear	None	3.8	112	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	04:30	40.52315	-73.55575	40.52592	-73.55830	20	5	NNE	<2	B2	500-999	Clear	None	3.8	112	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:30	04:35	40.52592	-73.55830	40.52710	-73.55215	18	1	S	<2	B2	500-999	Clear	None	3.8	85	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:35	05:00	40.52710	-73.55215	40.53243	-73.52597	18	1	S	<2	B2	500-999	Clear	None	3.9	79	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:05	40.53243	-73.52597	40.53523	-73.51213	16	1	S	<2	B2	500-999	Clear	None	3.8	88	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:05	05:08	40.53523	-73.51213	40.53632	-73.50853	17	1	NE	<2	B2	500-999	Clear	None	3.8	80	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:08	05:34	40.53632	-73.50853	40.54420	-73.52760	17	1	NE	<2	B2	500-999	Clear	None	3.5	35	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:34	05:39	40.54420	-73.52760	40.54057	-73.52312	16	6	SE	<2	B2	500-999	Clear	None	3.8	133	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:39	06:00	40.54057	-73.52312	40.52448	-73.50338	16	6	SE	<2	B2	500-999	Clear	None	3.9	141	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.52448	-73.50338	40.47075	-73.43825	16	7	NNE	<2	B2	500-999	Clear	None	3.9	89	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	07:53	40.47075	-73.43825	40.42827	-73.38647	27	4	NNE	<2	B2	500-999	Clear	None	3.4	75	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:53	07:56	40.42827	-73.38647	40.42802	-73.38605	27	8	NNE	<2	B3	500-999	Clear	None	3.4	75	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:56	08:00	40.42802	-73.38605	40.42918	-73.38688	27	8	NNE	<2	B3	500-999	Clear	None	3.4	75	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:30	40.42918	-73.38688	40.43918	-73.39990	27	8	NNE	<2	B3	500-999	Clear	None	3.4	75	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:30	08:35	40.43918	-73.39990	40.43522	-73.39503	27	8	NNE	<2	B3	500-999	Clear	None	3.4	75	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:35	09:28	40.43522	-73.39503	40.39440	-73.34577	27	8	NNE	<2	B3	500-999	Clear	None	3.4	75	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:28	10:28	40.39440	-73.34577	40.34725	-73.28887	29	10	NE	<2	B3	≥5000	Clear	None	3.9	135	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:28	10:56	40.34725	-73.28887	40.32727	-73.26472	32	10	NE	<2	B3	≥5000	Clear	Severe	3.7	141	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:56	11:00	40.32727	-73.26472	40.32518	-73.26220	35	5	NNE	<2	B3	≥5000	Clear	Severe	3.8	149	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:04	40.32518	-73.26220	40.31585	-73.25108	35	9	NNE	<2	B3	≥5000	Clear	Severe	3.8	149	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:04	11:50	40.31585	-73.25108	40.29308	-73.22287	34	9	ENE	<2	B3	≥5000	Clear	Severe	3.7	153	Deploying/Retrieving	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:50	12:01	40.29308	-73.22287	40.28683	-73.20968	37	6	ENE	<2	B3	≥5000	Clear	Severe	2.9	145	Standby	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:01	12:14	40.28683	-73.20968	40.29853	-73.22055	35	18	N	<2	B4	≥5000	Clear	Severe	3.6	33	Soft Start	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:14	12:53	40.29853	-73.22055	40.33085	-73.25893	37	13	N	<2	B4	≥5000	Clear	Severe	4.1	331	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:53	12:56	40.33085	-73.25893	40.33360	-73.26220	43	12	N	<2	B4	≥5000	Clear	Severe	4.1	330	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:56	13:00	40.33360	-73.26220	40.33737	-73.26680	45	11	N	<2	B4	≥5000	Clear	Severe	4.1	329	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.33737	-73.26680	40.37670	-73.31438	33	11	N	<2	B3	≥5000	Clear	Severe	3.5	329	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.37670	-73.31438	40.42285	-73.37010	30	5	NNW	<2	B3	≥5000	Clear	Moderate	3.5	334	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.42285	-73.37010	40.44095	-73.39198	25	5	WNW	<2	B2	≥5000	Clear	Slight	4.1	330	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:22	40.44095	-73.39198	40.44223	-73.39353	28	6	W	<2	B2	≥5000	Clear	Slight	4.1	331	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:22	15:37	40.44223	-73.39353	40.43887	-73.39863	28	6	W	<2	B2	≥5000	Clear	Slight	4.1	332	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:37	15:40	40.43887	-73.39863	40.43643	-73.39568	28	7	S	<2	B2	≥5000	Clear	Slight	3.9	148	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.43643	-73.39568	40.42182	-73.37798	28	7	S	<2	B2	≥5000	Clear	Slight	3.9	150	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.42182	-73.37798	40.37380	-73.37380	25	1	SSW	<2	B2	≥5000	Clear	Slight	3.8	150	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:58	40.37380	-73.37380	40.32685	-73.26323	32	3	S	<2	B3	≥5000	Clear	Slight	3.9	152	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:58	18:01	40.32685	-73.26323	40.32577	-73.26193	35	4	SSW	<2	B3	≥5000	Clear	Slight	3.4	150	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:01	18:33	40.32577	-73.26193	40.32943	-73.25823	35	4	SSW	<2	B3	≥5000	Clear	Slight	3.4	150	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:33	18:38	40.32943	-73.25823	40.33280	-73.26235	35	10	W	<2	B3	≥5000	Clear	Slight	3.6	331	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:38	19:00	40.33280	-73.26235	40.34825	-73.28097	35	10	W	<2	B3	≥5000	Clear	Slight	3.6	331	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.34825	-73.28097	40.39135	-73.33297	32	12	W	<2	B3	≥5000	Clear	Slight	3.4	330	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.39135	-73.33297	40.43537	-73.38628	29	12	WSW	<2	B3	≥5000	Clear	Severe	3.5	330	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:06	40.43537	-73.38628	40.44038	-73.39228	28	7	WSW	<2	B4	≥5000	Clear	Severe	3.5	330	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:06	21:09	40.44038	-73.39228	40.44217	-73.39417	28	10	WSW	<2	B4	≥5000	Clear	Severe	3.4	330	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:09	21:20	40.44217	-73.39417	40.44028	-73.39827	28	5	WSW	<2	B4	≥5000	Clear	Severe	3.5	335	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:20	21:24	40.44028	-73.39827	40.43697	-73.39533	28	12	SSW	<2	B4	≥5000	Clear	Severe	4.1	159	Silent	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:24	22:00	40.43697	-73.39533	40.41097	-73.36393	28	13	SW	<2	B4	≥5000	Clear	Severe	3.4	153	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.41097	-73.36393	40.36913	-73.31328	35	6	SSW	<2	B3	≥5000	Clear	Severe	3.4	154	Full Power	N/A
2023-05-26	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	00:00	40.36913	-73.31328	40.32838	-73.26418	30	11	S	<2	B3	≥5000	Clear	Severe	3.4	148	Full Power	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:04	40.32838	-73.26418	40.32552	-73.26068	34	9	S	<2	B3	≥5000	Clear	Slight	3.3	151	Silent	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:04	00:16	40.32552	-73.26068	40.32537	-73.24798	34	7	S	<2	B3	≥5000	Clear	Slight	3.4	149	Full Power	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:16	00:47	40.32537	-73.24798	40.32407	-73.26145	34	7	S	<2	B3	2000-4999	Clear	None	3.3	87	Full Power	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:47	00:52	40.32407	-73.26145	40.32760	-73.26560	35	6	SSW	<2	B3	1000-1999	Clear	None	3.2	331	Silent	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:52	01:00	40.32760	-73.26560	40.33260	-73.27167	35	6	SSW	<2	B3	1000-1999	Clear	None	3.8	331	Full Power	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.33260	-73.27167	40.38117	-73.33038	33	7	SSW	<2	B3	500-999	Clear	None	3.9	331	Full Power	N/A
2023-05-27	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	02:00	03:00	40.38117	-73.33038	40.43020	-73.38967	32	7	SW	<2	B3	500-999	Clear	None	3.9	331	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:07	40.43020	-73.38967	40.43735	-73.39833	26	10	SW	<2	B3	500-999	Clear	None	3.9	322	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:07	03:10	40.43735	-73.39833	40.43875	-73.40005	28	10	SW	<2	B3	500-999	Clear	None	3.8	321	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:10	03:31	40.43875	-73.40005	40.44370	-73.39477	28	10	SW	<2	B3	500-999	Clear	None	3.7	321	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:31	03:36	40.44370	-73.39477	40.44008	-73.39047	28	9	SW	<2	B3	500-999	Clear	None	4.2	144	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:36	04:00	40.44008	-73.39047	40.40367	-73.34084	28	9	SW	<2	B3	500-999	Clear	None	4.1	143	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	04:00	05:00	40.40367	-73.34084	40.36963	-73.30518	30	7	SW	<2	B3	500-999	Clear	None	4.1	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:45	40.36963	-73.30518	40.33218	-73.25993	30	7	SW	<2	B3	500-999	Clear	None	4.1	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:45	05:48	40.33218	-73.25993	40.33067	-73.25797	34	1	SW	<2	B2	500-999	Clear	None	4	149	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	05:48	06:00	40.33067	-73.25797	40.32095	-73.24320	34	1	SW	<2	B2	500-999	Clear	None	3.8	148	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:23	40.32095	-73.24320	40.33072	-73.25802	35	3	NE	<2	B2	500-999	Clear	None	3.8	109	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:23	06:28	40.33072	-73.25802	40.33458	-73.26265	36	3	NE	<2	B2	500-999	Clear	None	3.5	109	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	06:28	07:00	40.33458	-73.26265	40.36708	-73.29202	36	3	NE	<2	B2	500-999	Clear	None	3.5	109	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.36708	-73.29202	40.41000	-73.35473	28	3	W	<2	B2	500-999	Clear	None	3.7	319	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:00	08:45	40.41000	-73.35473	40.44347	-73.39418	28	3	W	<2	B2	500-999	Clear	None	3.7	319	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:45	08:47	40.44347	-73.39418	40.44365	-73.39437	28	2	W	<2	B1	500-999	Clear	None	3.9	330	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:47	09:03	40.44365	-73.39437	40.44093	-73.39515	28	2	W	<2	B1	500-999	Clear	None	3.9	330	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:03	09:08	40.44093	-73.39515	40.43808	-73.39185	30	2	W	<2	B1	1000-1999	Clear	None	3.9	149	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	09:08	09:25	40.43808	-73.39185	40.42478	-73.37580	30	2	W	<2	B1	1000-1999	Clear	None	3.9	149	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:25	10:25	40.42478	-73.37580	40.38295	-73.32533	25	7	E	<2	B2	≥5000	Clear	None	3.6	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:25	11:00	40.38295	-73.32533	40.36302	-73.30118	30	5	SSW	<2	B2	≥5000	Clear	Severe	3.5	142	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:42	40.36302	-73.30118	40.32990	-73.26117	33	4	SW	<2	B2	≥5000	Clear	None	3.3	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:42	11:44	40.32990	-73.26117	40.32850	-73.25948	36	3	SW	<2	B2	≥5000	Clear	Severe	3.4	153	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:44	12:11	40.32850	-73.25948	40.32542	-73.26108	36	3	SW	<2	B2	≥5000	Clear	None	3.4	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:11	12:16	40.32542	-73.26108	40.32887	-73.26527	35	5	NW	<2	B2	≥5000	Clear	Severe	3.7	331	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:16	13:00	40.32887	-73.26527	40.36132	-73.30433	35	4	NW	<2	B2	≥5000	Clear	None	3.8	330	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.36132	-73.30433	40.39927	-73.35023	33	3	WNW	<2	B2	≥5000	Clear	Moderate	3.4	330	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:47	40.39927	-73.35023	40.43763	-73.39667	30	3	NW	<2	B2	≥5000	Clear	Moderate	3.8	323	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:47	14:50	40.43763	-73.39667	40.44003	-73.39952	27	3	NW	<2	B2	≥5000	Clear	Slight	3.9	328	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:50	15:00	40.44003	-73.39952	40.44383	-73.40800	27	3	NW	<2	B2	≥5000	Clear	Slight	3.9	308	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:16	40.44383	-73.40800	40.44318	-73.39613	28	7	NW	<2	B2	≥5000	Clear	Slight	3.7	324	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:16	15:22	40.44318	-73.39613	40.43917	-73.39132	28	2	ESE	<2	B1	≥5000	Clear	Slight	3.7	151	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:22	16:00	40.43917	-73.39132	40.41120	-73.35747	28	2	ESE	<2	B1	≥5000	Clear	Slight	3.6	150	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.41120	-73.35747	40.36173	-73.29772	32	2	SE	<2	B1	≥5000	Clear	Slight	3.8	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:45	40.36173	-73.29772	40.33115	-73.26078	32	4	S	<2	B2	≥5000	Clear	Slight	3.6	149	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:45	17:49	40.33115	-73.26078	40.32892	-73.25810	34	5	SSE	<2	B2	≥5000	Clear	Slight	3.7	151	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:49	18:00	40.32892	-73.25810	40.32432	-73.24790	34	5	S	<2	B2	≥5000	Clear	Slight	3.6	149	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:16	40.32432	-73.24790	40.32442	-73.26100	35	8	SSE	<2	B2	≥5000	Clear	Slight	3.8	162	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:16	18:21	40.32442	-73.26100	40.32797	-73.26515	35	1	WSW	<2	B1	≥5000	Clear	Slight	3.7	337	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:21	19:00	40.32797	-73.26515	40.35805	-73.30140	35	1	WSW	<2	B1	≥5000	Clear	Slight	3.7	330	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.35805	-73.30140	40.40983	-73.36398	34	2	S	<2	B1	≥5000	Clear	Moderate	3.9	329	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:41	40.40983	-73.36398	40.43717	-73.39728	30	5	SSW	<2	B2	≥5000	Clear	Moderate	3.7	329	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:41	20:44	40.43717	-73.39728	40.43873	-73.39952	27	6	SSW	<2	B2	≥5000	Clear	Severe	4	329	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:44	21:00	40.43873	-73.39952	40.44600	-73.41242	27	6	SSW	<2	B2	≥5000	Clear	Severe	3.9	319	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:14	40.44600	-73.41242	40.44018	-73.39823	28	7	S	<2	B3	≥5000	Clear	Severe	3.8	36	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:14	21:19	40.44018	-73.39823	40.43745	-73.39497	28	7	S	<2	B3	≥5000	Clear	Severe	3.5	151	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:19	22:00	40.43745	-73.39497	40.39537	-73.34395	28	7	S	<2	B3	≥5000	Clear	Severe	3.5	149	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	23:00	40.39537	-73.34395	40.36213	-73.30397	26	6	S	<2	B3	≥5000	Clear	Severe	3.5	154	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:44	40.36213	-73.30397	40.32503	-73.25886	32	9	S	<2	B3	≥5000	Clear	Severe	3.7	151	Full Power	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:44	23:48	40.32503	-73.25886	40.32595	-73.26003	35	10	S	<2	B3	≥5000	Clear	Slight	3.5	150	Silent	N/A
2023-05-27	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:48	00:00	40.32595	-73.26003	40.31953	-73.25128	35	10	S	<2	B3	≥5000	Clear	Slight	3.5	148	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:11	40.31953	-73.25128	40.32638	-73.26137	35	7	S	<2	B3	≥5000	Clear	None	3.7	66	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:11	00:15	40.32638	-73.26137	40.32918	-73.26482	35	6	S	<2	B3	≥5000	Clear	None	4.1	339	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:15	01:00	40.32918	-73.26482	40.35502	-73.29582	35	6	S	<2	B3	2000-4999	Clear	None	4.1	333	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.35502	-73.29582	40.39785	-73.34762	35	5	WSW	<2	B2	500-999	Clear	None	3.2	329	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.39785	-73.34762	40.43602	-73.39370	29	6	SW	<2	B2	500-999	Clear	None	3.1	332	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:00	03:05	40.43602	-73.39370	40.43843	-73.39697	31	4	SW	<2	B2	500-999	Clear	None	3.9	329	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:05	03:08	40.43843	-73.39697	40.43987	-73.39865	31	4	SW	<2	B2	500-999	Clear	None	3.9	329	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:08	03:38	40.43987	-73.39865	40.44137	-73.39278	31	4	SW	<2	B2	500-999	Clear	None	3.9	329	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:38	03:43	40.44137	-73.39278	40.43777	-73.38855	30	4	SW	<2	B2	500-999	Clear	None	3.5	146	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:43	04:00	40.43777	-73.38855	40.42222	-73.36960	30	4	SW	<2	B2	500-999	Clear	None	3.5	146	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.42222	-73.36960	40.38043	-73.31932	30	4	SW	<2	B2	500-999	Clear	None	3.8	146	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.38043	-73.31932	40.33297	-73.26205	30	5	SSW	<2	B2	500-999	Clear	None	4.1	152	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:02	40.33297	-73.26205	40.33297	-73.26205	38	6	SSW	<2	B2	500-999	Clear	None	4.1	234	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:02	06:32	40.33297	-73.26205	40.33992	-73.26075	38	6	SW	<2	B2	500-999	Clear	None	4.1	234	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:32	06:50	40.33992	-73.26075	40.34815	-73.26728	38	4	SW	<2	B2	500-999	Clear	None	4.1	234	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:50	07:00	40.34815	-73.26728	40.33960	-73.26145	38	3	SW	<2	B1	500-999	Clear	None	3.8	89	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:00	07:06	40.33960	-73.26145	40.33940	-73.26182	38	2	SW	<2	B1	500-999	Clear	None	3.8	89	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:06	07:10	40.33940	-73.26182	40.33660	-73.26562	38	2	SW	<2	B1	500-999	Clear	None	3.8	240	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:10	07:20	40.33660	-73.26562	40.32865	-73.27707	38	2	SW	<2	B1	500-999	Clear	None	3.8	240	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:20	07:30	40.32865	-73.27707	40.32192	-73.28647	38	2	SW	<2	B1	500-999	Clear	None	3.8	240	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:30	07:56	40.32192	-73.28647	40.33695	-73.28260	38	2	SW	<2	B1	500-999	Clear	None	3.8	179	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:56	08:00	40.33695	-73.28260	40.33792	-73.28113	34	4	SW	<2	B1	500-999	Clear	None	3.8	52	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:00	08:11	40.33792	-73.28113	40.34777	-73.28222	36	5	SW	<2	B1	500-999	Clear	None	3.8	52	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:11	08:13	40.34777	-73.28222	40.34777	-73.28222	36	5	SW	<2	B1	500-999	Clear	None	3.8	52	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:13	08:33	40.34777	-73.28222	40.35363	-73.27632	36	5	SW	<2	B1	500-999	Clear	None	3.8	52	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:33	08:37	40.35363	-73.27632	40.35060	-73.28063	35	3	SW	<2	B1	500-999	Clear	None	4.1	242	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:37	08:47	40.35060	-73.28063	40.34090	-73.29452	35	3	SW	<2	B1	500-999	Clear	None	4.1	242	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:47	08:50	40.34090	-73.29452	40.34065	-73.29453	35	3	SW	<2	B1	1000-1999	Clear	None	4.1	242	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:50	09:07	40.34065	-73.29453	40.35003	-73.29882	35	2	SW	<2	B1	1000-1999	Clear	None	4.1	242	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:07	09:13	40.35003	-73.29882	40.35070	-73.29770	35	2	SW	<2	B1	2000-4999	Clear	None	3.9	54	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:13	09:24	40.35070	-73.29770	40.35903	-73.28592	35	2	SW	<2	B1	2000-4999	Clear	None	3.9	54	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:24	09:26	40.35903	-73.28592	40.36065	-73.28370	33	2	NE	<2	B1	≥5000	Clear	None	3.7	49	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:26	09:46	40.36065	-73.28370	40.36810	-73.29058	33	2	NE	<2	B1	≥5000	Clear	None	3.7	49	Full Power	N/A
2023-05-28	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:46	09:51	40.36810	-73.29058	40.36430	-73.29577	32	2	SW	<2	B1	≥5000	Clear	Moderate	3.9	232	Silent	N/A
2023-05-28	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:51	10:01	40.36430	-73.29577	40.35692	-73.30638	32	2	SW	<2	B1	≥5000	Clear	Moderate	4.1	235	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:01	10:15	40.35692	-73.30638	40.34555	-73.32263	32	1	SW	<2	B1	≥5000	Clear	Severe	4.1	236	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:15	10:49	40.34555	-73.32263	40.36133	-73.31737	32	1	SW	<2	B1	≥5000	Clear	Severe	4.2	235	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:49	10:54	40.36133	-73.31737	40.36417	-73.31343	33	2	NE	<2	B1	≥5000	Clear	Severe	3.8	52	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:54	11:00	40.36417	-73.31343	40.36555	-73.31140	33	2	NE	<2	B1	≥5000	Clear	Severe	3.8	52	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:05	40.36555	-73.31140	40.37232	-73.30187	33	6	NE	<2	B1	≥5000	Clear	Severe	3.8	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:05	11:07	40.37232	-73.30187	40.37388	-73.29967	33	5	NE	<2	B1	≥5000	Clear	Severe	3.8	63	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:07	11:25	40.37388	-73.29967	40.38087	-73.30697	33	6	NE	<2	B1	≥5000	Clear	Severe	3.8	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:25	11:29	40.38087	-73.30697	40.37777	-73.31143	31	1	SSE	<2	B1	≥5000	Clear	Severe	3.7	238	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:29	11:40	40.37777	-73.31143	40.37008	-73.32243	31	2	SSE	<2	B1	≥5000	Clear	Severe	3.9	243	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	11:42	40.37008	-73.32243	40.36810	-73.32522	30	3	SSE	<2	B1	≥5000	Clear	Severe	3.9	239	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:42	12:03	40.36810	-73.32522	40.37483	-73.33310	30	3	SSE	<2	B1	≥5000	Clear	Severe	4	240	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:03	12:07	40.37483	-73.33310	40.37775	-73.32890	31	3	NE	<2	B1	≥5000	Clear	Severe	3.9	61	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:07	12:18	40.37775	-73.32890	40.38600	-73.31728	31	3	NE	<2	B1	≥5000	Clear	Severe	3.8	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:18	12:20	40.38600	-73.31728	40.38762	-73.31478	33	3	NE	<2	B1	≥5000	Clear	Severe	3.9	66	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:39	40.38762	-73.31478	40.39407	-73.32313	33	6	NE	<2	B1	≥5000	Clear	Severe	3.9	64	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:39	12:44	40.39407	-73.32313	40.39090	-73.32755	30	3	SSW	<2	B1	≥5000	Clear	Severe	3.8	240	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:44	12:55	40.39090	-73.32755	40.38268	-73.33925	30	3	S	<2	B1	≥5000	Clear	Severe	3.7	240	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:55	12:57	40.38268	-73.33925	40.38135	-73.34115	30	3	S	<2	B1	≥5000	Clear	Severe	3.8	243	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:57	13:00	40.38135	-73.34115	40.37958	-73.34378	30	2	S	<2	B1	≥5000	Clear	Severe	3.8	239	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:15	40.37958	-73.34378	40.38658	-73.35095	30	2	WSW	<2	B1	≥5000	Clear	Severe	3.8	243	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:15	13:21	40.38658	-73.35095	40.39057	-73.34550	29	2	ESE	<2	B1	≥5000	Clear	Severe	3.8	63	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:21	13:31	40.39057	-73.34550	40.39863	-73.33408	29	3	ESE	<2	B1	≥5000	Clear	Severe	4	63	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:31	13:33	40.39863	-73.33408	40.40020	-73.33175	30	2	ESE	<2	B1	≥5000	Clear	Severe	4.2	59	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:33	13:53	40.40020	-73.33175	40.40772	-73.33842	30	2	ESE	<2	B1	≥5000	Clear	Severe	4.1	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:53	13:56	40.40772	-73.33842	40.40597	-73.34097	32	4	S	<2	B1	≥5000	Clear	Severe	3.6	242	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:56	13:58	40.40597	-73.34097	40.40472	-73.34308	32	3	SW	<2	B1	≥5000	Clear	Severe	3.6	241	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	13:58	14:18	40.40472	-73.34308	40.40982	-73.37023	30	3	SW	<2	B1	≥5000	Clear	Moderate	3.4	259	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:18	14:30	40.40982	-73.37023	40.41213	-73.38077	30	3	WSW	<2	B1	≥5000	Clear	Moderate	4	290	Deploying/Retrieving	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:30	14:55	40.41213	-73.38077	40.41393	-73.38038	29	1	WSW	<2	B1	≥5000	Clear	Moderate	2.1	291	Standby	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:55	15:00	40.41393	-73.38038	40.41365	-73.37877	29	4	SSE	<2	B1	≥5000	Clear	Moderate	2.3	111	Deploying/Retrieving	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:13	40.41365	-73.37877	40.41148	-73.36585	29	6	NE	<2	B1	≥5000	Clear	Slight	2.4	117	Deploying/Retrieving	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:13	15:18	40.41148	-73.36585	40.41093	-73.36138	28	5	NE	<2	B1	≥5000	Clear	Slight	2.4	114	Standby	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:18	15:29	40.41093	-73.36138	40.41148	-73.34965	28	5	NE	<2	B1	≥5000	Clear	Slight	2.3	112	Soft Start	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:29	15:55	40.41148	-73.34965	40.40740	-73.33893	29	6	NE	<2	B1	≥5000	Clear	Slight	3.9	83	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:55	16:00	40.40740	-73.33893	40.40443	-73.34312	31	7	SSW	<2	B1	≥5000	Clear	Slight	3.5	245	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:12	40.40443	-73.34312	40.39618	-73.35478	32	7	SSW	<2	B1	≥5000	Clear	Slight	3.5	243	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:12	16:14	40.39618	-73.35478	40.39482	-73.35695	29	5	SSW	<2	B1	≥5000	Clear	Slight	3.6	244	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:14	16:30	40.39482	-73.35695	40.40162	-73.36582	29	5	SSW	<2	B1	≥5000	Clear	Slight	3.6	241	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:30	16:34	40.40162	-73.36582	40.40392	-73.36155	31	2	ENE	<2	B1	≥5000	Clear	Slight	4	64	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:34	16:44	40.40392	-73.36155	40.41203	-73.34973	31	2	ENE	<2	B1	≥5000	Clear	Slight	4.1	71	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:44	16:46	40.41203	-73.34973	40.41340	-73.34780	29	3	ESE	<2	B1	≥5000	Clear	Slight	4.2	58	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:46	17:03	40.41340	-73.34780	40.42027	-73.35547	29	2	ENE	<2	B1	≥5000	Clear	Slight	4.2	59	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:03	17:08	40.42027	-73.35547	40.41772	-73.35905	28	6	SW	<2	B1	≥5000	Clear	Slight	2.9	241	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:08	17:20	40.41772	-73.35905	40.40945	-73.37080	28	6	SW	<2	B1	≥5000	Clear	Slight	3.6	233	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:20	17:22	40.40945	-73.37080	40.40857	-73.37205	31	5	SW	<2	B1	≥5000	Clear	Slight	3.5	238	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:22	17:38	40.40857	-73.37205	40.41418	-73.38230	31	5	SW	<2	B1	≥5000	Clear	Slight	3.5	238	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:38	17:43	40.41418	-73.38230	40.41697	-73.37755	29	2	NNW	<2	B1	≥5000	Clear	Slight	3.2	55	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:43	17:54	40.41697	-73.37755	40.42518	-73.36605	29	1	NE	<2	B1	≥5000	Clear	Slight	3.9	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:54	17:56	40.42518	-73.36605	40.42698	-73.36373	28	0	ESE	<2	B1	≥5000	Clear	Slight	3.8	55	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:56	18:00	40.42698	-73.36373	40.42838	-73.36202	28	2	ESE	<2	B1	≥5000	Clear	Slight	3.9	57	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.42838	-73.36202	40.44368	-73.36015	28	1	ESE	<2	B1	≥5000	Cloudy	Slight	3.7	53	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:10	40.44368	-73.36015	40.43395	-73.37075	27	10	SSW	<2	B2	≥5000	Cloudy	Slight	3.9	234	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:10	19:15	40.43395	-73.37075	40.43078	-73.37537	25	9	SSW	<2	B2	≥5000	Cloudy	Slight	4	238	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:15	19:27	40.43078	-73.37537	40.42278	-73.38658	25	9	SSW	<2	B2	≥5000	Cloudy	Slight	3.4	242	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:27	19:29	40.42278	-73.38658	40.42168	-73.38812	25	9	W	<2	B2	≥5000	Cloudy	Slight	3.3	242	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:29	19:46	40.42168	-73.38812	40.42792	-73.39698	25	9	W	<2	B2	≥5000	Cloudy	Slight	3.3	237	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:46	19:50	40.42792	-73.39698	40.43033	-73.39338	26	6	SSE	<2	B2	≥5000	Cloudy	Slight	3.8	62	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:50	20:01	40.43033	-73.39338	40.43852	-73.38163	26	6	SSE	<2	B2	≥5000	Cloudy	Slight	3.7	60	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:01	20:04	40.43852	-73.38163	40.43972	-73.37998	30	4	S	<2	B2	≥5000	Cloudy	Moderate	3.7	59	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:04	20:30	40.43972	-73.37998	40.44087	-73.39817	30	4	S	<2	B2	≥5000	Cloudy	Moderate	3.7	59	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:30	20:35	40.44087	-73.39817	40.43757	-73.39423	28	12	S	<2	B2	≥5000	Cloudy	Severe	3.7	151	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:35	21:00	40.43757	-73.39423	40.41907	-73.37175	28	12	S	<2	B2	≥5000	Cloudy	Severe	3.5	148	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.41907	-73.37175	40.37345	-73.33330	28	6	S	<2	B2	≥5000	Cloudy	Severe	3.7	150	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:59	40.37345	-73.33330	40.32878	-73.26272	33	6	S	<2	B2	≥5000	Clear	Severe	3.7	150	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	22:59	23:02	40.32878	-73.26272	40.32740	-73.26112	35	8	S	<2	B3	≥5000	Clear	Severe	3.7	152	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:02	23:39	40.32740	-73.26112	40.33250	-73.27593	35	6	S	<2	B3	≥5000	Clear	Severe	3.9	152	Full Power	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:39	23:43	40.33250	-73.27593	40.33153	-73.27005	32	7	S	<2	B3	≥5000	Clear	Severe	3.7	113	Silent	N/A
2023-05-28	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:43	00:00	40.33153	-73.27005	40.32810	-73.24877	32	6	S	<2	B3	≥5000	Clear	Moderate	3.8	116	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:13	40.32810	-73.24877	40.32508	-73.22968	35	4	S	<2	B3	≥5000	Clear	None	4.1	116	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:13	00:15	40.32508	-73.22968	40.32467	-73.22698	35	7	S	<2	B3	≥5000	Clear	None	4	116	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:15	00:18	40.32467	-73.22698	40.32427	-73.22453	35	4	S	<2	B3	≥5000	Clear	None	3.9	114	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:18	00:33	40.32427	-73.22453	40.32902	-73.22495	35	12	S	<2	B3	≥5000	Clear	None	3.9	114	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:33	00:37	40.32902	-73.22495	40.32977	-73.22968	36	5	NNE	<2	B3	1000-1999	Clear	None	3.6	293	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:37	01:00	40.32977	-73.22968	40.33388	-73.25533	36	4	NNE	<2	B3	1000-1999	Clear	None	3.8	296	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:06	40.33388	-73.25533	40.33607	-73.26930	33	5	NNE	<2	B3	1000-1999	Clear	None	3.8	295	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:06	01:08	40.33607	-73.26930	40.33643	-73.27167	33	5	NNE	<2	B3	1000-1999	Clear	None	3.9	295	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:08	01:22	40.33643	-73.27167	40.33198	-73.27592	33	4	NNE	<2	B3	1000-1999	Clear	None	3.9	295	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:22	01:27	40.33198	-73.27592	40.33108	-73.27073	34	7	NE	<2	B3	500-999	Clear	None	3.7	112	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:27	01:57	40.33108	-73.27073	40.32448	-73.22950	34	7	NE	<2	B3	500-999	Clear	None	3.8	115	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:57	01:59	40.32448	-73.22950	40.32410	-73.22728	35	7	N	<2	B3	500-999	Clear	None	3.6	115	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:59	02:14	40.32410	-73.22728	40.32832	-73.22435	35	6	N	<2	B3	500-999	Clear	None	3.8	116	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:14	02:19	40.32832	-73.22435	40.32933	-73.23060	35	8	WNW	<2	B3	500-999	Clear	None	3.9	294	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:19	02:46	40.32933	-73.23060	40.33558	-73.26947	35	9	SW	<2	B3	500-999	Clear	None	3.9	295	Full Power	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:46	02:48	40.33558	-73.26947	40.33593	-73.27172	35	4	S	<2	B3	500-999	Clear	None	4	298	Silent	N/A
2023-05-29	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:48	03:00	40.33593	-73.27172	40.33283	-73.28047	35	8	SSW	<2	B3	500-999	Clear	None	4.1	294	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	03:01	40.33283	-73.28047	40.33100	-73.27617	33	8	SW	<2	B3	500-999	Clear	None	3.6	140	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:01	03:05	40.33100	-73.27617	40.33012	-73.27160	33	6	SW	<2	B3	500-999	Clear	None	3.4	110	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:05	03:38	40.33012	-73.27160	40.32223	-73.22308	34	6	SW	<2	B3	500-999	Clear	None	3.5	105	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:38	03:40	40.32223	-73.22308	40.32223	-73.22272	34	7	SW	<2	B3	500-999	Clear	None	3.5	124	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	03:40	04:27	40.32223	-73.22272	40.32532	-73.22623	34	7	SW	<2	B3	500-999	Clear	None	3.5	124	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:27	04:30	40.32532	-73.22623	40.32627	-73.23205	30	6	SW	<2	B3	500-999	Clear	None	4	294	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:30	05:00	40.32627	-73.23205	40.33262	-73.27148	30	6	SW	<2	B3	500-999	Clear	None	4	294	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:02	40.33262	-73.27148	40.33300	-73.27392	34	7	W	<2	B3	500-999	Clear	None	4.1	295	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:02	05:26	40.33300	-73.27392	40.33162	-73.27743	34	7	W	<2	B3	500-999	Clear	None	4.1	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:26	05:33	40.33162	-73.27743	40.33052	-73.27075	34	3	SSW	<2	B3	500-999	Clear	None	3.4	118	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:33	06:00	40.33052	-73.27075	40.32548	-73.23902	34	1	SSW	<2	B2	500-999	Clear	None	3.6	114	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	06:03	40.32548	-73.23902	40.32352	-73.22622	34	1	SSW	<2	B2	500-999	Clear	None	3.9	100	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:03	06:05	40.32352	-73.22622	40.32352	-73.22582	34	1	SSW	<2	B2	500-999	Clear	None	3.9	100	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:05	07:06	40.32352	-73.22582	40.32433	-73.22497	34	1	SSW	<2	B2	500-999	Clear	None	3.9	100	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:06	07:12	40.32433	-73.22497	40.32562	-73.23142	35	6	NNE	<2	B2	500-999	Clear	None	3.7	300	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:12	07:45	40.32562	-73.23142	40.33252	-73.27430	35	5	NNE	<2	B2	500-999	Clear	None	3.4	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:45	07:48	40.33252	-73.27430	40.33295	-73.27735	33	6	NNE	<2	B2	500-999	Clear	None	3.4	295	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	07:48	08:00	40.33295	-73.27735	40.33332	-73.28688	33	6	NNE	<2	B2	500-999	Clear	None	3.4	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	08:21	40.33332	-73.28688	40.33658	-73.27045	33	6	NNE	<2	B2	500-999	Clear	None	3.3	114	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:21	08:25	40.33658	-73.27045	40.33588	-73.26577	32	5	NNE	<2	B2	500-999	Clear	None	3.3	114	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	08:25	09:25	40.33588	-73.26577	40.33735	-73.27507	32	5	NNE	<2	B2	500-999	Clear	None	3.3	114	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:25	09:26	40.33735	-73.27507	40.33700	-73.27297	33	3	S	<2	B2	≥5000	Clear	None	3.5	107	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:26	09:31	40.33700	-73.27297	40.33603	-73.26700	33	3	S	<2	B2	≥5000	Clear	None	3.5	107	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:31	10:00	40.33603	-73.26700	40.32985	-73.22825	33	3	S	<2	B2	≥5000	Clear	None	4.1	106	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	10:03	40.32985	-73.22825	40.32923	-73.22470	35	4	SSW	<2	B2	≥5000	Clear	Severe	3.6	110	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:03	10:28	40.32923	-73.22470	40.32287	-73.22500	35	4	SSW	<2	B2	≥5000	Clear	Severe	3.5	107	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:28	10:33	40.32287	-73.22500	40.32405	-73.23193	36	5	WSW	<2	B2	≥5000	Clear	Severe	4	289	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:33	11:00	40.32405	-73.23193	40.32907	-73.26340	36	5	WSW	<2	B2	≥5000	Clear	Severe	3.8	285	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:03	40.32907	-73.26340	40.33073	-73.27390	35	6	W	<2	B2	≥5000	Clear	Severe	4	296	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:03	11:06	40.33073	-73.27390	40.33115	-73.27667	33	6	W	<2	B2	≥5000	Clear	Severe	3.9	287	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:06	11:32	40.33115	-73.27667	40.33650	-73.27367	33	5	WSW	<2	B2	≥5000	Clear	Severe	3.9	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:32	11:37	40.33650	-73.27367	40.33560	-73.26740	34	3	SSW	<2	B2	≥5000	Clear	Severe	3.5	115	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:37	12:08	40.33560	-73.26740	40.32922	-73.22795	34	4	SSW	<2	B2	≥5000	Clear	Severe	3.5	113	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:08	12:10	40.32922	-73.22795	40.32888	-73.22600	33	3	WSW	<2	B2	≥5000	Clear	Severe	3.4	117	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:10	12:39	40.32888	-73.22600	40.32363	-73.22597	33	6	WSW	<2	B2	≥5000	Clear	Severe	3.5	117	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:39	12:44	40.32363	-73.22597	40.32468	-73.23230	36	7	NNW	<2	B2	≥5000	Clear	Severe	3.8	296	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:44	13:00	40.32468	-73.23230	40.32848	-73.25652	36	4	NNW	<2	B2	≥5000	Clear	Severe	4	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:13	40.32848	-73.25652	40.33115	-73.27275	36	2	N	<2	B2	≥5000	Clear	Severe	4	295	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:13	13:15	40.33115	-73.27275	40.33170	-73.27663	32	2	N	<2	B2	≥5000	Cloudy	Moderate	4.1	294	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:15	13:43	40.33170	-73.27663	40.33640	-73.27612	32	4	N	<2	B2	≥5000	Cloudy	Moderate	4.1	294	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:43	13:50	40.33640	-73.27612	40.33510	-73.26818	34	9	SE	<2	B3	≥5000	Cloudy	Slight	3.4	111	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:50	14:00	40.33510	-73.26818	40.33355	-73.25872	34	9	SE	<2	B3	≥5000	Cloudy	Slight	3.3	116	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:23	40.33355	-73.25872	40.32875	-73.22865	34	15	NE	<2	B5	≥5000	Cloudy	Moderate	3.3	103	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:23	14:26	40.32875	-73.22865	40.32813	-73.22482	34	21	NE	<2	B5	≥5000	Cloudy	Moderate	3.2	102	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:26	14:53	40.32813	-73.22482	40.32403	-73.22498	34	21	NE	<2	B5	≥5000	Cloudy	Moderate	3.2	102	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:53	14:58	40.32403	-73.22498	40.32508	-73.23158	34	18	ENE	<2	B5	≥5000	Cloudy	Slight	4.3	290	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:58	15:00	40.32508	-73.23158	40.32638	-73.23505	35	18	ENE	<2	B5	≥5000	Cloudy	Slight	4.3	301	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:27	40.32638	-73.23505	40.33168	-73.27272	35	18	ENE	<2	B5	≥5000	Cloudy	Slight	4.4	293	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:27	15:29	40.33168	-73.27272	40.33208	-73.27522	33	20	NE	<2	B6	≥5000	Cloudy	Slight	3.9	295	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:29	16:00	40.33208	-73.27522	40.32072	-73.26078	33	20	NE	<2	B6	≥5000	Cloudy	Slight	3.8	293	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:04	40.32072	-73.26078	40.32540	-73.26040	35	32	ENE	<2	B6	≥5000	Cloudy	Slight	3.2	76	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:04	16:08	40.32540	-73.26040	40.32852	-73.26438	35	15	N	<2	B6	≥5000	Cloudy	Slight	4.3	332	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:08	17:08	40.32852	-73.26438	40.37518	-73.32017	35	19	NNE	<2	B6	≥5000	Cloudy	Slight	3.5	335	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:08	17:40	40.37518	-73.32017	40.40138	-73.35187	30	20	NNE	<2	B6	≥5000	Cloudy	Slight	4	334	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:40	17:44	40.40138	-73.35187	40.40420	-73.35525	31	18	NNE	<2	B6	≥5000	Cloudy	Slight	3.6	330	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:44	18:00	40.40420	-73.35525	40.41678	-73.36668	31	24	NNE	<2	B6	≥5000	Cloudy	Slight	3.7	332	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.41678	-73.36668	40.46850	-73.40210	28	25	NE	<2	B7	≥5000	Cloudy	Slight	3.2	344	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:03	40.46850	-73.40210	40.47085	-73.40385	27	17	NE	<2	B7	≥5000	Cloudy	Moderate	3.6	343	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:03	20:00	40.47085	-73.40385	40.52495	-73.43867	27	17	NE	<2	B7	≥5000	Cloudy	Moderate	3.9	342	Standby	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:45	40.52495	-73.43867	40.56637	-73.45627	16	17	ENE	<2	B6	≥5000	Clear	Severe	4	348	Standby	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:45	20:55	40.56637	-73.45627	40.56745	-73.47057	14	19	E	<2	B6	≥5000	Clear	Severe	4.5	283	Soft Start	N/A
2023-05-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:55	21:00	40.56745	-73.47057	40.56772	-73.47632	13	19	E	<2	B6	≥5000	Clear	Severe	3.9	289	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:14	40.56772	-73.47632	40.56332	-73.49468	13	20	SSE	<2	B6	≥5000	Clear	Severe	3.8	283	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:14	21:19	40.56332	-73.49468	40.56080	-73.49987	14	21	SSE	<2	B6	≥5000	Clear	Severe	3.5	256	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:19	21:40	40.56080	-73.49987	40.55048	-73.52157	14	24	SSE	<2	B6	≥5000	Clear	Severe	3.2	254	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:40	21:42	40.55048	-73.52157	40.54958	-73.52348	15	23	SSE	<2	B6	≥5000	Clear	Severe	3.1	252	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:42	22:00	40.54958	-73.52348	40.54855	-73.55190	15	21	SSE	<2	B6	≥5000	Clear	Severe	3.2	258	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:00	22:45	40.54855	-73.55190	40.55228	-73.52603	15	22	SSE	<2	B6	≥5000	Clear	Severe	3.2	300	Full Power	N/A
2023-05-29	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario	RPS	22:45	23:00	40.55228	-73.52603	40.55570	-73.53828	15	22	SSE	2-4	B6	≥5000	Clear	Severe	3.1	300	Silent	N/A
2023-05-29	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	00:00	40.55570	-73.53828	40.55243	-73.62347	15	21	SSE	2-4	B6	≥5000	Clear	Severe	4.8	269	Deploying/Retrieving	N/A
2023-05-30	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:18	40.55243	-73.62347	40.55323	-73.64598	12	21	S	2-4	B6	≥5000	Clear	None	3.2	287	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:18	01:00	40.55323	-73.64598	40.55158	-73.75252	10	18	E	2-4	B6	2000-4999	Clear	None	3.9	287	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.55158	-73.75252	40.55487	-73.74960	14	19	W	2-4	B6	1000-1999	Clear	None	6.1	284	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	03:00	40.55487	-73.74960	40.55870	-73.70927	17	26	E	2-4	B6	500-999	Clear	None	2.5	102	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	03:00	04:00	40.55870	-73.70927	40.56015	-73.78203	12	22	E	2-4	B6	500-999	Clear	None	4.1	270	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	04:00	05:00	40.56015	-73.78203	40.55942	-73.74892	12	22	E	2-4	B6	500-999	Clear	None	4.1	105	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.55942	-73.74892	40.56060	-73.71648	17	20	E	2-4	B6	500-999	Clear	None	1.7	95	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.56060	-73.71648	40.55873	-73.75728	17	18	E	2-4	B6	500-999	Clear	None	1.7	119	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leonardo Mario	RPS	07:00	08:00	40.55873	-73.75728	40.56012	-73.76880	14	16	E	2-4	B5	500-999	Clear	None	3.9	286	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	RPS	08:00	09:00	40.56012	-73.76880	40.55785	-73.73578	13	12	NE	2-4	B5	500-999	Clear	None	1.5	95	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	RPS	09:00	09:24	40.55785	-73.73578	40.55613	-73.71845	15	15	NE	<2	B4	1000-1999	Clear	None	1.5	98	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:24	10:24	40.55613	-73.71845	40.55110	-73.67807	14	15	NE	<2	B4	≥5000	Clear	None	1.5	95	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:24	11:00	40.55110	-73.67807	40.54970	-73.66552	14	18	NE	<2	B4	≥5000	Clear	Severe	1.7	95	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:05	40.54970	-73.66552	40.55125	-73.67205	14	6	NE	<2	B4	≥5000	Clear	Severe	2	348	Standby	N/A
2023-05-30	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:05	12:00	40.55125	-73.67205	40.52105	-73.82782	14	19	ESE	<2	B4	≥5000	Clear	Severe	8.7	282	Transit	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-05-30	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.52105	-73.82782	40.52388	-74.00445	13	8	E	<2	B4	≥5000	Clear	Severe	9	268	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.52388	-74.00445	40.63850	-74.05477	16	7	NNE	<2	B4	≥5000	Clear	Severe	7.6	309	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.63850	-74.05477	40.71505	-73.97110	16	11	N	<2	B3	≥5000	Clear	Moderate	7.4	359	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.71505	-73.97110	40.80230	-73.90227	11	14	NNE	<2	B3	≥5000	Clear	Slight	6.6	36	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.80230	-73.90227	40.84565	-73.76183	16	20	ENE	<2	B3	≥5000	Clear	Slight	7.7	63	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.84565	-73.76183	40.93738	-73.60078	29	26	NE	<2	B3	≥5000	Clear	Slight	9	47	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.93738	-73.60078	41.01893	-73.42120	14	24	ENE	<2	B3	≥5000	Clear	Slight	8.9	73	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	41.01893	-73.42120	41.08640	-73.26180	13	20	ENE	<2	B3	≥5000	Clear	Slight	8.7	72	Transit	N/A
2023-05-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:55	41.08640	-73.26180	41.17037	-73.17560	16	19	ENE	<2	B3	≥5000	Clear	Severe	8.6	71	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:55	02:00	41.17032	-73.17568	41.15708	-73.17828	8	9	W	<2	B2	500-999	Clear	None	1.1	273	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	41.15708	-73.17828	41.05895	-73.32295	8	16	SSW	<2	B2	500-999	Clear	None	9.1	207	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	04:00	41.05895	-73.32295	40.98462	-73.49870	12	12	SSW	<2	B2	500-999	Clear	None	8.9	251	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	05:00	40.98462	-73.49870	40.93652	-73.61155	12	10	WSW	<2	B2	500-999	Clear	None	8.9	254	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.93652	-73.61155	40.83765	-73.76955	14	9	SW	<2	B2	500-999	Clear	None	8.4	252	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.83765	-73.76955	40.77545	-73.94180	14	5	SW	<2	B1	500-999	Clear	None	8.5	252	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	40.77545	-73.94180	40.68423	-74.03637	14	1	SW	<2	B0	500-999	Clear	None	8.5	210	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	09:00	40.68423	-74.03637	40.52388	-74.00878	18	3	SW	<2	B1	500-999	Clear	None	10.6	212	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:25	40.52388	-74.00878	40.50290	-73.94073	16	7	SW	<2	B1	1000-1999	Clear	None	8.7	152	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:25	10:20	40.50290	-73.94073	40.54152	-73.79957	9	2	SE	<2	B1	≥5000	Clear	None	8	89	Transit	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:20	10:47	40.54152	-73.79957	40.53308	-73.76827	12	5	S	<2	B2	≥5000	Clear	Severe	4.2	112	Standby	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:47	11:01	40.53308	-73.76827	40.52912	-73.75292	17	7	S	<2	B2	≥5000	Clear	Severe	3.1	117	Deploying/Retrieving	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:01	11:15	40.52912	-73.75292	40.52645	-73.73978	14	6	SSW	<2	B2	≥5000	Clear	Severe	3	121	Standby	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:15	11:27	40.52645	-73.73978	40.52352	-73.72673	14	7	SSW	<2	B2	≥5000	Clear	Severe	2.9	118	Soft Start	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:27	12:00	40.52352	-73.72673	40.54688	-73.73717	14	3	SSW	<2	B2	≥5000	Clear	Severe	3	121	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	13:00	40.54688	-73.73717	40.55342	-73.70537	15	4	WSW	<2	B2	≥5000	Clear	Severe	3.2	343	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:37	40.55342	-73.70537	40.57787	-73.73968	15	3	SW	<2	B2	≥5000	Clear	Severe	2.8	322	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:37	13:41	40.57787	-73.73968	40.57493	-73.74215	8	5	SSW	<2	B2	≥5000	Clear	Slight	3.3	255	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:41	13:54	40.57493	-73.74215	40.56287	-73.74322	8	7	SSW	<2	B2	≥5000	Clear	Slight	3.8	207	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:54	13:56	40.56287	-73.74322	40.56073	-73.74313	13	9	SSW	<2	B2	≥5000	Clear	Slight	3.2	194	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:56	14:00	40.56073	-73.74313	40.55782	-73.74338	13	9	SSW	<2	B2	≥5000	Clear	Slight	3.2	195	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:13	40.55782	-73.74338	40.56332	-73.73693	13	4	S	<2	B2	≥5000	Clear	Slight	2.8	167	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:13	14:15	40.56332	-73.73693	40.56595	-73.73672	13	4	S	<2	B2	≥5000	Clear	Slight	3.9	5	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:15	14:20	40.56595	-73.73672	40.57047	-73.73637	13	4	S	<2	B2	≥5000	Clear	Slight	4	5	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:22	40.57047	-73.73637	40.57312	-73.73518	9	4	S	<2	B2	≥5000	Clear	Slight	4	7	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:22	14:35	40.57312	-73.73518	40.57528	-73.73868	9	4	S	<2	B2	≥5000	Clear	Slight	4	45	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:35	14:38	40.57528	-73.73868	40.57200	-73.73878	10	4	S	<2	B2	≥5000	Clear	Slight	3.7	174	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:38	14:45	40.57200	-73.73878	40.56437	-73.73943	10	4	S	<2	B2	≥5000	Clear	Slight	3.8	192	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:45	14:47	40.56437	-73.73943	40.56227	-73.74005	13	5	S	<2	B2	≥5000	Clear	Slight	4	192	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:47	15:00	40.56227	-73.74005	40.55893	-73.73747	13	5	S	<2	B2	≥5000	Clear	Slight	3.5	227	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:02	40.55893	-73.73747	40.56285	-73.73710	13	2	SE	<2	B2	≥5000	Clear	Slight	3.7	48	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:02	15:06	40.56285	-73.73710	40.56738	-73.73670	13	2	SE	<2	B2	≥5000	Clear	Slight	4	16	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:06	15:12	40.56738	-73.73670	40.57465	-73.73595	13	2	SE	<2	B2	≥5000	Clear	Slight	4.1	16	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	15:16	40.57465	-73.73595	40.57692	-73.73275	9	5	ESE	<2	B2	≥5000	Clear	Slight	4	32	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:16	15:41	40.57692	-73.73275	40.57408	-73.73725	9	5	ESE	<2	B2	≥5000	Clear	Slight	3.9	84	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:41	15:44	40.57408	-73.73725	40.57128	-73.73750	12	9	SSE	<2	B2	≥5000	Clear	Slight	3.7	198	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:44	15:49	40.57128	-73.73750	40.56530	-73.73785	12	9	SSE	<2	B2	≥5000	Clear	Slight	3.8	197	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:49	15:51	40.56530	-73.73785	40.56315	-73.73808	12	12	SSE	<2	B2	≥5000	Clear	Slight	3.8	198	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:51	16:00	40.56315	-73.73808	40.55612	-73.73295	12	12	SSE	<2	B2	≥5000	Clear	Slight	3.8	197	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:11	40.55612	-73.73295	40.55972	-73.74047	14	8	S	<2	B2	≥5000	Clear	Slight	3.8	198	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:11	16:16	40.55972	-73.74047	40.56523	-73.73998	12	6	SSE	<2	B2	≥5000	Clear	Slight	4	30	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:16	16:21	40.56523	-73.73998	40.57093	-73.73960	12	5	SSE	<2	B2	≥5000	Clear	Slight	4.1	17	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:21	16:23	40.57093	-73.73960	40.57205	-73.73952	10	5	S	<2	B2	≥5000	Clear	Slight	4.1	17	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:23	17:02	40.57205	-73.73952	40.55938	-73.73633	10	5	S	<2	B2	≥5000	Clear	Slight	4.2	16	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:02	17:06	40.55938	-73.73633	40.56432	-73.74083	13	3	S	<2	B3	≥5000	Clear	Slight	3.7	300	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:06	17:15	40.56432	-73.74083	40.57555	-73.73995	13	2	S	<2	B2	≥5000	Clear	Slight	4.1	22	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:15	17:17	40.57555	-73.73995	40.57737	-73.73947	9	3	SSE	<2	B2	≥5000	Clear	Slight	4.2	12	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:17	17:25	40.57737	-73.73947	40.57457	-73.73368	9	6	S	<2	B2	≥5000	Clear	Slight	4	45	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:25	17:30	40.57457	-73.73368	40.57022	-73.73385	10	14	SSW	<2	B3	≥5000	Clear	Slight	3.7	201	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:30	17:38	40.57022	-73.73385	40.55937	-73.73458	10	14	S	<2	B3	≥5000	Clear	Slight	3.2	183	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:38	17:41	40.55937	-73.73458	40.55937	-73.73458	14	14	SSW	<2	B3	≥5000	Clear	Slight	3.7	196	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:41	17:58	40.55937	-73.73458	40.55867	-73.74202	14	14	SSW	<2	B3	≥5000	Clear	Slight	3.7	196	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	17:58	18:01	40.55867	-73.74202	40.56443	-73.74113	14	5	SE	<2	B3	≥5000	Clear	Slight	4.1	26	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:01	18:11	40.56443	-73.74113	40.57608	-73.74023	14	5	SE	<2	B3	≥5000	Clear	Slight	4.1	16	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:11	18:13	40.57608	-73.74023	40.57775	-73.73965	8	6	SE	<2	B3	≥5000	Clear	Slight	4.1	12	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:13	18:18	40.57775	-73.73965	40.57717	-73.73488	8	6	SE	<2	B3	≥5000	Clear	Slight	3.5	54	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:18	18:20	40.57717	-73.73488	40.57545	-73.73375	8	15	S	<2	B3	≥5000	Clear	Slight	3.3	152	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:33	40.57545	-73.73375	40.56250	-73.73463	8	15	S	<2	B3	≥5000	Clear	Slight	3.4	180	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:33	18:35	40.56250	-73.73463	40.56050	-73.73430	12	15	S	<2	B3	≥5000	Clear	Slight	3.6	190	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:35	18:46	40.56050	-73.73430	40.56128	-73.74303	12	15	S	<2	B3	≥5000	Clear	Slight	3.5	194	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:46	18:50	40.56128	-73.74303	40.56517	-73.74137	12	15	S	<2	B3	≥5000	Clear	Slight	4	30	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:50	18:59	40.56517	-73.74137	40.57610	-73.74050	12	15	S	<2	B3	≥5000	Clear	Slight	4.1	14	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:59	19:01	40.57610	-73.74050	40.57752	-73.73938	8	6	SE	<2	B3	≥5000	Clear	Slight	4.2	22	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:01	19:04	40.57752	-73.73938	40.57797	-73.73560	8	6	SE	<2	B3	≥5000	Clear	Slight	3.7	58	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:04	19:08	40.57797	-73.73560	40.57537	-73.73390	8	6	SE	<2	B3	≥5000	Clear	Slight	3.2	137	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:08	19:21	40.57537	-73.73390	40.56248	-73.73497	8	6	SE	<2	B3	≥5000	Clear	Slight	3.4	202	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:21	19:23	40.56248	-73.73497	40.56090	-73.73473	13	15	S	<2	B3	≥5000	Clear	Moderate	3.6	193	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:23	19:36	40.56090	-73.73473	40.56048	-73.74252	13	15	S	<2	B3	≥5000	Clear	Moderate	3.2	172	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:36	19:40	40.56048	-73.74252	40.56490	-73.74177	14	8	S	<2	B3	≥5000	Clear	Moderate	4.1	29	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	19:49	40.56490	-73.74177	40.57600	-73.74088	13	8	S	<2	B3	≥5000	Clear	Moderate	4.2	17	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:49	19:51	40.57600	-73.74088	40.57715	-73.74047	8	3	S	<2	B3	≥5000	Clear	Moderate	4.1	19	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:51	19:55	40.57715	-73.74047	40.57787	-73.73625	8	3	S	<2	B3	≥5000	Clear	Moderate	3.9	37	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:55	19:58	40.57787	-73.73625	40.57477	-73.73427	8	14	SE	<2	B3	≥5000	Clear	Moderate	3.4	133	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:58	20:11	40.57477	-73.73427	40.57917	-73.73538	8	14	SE	<2	B3	≥5000	Clear	Moderate	3.4	194	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:11	20:13	40.57917	-73.73538	40.56100	-73.73525	13	15	S	<2	B3	≥5000	Clear	Severe	3.6	195	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:13	20:24	40.56100	-73.73525	40.56113	-73.74345	13	15	S	<2	B3	≥5000	Clear	Severe	3.5	183	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:24	20:28	40.56113	-73.74345	40.56442	-73.74212	13	7	SSE	<2	B3	≥5000	Clear	Severe	4.1	30	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:28	20:37	40.56442	-73.74212	40.57608	-73.74137	13	7	SSE	<2	B3	≥5000	Clear	Severe	4.1	17	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:37	20:39	40.57608	-73.74137	40.57792	-73.74058	8	5	SE	<2	B3	≥5000	Clear	Severe	4.1	10	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:39	20:42	40.57792	-73.74058	40.57857	-73.73778	8	5	SE	<2	B3	≥5000	Clear	Severe	3.7	47	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:42	20:47	40.57857	-73.73778	40.57447	-73.73480	8	5	SE	<2	B3	≥5000	Clear	Severe	3.4	114	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:47	20:59	40.57447	-73.73480	40.56340	-73.73612	9	9	SE	<2	B3	≥5000	Clear	Severe	3.5	197	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	20:59	21:02	40.56340	-73.73612	40.56002	-73.73608	13	7	S	<2	B3	≥5000	Clear	Severe	3.6	206	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:02	21:12	40.56002	-73.73608	40.56050	-73.74408	13	11	S	<2	B3	≥5000	Clear	Severe	3.4	180	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:12	21:17	40.56050	-73.74408	40.56460	-73.74258	13	4	SE	<2	B3	≥5000	Clear	Severe	4	29	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:17	21:27	40.56460	-73.74258	40.57728	-73.74153	13	5	S	<2	B3	≥5000	Clear	Severe	4.2	14	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:27	21:30	40.57728	-73.74153	40.57885	-73.73928	8	4	E	<2	B3	≥5000	Clear	Severe	4	19	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:30	21:32	40.57885	-73.73928	40.57818	-73.73717	8	5	SE	<2	B3	≥5000	Clear	Severe	3.2	100	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:32	21:35	40.57818	-73.73717	40.57552	-73.73572	8	11	SE	<2	B3	≥5000	Clear	Severe	3.4	149	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:35	21:49	40.57552	-73.73572	40.56195	-73.73647	8	7	S	<2	B3	≥5000	Clear	Severe	3.5	182	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:49	21:50	40.56195	-73.73647	40.56050	-73.73672	13	9	S	<2	B3	≥5000	Clear	Severe	3.6	200	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:50	22:00	40.56050	-73.73672	40.55802	-73.73328	13	9	S	<2	B3	≥5000	Clear	Severe	3.6	201	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:04	40.55802	-73.73328	40.56463	-73.73203	13	9	S	<2	B2	≥5000	Clear	Severe	3.6	201	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:04	22:09	40.56463	-73.73203	40.57518	-73.73008	13	9	S	<2	B2	≥5000	Clear	Severe	3.6	201	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:09	22:12	40.57518	-73.73008	40.57542	-73.73015	13	7	S	<2	B2	≥5000	Clear	Severe	3.4	201	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:12	22:20	40.57542	-73.73015	40.57672	-73.73638	13	7	S	<2	B2	≥5000	Clear	Severe	3.4	201	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:20	22:23	40.57672	-73.73638	40.57455	-73.73708	13	7	S	<2	B2	≥5000	Cloudy	Slight	3.6	235	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:23	22:35	40.57455	-73.73708	40.57555	-73.73718	13	7	S	<2	B2	≥5000	Cloudy	Slight	3.6	235	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:35	22:37	40.57555	-73.73718	40.56023	-73.73905	13	7	S	<2	B2	≥5000	Cloudy	Slight	3.6	235	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:37	22:47	40.56023	-73.73905	40.56113	-73.73448	13	7	S	<2	B2	≥5000	Cloudy	Slight	3.6	235	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:47	22:51	40.56113	-73.73448	40.56393	-73.73440	13	12	NW	<2	B2	≥5000	Cloudy	Slight	3.6	15	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:51	22:58	40.56393	-73.73440	40.57258	-73.73340	13	12	NW	<2	B2	≥5000	Cloudy	Slight	3.6	15	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:58	23:00	40.57258	-73.73340	40.57317	-73.73313	13	12	NW	<2	B2	≥5000	Cloudy	Slight	3.6	15	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:19	40.57317	-73.73313	40.57233	-73.73162	8	5	N	<2	B2	≥5000	Cloudy	None	4	37	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:19	23:23	40.57233	-73.73162	40.56842	-73.73207	11	3	SSW	<2	B2	≥5000	Cloudy	None	3.9	201	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:23	23:29	40.56842	-73.73207	40.56217	-73.73265	11	3	SSW	<2	B2	≥5000	Cloudy	None	4	199	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:29	23:31	40.56217	-73.73265	40.55923	-73.73268	13	6	SSW	<2	B2	≥5000	Cloudy	None	3.8	198	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:31	23:49	40.55923	-73.73268	40.55992	-73.73433	13	5	S	<2	B2	≥5000	Cloudy	None	3.6	169	Full Power	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:49	23:54	40.55992	-73.73433	40.56507	-73.73395	13	1	S	<2	B2	≥5000	Cloudy	None	4	17	Silent	N/A
2023-06-02	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:54	00:00	40.56507	-73.73395	40.56973	-73.73362	13	4	S	<2	B2	≥5000	Cloudy	None	3.2	16	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:01	40.56973	-73.73362	40.57543	-73.73447	11	4	S	<2	B2	≥5000	Cloudy	None	3.9	17	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:01	00:04	40.57543	-73.73447	40.57543	-73.73447	11	5	S	<2	B2	≥5000	Cloudy	None	3.6	352	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:04	00:17	40.57543	-73.73447	40.57340	-73.73070	11	7	S	<2	B2	≥5000	Cloudy	None	3.7	240	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:17	00:20	40.57340	-73.73070	40.57217	-73.73162	11	4	S	<2	B2	≥5000	Cloudy	None	3.6	355	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:20	00:23	40.57217	-73.73162	40.56837	-73.73248	10	14	S	<2	B3	2000-4999	Cloudy	None	3.2	204	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:28	40.56837	-73.73248	40.56197	-73.73297	10	14	S	<2	B3	2000-4999	Cloudy	None	3.8	202	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:28	00:30	40.56197	-73.73297	40.56030	-73.73305	12	9	S	<2	B3	2000-4999	Cloudy	None	3.9	195	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:30	00:43	40.56030	-73.73305	40.55933	-73.73407	12	9	S	<2	B3	2000-4999	Cloudy	None	3.9	194	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:43	00:48	40.55933	-73.73407	40.56393	-73.73615	13	9	NE	<2	B1	1000-1999	Cloudy	None	3.8	15	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:48	00:49	40.56393	-73.73615	40.56420	-73.73615	13	6	NE	<2	B1	500-999	Cloudy	None	3.8	328	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:49	00:53	40.56420	-73.73615	40.56772	-73.73893	12	6	NE	<2	B1	500-999	Cloudy	None	3.5	337	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:53	00:55	40.56772	-73.73893	40.56995	-73.74035	11	4	NE	<2	B1	500-999	Cloudy	None	3.6	355	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:55	00:57	40.56995	-73.74035	40.57058	-73.74258	11	2	N	<2	B1	500-999	Cloudy	None	3.2	295	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:57	01:00	40.57058	-73.74258	40.57103	-73.74380	12	1	NNE	<2	B1	500-999	Cloudy	None	3.7	307	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:10	40.57103	-73.74380	40.57543	-73.74045	12	1	NNE	<2	B1	500-999	Cloudy	None	3.7	310	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:10	01:15	40.57543	-73.74045	40.57078	-73.74003	9	9	SE	<2	B1	500-999	Cloudy	None	3.6	171	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:15	01:22	40.57078	-73.74003	40.56275	-73.74057	9	9	SE	<2	B1	500-999	Cloudy	None	3.8	196	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:22	01:24	40.56275	-73.74057	40.56075	-73.74152	14	9	SE	<2	B1	500-999	Cloudy	None	3.8	195	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:24	01:33	40.56075	-73.74152	40.56755	-73.73892	14	9	SE	<2	B1	500-999	Cloudy	None	3.7	224	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:33	01:38	40.56755	-73.73892	40.56755	-73.73892	12	6	SE	<2	B1	500-999	Cloudy	None	4	17	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:38	01:46	40.56755	-73.73892	40.56755	-73.73892	12	6	SE	<2	B1	500-999	Cloudy	None	4	17	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:46	01:48	40.56755	-73.73892	40.56755	-73.73892	12	6	SE	<2	B1	500-999	Cloudy	None	4	17	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:48	01:55	40.56755	-73.73892	40.56757	-73.73362	12	6	SE	<2	B1	500-999	Cloudy	None	4	17	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:55	01:58	40.56757	-73.73362	40.56757	-73.73362	11	6	SSE	<2	B1	500-999	Cloudy	None	3.8	198	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:58	02:00	40.56757	-73.73362	40.56757	-73.73362	11	6	SSE	<2	B1	500-999	Cloudy	None	3.8	198	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:20	40.56757	-73.73362	40.56445	-73.73370	11	6	SSE	<2	B1	500-999	Cloudy	None	3.8	198	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:40	40.56445	-73.73370	40.57687	-73.73707	9	5	NE	<2	B1	500-999	Cloudy	None	3.9	14	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:40	03:00	40.57687	-73.73707	40.56047	-73.55017	12	5	NE	<2	B1	500-999	Cloudy	None	3.6	10	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	03:20	40.56047	-73.55017	40.57222	-73.73173	12	5	NE	<2	B1	500-999	Cloudy	None	4.1	196	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:20	03:40	40.57222	-73.73173	40.56510	-73.73342	12	5	NE	<2	B1	500-999	Cloudy	None	3.8	198	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:40	04:00	40.56510	-73.73342	40.56275	-73.73303	12	3	NE	<2	B1	500-999	Cloudy	None	4	195	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	04:20	40.56275	-73.73303	40.55953	-73.73685	12	3	NE	<2	B1	500-999	Cloudy	None	4	195	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:20	04:40	40.55953	-73.73685	40.56185	-73.73252	12	7	NE	<2	B2	500-999	Cloudy	None	3.9	58	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:40	05:00	40.56185	-73.73252	40.56380	-73.72450	12	7	NE	<2	B2	500-999	Cloudy	None	3.9	59	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.56380	-73.72450	40.57340	-73.73063	11	6	N	<2	B2	500-999	Cloudy	None	3.9	193	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:20	05:40	40.57340	-73.73063	40.56023	-73.71302	9	11	ENE	<2	B2	500-999	Cloudy	None	3.5	79	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:40	06:00	40.56023	-73.71302	40.54605	-73.70063	13	13	E	<2	B3	500-999	Cloudy	None	3.7	149	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.54605	-73.70063	40.54452	-73.67873	13	13	E	<2	B3	500-999	Cloudy	None	3.6	159	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:24	40.54452	-73.67873	40.56652	-73.67835	13	10	E	<2	B2	500-999	Cloudy	None	3.8	28	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:24	06:47	40.54452	-73.67873	40.56652	-73.67835	13	10	E	<2	B2	500-999	Cloudy	None	3.8	28	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:47	07:00	40.56652	-73.67835	40.56870	-73.68452	13	6	SE	<2	B2	500-999	Cloudy	None	3.8	13	Silent	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.56870	-73.68452	40.54770	-73.68468	11	3	SE	<2	B1	500-999	Cloudy	None	3.8	195	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:20	07:40	40.54770	-73.68468	40.55685	-73.67798	11	3	SE	<2	B1	500-999	Cloudy	None	3.8	195	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.55685	-73.67798	40.57545	-73.67957	11	4	SE	<2	B1	500-999	Cloudy	None	3.4	5	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:20	40.57545	-73.67957	40.55418	-73.68420	7	4	E	<2	B2	500-999	Cloudy	None	4.2	327	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:20	08:40	40.55418	-73.68420	40.53603	-73.68300	13	4	E	<2	B2	500-999	Cloudy	None	3.9	181	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:40	09:00	40.53603	-73.68300	40.55557	-73.67758	17	9	E	<2	B2	1000-1999	Cloudy	None	3.2	118	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.55557	-73.67758	40.57607	-73.68120	12	5	NE	<2	B2	1000-1999	Cloudy	None	3.5	14	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.57607	-73.68120	40.55593	-73.68383	12	5	NE	<2	B2	2000-4999	Clear	None	3.8	14	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.55593	-73.68383	40.54532	-73.68252	13	7	E	<2	B2	≥5000	Cloudy	Severe	4.1	176	Full Power	N/A
2023-06-03	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.54532	-73.68252	40.56925	-73.68308	15	12	NW	<2	B3	≥5000	Cloudy	Severe	5.1	347	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-03	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.56925	-73.68308	40.57252	-73.67813	8	14	NE	<2	B3	≥5000	Cloudy	Moderate	4.1	18	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.57252	-73.67813	40.56848	-73.68340	8	15	NE	<2	B3	≥5000	Cloudy	Severe	4.9	43	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.56848	-73.68340	40.54135	-73.69090	9	8	ENE	<2	B3	≥5000	Cloudy	Severe	3.8	194	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.54135	-73.69090	40.55752	-73.68277	14	11	NE	<2	B3	≥5000	Cloudy	Severe	3.8	168	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.55752	-73.68277	40.55917	-73.68317	12	20	NE	<2	B4	≥5000	Cloudy	Moderate	3.9	12	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.55917	-73.68317	40.55592	-73.69005	13	18	NE	<2	B4	≥5000	Cloudy	None	3.9	49	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:38	40.55592	-73.69005	40.53460	-73.69220	13	15	NE	<2	B4	≥5000	Cloudy	None	4.4	195	Full Power	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:38	12:55	40.53460	-73.69220	40.53928	-73.71978	12	13	ENE	<2	B4	≥5000	Cloudy	None	4	241	Standby	N/A
2023-06-03	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:55	13:00	40.53928	-73.71978	40.54042	-73.72862	12	13	ENE	<2	B5	≥5000	Cloudy	None	4.5	299	Deploying/Retrieving	N/A
2023-06-03	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:26	40.54042	-73.72862	40.53545	-73.75775	13	16	E	<2	B5	≥5000	Cloudy	None	3.7	289	Deploying/Retrieving	N/A
2023-06-03	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:26	13:55	40.53545	-73.75775	40.53453	-73.78622	13	18	E	<2	B5	≥5000	Cloudy	None	2.8	233	Standby	N/A
2023-06-03	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	13:55	15:00	40.53453	-73.78622	40.51370	-73.97818	12	8	E	<2	B5	≥5000	Cloudy	None	10.6	272	Transit	N/A
2023-06-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.51370	-73.97818	40.62587	-74.05165	11	6	ESE	<2	B5	≥5000	Cloudy	None	7.7	306	Transit	N/A
2023-06-03	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:10	40.62587	-74.05165	40.70273	-73.97317	16	11	SE	<2	B5	≥5000	Cloudy	None	7.2	4	Transit	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:18	14:00	40.70273	-73.97317	40.66870	-74.04707	8	10	NNE	<2	B1	≥5000	Cloudy	None	8.6	333	Transit	N/A
2023-06-04	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.66870	-74.04707	40.52318	-74.00593	16	2	S	<2	B1	≥5000	Clear	Severe	8.3	209	Transit	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.52318	-74.00593	40.53192	-73.81900	12	12	E	<2	B2	≥5000	Clear	Slight	10	130	Transit	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:40	40.53192	-73.81900	40.55963	-73.74272	12	2	ESE	<2	B2	≥5000	Cloudy	None	7	77	Transit	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:40	16:57	40.55963	-73.74272	40.56815	-73.72898	13	8	NNE	<2	B4	≥5000	Cloudy	None	3.1	66	Standby	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:57	17:13	40.56815	-73.72898	40.56703	-73.71178	11	16	NE	<2	B4	≥5000	Cloudy	None	2.9	67	Deploying/Retrieving	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:13	17:25	40.56703	-73.71178	40.56627	-73.69992	11	7	NE	<2	B3	≥5000	Cloudy	None	3.2	125	Standby	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:25	17:35	40.56627	-73.69992	40.56872	-73.71095	10	10	N	<2	B3	≥5000	Cloudy	None	2.8	1	Soft Start	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:35	18:00	40.56872	-73.71095	40.54708	-73.69442	10	11	NNE	<2	B3	≥5000	Cloudy	None	3.7	248	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.54708	-73.69442	40.54582	-73.67743	15	10	NNE	<2	B3	≥5000	Cloudy	None	3.8	157	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.54582	-73.67743	40.56567	-73.67725	14	15	NE	<2	B3	≥5000	Cloudy	None	3.5	16	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.56567	-73.67725	40.56813	-73.68200	10	17	N	<2	B4	≥5000	Cloudy	None	3.6	15	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.56813	-73.68200	40.54638	-73.68217	10	13	N	<2	B4	≥5000	Cloudy	None	4.1	194	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54638	-73.68217	40.55205	-73.67942	14	6	NNE	<2	B4	≥5000	Cloudy	None	4	203	Silent	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.55205	-73.67942	40.56948	-73.67935	13	17	NE	<2	B4	≥5000	Cloudy	None	3.6	10	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.56948	-73.67935	40.55778	-73.68310	8	17	NE	<2	B4	≥5000	Cloudy	None	3.6	13	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.55778	-73.68310	40.54360	-73.68015	13	8	NE	<2	B4	≥5000	Cloudy	None	3.9	192	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.54360	-73.68015	40.56128	-73.67973	15	25	N	<2	B4	≥5000	Cloudy	None	2.9	30	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:20	40.56128	-73.67973	40.57360	-73.68342	10	20	NNE	<2	B4	≥5000	Cloudy	None	3.6	7	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:20	21:40	40.57360	-73.68342	40.55060	-73.68278	8	25	ENE	<2	B4	≥5000	Cloudy	None	3.3	177	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:40	22:00	40.55060	-73.68278	40.54498	-73.68027	15	25	E	<2	B4	≥5000	Cloudy	None	3.7	194	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:00	22:20	40.54498	-73.68027	40.57482	-73.67988	15	20	E	<2	B3	≥5000	Cloudy	None	3.5	35	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:20	22:40	40.57482	-73.67988	40.56425	-73.68240	13	19	E	<2	B3	≥5000	Cloudy	None	3.5	195	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:40	23:00	40.56425	-73.68240	40.54358	-73.68243	13	19	E	<2	B3	≥5000	Cloudy	None	3.6	193	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:20	40.54358	-73.68243	40.55618	-73.67628	15	35	E	<2	B4	≥5000	Cloudy	None	3	129	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:20	23:40	40.55618	-73.67628	40.57260	-73.68175	15	36	NE	<2	B4	≥5000	Cloudy	None	4.2	14	Full Power	N/A
2023-06-04	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:40	00:00	40.57260	-73.68175	40.54922	-73.68172	8	36	S	<2	B4	≥5000	Cloudy	None	4	187	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:23	40.54922	-73.68172	40.56218	-73.67618	8	15	NE	<2	B4	2000-4999	Cloudy	None	4.2	12	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:40	40.56218	-73.67618	40.57432	-73.68130	10	15	NE	<2	B4	2000-4999	Cloudy	None	4.2	12	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:40	01:00	40.57432	-73.68130	40.56082	-73.68135	10	9	E	<2	B3	500-999	Cloudy	None	3.6	194	Silent	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.56082	-73.68135	40.55345	-73.67698	12	11	E	<2	B2	500-999	Cloudy	None	4.2	194	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:20	01:40	40.55345	-73.67698	40.57565	-73.67850	11	10	NE	<2	B1	500-999	Cloudy	None	4.2	9	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	01:40	02:00	40.57565	-73.67850	40.55478	-73.68102	8	9	NE	<2	B0	500-999	Cloudy	None	3.8	292	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:20	40.55478	-73.68102	40.54868	-73.67583	11	7	NE	<2	B1	500-999	Cloudy	None	4.2	193	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:40	40.54868	-73.67583	40.56948	-73.67580	12	9	NE	<2	B2	500-999	Cloudy	None	3.8	13	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:40	03:00	40.56948	-73.67580	40.56573	-73.68065	10	7	NE	<2	B3	500-999	Cloudy	None	3.9	13	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	03:20	40.56573	-73.68065	40.54202	-73.67790	10	7	NE	<2	B3	500-999	Cloudy	None	3.9	13	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:20	03:40	40.54202	-73.67790	40.57547	-73.67715	10	7	NE	<2	B3	500-999	Cloudy	None	3.9	120	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:40	04:00	40.57547	-73.67715	40.57048	-73.67998	14	12	NE	<2	B3	500-999	Cloudy	None	3.9	192	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	04:20	40.57048	-73.67998	40.54532	-73.68002	14	12	NE	<2	B3	500-999	Cloudy	None	3.9	192	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:20	04:40	40.54532	-73.68002	40.53755	-73.67387	14	10	NE	<2	B3	500-999	Cloudy	None	3.7	194	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:40	05:00	40.53755	-73.67387	40.54628	-73.67392	17	8	NE	<2	B3	500-999	Clear	None	3.9	53	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.54628	-73.67392	40.57420	-73.67378	14	9	NE	<2	B3	500-999	Clear	None	3.7	14	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:20	05:40	40.57420	-73.67378	40.55012	-73.68040	9	7	NE	<2	B2	500-999	Clear	None	3.6	357	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:40	06:00	40.55012	-73.68040	40.53962	-73.67487	14	7	NE	<2	B2	500-999	Clear	None	4	192	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.53962	-73.67487	40.56163	-73.67343	14	8	NE	<2	B3	500-999	Clear	None	3.4	56	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:40	40.56163	-73.67343	40.57285	-73.67952	14	10	NE	<2	B3	500-999	Clear	None	3.4	56	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:40	07:00	40.57285	-73.67952	40.55313	-73.67968	16	10	NE	<2	B3	500-999	Clear	None	3.9	193	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.55313	-73.67968	40.54445	-73.67322	16	10	NE	<2	B3	500-999	Clear	None	3.4	54	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:20	07:40	40.54445	-73.67322	40.56435	-73.67310	16	16	NE	<2	B3	500-999	Clear	None	3.6	15	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.56435	-73.67310	40.57272	-73.67928	18	17	NE	<2	B3	500-999	Clear	None	3.6	15	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:20	40.57272	-73.67928	40.54623	-73.67923	8	10	N	<2	B3	500-999	Clear	None	3.7	183	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:20	08:40	40.54623	-73.67923	40.55760	-73.67402	8	10	N	<2	B3	500-999	Clear	None	3.9	54	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:40	09:00	40.55760	-73.67402	40.57358	-73.67407	8	10	N	<2	B3	1000-1999	Clear	None	3.8	54	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.57358	-73.67407	40.57535	-73.66777	8	10	N	<2	B2	2000-4999	Clear	None	3.8	252	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.57535	-73.66777	40.56023	-73.67320	7	3	NW	<2	B2	≥5000	Clear	None	3.4	314	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.56023	-73.67320	40.53902	-73.67100	11	4	N	<2	B2	≥5000	Clear	Severe	4	180	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.53902	-73.67100	40.54325	-73.67523	15	4	NE	<2	B2	≥5000	Clear	Severe	3.5	136	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.54325	-73.67523	40.56495	-73.67507	14	5	NNW	<2	B2	≥5000	Clear	Severe	4	12	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.56495	-73.67507	40.57520	-73.68077	8	4	N	<2	B2	≥5000	Clear	Severe	4	11	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.57520	-73.68077	40.57095	-73.67342	9	4	NW	<2	B2	≥5000	Clear	Severe	3.5	231	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.57095	-73.67342	40.54937	-73.67360	8	4	WNW	<2	B2	≥5000	Clear	Severe	3.6	191	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.54937	-73.67360	40.54153	-73.67455	12	2	WNW	<2	B2	≥5000	Clear	Severe	3.9	192	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.54153	-73.67455	40.56393	-73.67435	16	7	WNW	<2	B2	≥5000	Clear	Severe	3.8	13	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.56393	-73.67435	40.57017	-73.67540	10	4	N	<2	B2	≥5000	Clear	Severe	3.9	11	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.57017	-73.67540	40.56692	-73.67378	8	1	NNE	<2	B2	≥5000	Clear	Severe	3.6	125	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.56692	-73.67378	40.54528	-73.67403	11	2	WNW	<2	B2	≥5000	Clear	Severe	3.9	193	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.54528	-73.67403	40.53780	-73.67397	16	5	W	<2	B2	≥5000	Cloudy	None	4	192	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.53780	-73.67397	40.55327	-73.67490	16	9	N	<2	B2	≥5000	Clear	Severe	3.2	8	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.55327	-73.67490	40.57362	-73.68043	13	14	NNW	<2	B3	≥5000	Clear	Moderate	3.8	4	Full Power	N/A
2023-06-05	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.57362	-73.68043	40.57618	-73.67167	8	14	NNW	<2	B3	≥5000	Clear	Moderate	3.9	161	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-05	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.57618	-73.67167	40.55565	-73.67432	7	13	NE	<2	B3	≥5000	Clear	Moderate	4.1	275	Silent	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.55565	-73.67432	40.53908	-73.68143	13	8	NNW	<2	B3	≥5000	Clear	Slight	4.1	193	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:40	40.53908	-73.68143	40.55707	-73.68465	16	16	NW	<2	B3	≥5000	Clear	Slight	3.6	293	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.55707	-73.68465	40.57402	-73.68737	12	21	NNW	<2	B5	≥5000	Clear	Slight	3.5	13	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.57402	-73.68737	40.56273	-73.67808	9	4	N	<2	B4	≥5000	Clear	Slight	3.7	260	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:40	40.56273	-73.67808	40.55267	-73.68443	7	14	N	<2	B4	≥5000	Clear	Slight	4.6	194	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.55267	-73.68443	40.57223	-73.68440	13	24	NNW	<2	B5	≥5000	Clear	Slight	3.3	14	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:20	40.57223	-73.68440	40.56805	-73.68090	8	18	N	<2	B4	≥5000	Clear	Slight	3.5	8	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:40	40.56805	-73.68090	40.57255	-73.67452	9	18	NNE	<2	B4	≥5000	Clear	Slight	3.8	74	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:40	19:00	40.57255	-73.67452	40.54990	-73.67470	8	8	NNW	<2	B4	≥5000	Cloudy	Slight	4.1	193	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54990	-73.67470	40.55037	-73.68405	14	13	NNW	<2	B4	≥5000	Cloudy	Slight	3.8	193	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:40	40.55037	-73.68405	40.56933	-73.68398	14	20	NNE	<2	B4	≥5000	Cloudy	Slight	3.5	12	Silent	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	20:00	40.56933	-73.68398	40.56965	-73.67693	9	20	NNE	<2	B4	≥5000	Cloudy	Slight	3.7	13	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:20	40.56965	-73.67693	40.57295	-73.67492	8	12	NNE	<2	B4	≥5000	Cloudy	Slight	3.7	82	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:20	20:40	40.57295	-73.67492	40.55060	-73.67503	7	9	NNW	<2	B4	≥5000	Cloudy	Slight	4.1	192	Silent	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	21:00	40.55060	-73.67503	40.55127	-73.68380	14	8	NNW	<2	B2	≥5000	Cloudy	None	4.3	193	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:20	40.55127	-73.68380	40.57358	-73.68363	13	13	NNE	<2	B2	≥5000	Cloudy	None	3.8	12	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:20	21:40	40.57358	-73.68363	40.56862	-73.67988	8	11	NNE	<2	B2	≥5000	Cloudy	Slight	3.9	13	Silent	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:40	22:00	40.56862	-73.67988	40.57140	-73.67528	9	1	SSE	<2	B1	≥5000	Cloudy	Slight	3.6	89	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:20	40.57140	-73.67528	40.56540	-73.67502	11	7	SSE	<2	B1	≥5000	Cloudy	Slight	3.6	189	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:20	22:40	40.56540	-73.67502	40.56207	-73.67613	11	8	SSE	<2	B1	≥5000	Cloudy	Slight	3.6	189	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:40	23:00	40.56207	-73.67613	40.54233	-73.67688	11	11	SSE	<2	B1	≥5000	Cloudy	Slight	3.6	189	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:30	40.54233	-73.67688	40.57487	-73.68262	16	12	WSW	<2	B4	≥5000	Cloudy	Slight	4	239	Full Power	N/A
2023-06-05	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:30	00:00	40.57487	-73.68262	40.57247	-73.66990	7	9	WSW	<2	B5	≥5000	Cloudy	Slight	4.2	1	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:23	40.57247	-73.66990	40.56068	-73.67573	7	8	WSW	<2	B5	≥5000	Cloudy	None	3.8	40	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:40	40.56068	-73.67573	40.54395	-73.67605	10	19	SW	<2	B5	2000-4999	Cloudy	None	3.6	194	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:40	01:00	40.54395	-73.67605	40.55848	-73.68225	15	17	S	<2	B5	500-999	Cloudy	None	3.4	219	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.55848	-73.68225	40.57010	-73.68927	11	11	SW	<2	B4	500-999	Cloudy	None	3.6	13	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:20	01:40	40.57010	-73.68927	40.57012	-73.66942	9	20	SSW	<2	B4	500-999	Cloudy	None	3.6	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:40	02:00	40.57012	-73.66942	40.56842	-73.67595	8	11	SW	<2	B4	500-999	Cloudy	None	3.8	37	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:20	40.56842	-73.67595	40.54705	-73.67613	10	11	SSW	<2	B4	500-999	Cloudy	None	3.6	196	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:20	02:40	40.54705	-73.67613	40.56568	-73.68187	14	15	SW	<2	B4	500-999	Cloudy	None	3.7	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:40	03:00	40.56568	-73.68187	40.57535	-73.68792	11	7	SW	<2	B3	500-999	Cloudy	None	4.1	13	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	03:20	40.57535	-73.68792	40.57310	-73.66943	11	7	SW	<2	B3	500-999	Cloudy	None	4.1	242	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:20	03:40	40.57310	-73.66943	40.55727	-73.67638	11	7	SW	<2	B3	500-999	Cloudy	None	4.1	242	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:40	04:00	40.55727	-73.67638	40.54080	-73.68052	14	7	SW	<2	B3	500-999	Cloudy	None	4.1	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	04:20	40.54080	-73.68052	40.56335	-73.68168	14	7	SW	<2	B3	500-999	Cloudy	None	4.1	240	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:20	04:40	40.56335	-73.68168	40.57297	-73.68692	14	7	SW	<2	B3	500-999	Cloudy	None	4.1	240	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:40	05:00	40.57297	-73.68692	40.56770	-73.67640	14	9	SW	<2	B3	500-999	Cloudy	None	4.1	240	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.56770	-73.67640	40.55903	-73.67823	11	5	SW	<2	B2	500-999	Cloudy	None	4.5	103	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:20	05:40	40.55903	-73.67823	40.53663	-73.67857	11	5	SW	<2	B2	500-999	Cloudy	None	4.1	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:40	06:00	40.53663	-73.67857	40.55345	-73.68103	11	3	SW	<2	B2	500-999	Cloudy	None	3.5	243	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.55345	-73.68103	40.57447	-73.68278	11	8	SW	<2	B2	500-999	Cloudy	None	3.5	243	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:40	40.57447	-73.68278	40.57612	-73.67212	11	8	SW	<2	B2	500-999	Cloudy	None	3.8	189	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:40	07:00	40.57612	-73.67212	40.55773	-73.67782	11	9	SW	<2	B2	500-999	Cloudy	None	3.5	264	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.55773	-73.67782	40.53895	-73.67278	11	8	SW	<2	B2	500-999	Cloudy	None	3.9	264	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:20	07:40	40.53895	-73.67278	40.54825	-73.68090	11	8	SW	<2	B2	500-999	Cloudy	None	4.2	194	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:40	08:00	40.54825	-73.68090	40.56748	-73.68082	10	7	N	<2	B2	500-999	Cloudy	None	3.8	13	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:20	40.56748	-73.68082	40.56992	-73.67490	9	8	NW	<2	B2	500-999	Cloudy	None	3.9	3	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:20	08:40	40.56992	-73.67490	40.55678	-73.67745	8	7	N	<2	B2	500-999	Cloudy	None	3.9	75	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:40	09:00	40.55678	-73.67745	40.54242	-73.67772	12	6	N	<2	B2	500-999	Cloudy	None	3.5	75	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.54242	-73.67772	40.53537	-73.68327	12	8	N	<2	B2	2000-4999	Cloudy	None	3.5	194	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.53537	-73.68327	40.56905	-73.68048	12	8	NNW	<2	B3	≥5000	Cloudy	None	3.5	15	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.56905	-73.68048	40.57515	-73.68517	9	11	NW	<2	B3	≥5000	Cloudy	None	3.9	10	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.57515	-73.68517	40.57540	-73.67222	7	7	NW	<2	B3	≥5000	Cloudy	None	3.9	245	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.57540	-73.67222	40.55805	-73.67707	7	7	NW	<2	B3	≥5000	Cloudy	Slight	3.9	312	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.55805	-73.67707	40.54432	-73.67712	12	6	W	<2	B3	≥5000	Cloudy	Slight	4.1	184	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.54432	-73.67712	40.55080	-73.68303	11	5	W	<2	B3	≥5000	Cloudy	Slight	4.1	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.55080	-73.68303	40.57118	-73.68287	11	5	W	<2	B3	≥5000	Cloudy	Slight	3.9	12	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.57118	-73.68287	40.57130	-73.68572	8	7	W	<2	B3	≥5000	Cloudy	Slight	4	14	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.57130	-73.68572	40.57113	-73.65963	8	6	W	<2	B3	≥5000	Cloudy	Slight	3.8	105	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.57113	-73.65963	40.56823	-73.67665	8	11	W	<2	B3	≥5000	Cloudy	Slight	3.5	16	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.56823	-73.67665	40.54677	-73.67685	10	11	W	<2	B3	≥5000	Cloudy	Slight	3.9	194	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.54677	-73.67685	40.55342	-73.67097	15	4	WSW	<2	B5	≥5000	Cloudy	None	3.9	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.55342	-73.67097	40.56222	-73.66970	11	6	SE	<2	B5	≥5000	Cloudy	None	3.8	26	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.56222	-73.66970	40.56218	-73.69088	10	19	WNW	<2	B5	≥5000	Precipitation	None	3.7	286	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.56218	-73.69088	40.55322	-73.67073	10	18	WNW	<2	B4	≥5000	Cloudy	Slight	3.7	280	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.55322	-73.67073	40.55642	-73.67278	11	8	N	<2	B4	≥5000	Cloudy	Slight	4	98	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.55642	-73.67278	40.53860	-73.67200	13	7	W	<2	B3	≥5000	Cloudy	Moderate	3.9	195	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.53860	-73.67200	40.55930	-73.66905	15	6	W	<2	B3	≥5000	Cloudy	Slight	3.6	78	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:40	40.55930	-73.66905	40.54545	-73.67260	10	8	W	<2	B3	≥5000	Cloudy	Slight	3.9	48	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54545	-73.67260	40.53207	-73.67373	15	16	SW	<2	B3	≥5000	Cloudy	Slight	4	193	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:20	40.53207	-73.67373	40.55152	-73.67173	16	9	WSW	<2	B3	≥5000	Cloudy	None	3.7	320	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:20	16:40	40.55152	-73.67173	40.56707	-73.67932	14	3	S	<2	B3	≥5000	Cloudy	Slight	3.9	14	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:40	17:00	40.56707	-73.67932	40.55220	-73.67220	10	7	W	<2	B3	≥5000	Cloudy	Slight	4.2	57	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:20	40.55220	-73.67220	40.53260	-73.67108	15	7	SSW	<2	B3	≥5000	Cloudy	Slight	4	195	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:20	17:40	40.53260	-73.67108	40.54608	-73.67208	16	12	WSW	<2	B3	≥5000	Cloudy	Slight	3.6	251	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.54608	-73.67208	40.56478	-73.67860	15	4	W	<2	B3	≥5000	Cloudy	Slight	3.8	15	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:20	40.56478	-73.67860	40.55143	-73.67105	10	4	SSW	<2	B3	≥5000	Clear	Slight	4.1	26	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:40	40.55143	-73.67105	40.53337	-73.66603	13	18	S	<2	B3	≥5000	Clear	Slight	3.9	194	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:40	19:00	40.53337	-73.66603	40.54553	-73.67270	15	18	S	<2	B3	≥5000	Clear	Slight	3.7	227	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54553	-73.67270	40.56748	-73.67695	14	10	S	<2	B3	≥5000	Cloudy	Slight	4.1	10	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:40	40.56748	-73.67695	40.55630	-73.67132	9	7	SE	<2	B3	≥5000	Cloudy	None	4	58	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	20:00	40.55630	-73.67132	40.55190	-73.68202	14	28	SSW	<2	B5	≥5000	Cloudy	None	3.8	197	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:20	40.55190	-73.68202	40.55325	-73.67142	13	6	WSW	<2	B3	≥5000	Cloudy	Moderate	4	5	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:20	20:40	40.55325	-73.67142	40.53402	-73.66463	13	8	S	<2	B3	≥5000	Clear	Moderate	4	191	Silent	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	21:00	40.53402	-73.66463	40.54807	-73.67235	15	3	E	<2	B3	≥5000	Clear	Moderate	4	224	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:20	40.54807	-73.67235	40.56687	-73.67107	15	1	E	<2	B3	≥5000	Clear	Slight	4	14	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:20	21:40	40.56687	-73.67107	40.55183	-73.67178	9	6	ESE	<2	B3	≥5000	Precipitation	None	3.9	274	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:40	22:00	40.55183	-73.67178	40.53685	-73.66413	14	3	ESE	<2	B3	≥5000	Precipitation	None	3.9	194	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:20	40.53685	-73.66413	40.53545	-73.66357	14	12	ESE	<2	B3	≥5000	Precipitation	None	3.7	94	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:20	22:40	40.53545	-73.66357	40.53368	-73.66248	14	12	ESE	<2	B2	≥5000	Cloudy	None	3.7	315	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:40	23:00	40.53368	-73.66248	40.55817	-73.67612	14	12	ESE	<2	B2	≥5000	Cloudy	None	4.6	316	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:20	40.55817	-73.67612	40.56105	-73.68097	11	1	E	<2	B2	≥5000	Cloudy	None	4.1	13	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:20	23:40	40.56105	-73.68097	40.54072	-73.68308	11	10	SSE	<2	B3	≥5000	Cloudy	None	3.7	164	Full Power	N/A
2023-06-06	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:40	00:00	40.54072	-73.68308	40.54863	-73.67883	17	6	SSE	<2	B3	≥5000	Cloudy	None	4	248	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:20	40.54863	-73.67883	40.57148	-73.68142	7	3	S	<2	B3	2000-4999	Cloudy	None	4.2	13	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:20	00:23	40.57148	-73.68142	40.57450	-73.68138	7	2	SW	<2	B3	2000-4999	Cloudy	None	4.2	13	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:40	40.57450	-73.68138	40.56565	-73.68317	7	4	SW	<2	B3	2000-4999	Cloudy	None	4.1	12	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:40	01:00	40.56565	-73.68317	40.57458	-73.68197	10	1	SW	<2	B2	500-999	Cloudy	None	4.5	54	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.57458	-73.68197	40.57418	-73.68607	11	4	WSW	<2	B2	500-999	Cloudy	None	3.7	344	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:20	01:40	40.57418	-73.68607	40.56895	-73.68088	8	9	NW	<2	B3	500-999	Cloudy	None	4.5	222	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:40	02:00	40.56895	-73.68088	40.56143	-73.68590	9	18	NW	<2	B3	500-999	Cloudy	None	3.9	16	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:20	40.56143	-73.68590	40.57573	-73.68127	10	12	NNW	<2	B3	500-999	Cloudy	None	4.1	108	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:40	40.57573	-73.68127	40.56437	-73.67898	11	9	NNW	<2	B3	500-999	Cloudy	None	4.2	251	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:40	03:00	40.56437	-73.67898	40.57102	-73.68568	11	12	NNW	<2	B3	500-999	Cloudy	None	3.7	25	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	03:20	40.57102	-73.68568	40.57395	-73.67832	14	16	NNW	<2	B3	500-999	Cloudy	None	3.8	15	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:20	03:40	40.57395	-73.67832	40.56418	-73.67848	14	16	NNW	<2	B3	500-999	Cloudy	None	3.8	16	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:40	04:00	40.56418	-73.67848	40.57098	-73.68487	14	16	NNW	<2	B3	500-999	Cloudy	None	4.1	18	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	04:20	40.57098	-73.68487	40.56735	-73.67468	14	16	NNW	<2	B3	500-999	Cloudy	None	4.1	200	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:20	04:40	40.56735	-73.67468	40.56462	-73.67297	14	11	NNW	<2	B2	500-999	Cloudy	None	4.1	251	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:40	05:00	40.56462	-73.67297	40.57488	-73.67495	14	14	NNW	<2	B2	500-999	Cloudy	None	4.2	16	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.57488	-73.67495	40.57427	-73.67342	14	11	NNW	<2	B2	500-999	Cloudy	None	3.9	299	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:20	05:40	40.57427	-73.67342	40.56270	-73.69353	7	11	NW	<2	B2	500-999	Cloudy	None	3.9	316	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:40	06:00	40.56270	-73.69353	40.55805	-73.67620	11	8	W	<2	B2	500-999	Cloudy	None	3.8	240	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.55805	-73.67620	40.54927	-73.67138	14	13	W	<2	B2	500-999	Cloudy	None	3.3	104	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:40	40.54927	-73.67138	40.54560	-73.64262	14	13	W	<2	B2	500-999	Cloudy	None	3.3	104	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:40	07:00	40.54560	-73.64262	40.54863	-73.66215	14	13	W	<2	B2	500-999	Cloudy	None	3.3	104	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.54863	-73.66215	40.54915	-73.68790	14	9	W	<2	B2	500-999	Cloudy	None	3.6	17	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:20	07:40	40.54915	-73.68790	40.55088	-73.71202	14	12	W	<2	B2	500-999	Cloudy	None	3.8	280	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.55088	-73.71202	40.54963	-73.69633	14	18	NW	<2	B3	500-999	Cloudy	None	3.8	280	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:20	40.54963	-73.69633	40.54363	-73.70665	14	15	NW	<2	B3	500-999	Cloudy	None	3.2	49	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:20	08:40	40.54363	-73.70665	40.54343	-73.67847	14	22	NW	<2	B4	500-999	Cloudy	None	3.7	104	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:40	09:00	40.54343	-73.67847	40.54318	-73.65553	14	14	NW	<2	B3	1000-1999	Cloudy	None	3.5	104	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.54318	-73.65553	40.54573	-73.65962	14	16	NW	<2	B3	2000-4999	Cloudy	None	3.6	107	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.54573	-73.65962	40.54627	-73.69153	14	17	NW	<2	B3	≥5000	Cloudy	None	3.6	284	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.54627	-73.69153	40.54710	-73.71223	15	17	NW	<2	B3	≥5000	Cloudy	None	3.7	282	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.54710	-73.71223	40.54390	-73.68727	15	15	W	<2	B3	≥5000	Cloudy	Slight	3.7	232	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.54390	-73.68727	40.54342	-73.65788	15	12	N	<2	B3	≥5000	Cloudy	Slight	4	106	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.54342	-73.65788	40.54577	-73.65080	15	10	NW	<2	B3	≥5000	Cloudy	Moderate	4	95	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.54577	-73.65080	40.54587	-73.68725	15	12	NW	<2	B3	≥5000	Cloudy	Slight	3.9	252	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.54587	-73.68725	40.54560	-73.71598	14	9	NW	<2	B3	≥5000	Cloudy	Slight	4	284	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.54560	-73.71598	40.54427	-73.69317	14	15	NW	<2	B3	≥5000	Cloudy	Slight	3.6	198	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.54427	-73.69317	40.54377	-73.66555	14	11	NW	<2	B3	≥5000	Cloudy	Slight	3.8	103	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.54377	-73.66555	40.54503	-73.64175	13	11	NW	<2	B3	≥5000	Cloudy	Slight	3.8	106	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.54503	-73.64175	40.54403	-73.65693	12	13	NW	<2	B3	≥5000	Cloudy	Slight	3.6	129	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.54403	-73.65693	40.54452	-73.68980	14	8	NW	<2	B4	≥5000	Cloudy	Moderate	4.1	281	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.54452	-73.68980	40.54617	-73.71428	15	13	NW	<2	B4	≥5000	Cloudy	Moderate	4.1	284	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.54617	-73.71428	40.54457	-73.69698	16	4	NW	<2	B4	≥5000	Cloudy	Moderate	3.9	240	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.54457	-73.69698	40.54400	-73.65903	15	12	N	<2	B3	≥5000	Cloudy	Moderate	3.8	95	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.54400	-73.65903	40.54332	-73.63735	14	6	N	<2	B3	≥5000	Cloudy	Moderate	3.8	98	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.54332	-73.63735	40.54253	-73.65158	12	6	W	<2	B3	≥5000	Cloudy	Moderate	3.9	181	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:32	40.54253	-73.65158	40.54340	-73.70428	14	14	W	<2	B3	≥5000	Cloudy	None	3.8	298	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:32	15:35	40.54340	-73.70428	40.54342	-73.70785	15	13	WSW	<2	B3	≥5000	Cloudy	None	3.9	282	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:35	16:00	40.54342	-73.70785	40.54920	-73.70563	15	13	WSW	<2	B3	≥5000	Cloudy	None	3.9	282	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:20	40.54920	-73.70563	40.54845	-73.66987	13	6	S	<2	B3	≥5000	Cloudy	None	4.1	120	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:20	16:40	40.54845	-73.66987	40.54808	-73.64198	13	11	SSW	<2	B3	≥5000	Cloudy	None	3.5	103	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:40	17:00	40.54808	-73.64198	40.54078	-73.63028	13	9	SSW	<2	B3	≥5000	Cloudy	None	3.6	102	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:20	40.54078	-73.63028	40.54797	-73.65217	13	16	SW	<2	B3	≥5000	Cloudy	None	3.4	240	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:20	17:40	40.54797	-73.65217	40.54852	-73.68458	12	7	WNW	<2	B3	1000-1999	Cloudy	None	3.6	285	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.54852	-73.68458	40.54880	-73.70012	14	14	WNW	<2	B3	500-999	Cloudy	None	3.4	285	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:28	40.54880	-73.70012	40.54728	-73.71462	15	22	WNW	<2	B4	500-999	Cloudy	None	3.3	284	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:28	19:00	40.54728	-73.71462	40.54823	-73.67123	14	16	W	<2	B4	500-999	Cloudy	None	4.3	101	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54823	-73.67123	40.54578	-73.64168	14	13	W	<2	B4	500-999	Cloudy	None	3.8	102	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54578	-73.64168	40.53967	-73.61363	12	10	WNW	<2	B4	500-999	Cloudy	None	3.9	119	Silent	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	20:00	40.53967	-73.61363	40.53450	-73.58990	13	9	WNW	<2	B3	500-999	Cloudy	None	3.9	119	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:29	40.53450	-73.58990	40.52713	-73.55620	15	9	WNW	<2	B3	500-999	Cloudy	None	3.8	119	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:29	21:00	40.52713	-73.55620	40.53703	-73.51848	17	13	WNW	<2	B3	500-999	Cloudy	None	3.8	120	Deploying/Retrieving	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	22:00	40.53703	-73.51848	40.57990	-73.45840	17	16	NW	<2	B4	500-999	Cloudy	None	2.7	66	Standby	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:28	40.57990	-73.45840	40.57192	-73.48060	17	17	NW	<2	B3	1000-1999	Cloudy	None	3.4	295	Standby	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:28	22:38	40.57192	-73.48060	40.56612	-73.49103	17	12	NW	<2	B2	1000-1999	Cloudy	None	3.4	257	Soft Start	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:38	23:00	40.56612	-73.49103	40.55578	-73.51763	17	11	NW	<2	B2	1000-1999	Cloudy	None	3.4	258	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:20	40.55578	-73.51763	40.54060	-73.51448	15	8	WNW	<2	B2	1000-1999	Cloudy	None	4.2	259	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:20	23:40	40.54060	-73.51448	40.55185	-73.52168	15	1	WNW	<2	B2	1000-1999	Cloudy	None	3.7	119	Full Power	N/A
2023-06-07	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:40	00:00	40.55185	-73.52168	40.53485	-73.50837	15	4	WNW	<2	B2	1000-1999	Cloudy	None	4	236	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:23	40.53485	-73.50837	40.51445	-73.48355	18	4	W	<2	B2	1000-1999	Cloudy	None	3.9	151	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	01:00	40.51445	-73.48355	40.48990	-73.45378	18	6	SW	<2	B2	1000-1999	Cloudy	None	4	151	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.48990	-73.45378	40.43552	-73.38778	16	3	SW	<2	B2	500-999	Cloudy	None	4	148	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	02:05	40.43552	-73.38778	40.42325	-73.38260	28	4	SW	<2	B1	500-999	Clear	None	4.1	148	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:05	02:07	40.42325	-73.38260	40.42243	-73.38137	24	6	SW	<2	B1	500-999	Clear	None	4	172	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:07	02:28	40.42243	-73.38137	40.43192	-73.38307	24	6	SW	<2	B1	500-999	Clear	None	3.5	123	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:28	02:32	40.43192	-73.38307	40.43623	-73.38817	28	6	W	<2	B1	500-999	Clear	None	3.9	330	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:32	03:00	40.43623	-73.38817	40.45475	-73.41080	28	6	W	<2	B1	500-999	Clear	None	3.9	331	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:00	03:35	40.45475	-73.41080	40.48613	-73.44895	22	5	W	<2	B2	500-999	Clear	None	3.9	325	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:35	04:00	40.48613	-73.44895	40.50593	-73.47288	22	5	W	<2	B2	500-999	Clear	None	3.9	325	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	05:00	40.50593	-73.47288	40.54737	-73.52188	22	5	W	<2	B2	500-999	Clear	None	3.9	325	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:03	40.54737	-73.52188	40.53743	-73.51842	19	12	NNE	<2	B2	500-999	Clear	None	3.9	0	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:03	05:06	40.53743	-73.51842	40.53513	-73.51547	20	6	ENE	<2	B2	500-999	Clear	None	3.6	147	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:06	06:00	40.53513	-73.51547	40.50122	-73.47422	20	6	ENE	<2	B2	500-999	Clear	None	3.5	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	40.50122	-73.47422	40.45765	-73.42118	20	6	ENE	<2	B2	500-999	Clear	None	3.5	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:37	40.45765	-73.42118	40.43065	-73.38868	20	8	ENE	<2	B2	500-999	Clear	None	3.7	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:37	07:39	40.43065	-73.38868	40.42980	-73.38762	26	4	NE	<2	B2	500-999	Clear	None	3.5	149	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:39	07:47	40.42980	-73.38762	40.43318	-73.38358	26	4	NE	<2	B2	500-999	Clear	None	3.5	149	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:47	07:51	40.43318	-73.38358	40.43318	-73.38358	28	6	NE	<2	B2	500-999	Clear	None	3.7	330	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:51	08:00	40.43318	-73.38358	40.43872	-73.39022	28	6	NE	<2	B2	500-999	Clear	None	3.8	330	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	09:00	40.43872	-73.39022	40.48883	-73.45118	28	7	NW	<2	B2	500-999	Clear	None	3.8	326	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.48883	-73.45118	40.50618	-73.47217	28	7	NW	<2	B2	1000-1999	Cloudy	None	3.5	326	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:20	10:00	40.50618	-73.47217	40.53748	-73.51022	19	7	NW	<2	B2	2000-4999	Cloudy	None	3.9	322	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:09	40.53748	-73.51022	40.54458	-73.51877	17	6	NW	<2	B2	2000-4999	Cloudy	Slight	3.9	323	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:09	10:15	40.54458	-73.51877	40.54900	-73.52422	17	6	NW	<2	B2	2000-4999	Cloudy	Slight	3.9	322	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:15	10:32	40.54900	-73.52422	40.54435	-73.52578	17	6	NW	<2	B2	2000-4999	Cloudy	Slight	3.9	323	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:32	10:38	40.54435	-73.52578	40.54012	-73.52052	16	4	N	<2	B2	2000-4999	Cloudy	Moderate	4.1	142	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:38	11:00	40.54012	-73.52052	40.52860	-73.50655	16	4	N	<2	B2	2000-4999	Cloudy	Moderate	4.1	143	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	12:00	40.52860	-73.50655	40.47358	-73.43972	17	3	NNE	<2	B2	2000-4999	Cloudy	Slight	4.1	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:55	40.47358	-73.43972	40.43118	-73.38833	22	5	NNE	<2	B2	2000-4999	Cloudy	Slight	3.8	151	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:55	12:57	40.43118	-73.38833	40.42997	-73.38685	24	5	NNE	<2	B2	2000-4999	Cloudy	Slight	3.7	151	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	12:57	13:06	40.42997	-73.38685	40.43423	-73.38405	24	4	NNE	<2	B2	2000-4999	Cloudy	Slight	3.7	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:06	13:09	40.43423	-73.38405	40.43637	-73.38638	24	10	N	<2	B2	2000-4999	Cloudy	Slight	4	339	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:09	14:00	40.43637	-73.38638	40.47162	-73.42910	24	7	N	<2	B2	2000-4999	Cloudy	Slight	4.2	331	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	15:00	40.47162	-73.42910	40.51473	-73.48150	26	4	NW	<2	B2	2000-4999	Cloudy	Slight	3.5	328	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:41	40.51473	-73.48150	40.54468	-73.51790	17	4	WNW	<2	B1	2000-4999	Cloudy	Slight	3.4	330	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:41	15:43	40.54468	-73.51790	40.54638	-73.51990	17	5	SW	<2	B1	2000-4999	Cloudy	Slight	3.4	329	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:43	15:53	40.54638	-73.51990	40.54417	-73.52340	17	4	SW	<2	B1	2000-4999	Cloudy	Slight	3.5	331	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:53	15:58	40.54417	-73.52340	40.54110	-73.51978	17	9	SSW	<2	B1	2000-4999	Cloudy	Slight	3	148	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:58	16:00	40.54110	-73.51978	40.54030	-73.51878	17	10	SSW	<2	B1	2000-4999	Cloudy	Slight	3.1	152	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	17:00	40.54030	-73.51878	40.50062	-73.47057	18	6	S	<2	B1	2000-4999	Cloudy	Slight	3	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	18:00	40.50062	-73.47057	40.45363	-73.41368	19	2	SSW	<2	B2	2000-4999	Cloudy	Slight	3.3	148	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:25	40.45363	-73.41368	40.43170	-73.38712	22	13	S	<2	B2	2000-4999	Cloudy	Slight	4.1	150	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:25	18:27	40.43170	-73.38712	40.43068	-73.38583	28	15	S	<2	B3	2000-4999	Cloudy	Slight	4	150	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:27	18:51	40.43068	-73.38583	40.42965	-73.38498	28	15	S	<2	B3	2000-4999	Cloudy	Slight	4	149	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:51	18:56	40.42965	-73.38498	40.43373	-73.39008	24	9	SSW	<2	B3	2000-4999	Cloudy	Slight	3.9	325	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:56	19:00	40.43373	-73.39008	40.43663	-73.39358	24	9	SSW	<2	B3	2000-4999	Cloudy	Slight	3.9	330	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	20:00	40.43663	-73.39358	40.48317	-73.44997	28	9	SSW	<2	B3	2000-4999	Cloudy	Slight	3.9	330	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	21:00	40.48317	-73.44997	40.53235	-73.50970	21	9	SSW	<2	B3	≥5000	Clear	Moderate	3.9	331	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:12	40.53235	-73.50970	40.54257	-73.52217	19	5	SSW	<2	B3	≥5000	Cloudy	Severe	3.8	331	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:12	21:34	40.54257	-73.52217	40.55400	-73.50982	19	2	SSW	<2	B3	≥5000	Cloudy	Slight	3.9	332	Deploying/Retrieving	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:34	21:43	40.55400	-73.50982	40.56202	-73.50582	14	4	SSW	<2	B2	≥5000	Cloudy	None	2.8	69	Standby	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:43	21:54	40.56202	-73.50582	40.57418	-73.50200	12	1	W	<2	B1	≥5000	Cloudy	None	4.3	26	Soft Start	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:54	22:00	40.57418	-73.50200	40.58022	-73.49577	13	1	W	<2	B1	≥5000	Cloudy	None	4.2	28	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:14	40.58022	-73.49577	40.53812	-73.49665	13	3	W	<2	B2	≥5000	Cloudy	None	4.2	58	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:14	22:18	40.53812	-73.49665	40.58338	-73.49880	13	3	W	<2	B2	≥5000	Cloudy	None	4.2	58	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:18	22:44	40.58338	-73.49880	40.55753	-73.50698	13	4	W	<2	B2	≥5000	Cloudy	None	4.2	58	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:44	22:45	40.55753	-73.50698	40.55543	-73.50773	13	3	W	<2	B2	≥5000	Cloudy	None	4.2	162	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:45	23:00	40.55543	-73.50773	40.55087	-73.50337	13	3	W	<2	B2	≥5000	Cloudy	None	4.2	162	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:04	40.55087	-73.50337	40.55542	-73.50348	14	1	W	<2	B2	≥5000	Cloudy	None	4.1	49	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:04	23:06	40.55542	-73.50348	40.55795	-73.50333	14	2	W	<2	B2	≥5000	Cloudy	None	4	3	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:06	23:32	40.55795	-73.50333	40.58572	-73.49472	14	2	WSW	<2	B2	≥5000	Cloudy	None	4	25	Full Power	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:32	23:33	40.58572	-73.49472	40.58718	-73.49493	7	2	WSW	<2	B2	≥5000	Cloudy	None	4	28	Silent	N/A
2023-06-08	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:33	00:00	40.58718	-73.49493	40.58675	-73.48697	7	3	N	<2	B2	≥5000	Cloudy	None	3.6	351	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:09	40.58675	-73.48697	40.58558	-73.49923	10	3	ENE	<2	B2	2000-4999	Cloudy	None	3.7	350	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:09	00:11	40.58558	-73.49923	40.58460	-73.49963	10	5	SSW	<2	B2	2000-4999	Cloudy	None	3.2	220	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:11	00:23	40.58460	-73.49963	40.57305	-73.50322	10	5	SSW	<2	B2	2000-4999	Cloudy	None	3	207	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:37	40.57305	-73.50322	40.55765	-73.50798	11	9	SW	<2	B2	2000-4999	Cloudy	None	4	205	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:37	00:39	40.55765	-73.50798	40.55645	-73.50833	14	9	SSW	<2	B2	1000-1999	Clear	None	4.1	206	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:39	01:00	40.55645	-73.50833	40.56032	-73.50308	14	9	SSW	<2	B2	1000-1999	Clear	None	4.1	206	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.56032	-73.50308	40.58635	-73.49490	16	3	SSW	<2	B2	500-999	Clear	None	4	31	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:20	01:40	40.58635	-73.49490	40.57350	-73.50712	8	5	W	<2	B2	500-999	Clear	None	3.8	23	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:40	02:00	40.57350	-73.50712	40.55275	-73.51005	9	5	SW	<2	B2	500-999	Clear	None	4	204	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:20	40.55275	-73.51005	40.57288	-73.49945	9	5	SW	<2	B2	500-999	Clear	None	3.8	102	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:40	40.57288	-73.49945	40.58738	-73.49967	11	2	SW	<2	B2	500-999	Clear	None	4	26	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:40	03:00	40.58738	-73.49967	40.57492	-73.50630	7	10	SW	<2	B2	500-999	Clear	None	3.9	258	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:00	03:20	40.57492	-73.50630	40.56037	-73.50377	7	10	SW	<2	B2	500-999	Cloudy	None	3.9	258	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:20	03:40	40.56037	-73.50377	40.58240	-73.49682	14	4	W	<2	B2	500-999	Cloudy	None	4	20	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:40	04:00	40.58240	-73.49682	40.57510	-73.50590	9	7	W	<2	B2	500-999	Cloudy	None	4	17	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:00	04:20	40.57510	-73.50590	40.55272	-73.51292	11	6	W	<2	B2	500-999	Cloudy	None	4.1	199	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:20	04:40	40.55272	-73.51292	40.53270	-73.51417	14	6	WSW	<2	B2	500-999	Cloudy	None	4.1	202	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:40	05:00	40.53270	-73.51417	40.54333	-73.50938	19	4	NW	<2	B2	500-999	Cloudy	None	4	59	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.54333	-73.50938	40.56315	-73.50752	17	4	NNW	<2	B2	500-999	Cloudy	None	3.9	28	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:20	05:40	40.56315	-73.50752	40.56668	-73.50213	13	3	W	<2	B2	500-999	Cloudy	None	3.9	224	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:40	06:00	40.56668	-73.50213	40.58550	-73.49590	12	7	W	<2	B2	500-999	Cloudy	None	4.2	14	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.58550	-73.49590	40.56880	-73.50745	12	7	W	<2	B2	500-999	Cloudy	None	3.4	25	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:40	40.56880	-73.50745	40.55155	-73.52132	12	5	W	<2	B2	500-999	Cloudy	None	3.8	208	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:40	07:00	40.55155	-73.52132	40.55105	-73.54165	12	5	W	<2	B2	500-999	Cloudy	None	3.8	208	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.55105	-73.54165	40.55163	-73.56935	12	5	W	<2	B2	500-999	Cloudy	None	3.8	208	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:20	07:40	40.55163	-73.56935	40.55005	-73.59557	12	5	W	<2	B2	500-999	Cloudy	None	3.4	284	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.55005	-73.59557	40.54777	-73.61442	12	5	W	<2	B2	500-999	Cloudy	None	3.8	165	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:20	40.54777	-73.61442	40.54237	-73.63997	12	6	NW	<2	B2	500-999	Cloudy	None	3.7	271	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:20	08:40	40.54237	-73.63997	40.54735	-73.61020	12	6	NW	<2	B2	500-999	Cloudy	None	4.1	143	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:40	09:00	40.54735	-73.61020	40.55042	-73.58592	12	6	NW	<2	B2	500-999	Cloudy	None	4.1	245	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.55042	-73.58592	40.55122	-73.55722	12	6	NW	<2	B2	2000-4999	Cloudy	None	4.1	245	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.55122	-73.55722	40.55057	-73.52825	14	7	N	<2	B2	≥5000	Cloudy	None	4	98	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.55057	-73.52825	40.54647	-73.51493	14	7	N	<2	B2	≥5000	Cloudy	None	3.7	91	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.54647	-73.51493	40.55033	-73.53837	15	8	W	<2	B2	≥5000	Cloudy	None	3.7	253	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:20	10:51	40.55033	-73.53837	40.55128	-73.57848	15	8	NW	<2	B2	≥5000	Cloudy	None	3.6	278	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:51	10:53	40.55128	-73.57848	40.55108	-73.58083	17	10	WNW	<2	B3	≥5000	Cloudy	Moderate	3.7	284	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:53	10:55	40.55108	-73.58083	40.55098	-73.58305	17	10	WNW	<2	B3	≥5000	Cloudy	Moderate	3.3	273	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:55	10:58	40.55098	-73.58305	40.55053	-73.58765	17	10	WNW	<2	B3	≥5000	Cloudy	Moderate	3.5	279	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	10:58	11:00	40.55053	-73.58765	40.55050	-73.58820	17	10	WNW	<2	B3	≥5000	Cloudy	Moderate	4	276	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.55050	-73.58820	40.54618	-73.62263	17	10	WNW	<2	B3	≥5000	Cloudy	Moderate	4	275	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.54618	-73.62263	40.54318	-73.64428	12	10	WNW	<2	B3	≥5000	Cloudy	Moderate	4.1	274	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.54318	-73.64428	40.54642	-73.61983	12	5	WNW	<2	B2	≥5000	Cloudy	Moderate	3.8	165	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.54642	-73.61983	40.54983	-73.59232	9	6	WNW	<2	B2	≥5000	Cloudy	Severe	3.8	93	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.54983	-73.59232	40.55083	-73.56515	10	6	NNE	<2	B2	≥5000	Cloudy	Severe	3.7	92	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.55083	-73.56515	40.55015	-73.53480	9	7	NNE	<2	B2	≥5000	Cloudy	Severe	3.7	105	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.55015	-73.53480	40.55092	-73.51977	14	4	ENE	<2	B2	≥5000	Cloudy	Severe	3.8	102	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.55092	-73.51977	40.55083	-73.54775	14	4	NW	<2	B2	≥5000	Cloudy	Severe	4	296	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.55083	-73.54775	40.55135	-73.56995	10	4	WNW	<2	B2	≥5000	Cloudy	Severe	3.6	285	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.55135	-73.56995	40.54905	-73.60158	11	5	NW	<2	B2	≥5000	Cloudy	Slight	3.7	279	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.54905	-73.60158	40.54602	-73.62623	12	5	W	<2	B2	≥5000	Cloudy	Slight	3.7	263	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.54602	-73.62623	40.54057	-73.64902	11	4	W	<2	B2	≥5000	Cloudy	Slight	3.6	262	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.54057	-73.64902	40.54663	-73.62208	14	7	W	<2	B2	≥5000	Clear	Slight	4.2	339	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:40	40.54663	-73.62208	40.54943	-73.59938	12	5	S	<2	B2	≥5000	Clear	Slight	3.8	93	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54943	-73.59938	40.55533	-73.57717	11	7	S	<2	B2	≥5000	Clear	Slight	3.7	93	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:23	40.55533	-73.57717	40.55017	-73.55017	12	5	W	<2	B3	≥5000	Clear	Slight	4	34	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:23	16:27	40.55017	-73.55017	40.55017	-73.55017	12	9	WSW	<2	B3	≥5000	Clear	Slight	4	272	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	16:27	17:00	40.55017	-73.55017	40.54477	-73.63157	12	9	WSW	<2	B3	≥5000	Clear	Slight	4	272	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:02	40.54477	-73.63157	40.54477	-73.63157	12	7	SSW	<2	B3	≥5000	Clear	Slight	3.8	273	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:02	17:29	40.54477	-73.63157	40.54563	-73.63762	12	7	SSW	<2	B3	≥5000	Clear	Slight	3.8	273	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:29	17:34	40.54563	-73.63762	40.54578	-73.63170	12	5	S	<2	B3	≥5000	Clear	Slight	4.1	112	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	17:34	18:00	40.54578	-73.63170	40.54992	-73.59795	12	8	S	<2	B3	≥5000	Clear	Slight	4.3	93	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:20	40.54992	-73.59795	40.55752	-73.57030	11	10	SSW	<2	B3	≥5000	Clear	Slight	3.6	94	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:40	40.55752	-73.57030	40.55210	-73.57062	11	8	SSW	<2	B3	≥5000	Clear	Slight	3.8	74	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:40	19:00	40.55210	-73.57062	40.54933	-73.59270	11	12	SSW	<2	B3	≥5000	Clear	Slight	3.5	272	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54933	-73.59270	40.54595	-73.61983	12	12	SSW	<2	B3	≥5000	Clear	Slight	3.5	272	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54595	-73.61983	40.53853	-73.64065	12	11	SSW	<2	B3	≥5000	Clear	Slight	3.4	274	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	20:00	40.53853	-73.64065	40.54610	-73.62433	14	13	SW	<2	B3	≥5000	Cloudy	Moderate	3.4	283	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:20	40.54610	-73.62433	40.54965	-73.59577	12	13	S	<2	B3	≥5000	Cloudy	Moderate	3.7	93	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:20	20:40	40.54965	-73.59577	40.55655	-73.57172	11	13	S	<2	B4	≥5000	Cloudy	Moderate	3.8	94	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	21:00	40.55655	-73.57172	40.55200	-73.56903	11	14	S	<2	B4	≥5000	Cloudy	Moderate	4	69	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:02	40.55200	-73.56903	40.55200	-73.56903	12	11	SW	<2	B4	≥5000	Cloudy	Slight	3.2	276	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:02	21:51	40.55200	-73.56903	40.54423	-73.63133	12	11	SW	<2	B4	≥5000	Cloudy	Slight	3.2	276	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:51	21:53	40.54423	-73.63133	40.54423	-73.63133	12	7	NW	<2	B5	≥5000	Cloudy	None	3.7	274	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	21:53	22:00	40.54423	-73.63133	40.54357	-73.64320	12	7	NW	<2	B5	≥5000	Cloudy	None	3.7	274	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:00	22:11	40.54357	-73.64320	40.54432	-73.63120	12	9	NW	<2	B4	≥5000	Cloudy	None	3.7	264	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:11	22:14	40.54432	-73.63120	40.54463	-73.62660	12	11	NW	<2	B4	≥5000	Cloudy	None	4.2	95	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo	RPS	22:14	22:59	40.54463	-73.62660	40.55158	-73.57162	12	11	NW	<2	B4	≥5000	Cloudy	None	4.2	95	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	22:59	23:01	40.55158	-73.57162	40.55217	-73.56658	12	9	SSW	<2	B4	≥5000	Cloudy	None	3.8	96	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:01	23:25	40.55217	-73.56658	40.55217	-73.56547	12	9	E	<2	B4	≥5000	Cloudy	None	3.8	94	Full Power	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:25	23:30	40.55217	-73.56547	40.55147	-73.57107	12	11	E	<2	B4	≥5000	Cloudy	None	3.4	270	Silent	N/A
2023-06-09	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	23:30	00:00	40.55147	-73.57107	40.54655	-73.61087	12	7	NNE	<2	B4	≥5000	Cloudy	None	3.5	273	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:23	40.54655	-73.61087	40.54527	-73.64658	12	7	SW	<2	B4	≥5000	Cloudy	None	4.1	274	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:40	40.54527	-73.64658	40.54692	-73.66638	12	10	SSW	<2	B4	2000-4999	Cloudy	None	3.7	288	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:40	01:00	40.54692	-73.66638	40.54305	-73.67670	14	3	SSW	<2	B4	2000-4999	Cloudy	None	3.8	289	Silent	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.54305	-73.67670	40.55295	-73.70275	12	6	SSW	<2	B4	1000-1999	Cloudy	None	1.9	245	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:20	01:40	40.55295	-73.70275	40.55837	-73.72438	13	7	SSW	<2	B3	500-999	Cloudy	None	3.4	261	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:40	02:00	40.55837	-73.72438	40.56085	-73.75367	14	5	S	<2	B3	500-999	Cloudy	None	4	289	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:20	40.56085	-73.75367	40.56308	-73.77992	14	5	S	<2	B3	500-999	Cloudy	None	3.9	288	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:20	02:40	40.56308	-73.77992	40.56920	-73.79705	11	6	SSW	<2	B2	500-999	Cloudy	None	3.7	290	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:40	03:00	40.56920	-73.79705	40.56763	-73.77200	8	3	SE	<2	B2	500-999	Cloudy	None	3.8	100	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:00	03:20	40.56763	-73.77200	40.56415	-73.73167	10	2	SW	<2	B2	500-999	Cloudy	None	3.6	262	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:20	03:40	40.56415	-73.73167	40.56172	-73.70295	12	1	NW	<2	B2	500-999	Cloudy	None	4	103	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	03:40	04:00	40.56172	-73.70295	40.55768	-73.71328	12	4	NW	<2	B2	500-999	Cloudy	None	3.7	108	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	04:20	40.55768	-73.71328	40.56068	-73.74683	12	4	NW	<2	B2	500-999	Cloudy	None	3.7	108	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:20	04:40	40.56068	-73.74683	40.56236	-73.76685	12	4	NW	<2	B2	500-999	Cloudy	None	3.7	110	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:40	05:00	40.56236	-73.76685	40.56382	-73.78433	11	5	NW	<2	B2	500-999	Cloudy	None	3.6	283	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.56382	-73.78433	40.56937	-73.77725	12	4	NW	<2	B2	500-999	Cloudy	None	3.7	288	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:20	05:40	40.56937	-73.77725	40.56737	-73.75342	11	5	NW	<2	B2	500-999	Cloudy	None	4.2	108	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:40	06:00	40.56737	-73.75342	40.56518	-73.72908	11	6	N	<2	B2	500-999	Cloudy	None	3.9	101	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:13	40.56518	-73.72908	40.56302	-73.70197	11	4	N	<2	B2	500-999	Cloudy	None	3.8	105	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:13	06:17	40.56302	-73.70197	40.56270	-73.69797	11	4	N	<2	B2	500-999	Cloudy	None	3.8	105	Silent	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:17	06:35	40.56270	-73.69797	40.55718	-73.70992	11	4	N	<2	B2	500-999	Cloudy	None	3.8	105	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:35	06:39	40.55718	-73.70992	40.55777	-73.71412	13	6	N	<2	B2	500-999	Cloudy	None	3.8	295	Silent	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:39	07:00	40.55777	-73.71412	40.55980	-73.74032	13	6	N	<2	B2	500-999	Cloudy	None	3.9	293	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Salomón Hernández, Ana Betsabé; De La Rosa, Leo	RPS	07:00	07:32	40.55980	-73.74032	40.56373	-73.78592	14	9	NNW	<2	B2	500-999	Cloudy	None	3.6	298	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:32	07:35	40.56373	-73.78592	40.56385	-73.78698	14	9	NNW	<2	B2	500-999	Cloudy	None	3.9	298	Silent	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:35	07:52	40.56385	-73.78698	40.56987	-73.78557	14	9	NNW	<2	B2	500-999	Cloudy	None	3.9	298	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:52	07:56	40.56987	-73.78557	40.56985	-73.78528	14	9	NNW	<2	B2	500-999	Cloudy	None	3.9	298	Silent	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:56	08:00	40.56985	-73.78528	40.57005	-73.78775	14	9	NNW	<2	B2	500-999	Cloudy	None	3.9	298	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:57	40.57005	-73.78775	40.56295	-73.70528	10	7	NNW	<2	B2	500-999	Clear	None	3.6	100	Full Power	N/A
2023-06-10	*Brooks McCall*	*HRG*	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:57	09:01	40.56295	-73.70528	40.56270	-73.70105	12	9	NW	<2	B3	2000-4999	Clear	None	3.7	98	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	09:01	09:20	40.56270	-73.70105	40.55668	-73.70643	12	9	NW	<2	B3	2000-4999	Clear	None	3.7	95	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:20	09:22	40.55668	-73.70643	40.55683	-73.70823	14	10	NW	<2	B3	≥5000	Clear	None	3.5	283	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:22	09:27	40.55683	-73.70823	40.55725	-73.71330	14	10	NW	<2	B3	≥5000	Clear	None	3.6	284	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:27	09:36	40.55725	-73.71330	40.55848	-73.72765	14	10	NW	<2	B3	≥5000	Clear	None	3.5	284	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:36	09:38	40.55848	-73.72765	40.55848	-73.72765	14	10	NW	<2	B3	≥5000	Clear	Slight	3.6	284	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:38	09:52	40.55848	-73.72765	40.55763	-73.72782	14	10	NW	<2	B3	≥5000	Clear	Slight	3.6	284	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:52	09:56	40.55763	-73.72782	40.55735	-73.72257	14	12	NW	<2	B4	≥5000	Clear	Severe	4	90	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:56	10:20	40.55735	-73.72257	40.55643	-73.70692	14	12	NW	<2	B4	≥5000	Clear	Severe	3.7	4	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.55643	-73.70692	40.56082	-73.73188	14	12	W	<2	B4	≥5000	Clear	Severe	3.8	281	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.56082	-73.73188	40.55698	-73.72113	13	12	NW	<2	B4	≥5000	Clear	Severe	3.4	282	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.55698	-73.72113	40.55680	-73.71422	14	7	N	<2	B4	≥5000	Clear	Severe	3.7	109	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.55680	-73.71422	40.55878	-73.73088	14	11	WNW	<2	B4	≥5000	Clear	Severe	3.6	289	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.55878	-73.73088	40.55667	-73.70648	14	6	N	<2	B4	≥5000	Clear	Severe	4	128	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.55667	-73.70648	40.56102	-73.72945	14	9	N	<2	B4	≥5000	Clear	Severe	3.1	78	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.56102	-73.72945	40.55537	-73.70597	14	10	WNW	<2	B3	≥5000	Clear	Severe	3.5	222	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.55537	-73.70597	40.55703	-73.72000	13	5	NW	<2	B3	≥5000	Clear	Severe	4	136	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.55703	-73.72000	40.55190	-73.72473	14	15	WNW	<2	B3	≥5000	Clear	Severe	3.8	291	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.55190	-73.72473	40.54617	-73.69620	15	4	WNW	<2	B3	≥5000	Clear	Moderate	4.1	122	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.54617	-73.69620	40.54580	-73.67215	15	4	WNW	<2	B3	≥5000	Clear	Moderate	4.1	104	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.54580	-73.67215	40.54528	-73.63992	14	8	W	<2	B3	≥5000	Clear	Moderate	4.1	96	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.54528	-73.63992	40.54312	-73.66582	14	10	SW	<2	B3	≥5000	Clear	Moderate	3.8	212	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.54312	-73.66582	40.54350	-73.69217	15	10	SW	<2	B3	≥5000	Clear	Moderate	3.9	274	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:20	40.54350	-73.69217	40.54525	-73.72008	16	10	SW	<2	B3	≥5000	Clear	Slight	4	285	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:20	15:40	40.54525	-73.72008	40.54693	-73.69267	14	2	SSW	<2	B3	≥5000	Clear	Slight	4.1	11	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54693	-73.69267	40.54653	-73.66690	14	5	SSW	<2	B3	≥5000	Clear	Slight	4	102	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:20	40.54653	-73.66690	40.54758	-73.64083	13	8	SW	<2	B3	≥5000	Clear	Slight	4.1	104	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:20	16:40	40.54758	-73.64083	40.54798	-73.66790	12	4	W	<2	B3	≥5000	Clear	Slight	3.6	337	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:40	17:00	40.54798	-73.66790	40.54842	-73.69518	13	8	WSW	<2	B3	≥5000	Clear	Slight	3.8	284	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:20	40.54842	-73.69518	40.54848	-73.71428	15	8	W	<2	B3	≥5000	Clear	Slight	3.8	282	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:20	17:40	40.54848	-73.71428	40.54698	-73.67848	15	7	SSW	<2	B3	≥5000	Clear	Slight	3.8	166	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.54698	-73.67848	40.54633	-73.65390	13	3	S	<2	B3	≥5000	Clear	Slight	4.2	104	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.54633	-73.65390	40.54837	-73.65417	14	5	S	<2	B3	≥5000	Clear	Slight	4.1	122	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:24	40.54633	-73.65390	40.54837	-73.65417	14	5	S	<2	B3	≥5000	Clear	Slight	4.1	122	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:24	18:40	40.54837	-73.65417	40.54873	-73.67963	12	14	SW	<2	B3	≥5000	Clear	Slight	3.6	281	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.54873	-73.67963	40.54907	-73.70238	14	15	SW	<2	B3	≥5000	Clear	Slight	3.6	284	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54907	-73.70238	40.54758	-73.70038	15	14	SW	<2	B4	≥5000	Clear	Slight	3.5	283	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54758	-73.70038	40.54722	-73.67603	15	10	S	<2	B4	≥5000	Clear	Moderate	4.4	104	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.54722	-73.67603	40.54360	-73.64782	14	10	S	<2	B4	≥5000	Clear	Moderate	3.6	104	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.54360	-73.64782	40.54758	-73.65943	12	13	S	<2	B4	≥5000	Cloudy	Slight	4.3	118	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.54758	-73.65943	40.54798	-73.68565	14	18	SW	<2	B4	≥5000	Cloudy	Slight	3.5	284	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.54798	-73.68565	40.55272	-73.70653	14	17	SW	<2	B4	≥5000	Cloudy	Severe	3.3	282	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:20	40.55272	-73.70653	40.54792	-73.69883	13	12	WSW	<2	B5	≥5000	Clear	Severe	3.5	338	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:20	21:40	40.54792	-73.69883	40.54745	-73.67248	15	9	S	<2	B5	≥5000	Clear	Severe	3.7	110	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:40	22:00	40.54745	-73.67248	40.54360	-73.64723	13	5	SSW	<2	B5	≥5000	Clear	Severe	3.7	103	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:00	22:20	40.54360	-73.64723	40.54713	-73.65425	15	5	SSW	<2	B5	≥5000	Clear	Severe	3.7	103	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:20	22:40	40.54713	-73.65425	40.54765	-73.67993	15	5	SSW	<2	B5	≥5000	Clear	Severe	3.7	103	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:40	23:00	40.54765	-73.67993	40.54815	-73.70250	15	5	SSW	<2	B5	≥5000	Clear	Severe	3.7	287	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	23:01	40.54815	-73.70250	40.54848	-73.70575	14	3	S	<2	B5	≥5000	Cloudy	Slight	3.4	293	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:01	23:20	40.54815	-73.70250	40.54848	-73.70575	14	3	S	<2	B5	≥5000	Cloudy	Slight	3.4	293	Full Power	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:20	23:24	40.54848	-73.70575	40.54802	-73.67630	14	4	S	<2	B5	≥5000	Clear	Moderate	4.2	102	Silent	N/A
2023-06-10	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:24	00:00	40.54802	-73.67630	40.54832	-73.65052	13	10	S	<2	B4	≥5000	Clear	Slight	3.7	100	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:23	40.54832	-73.65052	40.54325	-73.65972	14	12	SSW	<2	B4	≥5000	Clear	None	4.6	91	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:23	00:40	40.54325	-73.65972	40.54362	-73.68912	14	15	SW	<2	B4	≥5000	Clear	None	3.7	282	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo; Dalton, Tavis	RPS	00:40	01:00	40.54362	-73.68912	40.54397	-73.70498	14	9	N	<2	B4	1000-1999	Clear	None	3.7	282	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	01:20	40.54397	-73.70498	40.54162	-73.73673	16	9	SW	<2	B4	1000-1999	Clear	None	3.9	285	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	01:20	01:40	40.54162	-73.73673	40.54593	-73.70735	16	12	S	<2	B4	500-999	Clear	None	3.8	185	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:40	02:00	40.54593	-73.70735	40.56002	-73.71958	16	5	SW	<2	B4	500-999	Clear	None	3.8	344	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:00	02:20	40.56002	-73.71958	40.56948	-73.72015	14	4	WSW	<2	B3	500-999	Clear	None	3.9	341	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	02:20	02:40	40.56948	-73.72015	40.55195	-73.70687	13	6	S	<2	B3	500-999	Clear	None	3.6	249	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:40	03:00	40.55195	-73.70687	40.53358	-73.69570	13	14	S	<2	B3	500-999	Clear	None	4.1	160	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:00	03:20	40.53358	-73.69570	40.55150	-73.70198	16	7	SE	<2	B3	500-999	Clear	None	4.6	105	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:20	03:40	40.55150	-73.70198	40.56992	-73.72008	14	8	SW	<2	B3	500-999	Clear	None	4	328	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:40	04:00	40.56992	-73.72008	40.56238	-73.71412	10	10	NW	<2	B3	500-999	Cloudy	None	3.9	174	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:00	04:20	40.56238	-73.71412	40.54162	-73.69603	10	8	SW	<2	B3	500-999	Cloudy	None	4.1	157	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:20	04:40	40.54162	-73.69603	40.54075	-73.69218	12	8	S	<2	B3	500-999	Cloudy	None	4.2	156	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	04:40	05:00	40.54075	-73.69218	40.55175	-73.70178	16	6	SSW	<2	B3	500-999	Cloudy	None	3.8	329	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	05:20	40.55175	-73.70178	40.56977	-73.71932	16	5	SSW	<2	B3	500-999	Cloudy	None	3.9	338	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:20	05:40	40.56977	-73.71932	40.55088	-73.70367	10	10	S	<2	B3	500-999	Cloudy	None	3.8	162	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; Salomón Hernández, Ana Betsabé	RPS	05:40	06:00	40.55088	-73.70367	40.53950	-73.69110	14	13	S	<2	B4	500-999	Cloudy	None	4.1	158	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	06:20	40.53950	-73.69110	40.55848	-73.70857	14	13	S	<2	B4	500-999	Cloudy	None	3.8	309	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:20	06:40	40.55848	-73.70857	40.56530	-73.71862	14	9	S	<2	B3	500-999	Cloudy	None	3.8	309	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:40	07:00	40.56530	-73.71862	40.54617	-73.70205	14	7	S	<2	B3	500-999	Cloudy	None	3.9	281	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	07:20	40.54617	-73.70205	40.53792	-73.69152	14	7	S	<2	B3	500-999	Cloudy	None	4.2	158	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:20	07:40	40.53792	-73.69152	40.55635	-73.70735	14	4	S	<2	B2	500-999	Cloudy	None	3.8	341	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:40	08:00	40.55635	-73.70735	40.56777	-73.71803	14	4	S	<2	B2	500-999	Cloudy	None	3.8	341	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:00	08:04	40.56777	-73.71803	40.56985	-73.72983	11	4	S	<2	B2	500-999	Cloudy	None	3.1	287	Deploying/Retrieving	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:04	08:12	40.56985	-73.72983	40.56623	-73.73235	11	4	S	<2	B2	500-999	Cloudy	None	3.8	288	Standby	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:12	08:14	40.56623	-73.73235	40.56610	-73.72930	12	5	E	<2	B2	500-999	Cloudy	None	4.3	100	Deploying/Retrieving	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:14	08:17	40.56610	-73.72930	40.56582	-73.72297	12	5	E	<2	B2	500-999	Cloudy	None	4.5	100	Standby	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	08:17	08:40	40.56582	-73.72297	40.54953	-73.70548	12	5	E	<2	B2	500-999	Cloudy	None	3.8	101	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	08:40	09:00	40.54953	-73.70548	40.53873	-73.69253	12	5	E	<2	B2	1000-1999	Cloudy	None	4.2	158	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	09:00	09:20	40.53873	-73.69253	40.55798	-73.70932	12	5	E	<2	B2	1000-1999	Cloudy	None	4.1	335	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:20	09:40	40.55798	-73.70932	40.55843	-73.71753	13	5	SW	<2	B2	≥5000	Cloudy	None	3.8	327	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	09:40	10:00	40.55843	-73.71753	40.54493	-73.70325	13	7	S	<2	B3	≥5000	Cloudy	None	4.2	155	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:00	10:20	40.54493	-73.70325	40.54447	-73.67527	15	3	SSE	<2	B3	≥5000	Cloudy	Severe	4.1	94	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:20	10:40	40.54447	-73.67527	40.54428	-73.64722	14	4	S	<2	B3	≥5000	Cloudy	Severe	3.8	98	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	10:40	11:00	40.54428	-73.64722	40.54628	-73.66262	12	8	SW	<2	B3	≥5000	Cloudy	Severe	3.7	3	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:00	11:20	40.54628	-73.66262	40.54685	-73.69952	15	8	WSW	<2	B3	≥5000	Cloudy	Severe	3.8	282	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:20	11:40	40.54685	-73.69952	40.54515	-73.69987	15	9	SSW	<2	B3	≥5000	Cloudy	Severe	3.9	285	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	11:40	12:00	40.54515	-73.69987	40.54477	-73.67515	16	4	SSW	<2	B3	≥5000	Cloudy	Severe	3.7	102	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:00	12:20	40.54477	-73.67515	40.54433	-73.64817	16	4	S	<2	B3	≥5000	Cloudy	Severe	3.7	104	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:20	12:40	40.54433	-73.64817	40.54668	-73.67105	15	3	S	<2	B3	≥5000	Cloudy	Severe	3.8	48	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé	RPS	12:40	13:00	40.54668	-73.67105	40.54715	-73.69890	16	8	S	<2	B3	≥5000	Cloudy	Severe	3.5	282	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.54715	-73.69890	40.54543	-73.70440	16	8	W	<2	B4	≥5000	Cloudy	Severe	3.6	284	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.54543	-73.70440	40.54502	-73.67828	16	6	SW	<2	B4	≥5000	Cloudy	Severe	4.1	104	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.54502	-73.67828	40.54428	-73.65110	15	3	S	<2	B4	≥5000	Cloudy	Severe	3.3	106	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:00	14:20	40.54428	-73.65110	40.54687	-73.66707	13	10	S	<2	B4	≥5000	Cloudy	Moderate	3.6	133	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:20	14:40	40.54687	-73.66707	40.54735	-73.69422	13	10	S	<2	B4	≥5000	Cloudy	Moderate	3.8	272	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria	RPS	14:40	15:00	40.54735	-73.69422	40.54587	-73.70835	14	9	SW	<2	B4	≥5000	Cloudy	Moderate	3.8	271	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:20	40.54587	-73.70835	40.54537	-73.68203	15	6	SSE	<2	B3	≥5000	Cloudy	Slight	3.8	97	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:20	15:40	40.54537	-73.68203	40.54473	-73.65303	14	7	SSE	<2	B3	≥5000	Cloudy	Slight	3.3	103	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54473	-73.65303	40.54713	-73.66487	12	10	SSE	<2	B3	≥5000	Cloudy	Slight	3.8	122	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:00	16:30	40.54713	-73.66487	40.55090	-73.70533	14	5	SSE	<2	B3	≥5000	Cloudy	None	3.8	281	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:30	17:00	40.55090	-73.70533	40.54775	-73.67782	13	3	SSE	<2	B3	≥5000	Cloudy	None	4.1	349	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:00	17:20	40.54775	-73.67782	40.54583	-73.64960	15	7	SSE	<2	B3	≥5000	Cloudy	None	3.3	105	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:20	17:40	40.54583	-73.64960	40.54910	-73.67038	12	6	SSE	<2	B3	≥5000	Cloudy	None	3.7	71	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	17:40	18:00	40.54910	-73.67038	40.54952	-73.69500	15	4	SSW	<2	B3	≥5000	Cloudy	None	3.6	289	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.54952	-73.69500	40.54912	-73.69638	14	7	S	<2	B3	≥5000	Cloudy	Slight	3.5	285	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.54912	-73.69638	40.54863	-73.66870	13	15	SE	<2	B3	≥5000	Cloudy	Slight	4.4	102	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.54863	-73.66870	40.55047	-73.64928	13	14	SE	<2	B3	≥5000	Cloudy	None	4.3	103	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.55047	-73.64928	40.54943	-73.67442	12	10	SE	<2	B4	≥5000	Cloudy	None	3.2	272	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54943	-73.67442	40.54980	-73.69767	14	8	SE	<2	B4	≥5000	Cloudy	None	3.3	284	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.54980	-73.69767	40.54943	-73.70125	15	10	SE	<2	B4	≥5000	Cloudy	None	3.3	284	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.54943	-73.70125	40.54900	-73.66957	13	16	SE	<2	B4	≥5000	Cloudy	None	4.2	102	Silent	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.54900	-73.66957	40.54348	-73.65087	13	14	ESE	<2	B4	≥5000	Cloudy	None	4.5	107	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.54348	-73.65087	40.54373	-73.67357	15	7	ESE	<2	B3	≥5000	Cloudy	None	3.4	270	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:22	40.54373	-73.67357	40.54413	-73.70568	15	5	SSW	<2	B3	≥5000	Cloudy	None	3.5	282	Full Power	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:22	21:52	40.54413	-73.70568	40.52875	-73.72007	15	5	SSE	<2	B3	≥5000	Cloudy	Slight	3.7	275	Deploying/Retrieving	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:52	22:00	40.52875	-73.72007	40.53202	-73.73435	19	11	WNW	<2	B3	≥5000	Cloudy	Severe	2	55	Standby	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:00	22:10	40.53202	-73.73435	40.52078	-73.83322	19	8	WNW	<2	B3	≥5000	Cloudy	Moderate	2	55	Standby	N/A
2023-06-11	Brooks McCall	HRG	Visual	De La Rosa, Leo	RPS	22:10	23:00	40.52078	-73.83322	40.51520	-73.86253	20	8	WNW	<2	B5	≥5000	Cloudy	Moderate	8.5	270	Transit	N/A
2023-06-11	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	23:00	00:00	40.51520	-73.86253	40.54090	-74.02193	11	11	SSE	<2	B6	≥5000	Cloudy	Moderate	8.4	269	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Ruiz Villanueva, Arturo	RPS	00:00	00:25	40.54090	-74.02193	40.60168	-74.04045	16	7	SSE	<2	B4	2000-4999	Clear	None	8.3	357	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Dalton, Tavis; Ruiz Villanueva, Arturo	RPS	00:25	01:00	40.60168	-74.04045	40.66115	-74.04892	20	3	NNE	<2	B4	2000-4999	Clear	None	7.7	356	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Dalton, Tavis	RPS	01:00	02:00	40.66115	-74.04892	40.74648	-73.96688	15	6	NE	<2	B2	1000-1999	Clear	None	7.8	37	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Dalton, Tavis; Salomón Hernández, Ana Betsabé	RPS	02:00	03:00	40.74648	-73.96688	40.79927	-73.85173	12	8	NE	<2	B2	500-999	Cloudy	None	6.8	48	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Peña Mendoza, Valeria; De La Rosa, Leo	RPS	03:00	04:00	40.79927	-73.85173	40.88845	-73.71513	18	3	E	<2	B2	500-999	Cloudy	None	9	87	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	De La Rosa, Leo; Peña Mendoza, Valeria	RPS	04:00	05:00	40.88845	-73.71513	40.94928	-73.58232	18	8	NE	<2	B2	500-999	Cloudy	None	8.4	60	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	Salomón Hernández, Ana Betsabé; Peña Mendoza, Valeria	RPS	05:00	06:00	40.94928	-73.58232	41.02260	-73.40872	16	7	E	<2	B2	500-999	Cloudy	None	8.2	73	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	06:00	07:00	41.02260	-73.40872	41.08015	-73.27787	16	7	E	<2	B2	500-999	Cloudy	None	7.8	74	Transit	N/A
2023-06-12	Brooks McCall	HRG	Visual	De La Rosa, Leo; Salomón Hernández, Ana Betsabé	RPS	07:00	08:00	41.08015	-73.27787	41.17033	-73.17543	16	10	E	<2	B2	500-999	Cloudy	None	8.2	74	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:18	09:00	41.17043	-73.17547	41.10345	-73.22838	9	2	W	<2	B1	500-999	Clear	None	9	270	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	09:00	09:10	41.10345	-73.22838	41.08475	-73.26877	17	5	W	<2	B1	1000-1999	Clear	None	9	270	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:10	10:00	41.08475	-73.26877	41.00102	-73.46265	16	4	W	<2	B1	1000-1999	Clear	None	9	259	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	11:00	41.00102	-73.46265	40.94725	-73.58455	16	4	W	<2	B1	1000-1999	Clear	None	9	259	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	12:00	40.94725	-73.58455	40.84158	-73.76458	15	8	W	<2	B1	1000-1999	Clear	Severe	9	253	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	13:00	40.84158	-73.76458	40.79615	-73.90858	11	13	W	<2	B1	1000-1999	Clear	Severe	9	217	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.79615	-73.90858	40.63285	-74.05242	11	16	W	<2	B1	1000-1999	Clear	Severe	10	231	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	15:00	40.63285	-74.05242	40.50960	-73.97043	13	17	N	<2	B1	1000-1999	Cloudy	Moderate	10	185	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.50960	-73.97043	40.54312	-73.78403	12	24	SSE	<2	B5	2000-4999	Cloudy	None	9.7	130	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:45	40.54312	-73.78403	40.57208	-73.65038	15	15	SW	<2	B4	2000-4999	Cloudy	None	9.2	86	Transit	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:45	18:00	40.57208	-73.65038	40.55867	-73.68603	13	14	SSW	<2	B4	2000-4999	Cloudy	None	3.3	22	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:06	40.55867	-73.68603	40.55638	-73.69500	12	22	SSW	<2	B5	2000-4999	Cloudy	None	3.8	265	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:06	18:12	40.55638	-73.69500	40.55492	-73.69993	13	29	SW	<2	B6	500-999	Precipitation	None	2.5	261	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:12	19:00	40.55492	-73.69993	40.54833	-73.74478	13	21	SW	<2	B5	2000-4999	Cloudy	None	2.6	263	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.54833	-73.74478	40.56997	-73.71372	15	7	WNW	<2	B4	2000-4999	Cloudy	None	4.1	358	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.56997	-73.71372	40.52645	-73.69882	10	7	SSW	<2	B3	≥5000	Cloudy	None	2.3	116	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:36	40.52645	-73.69882	40.54025	-73.69485	16	13	S	<2	B3	≥5000	Cloudy	Severe	3.4	181	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:36	21:44	40.54025	-73.69485	40.54973	-73.69457	17	26	S	<2	B5	500-999	Precipitation	Moderate	2.7	10	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:44	22:00	40.54973	-73.69457	40.55733	-73.69383	17	9	WSW	<2	B3	2000-4999	Cloudy	Moderate	3.5	18	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	23:00	40.55733	-73.69383	40.54015	-73.68667	17	9	WSW	<2	B3	2000-4999	Cloudy	Moderate	3.5	18	Standby	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:00	23:13	40.54015	-73.68667	40.54295	-73.68017	16	23	SW	<2	B3	≥5000	Cloudy	Slight	3.3	188	Deploying/Retrieving	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:13	23:23	40.54295	-73.68017	40.54920	-73.68667	16	17	SW	<2	B4	≥5000	Cloudy	Severe	3.7	15	Soft Start	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:23	23:43	40.54920	-73.68667	40.55803	-73.70565	12	8	SW	<2	B3	≥5000	Clear	Moderate	3.1	323	Full Power	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:43	23:50	40.55803	-73.70565	40.55902	-73.70742	12	15	SW	<2	B4	2000-4999	Clear	Moderate	3	309	Silent	N/A
2023-06-14	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:50	00:00	40.55902	-73.70742	40.55995	-73.72627	12	16	SW	<2	B4	2000-4999	Clear	Slight	3.4	290	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:28	40.55995	-73.72627	40.56283	-73.76015	12	18	W	<2	B4	2000-4999	Clear	Slight	3.5	288	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:28	00:49	40.56283	-73.76015	40.56513	-73.78635	12	24	W	<2	B5	2000-4999	Clear	None	3.4	286	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:49	00:52	40.56513	-73.78635	40.56553	-73.78948	10	23	W	<2	B5	500-999	Clear	None	3.5	293	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:52	01:00	40.56553	-73.78948	40.56620	-73.79397	10	23	W	<2	B5	500-999	Clear	None	3.3	289	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:35	40.56620	-73.79397	40.57110	-73.74278	10	22	W	<2	B2	500-999	Clear	None	3.4	305	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:35	01:40	40.57110	-73.74278	40.56787	-73.74390	10	22	WSW	<2	B3	500-999	Clear	None	3.7	202	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	01:51	40.56787	-73.74390	40.55545	-73.74597	10	22	WSW	<2	B3	500-999	Clear	None	3.7	205	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:51	02:00	40.55545	-73.74597	40.54827	-73.74550	14	22	SW	<2	B4	500-999	Clear	None	3.9	201	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	03:00	40.54827	-73.74550	40.55647	-73.67043	15	22	SW	<2	B4	500-999	Clear	None	2.2	176	Standby	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	40.55647	-73.67043	40.54555	-73.59277	11	12	SW	<2	B3	500-999	Clear	None	4	114	Standby	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.54555	-73.59277	40.52747	-73.59562	12	14	SW	<2	B3	500-999	Clear	None	4	118	Standby	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:00	05:12	40.52747	-73.59562	40.53283	-73.62538	10	25	WSW	<2	B3	500-999	Clear	None	4	281	Standby	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:12	05:25	40.53283	-73.62538	40.53088	-73.62232	11	19	WSW	<2	B3	500-999	Clear	None	3	317	Soft Start	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:25	05:36	40.53088	-73.62232	40.54290	-73.60663	12	27	WSW	<2	B4	500-999	Clear	None	4	261	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:36	05:39	40.54290	-73.60663	40.54377	-73.59807	10	25	WSW	<2	B5	500-999	Clear	None	4	270	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:39	06:00	40.54377	-73.59807	40.54443	-73.59380	13	24	WSW	<2	B5	500-999	Clear	None	4	96	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	06:12	40.54443	-73.59380	40.54767	-73.56803	12	25	WSW	<2	B5	500-999	Clear	None	4	96	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:12	06:14	40.54767	-73.56803	40.54797	-73.56543	14	22	WSW	<2	B5	500-999	Clear	None	4	91	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:14	06:29	40.54797	-73.56543	40.54955	-73.56653	15	24	WSW	<2	B5	500-999	Clear	None	4	273	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:29	06:33	40.54955	-73.56653	40.54888	-73.57228	16	25	WSW	<2	B5	500-999	Clear	None	4	275	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:33	07:00	40.54888	-73.57228	40.54507	-73.60240	10	21	WSW	<2	B5	500-999	Clear	None	3.6	271	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:13	40.54507	-73.60240	40.54263	-73.62267	10	22	WSW	<2	B5	500-999	Clear	None	3.6	254	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:13	07:14	40.54263	-73.62267	40.54262	-73.62277	11	23	WSW	<2	B5	500-999	Clear	None	3.6	270	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:14	07:23	40.54262	-73.62277	40.54150	-73.61962	12	23	WSW	<2	B5	500-999	Clear	None	3.6	270	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:23	07:27	40.54150	-73.61962	40.54217	-73.61450	14	25	WSW	<2	B5	500-999	Clear	None	3.7	94	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:27	07:59	40.54217	-73.61450	40.55005	-73.55760	13	26	WSW	<2	B5	500-999	Clear	None	3.6	92	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:59	08:00	40.55005	-73.55760	40.55005	-73.55767	19	20	WSW	<2	B4	500-999	Clear	None	3.8	112	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:14	40.55005	-73.55767	40.55000	-73.56522	19	20	WSW	2-4	B5	500-999	Clear	None	3.9	112	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:14	08:19	40.55000	-73.56522	40.54927	-73.57128	19	20	WSW	2-4	B6	500-999	Clear	None	3.8	275	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:19	09:00	40.54927	-73.57128	40.54322	-73.62005	19	20	WSW	<2	B4	500-999	Clear	None	3.8	126	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:02	40.54322	-73.62005	40.54222	-73.62883	19	19	SW	<2	B4	500-999	Clear	None	3.8	274	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:02	09:05	40.54222	-73.62883	40.55005	-73.62427	19	18	WSW	<2	B4	500-999	Clear	None	3.8	349	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:05	09:09	40.55005	-73.62427	40.53885	-73.62788	19	20	WSW	<2	B4	1000-1999	Clear	None	3.8	126	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:09	09:16	40.53885	-73.62788	40.54210	-73.61667	19	20	WSW	<2	B4	1000-1999	Clear	None	3.8	126	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:16	09:19	40.54210	-73.61667	40.54212	-73.61690	19	20	WSW	<2	B4	2000-4999	Clear	None	3.8	96	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:19	09:52	40.54212	-73.61690	40.54832	-73.56660	17	18	WSW	<2	B4	≥5000	Clear	None	3.8	108	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:52	09:56	40.54832	-73.56660	40.54852	-73.56425	15	20	WSW	<2	B4	≥5000	Clear	None	3.8	118	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:56	10:00	40.54852	-73.56425	40.55025	-73.56502	12	21	WSW	<2	B4	≥5000	Clear	None	3.8	277	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:08	40.55025	-73.56502	40.54960	-73.57123	12	20	WSW	<2	B4	≥5000	Clear	None	3.8	275	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:08	10:14	40.54960	-73.57123	40.54790	-73.57072	12	21	NNW	<2	B4	≥5000	Clear	Moderate	3	276	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:14	11:00	40.54790	-73.57072	40.54423	-73.61435	12	21	NNW	<2	B4	≥5000	Clear	Severe	3	276	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:01	40.54423	-73.61435	40.54265	-73.62710	12	24	WSW	<2	B4	≥5000	Clear	Severe	3	273	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:01	11:04	40.54265	-73.62710	40.54265	-73.62710	12	20	NNW	<2	B4	≥5000	Clear	Severe	3.2	275	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:04	11:15	40.54265	-73.62710	40.54202	-73.62007	12	20	NNW	<2	B4	≥5000	Clear	Severe	4.2	273	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:15	11:19	40.54202	-73.62007	40.54267	-73.61475	12	20	NNW	<2	B4	≥5000	Clear	Severe	4.2	92	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:19	11:31	40.54267	-73.61475	40.54487	-73.59718	12	20	NNW	<2	B4	≥5000	Clear	Severe	4	93	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:31	11:50	40.54487	-73.59718	40.54977	-73.58752	12	20	NNW	<2	B4	≥5000	Clear	Severe	4	94	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:50	12:00	40.54977	-73.58752	40.54977	-73.58752	12	20	W	<2	B3	≥5000	Clear	Severe	3.1	276	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	12:36	40.54977	-73.58752	40.54202	-73.61777	12	20	W	<2	B3	≥5000	Clear	Severe	3.1	276	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:36	12:38	40.54202	-73.61777	40.54202	-73.61777	12	10	W	<2	B3	≥5000	Clear	Severe	4.6	75	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:38	13:00	40.54202	-73.61777	40.54585	-73.58893	12	10	W	<2	B3	≥5000	Clear	Severe	4.6	75	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:12	40.54585	-73.58893	40.54855	-73.56778	14	14	SW	<2	B3	≥5000	Clear	Severe	4	93	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:12	13:13	40.54855	-73.56778	40.54883	-73.56607	12	13	SSE	<2	B3	≥5000	Clear	Severe	3.8	90	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:13	13:32	40.54883	-73.56607	40.55035	-73.56712	12	14	SW	<2	B3	≥5000	Clear	Severe	3.1	272	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:32	13:37	40.55035	-73.56712	40.54975	-73.57208	12	17	SW	<2	B3	≥5000	Clear	Severe	3.1	275	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:37	14:00	40.54975	-73.57208	40.54663	-73.59693	13	11	NW	<2	B3	≥5000	Clear	Severe	3	281	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:24	40.54663	-73.59693	40.54313	-73.62508	13	8	NW	<2	B3	≥5000	Clear	Severe	3.3	278	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:24	14:26	40.54313	-73.62508	40.54293	-73.62768	12	8	NW	<2	B3	≥5000	Clear	Severe	3.3	271	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:26	14:35	40.54293	-73.62768	40.53410	-73.62848	13	7	NW	<2	B3	≥5000	Clear	Severe	4.9	126	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:35	15:00	40.53410	-73.62848	40.52652	-73.59152	16	4	NW	<2	B3	≥5000	Clear	Moderate	4	123	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:04	40.52652	-73.59152	40.52338	-73.57910	19	8	WSW	<2	B3	≥5000	Clear	Slight	4.8	119	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:04	15:21	40.52338	-73.57910	40.52007	-73.55667	19	8	SW	<2	B3	≥5000	Cloudy	None	4	121	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:21	15:24	40.52007	-73.55667	40.52107	-73.55168	19	8	SW	<2	B3	≥5000	Cloudy	None	3.9	87	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:24	15:42	40.52107	-73.55168	40.52592	-73.52797	19	8	SW	<2	B3	≥5000	Cloudy	None	4	89	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:42	15:50	40.52592	-73.52797	40.52793	-73.51757	15	8	SW	<2	B3	≥5000	Cloudy	None	3.8	86	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:50	16:00	40.52793	-73.51757	40.52953	-73.51023	15	10	SW	<2	B3	≥5000	Cloudy	None	3.6	88	Deploying/Retrieving	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:16	40.52953	-73.51023	40.53320	-73.48465	19	12	SW	<2	B3	≥5000	Cloudy	Slight	3.5	89	Deploying/Retrieving	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:16	16:26	40.53320	-73.48465	40.52563	-73.48280	16	10	NW	<2	B3	≥5000	Cloudy	Slight	4.1	130	Soft Start	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:26	17:00	40.52563	-73.48280	40.52963	-73.51888	19	18	NE	<2	B3	≥5000	Cloudy	None	3	228	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.52963	-73.51888	40.53188	-73.59698	16	18	NNE	<2	B3	≥5000	Cloudy	None	3.5	291	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:29	40.53188	-73.59698	40.54183	-73.62382	17	16	WSW	<2	B3	≥5000	Cloudy	None	3.7	286	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:29	18:33	40.54183	-73.62382	40.54258	-73.61773	12	8	WSW	<2	B3	≥5000	Clear	Slight	4.1	95	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:33	19:00	40.54258	-73.61773	40.54723	-73.58040	12	8	WSW	<2	B3	≥5000	Clear	Slight	4.2	92	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:07	40.54723	-73.58040	40.54882	-73.56778	12	8	SW	<2	B3	≥5000	Clear	Moderate	4	89	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:07	19:09	40.54882	-73.56778	40.54905	-73.56560	12	8	SW	<2	B3	≥5000	Clear	Moderate	3.9	92	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:09	19:30	40.54905	-73.56560	40.55065	-73.56632	12	11	SW	<2	B3	≥5000	Clear	Moderate	3.9	93	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:30	19:34	40.55065	-73.56632	40.55008	-73.57142	11	18	WSW	<2	B3	≥5000	Clear	Moderate	4	275	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:34	20:00	40.55008	-73.57142	40.54557	-73.60752	11	18	W	<2	B3	≥5000	Clear	Moderate	4	275	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:12	40.54557	-73.60752	40.54330	-73.62608	12	18	SW	<2	B3	≥5000	Clear	Severe	4	274	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:12	20:13	40.54330	-73.62608	40.54307	-73.62792	12	18	SW	<2	B3	≥5000	Clear	Severe	3.6	271	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:13	20:33	40.54307	-73.62792	40.54287	-73.62573	12	18	SW	<2	B3	≥5000	Clear	Severe	3.5	273	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:33	20:36	40.54287	-73.62573	40.54337	-73.62018	12	7	SW	<2	B3	≥5000	Clear	Severe	4.4	100	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:36	21:00	40.54337	-73.62018	40.54678	-73.59290	12	7	SW	<2	B3	≥5000	Clear	Severe	4.3	97	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:11	40.54678	-73.59290	40.54992	-73.56685	12	6	ENE	<2	B3	≥5000	Clear	Severe	4.3	92	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:11	21:13	40.54992	-73.56685	40.55012	-73.56453	17	8	ENE	<2	B3	≥5000	Clear	Severe	4.2	94	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:13	21:36	40.55012	-73.56453	40.55082	-73.56628	12	8	WSW	<2	B3	≥5000	Clear	Severe	3.7	276	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:36	21:42	40.55082	-73.56628	40.55022	-73.57230	12	17	WSW	<2	B3	≥5000	Clear	Severe	3.7	276	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:42	22:00	40.55022	-73.57230	40.54807	-73.58987	12	15	WSW	<2	B3	≥5000	Clear	Severe	3.7	272	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:25	40.54807	-73.58987	40.54355	-73.62650	13	14	WSW	<2	B3	≥5000	Clear	Severe	3.8	272	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:25	22:27	40.54355	-73.62650	40.54353	-73.62927	13	13	WSW	<2	B3	≥5000	Clear	Severe	3.4	271	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:27	22:41	40.54353	-73.62927	40.54138	-73.61735	12	12	WSW	<2	B3	≥5000	Clear	Severe	3.6	270	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:41	22:44	40.54138	-73.61735	40.54182	-73.61277	13	12	WSW	<2	B3	≥5000	Clear	Severe	3.7	95	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:44	23:00	40.54182	-73.61277	40.54378	-73.59677	12	12	WSW	<2	B3	≥5000	Clear	Severe	3.6	90	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:00	23:14	40.54378	-73.59677	40.54732	-73.56773	12	12	W	<2	B3	≥5000	Clear	Moderate	4.2	87	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:14	23:17	40.54732	-73.56773	40.54703	-73.56393	12	13	SW	<2	B3	≥5000	Clear	Moderate	4	100	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:17	23:32	40.54703	-73.56393	40.55172	-73.56688	8	14	W	<2	B3	≥5000	Clear	Moderate	3.8	119	Full Power	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:32	23:36	40.55172	-73.56688	40.55112	-73.57187	13	14	W	<2	B3	≥5000	Clear	Moderate	3.1	271	Silent	N/A
2023-06-15	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	23:36	00:00	40.55112	-73.57187	40.54788	-73.59763	11	14	WSW	<2	B3	≥5000	Clear	Moderate	3	274	Full Power	N/A
2023-06-16	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:25	40.54788	-73.59763	40.54398	-73.62918	12	14	WSW	<2	B3	≥5000	Clear	Moderate	3.4	275	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:25	00:28	40.54398	-73.62918	40.54383	-73.63170	13	12	NW	<2	B3	1000-1999	Clear	Slight	3.3	273	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:28	00:42	40.54383	-73.63170	40.54297	-73.62567	12	13	NW	<2	B3	1000-1999	Clear	Slight	3.3	294	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:42	00:45	40.54297	-73.62567	40.54353	-73.62117	12	10	SW	<2	B3	1000-1999	Clear	None	4	96	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:45	01:00	40.54353	-73.62117	40.54537	-73.60793	12	10	SW	<2	B3	1000-1999	Clear	None	4.1	96	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:21	40.54537	-73.60793	40.55010	-73.56785	14	6	NW	<2	B2	500-999	Clear	None	4	94	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:21	01:37	40.55010	-73.56785	40.55160	-73.54998	12	5	WSW	<2	B2	500-999	Clear	None	4	94	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:37	01:59	40.55160	-73.54998	40.55155	-73.56597	14	8	WSW	<2	B2	500-999	Clear	None	3.1	102	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:59	02:03	40.55155	-73.56597	40.55092	-73.57108	12	14	W	<2	B2	500-999	Clear	None	3.4	277	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:03	02:52	40.55092	-73.57108	40.54390	-73.62778	12	14	W	<2	B2	500-999	Clear	None	3.3	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:52	02:54	40.54390	-73.62778	40.54390	-73.62955	12	14	W	<2	B2	500-999	Clear	None	3.3	272	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:54	03:00	40.54390	-73.62955	40.54623	-73.63320	12	14	W	<2	B2	500-999	Clear	None	3.2	297	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:07	40.54623	-73.63320	40.54303	-73.62690	12	8	W	<2	B2	500-999	Clear	None	3.2	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:07	03:11	40.54303	-73.62690	40.54407	-73.61950	12	8	W	<2	B2	500-999	Clear	None	3.2	75	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:11	03:49	40.54407	-73.61950	40.55058	-73.56817	12	8	W	<2	B2	500-999	Clear	None	3.3	73	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:49	03:51	40.55058	-73.56817	40.55073	-73.56655	12	8	W	<2	B2	500-999	Clear	None	3.2	91	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:51	04:00	40.55073	-73.56655	40.54608	-73.55777	12	8	W	<2	B2	500-999	Clear	None	3.4	90	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:13	40.54608	-73.55777	40.55130	-73.56548	12	8	W	<2	B2	500-999	Clear	None	3.2	111	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:13	04:18	40.55130	-73.56548	40.55070	-73.57143	12	9	W	<2	B2	500-999	Clear	None	3.6	276	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:18	05:00	40.55070	-73.57143	40.54447	-73.62093	12	8	W	<2	B2	500-999	Clear	None	3.6	270	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:00	05:02	40.54447	-73.62093	40.54357	-73.62907	12	12	W	<2	B2	500-999	Clear	None	3.5	275	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:02	05:15	40.54357	-73.62907	40.54127	-73.61823	13	8	W	<2	B2	500-999	Clear	None	3.6	274	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:15	05:19	40.54127	-73.61823	40.54180	-73.61408	12	8	WSW	<2	B2	500-999	Clear	None	4.4	78	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:19	05:53	40.54180	-73.61408	40.54743	-73.56808	12	8	WSW	<2	B2	500-999	Clear	None	3.7	74	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:53	05:55	40.54743	-73.56808	40.54747	-73.56420	12	8	W	<2	B2	500-999	Clear	None	3.8	90	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:55	06:00	40.54747	-73.56420	40.54665	-73.56055	13	10	W	<2	B2	500-999	Clear	None	3.9	100	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	06:14	40.54665	-73.56055	40.54912	-73.56598	13	12	W	<2	B2	500-999	Clear	None	3.8	130	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:14	06:18	40.54912	-73.56598	40.54853	-73.57088	13	12	W	<2	B2	500-999	Clear	None	3.9	270	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:18	06:53	40.54853	-73.57088	40.54295	-73.61965	13	11	W	<2	B2	500-999	Clear	None	4	269	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:53	06:55	40.54295	-73.61965	40.54297	-73.61967	12	8	W	<2	B2	500-999	Clear	None	4.2	310	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:55	07:00	40.54297	-73.61967	40.54840	-73.62275	12	8	W	<2	B2	500-999	Clear	None	4.2	310	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:25	40.54840	-73.62275	40.54457	-73.63032	12	8	W	<2	B2	500-999	Clear	None	4.2	0	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:25	07:28	40.54457	-73.63032	40.54457	-73.63032	12	4	W	<2	B2	500-999	Clear	None	4.1	82	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:28	08:00	40.54457	-73.63032	40.54877	-73.59632	12	4	W	<2	B2	500-999	Clear	None	4.1	82	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:13	40.54877	-73.59632	40.55222	-73.56888	12	6	W	<2	B2	500-999	Clear	None	3.5	89	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:13	08:15	40.55222	-73.56888	40.55248	-73.56685	12	6	W	<2	B2	500-999	Clear	None	3.5	89	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:15	08:41	40.55248	-73.56685	40.54895	-73.56468	12	6	W	<2	B2	500-999	Clear	None	3.5	90	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:41	08:46	40.54895	-73.56468	40.54815	-73.57128	12	6	NW	<2	B2	500-999	Fog	None	4.1	262	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:46	09:00	40.54815	-73.57128	40.54612	-73.58788	12	6	NW	<2	B2	500-999	Fog	None	4.1	263	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:20	40.54612	-73.58788	40.54350	-73.60930	12	6	NW	<2	B2	1000-1999	Fog	None	4	262	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:22	40.54350	-73.60930	40.54200	-73.62063	12	5	W	<2	B2	1000-1999	Clear	Slight	3.7	252	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:22	09:46	40.54200	-73.62063	40.54378	-73.63215	12	3	SW	<2	B2	2000-4999	Clear	Slight	3.4	86	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:46	09:51	40.54378	-73.63215	40.54468	-73.62493	12	2	SW	<2	B2	2000-4999	Clear	Moderate	4.1	89	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:51	10:00	40.54468	-73.62493	40.54583	-73.61592	12	2	SW	<2	B2	≥5000	Clear	Moderate	4	89	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:32	40.54583	-73.61592	40.55170	-73.56847	13	3	SW	<2	B2	≥5000	Clear	Moderate	3.8	89	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:32	10:35	40.55170	-73.56847	40.55220	-73.56442	12	3	W	<2	B2	≥5000	Clear	Severe	3.6	90	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:35	11:00	40.55220	-73.56442	40.54908	-73.56120	13	3	W	<2	B2	≥5000	Clear	Severe	3.9	265	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:01	40.54908	-73.56120	40.54868	-73.56483	14	7	SW	<2	B0	≥5000	Clear	Severe	3.9	264	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:01	11:06	40.54868	-73.56483	40.54740	-73.57525	14	7	SW	<2	B0	≥5000	Clear	Severe	3.9	292	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:06	11:42	40.54740	-73.57525	40.54198	-73.61915	14	2	SW	<2	B1	2000-4999	Clear	Slight	3.9	272	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:42	11:44	40.54198	-73.61915	40.54163	-73.62165	14	2	SW	<2	B1	2000-4999	Clear	Slight	3.1	254	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:44	12:00	40.54163	-73.62165	40.53522	-73.63495	14	2	SW	<2	B1	2000-4999	Clear	Slight	3.1	267	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:11	40.53522	-73.63495	40.54375	-73.63015	14	2	SW	<2	B1	2000-4999	Clear	Severe	3.2	303	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:11	12:15	40.54375	-73.63015	40.54442	-73.62478	14	2	SW	<2	B1	2000-4999	Clear	Severe	4.2	100	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:15	13:00	40.54442	-73.62478	40.55087	-73.57285	14	2	SW	<2	B1	2000-4999	Clear	Severe	3.7	96	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:03	40.55087	-73.57285	40.55202	-73.56405	11	1	NNW	<2	B1	2000-4999	Clear	Severe	3.5	93	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:03	13:34	40.55202	-73.56405	40.54852	-73.56392	12	2	ENE	<2	B1	2000-4999	Clear	Severe	3.4	87	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:34	13:39	40.54852	-73.56392	40.54758	-73.57147	12	3	WNW	<2	B1	2000-4999	Clear	Severe	3.5	279	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:39	14:00	40.54758	-73.57147	40.54427	-73.59815	12	3	W	<2	B1	2000-4999	Clear	Severe	3.5	280	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:19	40.54427	-73.59815	40.54175	-73.61843	13	3	W	<2	B1	≥5000	Clear	Moderate	3.4	271	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:19	14:22	40.54175	-73.61843	40.54132	-73.62153	12	2	W	<2	B1	≥5000	Clear	Slight	3.1	270	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:22	14:48	40.54132	-73.62153	40.54348	-73.62997	12	2	W	<2	B1	≥5000	Clear	Slight	3.2	270	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:48	14:52	40.54348	-73.62997	40.54425	-73.62393	12	5	SW	<2	B1	≥5000	Clear	Slight	4.4	81	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:52	15:00	40.54425	-73.62393	40.54483	-73.61933	12	1	SW	<2	B1	≥5000	Clear	Slight	3.7	86	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:37	40.54483	-73.61933	40.55108	-73.56885	12	8	SW	<2	B1	≥5000	Clear	Slight	3.7	92	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:37	15:39	40.55108	-73.56885	40.55147	-73.56633	12	9	SW	<2	B1	≥5000	Clear	Slight	3.4	92	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:39	16:00	40.55147	-73.56633	40.55008	-73.55215	12	9	SW	<2	B1	≥5000	Cloudy	Slight	3.4	92	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:06	40.55008	-73.55215	40.54802	-73.56458	14	8	SW	<2	B1	≥5000	Cloudy	Slight	3.5	209	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:06	16:11	40.54802	-73.56458	40.54727	-73.57162	12	5	SW	<2	B2	≥5000	Cloudy	Slight	3.6	281	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:11	16:47	40.54727	-73.57162	40.54158	-73.61757	12	7	SW	<2	B2	≥5000	Cloudy	Slight	3.6	274	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:47	16:48	40.54158	-73.61757	40.54132	-73.61942	12	5	S	<2	B2	≥5000	Cloudy	Slight	3.4	278	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:48	17:30	40.54132	-73.61942	40.53913	-73.61168	12	8	S	<2	B2	≥5000	Cloudy	None	3.4	269	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:30	17:34	40.53913	-73.61168	40.53995	-73.60563	13	6	ESE	<2	B2	2000-4999	Cloudy	None	3.9	97	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:34	18:00	40.53995	-73.60563	40.54362	-73.57605	13	7	ESE	<2	B2	2000-4999	Cloudy	None	4.1	96	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:05	40.54362	-73.57605	40.54520	-73.56297	13	9	ESE	<2	B2	≥5000	Cloudy	None	3.6	92	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:05	18:07	40.54520	-73.56297	40.54517	-73.56042	12	6	ESE	<2	B2	2000-4999	Cloudy	None	3.6	96	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:07	18:29	40.54517	-73.56042	40.54787	-73.56258	12	6	ESE	<2	B2	2000-4999	Cloudy	None	3.6	110	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:29	18:34	40.54787	-73.56258	40.54682	-73.57083	13	17	SW	<2	B2	1000-1999	Cloudy	None	3.8	271	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:34	19:00	40.54682	-73.57083	40.54240	-73.60645	13	17	SW	<2	B2	1000-1999	Cloudy	None	3.9	271	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:06	40.54240	-73.60645	40.54113	-73.61673	14	4	E	<2	B2	2000-4999	Cloudy	None	3.8	271	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:06	19:08	40.54113	-73.61673	40.54088	-73.61885	12	6	E	<2	B2	≥5000	Cloudy	None	3.8	271	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:08	19:24	40.54088	-73.61885	40.53687	-73.61800	12	6	E	<2	B2	≥5000	Cloudy	None	3.9	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:24	19:33	40.53687	-73.61800	40.54212	-73.61853	14	9	ENE	<2	B2	≥5000	Cloudy	None	3.9	274	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:33	19:48	40.54212	-73.61853	40.53607	-73.63060	12	6	NE	<2	B2	≥5000	Cloudy	None	2.4	329	Deploying/Retrieving	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:48	20:00	40.53607	-73.63060	40.54133	-73.63512	14	6	ENE	<2	B2	≥5000	Cloudy	None	2.6	282	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:01	40.54133	-73.63512	40.54338	-73.63122	13	13	ENE	<2	B3	≥5000	Cloudy	None	3.8	28	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:01	20:06	40.54338	-73.63122	40.54392	-73.62420	13	13	ENE	<2	B3	≥5000	Cloudy	None	3.5	102	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:06	20:50	40.54392	-73.62420	40.55080	-73.56885	12	13	ENE	<2	B3	≥5000	Cloudy	None	3.6	92	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:50	20:52	40.55080	-73.56885	40.55102	-73.56733	11	15	ENE	<2	B3	≥5000	Cloudy	None	3.2	95	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:52	21:00	40.55102	-73.56733	40.55283	-73.56402	11	15	ENE	<2	B3	≥5000	Cloudy	None	3.2	94	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:15	40.55283	-73.56402	40.54777	-73.56508	11	11	NE	<2	B3	≥5000	Cloudy	None	3.3	36	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:15	21:20	40.54777	-73.56508	40.54688	-73.57272	12	10	NE	<2	B3	≥5000	Cloudy	None	4.3	278	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:50	40.54688	-73.57272	40.54140	-73.61680	12	9	NE	<2	B3	≥5000	Cloudy	None	4.4	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:50	21:52	40.54140	-73.61680	40.54103	-73.61957	12	10	NE	<2	B3	≥5000	Cloudy	None	4	274	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:52	22:00	40.54103	-73.61957	40.54222	-73.62520	12	10	NE	<2	B3	≥5000	Cloudy	None	4	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:09	40.54222	-73.62520	40.54005	-73.61588	12	10	NE	<2	B3	≥5000	Cloudy	None	3.5	270	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:09	22:13	40.54005	-73.61588	40.54080	-73.60983	12	12	ENE	<2	B3	≥5000	Cloudy	None	3.5	95	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:13	22:47	40.54080	-73.60983	40.54592	-73.56848	12	12	NE	<2	B3	≥5000	Cloudy	None	3.5	94	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:47	22:48	40.54592	-73.56848	40.54615	-73.56660	12	12	NE	<2	B3	≥5000	Cloudy	None	3.5	95	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:48	23:00	40.54615	-73.56660	40.54297	-73.55948	12	12	NE	<2	B3	≥5000	Cloudy	None	3.5	95	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:00	23:13	40.54297	-73.55948	40.54710	-73.56633	12	7	SE	<2	B3	≥5000	Clear	Moderate	3.2	121	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:13	23:17	40.54710	-73.56633	40.54640	-73.57175	11	11	NE	<2	B3	≥5000	Clear	Slight	4	276	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:17	23:50	40.54640	-73.57175	40.54048	-73.61725	11	12	NE	<2	B3	≥5000	Clear	Slight	3.8	275	Full Power	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:50	23:52	40.54048	-73.61725	40.53718	-73.62453	12	7	NW	<2	B3	2000-4999	Cloudy	None	3.4	272	Silent	N/A
2023-06-16	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:52	00:00	40.54048	-73.61725	40.53718	-73.62453	11	5	NW	<2	B3	2000-4999	Cloudy	None	3	253	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:40	40.53718	-73.62453	40.54190	-73.64427	11	5	NW	<2	B3	2000-4999	Cloudy	None	3.3	249	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:40	00:57	40.54190	-73.64427	40.54078	-73.61855	12	18	ENE	<2	B3	500-999	Cloudy	None	3.7	119	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:57	01:00	40.54078	-73.61855	40.54038	-73.62148	12	10	ESE	<2	B3	500-999	Cloudy	None	3.8	94	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:00	01:02	40.54038	-73.62148	40.54152	-73.61195	12	12	E	<2	B3	500-999	Cloudy	None	4.2	92	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:02	01:34	40.54152	-73.61195	40.54700	-73.56870	12	8	ESE	<2	B3	500-999	Cloudy	None	3.9	95	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:34	01:36	40.54700	-73.56870	40.54720	-73.56707	13	10	ENE	<2	B3	500-999	Cloudy	None	3.7	94	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:36	02:00	40.54720	-73.56707	40.54645	-73.55445	12	10	ENE	<2	B3	500-999	Cloudy	None	3.8	95	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:02	40.54645	-73.55445	40.54610	-73.55922	12	3	NNE	<2	B3	500-999	Cloudy	None	3.8	276	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:02	02:07	40.54610	-73.55922	40.54532	-73.56557	12	3	NNE	<2	B3	500-999	Cloudy	None	3.8	272	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:07	02:44	40.54532	-73.56557	40.53975	-73.61010	12	3	NNE	<2	B3	500-999	Cloudy	None	3.3	274	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:44	02:46	40.53975	-73.61010	40.53957	-73.61162	13	9	N	<2	B3	500-999	Cloudy	None	3.5	280	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:46	03:00	40.53957	-73.61162	40.54262	-73.62335	13	9	N	<2	B3	500-999	Cloudy	None	3.5	274	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:14	40.54262	-73.62335	40.53967	-73.61118	13	9	N	<2	B3	500-999	Cloudy	None	3.5	187	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:14	03:18	40.53967	-73.61118	40.54018	-73.60597	13	9	N	<2	B3	500-999	Cloudy	None	3.5	107	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:18	03:47	40.54018	-73.60597	40.54558	-73.56287	13	9	N	<2	B3	500-999	Cloudy	None	3.5	94	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:47	03:50	40.54558	-73.56287	40.54560	-73.55977	12	7	N	<2	B3	500-999	Cloudy	None	4.2	87	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:50	04:00	40.54560	-73.55977	40.54853	-73.55558	12	6	NNE	<2	B3	500-999	Cloudy	None	3.6	125	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:07	40.54853	-73.55558	40.54697	-73.56552	12	5	N	<2	B3	500-999	Cloudy	None	2.9	270	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:07	04:12	40.54697	-73.56552	40.54627	-73.57138	12	6	NNE	<2	B3	500-999	Cloudy	None	3.3	264	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:12	04:45	40.54627	-73.57138	40.54078	-73.61510	13	6	NNE	<2	B3	500-999	Cloudy	None	3.4	266	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:45	04:48	40.54078	-73.61510	40.54045	-73.61792	13	6	NNE	<2	B3	500-999	Cloudy	None	3.9	269	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:48	05:00	40.54045	-73.61792	40.53667	-73.62463	13	5	NNE	<2	B3	500-999	Cloudy	None	3.9	269	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:06	40.53667	-73.62463	40.53957	-73.61308	14	3	NNE	<2	B3	500-999	Cloudy	None	4.3	125	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:06	05:11	40.53957	-73.61308	40.54033	-73.60667	13	6	N	<2	B3	500-999	Cloudy	None	3.9	88	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:11	05:41	40.54033	-73.60667	40.54583	-73.56318	13	6	N	<2	B3	500-999	Cloudy	None	3.9	86	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:41	05:43	40.54583	-73.56318	40.54605	-73.56003	12	7	N	<2	B3	500-999	Cloudy	None	3.9	90	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:43	05:59	40.54605	-73.56003	40.54732	-73.56123	12	8	N	<2	B3	500-999	Cloudy	None	3.9	115	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:59	06:00	40.54732	-73.56123	40.54660	-73.56630	12	8	N	<2	B3	500-999	Cloudy	None	3.9	263	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:04	40.54660	-73.56630	40.54600	-73.57073	12	8	N	<2	B3	500-999	Cloudy	None	3.9	270	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:04	06:33	40.54600	-73.57073	40.54075	-73.61395	12	8	N	<2	B3	500-999	Cloudy	None	3.9	272	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:33	06:35	40.54075	-73.61395	40.54077	-73.61578	12	8	N	<2	B3	500-999	Cloudy	None	3.9	272	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:35	06:50	40.54077	-73.61578	40.53983	-73.61405	12	8	N	<2	B3	500-999	Cloudy	None	3.9	292	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:50	06:55	40.53983	-73.61405	40.54043	-73.60833	13	10	NNW	<2	B3	500-999	Cloudy	None	3.7	95	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:55	07:00	40.54043	-73.60833	40.54105	-73.60357	13	10	NNW	<2	B3	500-999	Cloudy	None	3.7	93	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	07:27	40.54105	-73.60357	40.54577	-73.56502	13	10	NNW	<2	B3	500-999	Cloudy	None	3.7	93	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:27	07:29	40.54577	-73.56502	40.54667	-73.56402	14	10	N	<2	B3	500-999	Cloudy	None	3.8	91	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:29	07:46	40.54577	-73.56502	40.54567	-73.57187	14	10	N	<2	B3	500-999	Cloudy	None	3.8	91	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:46	07:51	40.54667	-73.56402	40.54530	-73.57457	14	11	N	<2	B3	500-999	Cloudy	None	4.2	276	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:51	08:00	40.54567	-73.57187	40.54043	-73.61327	14	11	N	<2	B3	500-999	Cloudy	None	3.9	276	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:21	40.54530	-73.57457	40.54008	-73.61655	13	7	N	<2	B3	500-999	Cloudy	None	3.7	266	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:21	08:23	40.54043	-73.61327	40.53995	-73.61463	12	7	N	<2	B3	500-999	Cloudy	None	4	268	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:23	08:42	40.54008	-73.61655	40.54063	-73.60895	12	9	N	<2	B3	500-999	Cloudy	None	4.1	270	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:42	08:47	40.53995	-73.61463	40.54210	-73.59670	12	5	N	<2	B3	500-999	Cloudy	None	3.7	89	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:47	09:00	40.54063	-73.60895	40.54457	-73.57717	13	7	N	<2	B3	500-999	Cloudy	None	3.6	87	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:07	40.54210	-73.59670	40.54590	-73.56667	13	6	N	<2	B3	500-999	Cloudy	None	3.6	89	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:07	09:20	40.54457	-73.57717	40.54618	-73.56397	13	6	N	<2	B3	1000-1999	Cloudy	None	3.6	90	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:22	40.54590	-73.56667	40.54825	-73.56202	12	6	N	<2	B3	≥5000	Cloudy	None	3.4	90	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:22	09:38	40.54618	-73.56397	40.54710	-73.57127	12	8	N	<2	B3	≥5000	Cloudy	None	3.6	90	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:38	09:44	40.54825	-73.56202	40.54475	-73.58998	13	8	NNE	<2	B3	≥5000	Cloudy	None	3.9	270	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:44	09:58	40.54710	-73.57127	40.54413	-73.59450	13	5	NNE	<2	B2	≥5000	Cloudy	None	3.9	266	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:58	10:00	40.54475	-73.58998	40.54388	-73.59622	13	6	NNE	<2	B2	≥5000	Clear	None	3.9	269	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:01	40.54413	-73.59450	40.54378	-73.63177	13	5	NNE	<2	B2	≥5000	Clear	None	3.9	260	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:01	10:43	40.54388	-73.59622	40.54447	-73.62645	13	4	N	<2	B2	≥5000	Clear	Slight	3.6	256	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:43	10:47	40.54378	-73.63177	40.54597	-73.61400	12	6	N	<2	B2	≥5000	Clear	Moderate	3.7	87	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:47	11:00	40.54447	-73.62645	40.54597	-73.61400	12	6	N	<2	B2	≥5000	Clear	Moderate	3.6	90	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:32	40.54597	-73.61400	40.55175	-73.56802	12	6	NW	<2	B1	≥5000	Clear	Moderate	3.4	87	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:32	11:34	40.55175	-73.56802	40.55175	-73.56802	11	13	NW	<2	B2	≥5000	Clear	Moderate	3.6	85	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:34	12:00	40.55175	-73.56802	40.54867	-73.57387	11	13	NW	<2	B2	≥5000	Clear	Moderate	3.6	85	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:04	40.54867	-73.57387	40.54775	-73.58142	14	17	NW	<2	B2	≥5000	Clear	Severe	3.6	273	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:04	12:22	40.54775	-73.58142	40.54508	-73.60250	14	17	NW	<2	B2	≥5000	Clear	Severe	3.7	271	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:22	12:24	40.54508	-73.60250	40.54447	-73.60495	14	13	NW	<2	B2	≥5000	Clear	Severe	3.7	273	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:24	12:59	40.54447	-73.60495	40.54253	-73.63237	14	13	NW	<2	B2	≥5000	Clear	Severe	3.7	273	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:59	13:00	40.54253	-73.63237	40.54253	-73.63237	12	13	NW	<2	B3	≥5000	Clear	Severe	3.8	66	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:04	40.54253	-73.63237	40.54382	-73.62347	12	13	NW	<2	B3	≥5000	Clear	Severe	3.8	66	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:04	13:42	40.54382	-73.62347	40.55063	-73.56832	12	8	NW	<2	B3	≥5000	Clear	Severe	4	94	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:42	13:43	40.55063	-73.56832	40.55090	-73.56655	12	10	NW	<2	B3	≥5000	Clear	Severe	4	93	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:43	14:00	40.55090	-73.56655	40.54943	-73.55415	12	11	NW	<2	B3	≥5000	Clear	Severe	3.9	90	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:02	40.54943	-73.55415	40.54575	-73.55967	13	9	N	<2	B3	≥5000	Clear	Severe	3.8	270	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:02	14:07	40.54575	-73.55967	40.54497	-73.56628	12	8	N	<2	B3	≥5000	Clear	Severe	3.4	274	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:07	14:39	40.54497	-73.56628	40.54185	-73.59093	12	10	NW	<2	B3	≥5000	Clear	Slight	3.5	273	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:39	14:42	40.54185	-73.59093	40.53880	-73.61238	13	8	NW	<2	B3	≥5000	Clear	Slight	3.7	268	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:42	15:00	40.53880	-73.61238	40.53408	-73.62465	14	10	NW	<2	B3	≥5000	Clear	None	3.7	247	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:08	40.53408	-73.62465	40.54048	-73.61462	14	13	NW	<2	B3	≥5000	Cloudy	None	3.4	323	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:08	15:12	40.54048	-73.61462	40.54100	-73.61080	12	13	N	<2	B3	≥5000	Cloudy	None	3.9	92	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:12	15:41	40.54100	-73.61080	40.54630	-73.56800	12	13	N	<2	B3	≥5000	Cloudy	None	3.9	92	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:41	15:43	40.54630	-73.56800	40.54672	-73.56608	12	7	NNW	<2	B3	≥5000	Cloudy	None	4	93	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:43	16:00	40.54672	-73.56608	40.55340	-73.55365	12	7	NNW	<2	B3	≥5000	Cloudy	None	3.9	82	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:10	40.55340	-73.55365	40.54598	-73.56128	13	11	NW	<2	B3	≥5000	Cloudy	Slight	3.8	142	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:10	16:15	40.54598	-73.56128	40.54525	-73.56817	13	14	NNW	<2	B4	≥5000	Cloudy	None	3.4	273	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:15	16:48	40.54525	-73.56817	40.54002	-73.61078	13	17	NNW	<2	B4	≥5000	Cloudy	None	3.5	274	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:48	16:50	40.54002	-73.61078	40.53985	-73.61238	12	15	WNW	<2	B4	≥5000	Cloudy	None	3.6	274	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:50	17:11	40.53985	-73.61238	40.54035	-73.61788	12	11	WNW	<2	B3	≥5000	Cloudy	None	3.6	280	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:11	17:16	40.54035	-73.61788	40.54130	-73.61028	13	9	ENE	<2	B3	≥5000	Cloudy	Slight	3.8	90	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:16	17:47	40.54130	-73.61028	40.54665	-73.56743	13	10	ENE	<2	B3	≥5000	Cloudy	Slight	3.9	94	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:47	17:49	40.54665	-73.56743	40.54680	-73.56575	12	7	ENE	<2	B3	≥5000	Cloudy	None	3.9	91	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:49	18:00	40.54680	-73.56575	40.54223	-73.55897	12	8	ENE	<2	B3	≥5000	Cloudy	None	4	102	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:12	40.54223	-73.55897	40.54603	-73.56485	14	4	NNW	<2	B3	≥5000	Cloudy	None	3.6	108	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:12	18:16	40.54603	-73.56485	40.54538	-73.57138	12	14	NW	<2	B3	≥5000	Clear	Slight	3.8	276	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:16	18:46	40.54538	-73.57138	40.54027	-73.61288	12	14	NW	<2	B3	≥5000	Clear	Slight	3.8	275	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:46	18:48	40.54027	-73.61288	40.54040	-73.61460	12	19	WNW	<2	B5	≥5000	Clear	Slight	3.7	280	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:48	19:00	40.54040	-73.61460	40.54117	-73.62358	12	19	WNW	<2	B5	≥5000	Clear	Slight	3.7	296	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:08	40.54117	-73.62358	40.54062	-73.61808	12	13	WNW	<2	B5	≥5000	Clear	Slight	3.6	146	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:08	19:12	40.54062	-73.61808	40.54137	-73.61202	12	19	NW	<2	B5	≥5000	Clear	Slight	3.8	96	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:12	19:46	40.54137	-73.61202	40.54697	-73.56692	12	19	NW	<2	B5	≥5000	Clear	Slight	3.7	94	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:46	19:48	40.54697	-73.56692	40.54688	-73.56528	12	11	NW	<2	B5	≥5000	Clear	Moderate	3.7	97	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:48	20:00	40.54688	-73.56528	40.54230	-73.55455	12	11	NW	<2	B5	≥5000	Clear	Moderate	3.7	114	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:12	40.54230	-73.55455	40.54607	-73.56353	13	16	NW	<2	B5	≥5000	Clear	Severe	3	48	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:12	20:15	40.54607	-73.56353	40.54550	-73.56860	12	22	NW	<2	B5	≥5000	Clear	Severe	3.8	274	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:15	20:46	40.54550	-73.56860	40.54025	-73.61175	12	22	NW	<2	B5	≥5000	Cloudy	Severe	3.8	275	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:46	20:48	40.54025	-73.61175	40.54017	-73.61388	13	23	WNW	<2	B5	≥5000	Cloudy	Severe	3.7	282	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:48	21:00	40.54017	-73.61388	40.53380	-73.61473	13	23	WNW	<2	B5	≥5000	Cloudy	Severe	3.6	268	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:08	40.53380	-73.61473	40.53525	-73.60488	13	17	NW	<2	B5	≥5000	Cloudy	Severe	3.7	164	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:08	21:12	40.53525	-73.60488	40.53870	-73.60577	16	17	NW	<2	B5	≥5000	Cloudy	Severe	3.5	359	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:12	21:16	40.53870	-73.60577	40.55250	-73.60848	16	18	NW	<2	B5	≥5000	Cloudy	Severe	3.8	3	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:16	21:27	40.55250	-73.60848	40.55453	-73.60778	16	15	NW	<2	B5	≥5000	Cloudy	Severe	3.6	18	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:27	21:54	40.55453	-73.60778	40.55597	-73.59737	16	21	NW	<2	B5	≥5000	Cloudy	Severe	3.5	27	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:54	21:58	40.55597	-73.59737	40.55163	-73.59647	11	31	NNW	<2	B5	≥5000	Cloudy	Slight	4.2	189	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:58	22:00	40.55163	-73.59647	40.55165	-73.59648	11	18	NNW	<2	B5	≥5000	Cloudy	Slight	3.5	184	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:11	40.55163	-73.59648	40.53697	-73.59335	11	20	NW	<2	B5	≥5000	Cloudy	Slight	3.5	180	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:11	22:13	40.53697	-73.59335	40.53540	-73.59295	11	20	NNW	<2	B5	≥5000	Cloudy	Slight	3.6	180	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:13	22:28	40.53540	-73.59295	40.53690	-73.58152	11	22	NNW	<2	B5	≥5000	Cloudy	Slight	3.7	180	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:28	22:33	40.53690	-73.58152	40.54185	-73.58245	11	22	NW	<2	B5	≥5000	Cloudy	Slight	3.6	10	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:33	22:44	40.54185	-73.58245	40.55567	-73.58250	11	21	NNW	<2	B5	≥5000	Cloudy	Slight	3.7	35	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:44	22:48	40.55567	-73.58250	40.55570	-73.58257	11	22	NNW	<2	B5	≥5000	Cloudy	Slight	3.6	35	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:48	23:00	40.55570	-73.58257	40.56083	-73.57818	11	23	NW	<2	B5	≥5000	Cloudy	Slight	3.6	40	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:00	23:01	40.56083	-73.57818	40.55665	-73.57343	11	21	N	<2	B5	≥5000	Cloudy	Moderate	3.8	150	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:01	23:04	40.55665	-73.57343	40.55277	-73.57280	11	15	N	<2	B5	≥5000	Cloudy	Moderate	3.8	189	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:04	23:15	40.55277	-73.57280	40.54005	-73.57012	11	10	NW	<2	B4	≥5000	Cloudy	Moderate	4.1	185	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:15	23:17	40.54005	-73.57012	40.53898	-73.56983	11	13	NW	<2	B4	2000-4999	Cloudy	Slight	4.1	183	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:17	23:42	40.53898	-73.56983	40.54507	-73.56053	12	12	NW	<2	B4	2000-4999	Cloudy	None	4.1	182	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:42	23:48	40.54507	-73.56053	40.54425	-73.56733	12	15	NW	<2	B4	2000-4999	Cloudy	None	3.8	270	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:48	23:53	40.54425	-73.56733	40.54328	-73.57598	12	14	NW	<2	B4	2000-4999	Cloudy	None	3.9	274	Full Power	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:53	23:55	40.54328	-73.57598	40.54390	-73.57835	12	14	NW	<2	B4	2000-4999	Cloudy	None	3.6	289	Silent	N/A
2023-06-17	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:55	00:00	40.54390	-73.57835	40.54617	-73.58090	12	14	NW	<2	B4	2000-4999	Cloudy	None	3.6	313	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:16	40.54617	-73.58090	40.54285	-73.57763	12	11	NNW	<2	B4	2000-4999	Cloudy	None	3.7	347	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:16	00:21	40.54285	-73.57763	40.54367	-73.57140	12	15	NNW	<2	B4	2000-4999	Cloudy	None	3.9	95	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:21	00:45	40.54367	-73.57140	40.54633	-73.55093	12	13	N	<2	B4	1000-1999	Cloudy	None	4	95	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena; Dalton, Tavis	RPS	00:45	01:00	40.54633	-73.55093	40.54428	-73.56948	13	17	NW	<2	B4	500-999	Cloudy	None	5.1	309	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:20	40.54428	-73.56948	40.54038	-73.58722	13	15	NW	<2	B3	500-999	Clear	None	3.6	272	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:20	01:40	40.54038	-73.58722	40.54523	-73.56155	14	11	WNW	<2	B3	500-999	Clear	None	4.1	125	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:40	02:00	40.54523	-73.56155	40.55153	-73.57058	12	12	NNW	<2	B3	500-999	Clear	None	3.5	93	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:00	02:20	40.55153	-73.57058	40.54547	-73.57723	12	21	NW	<2	B3	500-999	Clear	None	3.6	286	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:20	02:40	40.54547	-73.57723	40.54482	-73.55018	13	8	NW	<2	B3	500-999	Clear	None	4.2	106	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:40	03:00	40.54482	-73.55018	40.54422	-73.52438	14	5	NW	<2	B3	500-999	Clear	None	3.8	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:20	40.54422	-73.52438	40.54995	-73.53365	14	6	NW	<2	B3	500-999	Clear	None	3.8	105	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:20	03:40	40.54995	-73.53365	40.55048	-73.55635	14	6	NW	<2	B3	500-999	Cloudy	None	3.3	277	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:40	04:00	40.55048	-73.55635	40.55175	-73.58258	14	6	NW	<2	B3	500-999	Cloudy	None	3.2	279	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:20	40.55175	-73.58258	40.55032	-73.58258	13	5	NW	<2	B3	500-999	Cloudy	None	3.4	320	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:20	04:40	40.55032	-73.58258	40.54947	-73.55310	14	6	NW	<2	B3	500-999	Clear	None	4.2	110	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:40	05:00	40.54947	-73.55310	40.54885	-73.52845	14	6	NW	<2	B3	500-999	Clear	None	4	100	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:00	05:20	40.54885	-73.52845	40.54967	-73.53260	13	9	NW	<2	B3	500-999	Clear	None	3.8	110	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:20	05:40	40.54967	-73.53260	40.55033	-73.55945	14	7	N	<2	B3	500-999	Clear	None	3.6	276	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:40	06:00	40.55033	-73.55945	40.55105	-73.58325	13	10	N	<2	B3	500-999	Clear	None	3.5	278	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	06:20	40.55105	-73.58325	40.54950	-73.57502	13	10	N	<2	B3	500-999	Clear	None	3.6	310	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:20	06:40	40.54950	-73.57502	40.54883	-73.54862	13	10	W	<2	B3	500-999	Clear	None	3.7	104	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:40	07:00	40.54883	-73.54862	40.54567	-73.52368	13	10	N	<2	B3	500-999	Clear	None	3.7	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:20	40.54567	-73.52368	40.54945	-73.53315	16	8	W	<2	B3	500-999	Clear	None	3.1	179	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:20	07:40	40.54945	-73.53315	40.55013	-73.56283	16	8	WNW	<2	B3	500-999	Clear	None	3.6	285	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:40	08:00	40.55013	-73.56283	40.55053	-73.58175	16	8	NW	<2	B3	500-999	Clear	None	3.9	285	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	08:00	08:20	40.55053	-73.58175	40.54970	-73.57442	12	9	NW	<2	B3	500-999	Clear	None	3.9	277	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:20	08:40	40.54970	-73.57442	40.54905	-73.54588	13	4	NW	<2	B3	500-999	Clear	None	4.1	101	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:40	09:00	40.54905	-73.54588	40.54470	-73.51977	13	5	NW	<2	B3	2000-4999	Clear	None	4.1	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:06	40.54470	-73.51977	40.54305	-73.51932	17	2	N	<2	B3	2000-4999	Clear	None	3.8	86	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:06	09:20	40.54305	-73.51932	40.54928	-73.53928	15	10	N	<2	B3	≥5000	Clear	None	3.6	93	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.54928	-73.53928	40.54987	-73.56452	16	12	N	<2	B3	≥5000	Clear	None	3.6	277	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.54987	-73.56452	40.55140	-73.58808	12	13	NW	<2	B3	≥5000	Clear	Slight	3.9	278	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.55140	-73.58808	40.54852	-73.55853	12	7	NW	<2	B3	≥5000	Clear	Slight	3.4	185	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.54852	-73.55853	40.54838	-73.52817	12	8	N	<2	B3	≥5000	Clear	Slight	4	101	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.54838	-73.52817	40.54520	-73.52172	14	8	N	<2	B3	≥5000	Clear	Severe	4.1	70	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:20	40.54520	-73.52172	40.54633	-73.55220	16	15	NW	<2	B2	≥5000	Clear	Severe	3.5	290	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:20	11:40	40.54633	-73.55220	40.54733	-73.58220	16	13	NW	<2	B3	≥5000	Clear	Severe	3.3	283	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:40	12:00	40.54733	-73.58220	40.54568	-73.57500	16	13	NW	<2	B3	≥5000	Clear	Severe	3.3	311	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:20	40.54568	-73.57500	40.54503	-73.54622	13	11	NW	<2	B3	≥5000	Clear	Severe	4.2	98	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:20	12:44	40.54503	-73.54622	40.54602	-73.52757	15	15	NW	<2	B3	≥5000	Clear	Severe	4.1	103	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:44	13:00	40.54602	-73.52757	40.54652	-73.54425	15	15	NW	<2	B3	≥5000	Clear	Severe	3.5	281	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.54652	-73.54425	40.54710	-73.57527	13	14	NW	<2	B3	≥5000	Clear	Severe	3.6	280	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.54710	-73.57527	40.54590	-73.57337	13	13	NW	<2	B3	≥5000	Clear	Severe	3.5	282	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.54590	-73.57337	40.54542	-73.55303	13	17	NW	<2	B3	≥5000	Clear	Severe	3.9	104	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.54542	-73.55303	40.54335	-73.52343	13	7	N	<2	B2	≥5000	Clear	Severe	3.6	98	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.54335	-73.52343	40.54667	-73.54237	17	7	N	<2	B2	≥5000	Clear	Slight	3.6	45	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.54667	-73.54237	40.54712	-73.56358	14	5	NW	<2	B2	≥5000	Clear	Slight	3.7	279	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.54712	-73.56358	40.54618	-73.57897	12	14	NW	<2	B2	≥5000	Clear	Slight	3.5	285	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:40	40.54618	-73.57897	40.54568	-73.55155	13	6	N	<2	B2	≥5000	Clear	Slight	4.1	103	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54568	-73.55155	40.54533	-73.53633	13	4	S	<2	B2	≥5000	Clear	Slight	3.6	104	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.54533	-73.53633	40.54688	-73.54118	15	5	SW	<2	B2	≥5000	Clear	Moderate	3.4	104	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.54688	-73.54118	40.54748	-73.56442	15	8	WNW	<2	B2	≥5000	Clear	Moderate	3.6	284	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.54748	-73.56442	40.54978	-73.58925	12	10	WSW	<2	B3	≥5000	Clear	Moderate	3.5	287	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.54978	-73.58925	40.54635	-73.56935	12	8	WSW	<2	B2	≥5000	Clear	Severe	3.6	242	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.54635	-73.56935	40.54570	-73.54147	12	3	WSW	<2	B2	≥5000	Clear	Severe	3.6	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.54570	-73.54147	40.54837	-73.52043	15	7	SW	<2	B2	≥5000	Cloudy	Moderate	3.5	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:14	40.54837	-73.52043	40.54895	-73.52817	15	5	SSE	<2	B2	≥5000	Cloudy	Slight	3.8	114	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:14	18:17	40.54895	-73.52817	40.54887	-73.53330	14	11	SW	<2	B2	≥5000	Cloudy	Slight	3.7	274	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:17	18:51	40.54887	-73.53330	40.54993	-73.57928	14	11	SW	<2	B2	≥5000	Cloudy	Slight	3.7	284	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:51	18:53	40.54993	-73.57928	40.54993	-73.58077	12	13	SW	<2	B3	≥5000	Cloudy	Slight	3.8	283	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:53	19:09	40.54993	-73.58077	40.54832	-73.58207	12	13	SW	<2	B3	≥5000	Cloudy	Slight	3.8	283	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:09	19:14	40.54832	-73.58207	40.54810	-73.57617	13	7	SW	<2	B3	≥5000	Cloudy	Slight	4	103	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:14	19:45	40.54810	-73.57617	40.54705	-73.53088	13	7	SW	<2	B3	≥5000	Cloudy	Slight	4	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:45	19:46	40.54705	-73.53088	40.54697	-73.52927	15	9	S	<2	B2	≥5000	Cloudy	Slight	4	107	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:46	20:06	40.54697	-73.52927	40.54720	-73.53037	15	9	S	<2	B2	≥5000	Cloudy	Slight	4	107	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:06	20:09	40.54720	-73.53037	40.54728	-73.53410	15	15	WSW	<2	B3	≥5000	Cloudy	Severe	4	281	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:09	20:40	40.54728	-73.53410	40.54833	-73.57885	15	15	WSW	<2	B3	≥5000	Cloudy	Severe	3.9	284	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	20:42	40.54833	-73.57885	40.54897	-73.58160	13	15	SW	<2	B3	≥5000	Cloudy	Moderate	4.2	292	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:42	20:58	40.54897	-73.58160	40.54690	-73.58267	13	15	SW	<2	B3	≥5000	Cloudy	Moderate	4.2	304	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	20:58	21:03	40.54690	-73.58267	40.54680	-73.57522	12	8	SE	<2	B3	≥5000	Cloudy	Slight	3.7	103	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:03	21:34	40.54680	-73.57522	40.54573	-73.53145	13	10	SE	<2	B3	≥5000	Cloudy	Slight	3.7	107	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:34	21:36	40.54573	-73.53145	40.54563	-73.52942	15	8	SE	<2	B3	≥5000	Cloudy	None	3.7	106	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:36	21:53	40.54563	-73.52942	40.54692	-73.52908	15	8	SE	<2	B3	≥5000	Cloudy	None	3.6	115	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:53	21:57	40.54692	-73.52908	40.54698	-73.53452	15	15	SE	<2	B3	≥5000	Cloudy	None	4.3	285	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:57	22:00	40.54698	-73.53452	40.54703	-73.53653	15	17	SE	<2	B3	≥5000	Cloudy	None	4.4	286	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:29	40.54703	-73.53653	40.54800	-73.57838	15	16	SSE	<2	B3	≥5000	Cloudy	None	4	285	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:29	22:30	40.54800	-73.57838	40.54847	-73.58140	14	16	SSE	<2	B3	≥5000	Cloudy	None	4	298	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:30	22:43	40.54847	-73.58140	40.54635	-73.58138	14	16	SSE	<2	B3	≥5000	Cloudy	None	4	300	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:43	22:47	40.54635	-73.58138	40.54702	-73.57463	14	16	SSE	<2	B3	≥5000	Cloudy	None	3.9	80	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:47	23:00	40.54702	-73.57463	40.54673	-73.56182	14	16	SSE	<2	B3	≥5000	Cloudy	None	3.8	100	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:00	23:19	40.54673	-73.56182	40.54590	-73.53050	15	11	SSE	<2	B3	≥5000	Cloudy	None	3.8	105	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:19	23:21	40.54590	-73.53050	40.54570	-73.52948	15	10	SSE	<2	B3	≥5000	Cloudy	Slight	3.7	113	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:21	23:38	40.54570	-73.52948	40.54783	-73.52945	15	10	SSE	<2	B3	2000-4999	Cloudy	Slight	3.6	120	Full Power	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:38	23:42	40.54783	-73.52945	40.54782	-73.53432	15	12	SSW	<2	B3	2000-4999	Cloudy	Slight	3.7	289	Silent	N/A
2023-06-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:42	00:00	40.54782	-73.53432	40.54842	-73.55957	15	12	SSW	<2	B3	2000-4999	Cloudy	Slight	3.6	284	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:16	40.54842	-73.55957	40.54882	-73.57868	15	12	SW	<2	B3	2000-4999	Cloudy	Slight	3.5	284	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:16	00:19	40.54882	-73.57868	40.54970	-73.58133	15	14	SW	<2	B3	2000-4999	Cloudy	None	3.4	285	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:19	00:33	40.54970	-73.58133	40.54745	-73.58130	12	8	SW	<2	B3	1000-1999	Cloudy	None	3.7	324	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:33	00:36	40.54745	-73.58130	40.54727	-73.57437	13	8	SW	<2	B3	1000-1999	Cloudy	None	4.2	103	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:36	00:54	40.54727	-73.57437	40.54670	-73.55088	13	7	S	<2	B3	1000-1999	Cloudy	None	4.1	106	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	00:54	01:00	40.54670	-73.55088	40.54663	-73.54535	13	7	S	<2	B3	500-999	Cloudy	None	4.1	106	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	01:00	01:06	40.54663	-73.54535	40.54628	-73.53193	13	3	S	<2	B2	500-999	Cloudy	None	4.1	102	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:06	01:08	40.54628	-73.53193	40.54598	-73.52962	15	4	SSE	<2	B2	500-999	Cloudy	None	4.2	105	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:08	01:25	40.54598	-73.52962	40.54788	-73.52773	15	4	SSE	<2	B2	500-999	Cloudy	None	3.9	119	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:25	01:31	40.54788	-73.52773	40.54810	-73.53477	15	12	SW	<2	B2	500-999	Cloudy	None	3.8	288	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:31	02:04	40.54810	-73.53477	40.54907	-73.57840	15	12	SW	<2	B2	500-999	Cloudy	None	3.8	286	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:04	02:05	40.54907	-73.57840	40.54907	-73.57840	12	8	S	<2	B3	500-999	Cloudy	None	4.1	103	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:05	02:10	40.54907	-73.57840	40.55183	-73.58777	12	8	S	<2	B3	500-999	Cloudy	None	3.6	273	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:10	02:25	40.55183	-73.58777	40.55213	-73.59638	12	6	SSE	<2	B2	500-999	Clear	None	3.5	322	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:25	02:42	40.55213	-73.59638	40.54762	-73.58105	12	6	SSE	<2	B2	500-999	Clear	None	4.2	179	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:42	02:46	40.54762	-73.58105	40.54758	-73.57517	12	4	NNE	<2	B2	500-999	Clear	None	3.9	105	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:46	03:00	40.54758	-73.57517	40.54715	-73.55785	12	4	NNE	<2	B2	500-999	Clear	None	3.8	104	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:17	40.54715	-73.55785	40.54652	-73.53167	12	4	NNE	<2	B2	500-999	Clear	None	3.7	104	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:17	03:19	40.54652	-73.53167	40.54622	-73.52715	12	4	NNE	<2	B2	500-999	Clear	None	3.6	104	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:19	03:38	40.54622	-73.52715	40.54822	-73.52842	15	2	NNE	<2	B2	500-999	Clear	None	3.8	120	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:38	03:43	40.54822	-73.52842	40.54845	-73.53635	12	4	NNE	<2	B2	500-999	Clear	None	3.5	290	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:43	04:00	40.54845	-73.53635	40.54877	-73.55095	12	4	NNE	<2	B2	500-999	Clear	None	3.5	289	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:22	40.54877	-73.55095	40.54937	-73.57930	14	5	NNE	<2	B2	500-999	Clear	None	3.4	275	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:22	04:36	40.54937	-73.57930	40.54797	-73.57972	12	7	NNE	<2	B2	500-999	Clear	None	3.6	277	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:36	04:39	40.54797	-73.57972	40.54783	-73.57517	12	7	NNE	<2	B2	500-999	Clear	None	3.8	105	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:39	05:00	40.54783	-73.57517	40.54717	-73.54645	12	7	NNE	<2	B2	500-999	Clear	None	3.8	105	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:26	40.54717	-73.54645	40.54835	-73.52717	13	1	NNE	<2	B2	500-999	Clear	None	4.1	101	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:26	05:32	40.54835	-73.52717	40.54865	-73.53398	14	2	NNE	<2	B1	500-999	Clear	None	3.5	280	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:32	06:00	40.54865	-73.53398	40.54935	-73.56518	16	1	NNE	<2	B1	500-999	Clear	None	3.4	276	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:06	40.54935	-73.56518	40.54968	-73.57883	16	1	NNE	<2	B1	500-999	Clear	None	3.4	285	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:06	06:10	40.54968	-73.57883	40.55145	-73.58212	16	1	NNE	<2	B1	500-999	Clear	None	3.7	285	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:10	06:21	40.55145	-73.58212	40.55152	-73.58232	15	1	NNE	<2	B1	500-999	Clear	None	3.6	336	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:21	06:27	40.55152	-73.58232	40.55143	-73.57620	15	1	NNE	<2	B1	500-999	Clear	None	3.7	105	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:27	07:00	40.55143	-73.57620	40.55032	-73.53100	15	1	NNE	<2	B1	500-999	Clear	None	3.5	105	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	07:01	40.55032	-73.53100	40.55032	-73.53100	13	8	W	<2	B1	500-999	Clear	None	3.7	103	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:01	07:03	40.55032	-73.53100	40.55025	-73.52767	13	8	W	<2	B1	500-999	Clear	None	3.7	103	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:03	07:27	40.55025	-73.52767	40.54553	-73.52937	13	8	W	<2	B1	500-999	Clear	None	3.7	104	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:27	07:31	40.54553	-73.52937	40.54568	-73.53473	13	7	W	<2	B1	500-999	Clear	None	4.4	284	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:31	08:00	40.54568	-73.53473	40.54652	-73.57282	13	7	W	<2	B1	500-999	Clear	None	3.3	285	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:01	40.54652	-73.57282	40.54633	-73.57018	13	8	NW	<2	B1	500-999	Clear	None	4	280	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:01	08:04	40.54633	-73.57018	40.54638	-73.58367	13	6	NW	<2	B1	500-999	Clear	None	3.9	240	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:04	08:28	40.54638	-73.53367	40.55097	-73.58097	13	7	NW	<2	B1	500-999	Clear	None	4	245	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:28	08:32	40.55097	-73.58097	40.55083	-73.57567	12	6	N	<2	B1	500-999	Clear	None	3.8	97	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:32	09:00	40.55083	-73.57567	40.54995	-73.53723	12	5	N	<2	B1	500-999	Clear	None	3.8	97	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:05	40.54995	-73.53723	40.54985	-73.53092	12	4	N	<2	B1	500-999	Clear	None	3.8	100	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:05	09:07	40.54985	-73.53092	40.54977	-73.52733	13	4	N	<2	B1	1000-1999	Clear	None	3.8	75	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:07	09:30	40.54977	-73.52733	40.54890	-73.52538	14	7	N	<2	B1	1000-1999	Clear	None	4.3	79	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:30	09:34	40.54890	-73.52538	40.54542	-73.53527	14	6	NE	<2	B1	≥5000	Clear	None	4.3	280	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:34	10:00	40.54542	-73.53527	40.54633	-73.57428	16	6	NE	<2	B1	≥5000	Clear	None	4.3	281	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:02	40.54633	-73.57428	40.54632	-73.58348	13	5	NE	<2	B1	≥5000	Clear	None	3.9	275	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:02	10:05	40.54632	-73.58348	40.54638	-73.58153	13	5	NE	<2	B1	≥5000	Clear	Slight	3.4	276	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:05	10:29	40.54638	-73.58153	40.55075	-73.58363	13	5	NE	<2	B1	≥5000	Clear	Slight	3.5	255	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:29	10:35	40.55075	-73.58363	40.55057	-73.57723	12	9	N	<2	B1	≥5000	Clear	Moderate	3.7	101	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:35	11:00	40.55057	-73.57723	40.55000	-73.55052	12	7	N	<2	B1	≥5000	Clear	Moderate	3.6	95	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:10	40.55000	-73.55052	40.54955	-73.53050	14	7	NE	<2	B1	≥5000	Clear	Severe	3.7	96	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:10	11:12	40.54955	-73.53050	40.54953	-73.52765	14	7	NE	<2	B1	≥5000	Clear	Severe	3.5	94	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:12	11:33	40.54953	-73.52765	40.54500	-73.52807	13	7	NE	<2	B1	≥5000	Clear	Severe	4.6	285	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:33	11:38	40.54500	-73.52807	40.54513	-73.53543	13	7	NE	<2	B1	≥5000	Clear	Severe	4.6	275	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:38	12:00	40.54513	-73.53543	40.54585	-73.56442	13	7	NE	<2	B2	≥5000	Clear	Severe	3.7	279	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:11	40.54585	-73.56442	40.54585	-73.56442	14	8	NE	<2	B2	≥5000	Clear	Severe	3.4	277	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:11	12:13	40.54585	-73.56442	40.54585	-73.56442	14	8	NE	<2	B2	≥5000	Clear	Severe	3.4	277	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:13	12:36	40.54585	-73.56442	40.55040	-73.58262	14	8	NE	<2	B2	≥5000	Clear	Severe	3.4	277	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:36	12:42	40.55040	-73.58262	40.55028	-73.57550	14	7	NE	<2	B2	≥5000	Clear	Severe	3.3	104	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:42	13:00	40.55028	-73.57550	40.54988	-73.55772	14	7	NE	<2	B2	≥5000	Clear	Severe	3.3	105	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:18	40.54988	-73.55772	40.54927	-73.53030	13	11	ESE	<2	B3	≥5000	Clear	Severe	3.4	105	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:18	13:21	40.54927	-73.53030	40.54917	-73.52748	13	12	E	<2	B3	≥5000	Clear	Severe	3.6	104	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:21	13:23	40.54917	-73.52748	40.54762	-73.52410	13	13	E	<2	B3	≥5000	Clear	Moderate	3.5	103	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:23	14:00	40.54762	-73.52410	40.52922	-73.56083	13	12	ESE	<2	B3	≥5000	Clear	Moderate	3.4	151	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:06	40.52922	-73.56083	40.52317	-73.56892	14	8	ESE	<2	B3	≥5000	Clear	Moderate	4.2	258	Transit	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:06	14:20	40.52317	-73.56892	40.51968	-73.57385	18	9	ESE	<2	B3	≥5000	Clear	Moderate	4	261	Soft Start	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:33	40.51968	-73.57385	40.52063	-73.55753	19	12	NE	<2	B3	≥5000	Clear	Moderate	3.5	97	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:33	14:37	40.52063	-73.55753	40.52140	-73.55280	20	11	N	<2	B3	≥5000	Clear	Moderate	3.6	90	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:37	15:00	40.52140	-73.55280	40.52628	-73.52867	20	11	N	<2	B3	≥5000	Clear	Moderate	3.6	90	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:14	40.52628	-73.52867	40.53100	-73.50508	15	14	E	<2	B3	≥5000	Clear	Moderate	3.7	88	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:14	15:16	40.53100	-73.50508	40.53147	-73.50298	18	14	E	<2	B3	≥5000	Clear	Slight	3.8	86	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:16	15:26	40.53147	-73.50298	40.53393	-73.50573	18	14	E	<2	B3	≥5000	Clear	Slight	3.8	88	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:26	15:30	40.53393	-73.50573	40.53305	-73.51033	18	7	SE	<2	B3	≥5000	Clear	Slight	3.9	270	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:30	16:00	40.53305	-73.51033	40.52607	-73.54468	18	7	SE	<2	B3	≥5000	Clear	Slight	3.8	268	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:09	40.52607	-73.54468	40.52235	-73.56310	15	9	SE	<2	B3	≥5000	Clear	Moderate	3.4	151	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:09	16:11	40.52235	-73.56310	40.52235	-73.56603	15	8	SE	<2	B3	≥5000	Clear	Severe	3.7	269	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:11	16:29	40.52235	-73.56603	40.52317	-73.56693	17	17	SE	<2	B3	≥5000	Clear	Severe	4	294	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:29	16:32	40.52317	-73.56693	40.52382	-73.56310	17	15	SE	<2	B3	≥5000	Clear	Severe	4.1	92	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:32	17:12	40.52382	-73.56310	40.53460	-73.50953	17	18	ESE	<2	B3	≥5000	Clear	Severe	3.8	90	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:12	17:15	40.53460	-73.50953	40.53533	-73.50458	16	15	SE	<2	B3	≥5000	Clear	Severe	3.8	90	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:15	17:37	40.53533	-73.50458	40.53253	-73.50530	16	17	SE	<2	B4	≥5000	Clear	Severe	3.8	247	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:37	17:41	40.53253	-73.50530	40.53115	-73.50935	16	15	SE	<2	B4	≥5000	Clear	Severe	3.6	267	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:41	18:00	40.53115	-73.50935	40.52728	-73.52767	16	11	SE	<2	B4	≥5000	Clear	Moderate	3.6	267	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:20	40.52728	-73.52767	40.52113	-73.55810	15	10	SE	<2	B4	≥5000	Clear	Slight	3.6	267	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:22	40.52113	-73.55810	40.52078	-73.55998	19	10	SE	<2	B4	≥5000	Clear	Slight	3.5	269	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:22	18:42	40.52078	-73.55998	40.52055	-73.55958	19	10	SE	<2	B4	≥5000	Clear	Slight	3.5	269	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:42	18:46	40.52055	-73.55958	40.52155	-73.55453	19	19	E	<2	B5	≥5000	Clear	Slight	3.8	86	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:46	19:00	40.52155	-73.55453	40.52507	-73.53720	19	19	E	<2	B5	≥5000	Clear	Slight	3.8	86	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:23	40.52507	-73.53720	40.53257	-73.50592	15	20	ESE	<2	B5	≥5000	Clear	Slight	3.8	88	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:23	19:25	40.53257	-73.50592	40.53368	-73.50463	18	19	E	<2	B5	≥5000	Clear	Moderate	4.1	56	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:25	19:41	40.53368	-73.50463	40.53623	-73.50732	18	19	E	<2	B5	≥5000	Clear	Moderate	4.1	55	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:41	19:45	40.53623	-73.50732	40.53478	-73.51282	18	9	SE	<2	B5	≥5000	Clear	Severe	3.3	248	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:45	20:00	40.53478	-73.51282	40.53105	-73.53097	18	9	SE	<2	B5	≥5000	Clear	Severe	3.8	266	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:16	40.53105	-73.53097	40.52602	-73.55575	16	9	SE	<2	B5	≥5000	Clear	Severe	3.9	267	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:16	20:18	40.52602	-73.55575	40.52565	-73.55762	19	10	SE	<2	B4	≥5000	Clear	Severe	3.9	268	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:18	20:36	40.52565	-73.55762	40.52202	-73.56447	19	10	SE	<2	B4	≥5000	Clear	Severe	3.9	270	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:36	20:40	40.52202	-73.56447	40.52313	-73.55790	19	21	E	<2	B5	≥5000	Clear	Severe	3.7	91	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	21:00	40.52313	-73.55790	40.52747	-73.53617	19	21	E	<2	B5	≥5000	Clear	Severe	3.6	94	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:19	40.52747	-73.53617	40.53332	-73.50750	19	20	ESE	<2	B5	≥5000	Clear	Severe	3.7	88	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:19	21:22	40.53332	-73.50750	40.53312	-73.50245	19	20	ESE	<2	B5	≥5000	Clear	Severe	3.7	92	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:22	21:52	40.53312	-73.50245	40.53725	-73.49287	19	16	ESE	<2	B5	≥5000	Clear	Severe	4.3	108	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:52	22:00	40.53725	-73.49287	40.53565	-73.50015	19	14	ESE	<2	B5	≥5000	Clear	Severe	3.7	264	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:06	40.53565	-73.50015	40.53322	-73.51213	19	14	ESE	<2	B5	≥5000	Clear	Severe	3.7	268	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:06	22:47	40.53322	-73.51213	40.52268	-73.56447	19	15	ESE	<2	B5	≥5000	Clear	Severe	3.7	269	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:47	22:49	40.52268	-73.56447	40.52272	-73.56450	19	12	ESE	<2	B5	≥5000	Clear	Severe	3.8	270	Silent	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:49	23:00	40.52272	-73.56450	40.52485	-73.58147	19	12	ESE	<2	B5	≥5000	Clear	Severe	3.8	270	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:00	23:20	40.52485	-73.58147	40.52205	-73.56618	19	8	SE	<2	B4	≥5000	Clear	Moderate	3.8	285	Full Power	N/A
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:20	23:24	40.52205	-73.56618	40.52317	-73.56048	19	12	ESE	<2	B4	≥5000	Clear	Moderate	3.8	83	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-19	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:24	00:00	40.52317	-73.56048	40.53287	-73.51283	19	14	ESE	<2	B4	≥5000	Clear	Slight	3.9	89	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:02	40.53287	-73.51283	40.53375	-73.50830	19	16	ESE	<2	B4	≥5000	Clear	Slight	4	85	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:02	00:13	40.53375	-73.50830	40.53647	-73.49552	19	15	ESE	<2	B4	2000-4999	Clear	None	4	90	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:13	00:37	40.53647	-73.49552	40.53678	-73.50030	19	14	ESE	<2	B4	2000-4999	Clear	None	2	85	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:37	00:46	40.53678	-73.50030	40.53423	-73.51278	16	6	ESE	<2	B3	1000-1999	Clear	None	3.6	269	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:46	00:50	40.53423	-73.51278	40.53345	-73.51657	18	6	ESE	<2	B3	1000-1999	Clear	None	3.6	270	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:50	01:00	40.53345	-73.51657	40.53098	-73.52853	19	7	ESE	<2	B3	500-999	Clear	None	3.7	268	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:29	40.53098	-73.52853	40.52315	-73.56742	16	6	ESE	<2	B3	500-999	Clear	None	3.7	267	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:29	01:31	40.52315	-73.56742	40.52317	-73.56898	18	8	E	<2	B3	500-999	Clear	None	3.8	268	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:31	01:46	40.52317	-73.56898	40.52230	-73.56775	18	8	E	<2	B3	500-999	Clear	None	3.7	296	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:46	01:50	40.52230	-73.56775	40.52328	-73.56245	18	15	E	<2	B4	500-999	Clear	None	3.8	87	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:50	02:29	40.52328	-73.56245	40.53417	-73.50898	18	15	E	<2	B4	500-999	Clear	None	3.8	90	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:29	02:31	40.53417	-73.50898	40.53458	-73.50682	18	19	E	<2	B4	500-999	Cloudy	None	3.9	88	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:31	02:51	40.53458	-73.50682	40.53477	-73.50693	18	19	E	<2	B4	500-999	Cloudy	None	3.9	87	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:51	02:55	40.53477	-73.50693	40.53402	-73.51108	18	9	E	<2	B3	500-999	Cloudy	None	3.9	268	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:55	03:00	40.53402	-73.51108	40.53172	-73.52240	18	9	E	<2	B3	500-999	Cloudy	None	3.9	267	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:34	40.53172	-73.52240	40.52300	-73.56567	16	17	ENE	<2	B4	500-999	Cloudy	None	3.9	261	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:34	03:35	40.52300	-73.56567	40.52290	-73.56797	16	17	NE	<2	B4	500-999	Cloudy	None	4	263	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:35	03:57	40.52290	-73.56797	40.52457	-73.56165	16	17	NE	<2	B4	500-999	Cloudy	None	4	299	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:57	04:00	40.52457	-73.56165	40.52583	-73.55550	16	20	NE	<2	B4	500-999	Cloudy	None	3.9	89	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:02	40.52583	-73.55550	40.52600	-73.55507	16	20	NE	<2	B4	500-999	Cloudy	None	3.9	89	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:02	04:35	40.52600	-73.55507	40.53528	-73.50922	16	20	NE	<2	B4	500-999	Cloudy	None	3.9	87	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:35	04:50	40.53528	-73.50922	40.53803	-73.49505	18	17	NE	<2	B4	500-999	Cloudy	None	3.4	83	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:50	05:00	40.53803	-73.49505	40.54018	-73.48395	18	17	NE	<2	B4	500-999	Cloudy	None	3.5	80	Deploying/Retrieving	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:18	40.54018	-73.48395	40.54365	-73.50500	15	21	NE	<2	B4	500-999	Cloudy	None	3.3	81	Deploying/Retrieving	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:18	05:30	40.54365	-73.50500	40.54413	-73.52447	15	14	NE	<2	B4	500-999	Cloudy	None	3.3	278	Soft Start	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:30	05:35	40.54413	-73.52447	40.54418	-73.52648	17	13	NE	<2	B4	500-999	Cloudy	None	3.9	277	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:35	05:41	40.54418	-73.52648	40.54433	-73.53570	17	11	NE	<2	B4	500-999	Cloudy	None	3.8	277	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:41	06:00	40.54433	-73.53570	40.54480	-73.55753	15	12	NE	<2	B4	500-999	Cloudy	None	3.9	276	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:12	40.54480	-73.55753	40.54550	-73.58250	15	20	NE	<2	B4	500-999	Cloudy	None	4	275	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:12	06:14	40.54550	-73.58250	40.54552	-73.58262	15	20	NE	<2	B4	500-999	Cloudy	None	3.9	287	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:14	06:45	40.54552	-73.58262	40.53925	-73.56138	15	20	NE	<2	B4	500-999	Cloudy	None	3.9	286	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:45	06:49	40.53925	-73.56138	40.54352	-73.56033	15	20	NE	<2	B4	500-999	Cloudy	None	4.2	45	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:49	07:00	40.54352	-73.56033	40.55470	-73.55985	15	20	NE	<2	B4	500-999	Cloudy	None	4.2	15	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	07:01	40.55470	-73.55985	40.55772	-73.55868	12	17	NE	<2	B4	500-999	Cloudy	None	3.8	13	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:01	07:14	40.55772	-73.55868	40.55647	-73.54812	12	17	NE	<2	B4	500-999	Cloudy	None	3.8	21	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:14	07:19	40.55647	-73.54812	40.55225	-73.54810	12	17	NE	<2	B4	500-999	Cloudy	None	3.7	185	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:19	07:30	40.55225	-73.54810	40.54097	-73.54848	12	17	NE	<2	B4	500-999	Cloudy	None	3.7	195	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:30	07:32	40.54097	-73.54848	40.54100	-73.54678	13	14	E	<2	B4	500-999	Cloudy	None	3.8	183	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:32	07:57	40.54100	-73.54678	40.54447	-73.53085	13	14	E	<2	B4	500-999	Cloudy	None	3.7	183	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	07:57	08:00	40.54447	-73.53085	40.54450	-73.53298	17	14	NE	<2	B4	500-999	Cloudy	None	4.5	278	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	08:01	40.54450	-73.53298	40.54458	-73.53483	17	15	NE	<2	B4	500-999	Cloudy	None	4.1	275	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:01	08:35	40.54458	-73.53483	40.54553	-73.57937	15	15	NE	<2	B4	500-999	Cloudy	None	3.6	277	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:35	08:37	40.54553	-73.57937	40.54560	-73.58145	15	15	NE	<2	B4	500-999	Cloudy	None	3.6	285	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:37	08:49	40.54560	-73.58145	40.54193	-73.57487	15	15	NE	<2	B4	500-999	Cloudy	None	3.6	285	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:49	09:00	40.54193	-73.57487	40.54182	-73.56252	13	14	N	<2	B4	500-999	Cloudy	None	3.1	93	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	09:00	09:05	40.54182	-73.56252	40.54157	-73.55607	13	13	NE	<2	B4	500-999	Cloudy	None	3.5	105	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:05	09:13	40.54157	-73.55607	40.54115	-73.54480	13	14	N	<2	B4	1000-1999	Cloudy	None	3.5	105	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:13	09:33	40.54115	-73.54480	40.54473	-73.53033	13	16	N	<2	B4	1000-1999	Cloudy	None	3.6	107	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:33	09:36	40.54473	-73.53033	40.54490	-73.53512	16	14	NE	<2	B4	1000-1999	Cloudy	None	3.9	278	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:36	10:00	40.54490	-73.53512	40.54557	-73.56550	14	12	NE	<2	B4	2000-4999	Cloudy	None	3.9	277	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:07	40.54557	-73.56550	40.54587	-73.57890	13	15	NE	2-4	B5	2000-4999	Precipitation	None	4	274	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:07	10:52	40.54587	-73.57890	40.53980	-73.53852	13	15	NE	2-4	B5	2000-4999	Precipitation	None	3.4	277	Transit	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:52	11:00	40.53980	-73.53852	40.53928	-73.53205	14	18	NE	2-4	B5	2000-4999	Cloudy	None	3.8	100	Soft Start	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:03	40.53928	-73.53205	40.54107	-73.52468	13	21	E	<2	B4	2000-4999	Cloudy	None	3.4	100	Soft Start	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:03	11:06	40.54107	-73.52468	40.54275	-73.52475	13	21	E	<2	B4	≥5000	Cloudy	None	3.2	16	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:06	11:10	40.54275	-73.52475	40.54643	-73.52472	13	21	E	<2	B4	≥5000	Cloudy	None	3.2	16	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:10	11:31	40.54643	-73.52472	40.56735	-73.52637	13	21	E	<2	B4	≥5000	Cloudy	None	3.3	12	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:31	11:33	40.56735	-73.52637	40.56923	-73.52650	13	11	E	<2	B4	≥5000	Cloudy	None	3.6	8	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:33	11:44	40.56923	-73.52650	40.57175	-73.52942	13	11	E	<2	B4	≥5000	Cloudy	None	2.9	26	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:44	11:50	40.57175	-73.52942	40.56457	-73.52815	13	11	E	<2	B4	≥5000	Cloudy	None	2.6	191	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:50	12:00	40.56457	-73.52815	40.54762	-73.52662	13	11	E	<2	B4	≥5000	Cloudy	None	3.6	189	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:11	40.54762	-73.52662	40.54400	-73.52637	15	16	E	<2	B4	≥5000	Cloudy	Slight	3.4	190	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:11	12:13	40.54400	-73.52637	40.54290	-73.52642	15	15	E	<2	B4	≥5000	Cloudy	Slight	3.5	196	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:13	12:26	40.54290	-73.52642	40.54155	-73.52385	15	15	E	<2	B4	≥5000	Cloudy	Slight	3.4	194	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:26	12:31	40.54155	-73.52385	40.54585	-73.52420	16	16	E	<2	B4	≥5000	Cloudy	Slight	3.9	355	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:31	12:52	40.54585	-73.52420	40.56722	-73.52607	10	18	NNE	<2	B4	≥5000	Cloudy	None	3.5	10	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:52	12:54	40.56722	-73.52607	40.56900	-73.52585	10	18	NNE	<2	B4	≥5000	Cloudy	None	3.6	11	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:54	13:00	40.56900	-73.52585	40.57087	-73.52400	10	18	NNE	<2	B4	≥5000	Cloudy	None	3.1	24	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:05	40.57087	-73.52400	40.57037	-73.52900	16	20	NNE	<2	B4	≥5000	Cloudy	Slight	4.2	40	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:05	13:10	40.57037	-73.52900	40.56432	-73.52782	16	18	ESE	<2	B4	≥5000	Cloudy	Slight	3.1	180	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:10	13:31	40.56432	-73.52782	40.54433	-73.52595	16	12	ESE	<2	B4	≥5000	Cloudy	Slight	3.7	193	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:31	13:33	40.54433	-73.52595	40.54233	-73.52617	16	20	ENE	<2	B4	≥5000	Cloudy	None	3.4	185	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:33	13:44	40.54233	-73.52617	40.54178	-73.52353	16	18	NNE	<2	B4	≥5000	Cloudy	None	3.7	214	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:44	13:49	40.54178	-73.52353	40.54610	-73.52388	16	22	NNE	<2	B4	≥5000	Cloudy	None	3.8	24	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:49	14:00	40.54610	-73.52388	40.55600	-73.52475	16	23	ENE	<2	B4	≥5000	Cloudy	None	4.2	11	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:08	40.55600	-73.52475	40.56778	-73.52562	14	15	ENE	<2	B4	≥5000	Cloudy	None	3	15	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:08	14:10	40.56778	-73.52562	40.57007	-73.52457	11	11	ENE	<2	B4	≥5000	Cloudy	None	3.3	30	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:10	14:20	40.57007	-73.52457	40.57018	-73.52822	11	13	ENE	<2	B4	≥5000	Cloudy	None	3.2	65	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:25	40.57018	-73.53272	40.56477	-73.52752	11	11	NE	<2	B5	≥5000	Cloudy	None	3.2	155	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:25	14:47	40.56477	-73.52752	40.54385	-73.52577	12	13	NNE	<2	B5	≥5000	Cloudy	None	3.4	170	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:47	14:49	40.54385	-73.52577	40.54158	-73.52585	17	12	NNE	<2	B5	≥5000	Cloudy	None	3.4	172	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:49	14:59	40.54158	-73.52585	40.53887	-73.52742	17	12	NNE	<2	B5	≥5000	Cloudy	None	3.3	201	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:59	15:00	40.53887	-73.52742	40.53755	-73.52398	17	17	ENE	<2	B5	≥5000	Cloudy	None	3.7	194	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:20	40.53755	-73.52398	40.56120	-73.52488	16	22	ENE	<2	B5	≥5000	Cloudy	None	3.9	85	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:20	15:40	40.56120	-73.52488	40.56865	-73.52763	12	16	ENE	<2	B5	≥5000	Cloudy	None	3.5	9	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:40	16:00	40.56865	-73.52763	40.55240	-73.52610	10	13	E	<2	B5	≥5000	Cloudy	None	3.5	188	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.55240	-73.52610	40.54577	-73.52185	13	15	N	<2	B5	≥5000	Cloudy	None	3.4	187	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.54577	-73.52185	40.56777	-73.52382	12	19	NNE	<2	B5	≥5000	Cloudy	Slight	4	9	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.56777	-73.52382	40.56417	-73.52698	12	15	NNE	<2	B5	≥5000	Cloudy	Moderate	3.9	9	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.56417	-73.52698	40.54207	-73.52588	12	13	NNE	<2	B5	≥5000	Cloudy	Moderate	3.9	15	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.54207	-73.52588	40.55037	-73.52185	16	10	ENE	<2	B5	≥5000	Cloudy	Moderate	3.7	220	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.55037	-73.52185	40.56973	-73.52285	16	15	NE	<2	B5	≥5000	Clear	Moderate	3.7	5	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	18:20	40.56973	-73.52285	40.55782	-73.52592	11	18	E	<2	B5	≥5000	Clear	Slight	2.9	53	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:20	18:40	40.55782	-73.52592	40.53822	-73.52778	13	14	ESE	<2	B5	≥5000	Cloudy	Slight	3.6	191	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:40	19:00	40.53822	-73.52778	40.55457	-73.52370	13	16	ESE	<2	B5	≥5000	Cloudy	Slight	3.4	168	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:20	40.55457	-73.52370	40.57460	-73.52425	14	14	ENE	<2	B5	≥5000	Cloudy	Moderate	4	7	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:20	19:40	40.57460	-73.52425	40.55682	-73.52550	10	8	ESE	<2	B5	≥5000	Cloudy	Moderate	4.6	290	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:40	20:00	40.55682	-73.52550	40.53732	-73.52797	13	15	ESE	<2	B5	≥5000	Cloudy	Moderate	3.6	189	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:20	40.53732	-73.52797	40.55490	-73.52407	13	17	ESE	<2	B5	≥5000	Clear	Severe	4	175	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:20	20:40	40.55490	-73.52407	40.57200	-73.52542	14	14	ESE	<2	B5	≥5000	Clear	Severe	3.7	7	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:40	21:00	40.57200	-73.52542	40.55947	-73.52530	10	18	ENE	<2	B5	≥5000	Clear	Severe	3.8	7	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.55947	-73.52530	40.53505	-73.52813	16	18	NE	<2	B5	≥5000	Clear	Severe	3.4	186	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.53505	-73.52813	40.54107	-73.53115	13	20	NE	<2	B5	≥5000	Clear	Severe	3.5	142	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.54107	-73.53115	40.55212	-73.52552	13	22	NE	<2	B5	≥5000	Clear	Severe	4.3	160	Silent	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.55212	-73.52552	40.56872	-73.52653	14	20	NE	<2	B5	≥5000	Clear	Severe	3.9	10	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.56872	-73.52653	40.54792	-73.52392	14	21	NE	<2	B5	≥5000	Clear	Severe	3.9	10	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.54792	-73.52392	40.54545	-73.52353	15	21	NE	<2	B5	≥5000	Clear	Moderate	3.8	180	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:00	23:20	40.54545	-73.52353	40.54620	-73.52542	16	22	NNE	<2	B5	≥5000	Clear	Slight	3.7	190	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:20	23:40	40.54620	-73.52542	40.56440	-73.52703	16	26	NNW	<2	B5	≥5000	Cloudy	None	3.7	11	Full Power	N/A
2023-06-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	23:40	00:00	40.56440	-73.52703	40.56510	-73.52512	13	22	NNW	<2	B5	≥5000	Cloudy	None	3.8	11	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.56510	-73.52512	40.54647	-73.52335	13	21	NNW	<2	B5	2000-4999	Cloudy	None	3.3	192	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.54647	-73.52335	40.53812	-73.50895	16	16	NNE	<2	B5	2000-4999	Cloudy	None	2.9	189	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:40	00:50	40.53812	-73.50895	40.54455	-73.51333	16	21	NNE	<2	B5	1000-1999	Cloudy	None	3.4	96	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:50	01:00	40.54455	-73.51333	40.54757	-73.52463	16	14	ENE	<2	B5	500-999	Cloudy	None	5	299	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:00	01:20	40.54757	-73.52463	40.55933	-73.55140	16	14	ENE	<2	B5	500-999	Cloudy	None	3.9	303	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:20	01:40	40.55933	-73.55140	40.54812	-73.54438	12	13	ESE	<2	B5	500-999	Cloudy	None	5.3	272	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	02:00	40.54812	-73.54438	40.54802	-73.57398	13	15	ESE	<2	B5	500-999	Cloudy	None	4.5	234	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:20	40.54802	-73.57398	40.54818	-73.60275	13	17	ENE	<2	B5	500-999	Cloudy	None	3.9	291	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:20	02:26	40.54818	-73.60275	40.54660	-73.63005	14	15	ENE	<2	B5	500-999	Cloudy	None	4.1	257	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:26	02:36	40.54818	-73.60275	40.54660	-73.63005	14	15	ENE	<2	B5	500-999	Cloudy	None	4.1	257	Soft Start	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:36	03:00	40.54660	-73.63005	40.54903	-73.65892	12	17	ENE	<2	B5	500-999	Cloudy	None	4	288	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:04	40.54903	-73.65892	40.54977	-73.66690	12	17	ENE	<2	B5	500-999	Cloudy	None	3.9	282	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:04	03:05	40.54977	-73.66690	40.54983	-73.66950	14	16	ENE	<2	B5	500-999	Cloudy	None	3.8	250	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:05	03:32	40.54983	-73.66950	40.54452	-73.65363	14	18	ENE	<2	B5	500-999	Cloudy	None	3.6	257	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:32	03:36	40.54452	-73.65363	40.54517	-73.65938	15	19	ENE	<2	B5	500-999	Cloudy	None	3.6	310	Silent	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:36	04:00	40.54517	-73.65938	40.54567	-73.69058	15	17	ENE	<2	B5	500-999	Cloudy	None	4.1	278	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:20	40.54567	-73.69058	40.55357	-73.71340	15	20	NE	<2	B5	500-999	Cloudy	None	3.8	280	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:20	04:27	40.55357	-73.71340	40.56133	-73.71985	15	20	NE	<2	B5	500-999	Cloudy	None	3.9	343	Full Power	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:27	04:42	40.56133	-73.71985	40.56225	-73.73967	12	20	NE	<2	B5	500-999	Cloudy	None	3.9	352	Standby	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:42	05:00	40.56225	-73.73967	40.56247	-73.75355	12	20	NE	<2	B5	500-999	Cloudy	None	3.9	276	Deploying/Retrieving	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:09	40.56247	-73.75355	40.56240	-73.76475	12	12	NE	<2	B5	500-999	Cloudy	None	2.8	285	Deploying/Retrieving	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:09	05:29	40.56240	-73.76475	40.55773	-73.79385	12	12	NE	<2	B5	500-999	Cloudy	None	3.8	279	Standby	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:29	06:00	40.55773	-73.79385	40.51880	-73.87482	12	12	NE	<2	B5	500-999	Cloudy	None	7.3	230	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	07:00	40.51880	-73.87482	40.53897	-74.02298	11	12	NE	<2	B5	500-999	Cloudy	None	9.8	245	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	08:00	40.53897	-74.02298	40.64832	-74.05527	13	22	NE	<2	B5	500-999	Cloudy	None	7.8	356	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	09:00	40.64832	-74.05527	40.73632	-73.96885	16	21	NE	<2	B5	500-999	Clear	None	7.6	17	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	10:00	40.73632	-73.96885	40.79960	-73.75590	17	19	NE	<2	B4	1000-1999	Cloudy	None	7.4	357	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	11:00	40.79960	-73.75590	40.85747	-73.75343	17	27	NE	2-4	B5	2000-4999	Cloudy	None	7.5	74	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	12:00	40.85747	-73.75343	40.93025	-73.63790	18	29	NE	2-4	B5	2000-4999	Cloudy	None	7	48	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	13:00	40.93025	-73.63790	40.98228	-73.49907	16	28	NE	2-4	B5	2000-4999	Cloudy	Slight	7.3	73	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:40	40.98228	-73.49907	41.03133	-73.38572	18	26	NE	<2	B6	2000-4999	Clear	Moderate	7.2	74	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	41.03133	-73.38572	41.04058	-73.36570	18	28	ENE	<2	B6	2000-4999	Clear	Moderate	7	72	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	15:00	41.04058	-73.36570	41.09878	-73.22465	15	29	ENE	<2	B6	2000-4999	Clear	Moderate	6.8	67	Transit	N/A
2023-06-21	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	15:45	41.09878	-73.22465	41.17030	-73.17533	16	29	ENE	<2	B6	2000-4999	Clear	Moderate	6.9	65	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:12	03:00	41.17030	-73.17533	41.09398	-73.24245	16	6	SE	<2	B2	200-499	Fog	None	0.9	318	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	41.09398	-73.24245	41.01687	-73.42353	16	7	SE	<2	B2	≤ 199	Fog	None	9.2	245	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	41.01687	-73.42353	40.93470	-73.61492	30	7	SE	<2	B2	≤ 199	Fog	None	9.9	246	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	06:00	40.93470	-73.61492	40.83655	-73.77095	15	6	SE	<2	B2	200-499	Fog	None	9.4	247	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	07:00	40.83655	-73.77095	40.78962	-73.91525	14	5	SE	<2	B2	200-499	Cloudy	None	9.2	231	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	08:00	40.78962	-73.91525	40.69065	-73.91525	13	8	WSW	<2	B2	500-999	Cloudy	None	9.3	227	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	09:00	40.69065	-73.91525	40.51887	-73.99280	13	6	WSW	<2	B2	200-499	Fog	None	9.4	238	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	09:00	09:10	40.51887	-73.99280	40.50942	-73.96850	15	14	ENE	<2	B2	≤ 199	Fog	None	10	129	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	09:10	10:00	40.50942	-73.96850	40.53905	-73.79963	14	12	ENE	<2	B2	200-499	Fog	None	10	129	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	10:00	11:00	40.53905	-73.79963	40.57092	-73.75520	14	10	ENE	<2	B2	200-499	Fog	None	9.3	82	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	11:00	12:00	40.57092	-73.75520	40.55325	-73.69012	14	8	S	<2	B1	200-499	Fog	None	4	92	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	13:00	40.55325	-73.69012	40.54208	-73.59498	13	8	S	<2	B2	500-999	Fog	None	4.8	111	Transit	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena; Cardenas, Ana	RPS	13:00	13:18	40.54208	-73.59498	40.53837	-73.56477	13	8	ESE	<2	B2	200-499	Fog	None	4.8	11	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:18	14:00	40.53837	-73.56477	40.56262	-73.54515	13	10	ESE	<2	B2	500-999	Fog	None	3.9	65	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	15:00	40.56262	-73.54515	40.54452	-73.52452	11	9	ESE	<2	B2	500-999	Fog	None	3.9	65	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	15:00	15:26	40.54452	-73.52452	40.56445	-73.52790	16	2	ESE	<2	B2	200-499	Fog	None	3.9	12	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	15:26	16:00	40.56445	-73.52790	40.54157	-73.52688	16	8	ESE	<2	B2	≤ 199	Fog	None	4.4	188	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Ortega Arana, Jimena	RPS	16:00	17:00	40.54157	-73.52688	40.57178	-73.52518	16	8	ESE	<2	B2	≤ 199	Fog	None	3.6	222	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Ortega Arana, Jimena	RPS	17:00	18:00	40.57178	-73.52518	40.54045	-73.52257	16	13	SW	<2	B2	≤ 199	Fog	None	3.3	318	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.54045	-73.52257	40.53735	-73.52753	16	7	SSW	<2	B2	500-999	Fog	Slight	4	2	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Dyachkov, Sergey	RPS	19:00	19:53	40.53735	-73.52753	40.56955	-73.52627	15	13	SSW	<2	B2	200-499	Fog	None	3.7	249	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:53	20:00	40.56955	-73.52627	40.56530	-73.52592	10	14	S	<2	B3	500-999	Fog	None	3.3	190	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:30	40.56530	-73.52592	40.53992	-73.52223	11	14	S	<2	B3	1000-1999	Cloudy	None	3.6	191	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Dyachkov, Sergey	RPS	20:30	21:00	40.53992	-73.52223	40.57093	-73.52310	16	7	S	<2	B2	200-499	Fog	None	4.3	40	Standby	N/A
2023-06-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:32	40.57093	-73.52310	40.54373	-73.52427	13	8	SW	<2	B2	500-999	Fog	None	3.7	24	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-24	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	21:32	22:00	40.54373	-73.52427	40.56028	-73.52318	16	14	S	<2	B3	200-499	Fog	None	3.6	190	Standby	N/A
2023-06-24	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Ortega Arana, Jimena	RPS	22:00	22:34	40.56028	-73.52318	40.55215	-73.52403	15	15	S	<2	B3	200-499	Fog	None	4	10	Standby	N/A
2023-06-24	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:34	23:00	40.55215	-73.52403	40.54977	-73.52577	16	13	S	<2	B3	500-999	Fog	None	3.9	185	Standby	N/A
2023-06-24	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	00:00	40.54977	-73.52577	40.54295	-73.52140	15	10	S	<2	B3	≥5000	Clear	Severe	4	10	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:32	40.54295	-73.52140	40.56498	-73.52727	16	8	S	<2	B3	2000-4999	Clear	Slight	3.9	9	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:32	00:53	40.56498	-73.52727	40.54012	-73.52627	16	14	S	<2	B3	1000-1999	Clear	None	4.1	193	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:53	01:00	40.54012	-73.52627	40.54232	-73.51797	14	19	S	<2	B3	500-999	Cloudy	None	3.5	187	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:00	01:42	40.54232	-73.51797	40.55340	-73.52590	14	19	S	<2	B3	500-999	Cloudy	None	4.1	18	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:42	02:00	40.55340	-73.52590	40.53858	-73.51923	14	17	S	<2	B3	200-499	Fog	None	4	189	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	03:00	40.53858	-73.51923	40.54417	-73.52105	13	16	S	<2	B3	≤ 199	Fog	None	4.1	80	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	40.54417	-73.52105	40.49925	-73.46653	17	15	S	<2	B3	≤ 199	Fog	None	4.1	155	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.49925	-73.46653	40.45690	-73.41523	21	12	S	<2	B3	≤ 199	Fog	None	3.4	151	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	06:00	40.45690	-73.41523	40.44380	-73.39937	24	13	SW	<2	B3	≤ 199	Fog	None	3.3	151	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	07:00	40.44380	-73.39937	40.45742	-73.41563	22	13	SW	<2	B3	≤ 199	Fog	None	3.6	328	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.45742	-73.41563	40.50148	-73.46937	24	6	SW	<2	B3	≤ 199	Fog	None	4.4	332	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:40	40.50148	-73.46937	40.53577	-73.51082	18	8	SW	<2	B3	≤ 199	Fog	None	3.5	318	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:40	09:00	40.53577	-73.51082	40.54008	-73.52258	16	6	WSW	<2	B2	500-999	Fog	None	3.5	331	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:03	40.54008	-73.52258	40.54147	-73.52333	17	6	SW	<2	B2	500-999	Fog	None	3.4	315	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:03	09:53	40.54147	-73.52333	40.50993	-73.50070	17	6	WSW	<2	B2	1000-1999	Cloudy	None	4	165	Deploying/Retrieving	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:53	10:00	40.50993	-73.50070	40.50573	-73.50055	19	8	WSW	<2	B2	1000-1999	Cloudy	None	2.5	174	Soft Start	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:04	40.50573	-73.50055	40.50680	-73.50588	18	9	W	<2	B2	1000-1999	Cloudy	None	3.4	332	Soft Start	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:04	10:40	40.50680	-73.50588	40.54112	-73.52038	18	9	W	<2	B2	1000-1999	Cloudy	Slight	3.5	357	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:40	10:44	40.54112	-73.52038	40.54523	-73.52078	17	8	W	<2	B2	1000-1999	Cloudy	Slight	4.1	356	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:44	11:00	40.54523	-73.52078	40.55688	-73.52183	17	7	W	<2	B2	500-999	Fog	None	4.2	352	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:10	40.55688	-73.52183	40.56252	-73.52452	12	5	W	<2	B2	500-999	Fog	None	4.2	358	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	11:10	12:00	40.56252	-73.52452	40.52863	-73.51027	13	3	ESE	<2	B2	200-499	Fog	None	3.8	193	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	12:00	13:00	40.52863	-73.51027	40.51117	-73.46563	17	9	E	<2	B2	≤ 199	Fog	None	4.3	96	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena; Cardenas, Ana	RPS	13:00	14:00	40.51117	-73.46563	40.55743	-73.49823	17	9	ENE	<2	B2	≤ 199	Fog	None	3.5	103	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dalton, Tavis	RPS	14:00	14:50	40.55743	-73.49823	40.53230	-73.48782	15	9	ENE	<2	B2	≤ 199	Fog	None	3.9	198	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:50	15:00	40.53230	-73.48782	40.53812	-73.49042	16	7	ENE	<2	B2	500-999	Fog	Moderate	1.3	343	Deploying/Retrieving	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.53812	-73.49042	40.55085	-73.49972	16	6	E	<2	B2	500-999	Fog	Moderate	3.9	358	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:32	40.55085	-73.49972	40.55027	-73.48962	16	12	ENE	<2	B2	500-999	Fog	Moderate	2.3	12	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena; Steinbeisser, Myka	RPS	16:32	17:00	40.55027	-73.48962	40.52862	-73.46443	15	14	ENE	<2	B2	200-499	Fog	Moderate	3.5	148	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:48	40.52862	-73.46443	40.50887	-73.44983	16	12	SSE	<2	B3	500-999	Fog	Moderate	3.6	158	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:48	18:00	40.50887	-73.44983	40.51323	-73.45865	19	5	SSE	<2	B3	1000-1999	Fog	Moderate	4.3	311	Deploying/Retrieving	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.51323	-73.45865	40.52458	-73.48162	19	6	SSE	<2	B2	2000-4999	Fog	Slight	3.2	318	Deploying/Retrieving	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:36	40.52458	-73.48162	40.53348	-73.50333	17	3	SSE	<2	B2	2000-4999	Fog	Slight	3.3	311	Standby	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:36	18:46	40.53348	-73.50333	40.53840	-73.51672	17	3	SSE	<2	B2	2000-4999	Clear	Slight	4.1	310	Soft Start	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:46	18:49	40.53840	-73.51672	40.54080	-73.51862	17	4	SSE	<2	B2	2000-4999	Clear	Slight	4	314	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:49	18:52	40.54080	-73.51862	40.54428	-73.51825	17	4	SSE	<2	B2	2000-4999	Clear	Slight	4.1	7	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:52	19:12	40.54428	-73.51825	40.56853	-73.52035	17	4	SSE	<2	B2	2000-4999	Clear	Slight	4.2	17	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:12	19:14	40.56853	-73.52035	40.57013	-73.52030	11	3	ENE	<2	B2	2000-4999	Cloudy	Slight	4.2	10	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:14	19:29	40.57013	-73.52030	40.57002	-73.52415	11	3	ENE	<2	B2	2000-4999	Cloudy	Slight	4.1	21	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:29	19:34	40.57002	-73.52415	40.56528	-73.52378	10	8	SE	<2	B2	2000-4999	Clear	Moderate	3.8	190	Silent	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:34	20:00	40.56528	-73.52378	40.53953	-73.52415	10	8	SE	<2	B2	2000-4999	Clear	Moderate	3.6	189	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.53953	-73.52415	40.55378	-73.51942	16	7	S	<2	B2	≥5000	Clear	Severe	3.2	213	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.55378	-73.51942	40.57342	-73.51768	14	1	E	<2	B2	≥5000	Clear	Severe	4.2	8	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.57342	-73.51768	40.56173	-73.52308	10	3	ESE	<2	B2	≥5000	Clear	Severe	3.6	19	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.56173	-73.52308	40.53902	-73.52455	12	8	ESE	<2	B2	2000-4999	Clear	Severe	3.9	189	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.53902	-73.52455	40.55073	-73.51945	12	8	ESE	<2	B2	2000-4999	Clear	Severe	3.6	220	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.55073	-73.51945	40.57240	-73.52012	12	10	ESE	<2	B3	2000-4999	Clear	Severe	4.2	9	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.57240	-73.52012	40.56523	-73.52485	12	11	ESE	<2	B3	≥5000	Clear	Severe	3.6	42	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.56523	-73.52485	40.54035	-73.52418	12	12	ESE	<2	B3	≥5000	Clear	Severe	3.8	190	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.54033	-73.52418	40.54952	-73.51977	14	11	ESE	<2	B3	≥5000	Clear	Severe	3.7	230	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.54952	-73.51977	40.57137	-73.52030	14	10	ESE	<2	B3	≥5000	Clear	Severe	4.1	10	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.57137	-73.52030	40.55820	-73.52383	15	10	SSE	<2	B3	≥5000	Clear	Severe	4	48	Full Power	N/A
2023-06-25	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.55820	-73.52383	40.54175	-73.52240	15	10	SSE	<2	B3	≥5000	Clear	Severe	3.9	190	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.54175	-73.52240	40.56450	-73.52142	19	10	SSW	<2	B2	2000-4999	Clear	None	4	187	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.56450	-73.52142	40.57515	-73.51887	16	5	ESE	<2	B2	1000-1999	Clear	None	3.7	9	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:40	01:00	40.57515	-73.51887	40.55275	-73.52197	16	4	ESE	<2	B2	1000-1999	Clear	None	4.2	314	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:20	40.55275	-73.52197	40.53978	-73.52080	14	11	ESE	<2	B2	500-999	Clear	None	3.6	180	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:20	01:40	40.53978	-73.52080	40.54702	-73.52020	16	11	SSE	<2	B2	500-999	Clear	None	3.8	194	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	01:44	40.54702	-73.52020	40.55122	-73.52057	14	8	ESE	<2	B2	500-999	Clear	None	3.8	10	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:44	02:00	40.55122	-73.52057	40.56637	-73.52062	14	6	SE	<2	B2	200-499	Fog	None	3.9	9	Standby	Fog
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:45	40.56637	-73.52062	40.53523	-73.52493	11	13	ESE	<2	B3	≤ 199	Fog	None	3.5	48	Standby	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:45	03:00	40.53523	-73.52493	40.52970	-73.52833	16	14	SSE	<2	B3	500-999	Fog	None	3.9	240	Standby	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:16	40.52970	-73.52833	40.53880	-73.52453	16	13	ESE	<2	B3	500-999	Fog	None	3.3	150	Standby	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:16	03:26	40.53880	-73.52453	40.53957	-73.51945	15	12	SSE	<2	B3	500-999	Cloudy	None	3.2	190	Soft Start	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:26	03:40	40.53957	-73.51945	40.54885	-73.52040	15	12	SSE	<2	B3	500-999	Cloudy	None	3.7	18	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:40	04:00	40.54885	-73.52040	40.57015	-73.52222	15	11	SSE	<2	B3	500-999	Cloudy	None	3.9	10	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:20	40.57015	-73.52222	40.56358	-73.52252	11	11	SSE	<2	B3	500-999	Cloudy	None	3.9	8	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:20	04:40	40.56358	-73.52252	40.54353	-73.52077	11	11	SSE	<2	B2	500-999	Cloudy	None	4	190	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:40	05:00	40.54353	-73.52077	40.53913	-73.51987	17	12	SSE	<2	B2	500-999	Cloudy	None	3.9	79	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:21	40.53913	-73.51987	40.56468	-73.52217	24	4	S	<2	B2	500-999	Clear	None	4.3	3	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:21	05:24	40.53913	-73.51987	40.56468	-73.52217	24	4	S	<2	B2	500-999	Clear	None	4.3	3	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:24	05:40	40.56468	-73.52217	40.57033	-73.52273	11	4	S	<2	B2	500-999	Clear	None	4	4	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:40	06:00	40.57033	-73.52273	40.55158	-73.52108	11	7	SE	<2	B2	500-999	Clear	None	3.2	180	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:20	40.55158	-73.52108	40.53790	-73.52157	11	7	SE	<2	B2	500-999	Clear	None	3.5	190	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:20	06:40	40.53790	-73.52157	40.55677	-73.52210	12	8	SE	<2	B2	500-999	Clear	None	3.8	200	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:40	07:00	40.55677	-73.52210	40.57345	-73.51387	13	8	SE	<2	B2	500-999	Clear	None	4.1	210	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:20	40.57345	-73.51387	40.55835	-73.51922	10	3	S	<2	B2	500-999	Clear	None	4.5	352	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:20	07:40	40.55835	-73.51922	40.53662	-73.51652	10	8	S	<2	B2	500-999	Clear	None	4	188	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:40	08:00	40.53662	-73.51652	40.55187	-73.51235	17	8	W	<2	B2	500-999	Clear	None	3.7	131	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:21	40.55187	-73.51235	40.56983	-73.52058	11	7	S	<2	B2	500-999	Clear	None	4.4	355	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:21	08:25	40.56983	-73.52058	40.56583	-73.52028	11	5	W	<2	B2	500-999	Clear	None	3.9	188	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:25	08:47	40.56583	-73.52028	40.54255	-73.51828	12	7	W	<2	B2	500-999	Clear	None	3.9	180	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:47	08:49	40.54255	-73.51828	40.53987	-73.51805	17	7	W	<2	B2	500-999	Cloudy	None	3.8	188	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:49	08:54	40.53987	-73.51805	40.54000	-73.51198	16	10	W	<2	B2	500-999	Cloudy	None	4.1	186	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:54	09:00	40.54000	-73.51198	40.54445	-73.51238	15	10	W	<2	B2	500-999	Cloudy	None	4.4	11	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:05	40.54445	-73.51238	40.55012	-73.51233	15	10	W	<2	B2	500-999	Cloudy	None	4.4	10	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:05	09:13	40.55012	-73.51233	40.56122	-73.51313	15	10	W	<2	B2	1000-1999	Cloudy	None	4.4	8	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:13	09:29	40.56122	-73.51313	40.57068	-73.52078	11	6	W	<2	B2	2000-4999	Cloudy	None	4.3	195	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:29	09:34	40.52068	-73.52078	40.57038	-73.52428	12	4	W	<2	B2	2000-4999	Cloudy	None	3.9	190	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:34	09:57	40.57038	-73.52428	40.54057	-73.51832	12	5	W	<2	B2	≥5000	Cloudy	None	4.1	185	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:57	10:00	40.54057	-73.51832	40.53720	-73.51802	17	6	W	<2	B1	≥5000	Cloudy	None	4.2	186	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:18	40.53720	-73.51802	40.54007	-73.52530	18	5	W	<2	B1	≥5000	Cloudy	None	3.7	173	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:18	10:24	40.54007	-73.52530	40.54678	-73.52587	17	9	W	<2	B1	≥5000	Cloudy	Slight	4.1	359	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:24	10:41	40.54678	-73.52587	40.56720	-73.52768	16	7	W	<2	B1	≥5000	Cloudy	Slight	4.2	357	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:41	10:43	40.56720	-73.52768	40.56942	-73.52820	11	7	W	<2	B1	≥5000	Cloudy	None	4.2	359	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:43	11:00	40.56942	-73.52820	40.57530	-73.52663	11	8	W	<2	B2	≥5000	Cloudy	None	4	340	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:20	40.57530	-73.52663	40.55233	-73.52082	9	13	SE	<2	B2	≥5000	Cloudy	None	3.9	128	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:20	11:40	40.55233	-73.52082	40.53822	-73.50773	18	6	SE	<2	B2	≥5000	Cloudy	Slight	4.1	187	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:40	12:00	40.53822	-73.50773	40.57530	-73.52663	19	6	SE	<2	B2	≥5000	Cloudy	None	4	80	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	12:20	40.57530	-73.52663	40.52528	-73.53185	19	3	SE	<2	B2	≥5000	Cloudy	Slight	3.7	268	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:20	12:40	40.52528	-73.53185	40.52057	-73.55745	15	3	SE	<2	B2	≥5000	Cloudy	Severe	3.7	268	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:40	13:00	40.52057	-73.55745	40.52355	-73.54103	19	3	ESE	<2	B2	≥5000	Cloudy	Severe	3.5	299	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.52355	-73.54103	40.52932	-73.51075	17	12	ESE	<2	B3	2000-4999	Cloudy	None	3.9	103	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.52932	-73.51075	40.53687	-73.48883	17	9	ESE	<2	B3	≥5000	Cloudy	Moderate	3.7	87	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.53687	-73.48883	40.53045	-73.50360	17	13	ESE	<2	B3	≥5000	Cloudy	Moderate	3.4	154	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.53045	-73.50360	40.52337	-73.53865	17	9	ESE	<2	B3	≥5000	Cloudy	Moderate	4	259	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.52337	-73.53865	40.51590	-73.56442	15	9	S	<2	B3	≥5000	Cloudy	Slight	4	257	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.51590	-73.56442	40.52328	-73.55033	18	10	SE	<2	B3	≥5000	Cloudy	Slight	4.1	316	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:20	40.52298	-73.55033	40.52917	-73.51973	18	13	SE	<2	B3	≥5000	Cloudy	Slight	3.5	87	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:20	15:40	40.52917	-73.51973	40.53603	-73.50620	16	14	ESE	<2	B3	≥5000	Cloudy	Slight	3.4	89	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.53603	-73.50620	40.53167	-73.52807	18	6	S	<2	B3	≥5000	Cloudy	Slight	3.8	276	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.53167	-73.52807	40.52478	-73.56255	18	5	SW	<2	B3	2000-4999	Cloudy	Moderate	4	269	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.52478	-73.56255	40.54153	-73.55868	17	7	SW	<2	B3	2000-4999	Cloudy	Moderate	4	267	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.54153	-73.55868	40.52998	-73.55242	16	13	ESE	<2	B3	2000-4999	Cloudy	Moderate	3.1	109	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.52998	-73.55242	40.51455	-73.56793	18	12	ESE	<2	B3	2000-4999	Cloudy	Moderate	3.6	201	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.51455	-73.56793	40.51463	-73.54163	18	12	ESE	<2	B3	2000-4999	Cloudy	Moderate	3.7	219	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.51463	-73.54163	40.53372	-73.54510	16	6	ESE	<2	B3	≥5000	Cloudy	Moderate	4.6	27	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.53372	-73.54510	40.52588	-73.53018	13	5	ESE	<2	B3	≥5000	Cloudy	Slight	4.1	5	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.52588	-73.53018	40.52600	-73.51808	15	14	SSE	<2	B3	≥5000	Cloudy	Slight	3.7	180	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.52600	-73.51808	40.53700	-73.53542	15	7	ESE	<2	B3	≥5000	Cloudy	Slight	4.5	0	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.53700	-73.53542	40.52987	-73.55913	13	13	S	<2	B4	≥5000	Cloudy	Slight	4.9	262	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.52987	-73.55913	40.52263	-73.55482	16	11	SSE	<2	B4	≥5000	Cloudy	None	3.8	255	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.52263	-73.55482	40.52837	-73.52642	17	18	SSE	<2	B5	≥5000	Cloudy	None	3.9	89	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.52837	-73.52642	40.53668	-73.50362	15	15	SSE	<2	B5	≥5000	Cloudy	None	3.8	88	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.53668	-73.50362	40.53553	-73.53008	16	9	SSE	<2	B5	≥5000	Cloudy	Severe	4.1	5	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.53553	-73.53008	40.53052	-73.55627	14	15	S	<2	B5	≥5000	Cloudy	Severe	4.1	269	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:02	40.53052	-73.55627	40.52920	-73.56430	17	16	WSW	<2	B5	2000-4999	Cloudy	None	4	269	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:02	21:12	40.52920	-73.56430	40.52295	-73.56882	17	15	WSW	<2	B5	2000-4999	Cloudy	None	3.9	270	Soft Start	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:12	21:20	40.52295	-73.56882	40.52318	-73.55762	17	20	SW	<2	B5	2000-4999	Cloudy	Slight	4.5	143	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.52318	-73.55762	40.52903	-73.52870	16	19	SE	<2	B5	2000-4999	Cloudy	Slight	3.9	88	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.52903	-73.52870	40.53362	-73.50598	16	14	SE	<2	B5	2000-4999	Cloudy	Slight	4	87	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.53362	-73.50598	40.54657	-73.52618	16	16	SSE	<2	B5	2000-4999	Cloudy	None	4	88	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.54657	-73.52618	40.56255	-73.52772	14	14	SSE	<2	B4	2000-4999	Cloudy	None	4.1	10	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.56255	-73.52772	40.56307	-73.53892	11	14	SSE	<2	B4	2000-4999	Cloudy	None	4.1	10	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.56307	-73.53892	40.55785	-73.51377	13	15	SSE	<2	B5	2000-4999	Cloudy	None	3.9	210	Full Power	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.55785	-73.51377	40.55035	-73.51807	14	18	SSE	<2	B5	2000-4999	Cloudy	None	3.5	100	Silent	N/A
2023-06-26	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.55035	-73.51807	40.54492	-73.53592	14	20	SSE	<2	B5	2000-4999	Cloudy	None	4	278	Full Power	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.54492	-73.53592	40.55490	-73.52738	15	18	SSE	<2	B5	2000-4999	Cloudy	None	4.4	197	Full Power	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:38	40.55490	-73.52738	40.56687	-73.53178	12	5	WNW	<2	B4	1000-1999	Cloudy	None	4	9	Full Power	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:38	00:45	40.56687	-73.53178	40.55837	-73.53110	10	3	WNW	<2	B4	1000-1999	Cloudy	None	3	194	Silent	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:45	01:00	40.55837	-73.53110	40.55492	-73.52633	12	2	SW	<2	B3	500-999	Cloudy	None	3.7	189	Deploying/Retrieving	N/A
2023-06-27	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:34	40.55492	-73.52633	40.56205	-73.52847	14	7	SW	<2	B3	500-999	Cloudy	None	3.9	0	Deploying/Retrieving	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:34	02:00	40.56205	-73.52847	40.55465	-73.60867	12	14	SSE	<2	B3	500-999	Cloudy	None	3.3	193	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	03:00	40.55465	-73.60867	40.52968	-73.77903	11	8	SSE	<2	B3	500-999	Cloudy	None	9.1	280	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	40.52968	-73.77903	40.51805	-73.98917	17	12	SSE	<2	B3	500-999	Cloudy	None	8.7	254	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.51805	-73.98917	40.64695	-74.05545	11	14	SSE	<2	B3	500-999	Cloudy	None	10	301	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	06:00	40.64695	-74.05545	40.78070	-73.92468	12	11	S	<2	B2	500-999	Cloudy	None	9	27	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	07:00	40.78070	-73.92468	40.84365	-73.76358	25	7	S	<2	B2	500-999	Cloudy	None	9	74	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	08:00	40.84365	-73.76358	40.93352	-73.64500	30	7	S	<2	B2	500-999	Cloudy	None	9.4	55	Transit	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	09:00	40.93352	-73.64500	40.94088	-73.63293	18	11	S	<2	B2	500-999	Cloudy	None	4.1	54	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	10:00	40.94088	-73.63293	40.93913	-73.63180	17	7	WSW	<2	B2	1000-1999	Cloudy	None	0.5	155	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	11:00	40.93913	-73.63180	40.94290	-73.63733	17	3	WSW	<2	B1	≥5000	Cloudy	Slight	0.2	357	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	12:00	40.94290	-73.63733	40.94207	-73.64232	17	6	WSW	<2	B1	≥5000	Cloudy	Moderate	0.6	305	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	13:00	40.94207	-73.64232	40.94052	-73.64250	17	5	S	<2	B1	≥5000	Cloudy	None	0.2	233	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.94052	-73.64250	40.94305	-73.64815	17	6	WNW	<2	B2	2000-4999	Cloudy	None	0.1	116	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	15:00	40.94305	-73.64815	40.95173	-73.65258	17	7	WNW	<2	B2	2000-4999	Cloudy	None	0.4	209	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.95173	-73.65258	40.95862	-73.60147	12	13	WSW	<2	B2	2000-4999	Cloudy	None	0.8	14	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	17:00	40.95862	-73.60147	40.97203	-73.59448	17	10	WNW	<2	B2	2000-4999	Cloudy	None	1.4	69	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.97203	-73.59448	40.97785	-73.59142	18	6	NW	<2	B2	2000-4999	Cloudy	None	0.7	40	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.97785	-73.59142	40.97738	-73.59335	15	2	SSE	<2	B2	2000-4999	Cloudy	None	0.2	64	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.97738	-73.59335	40.97110	-73.59458	15	2	SSW	<2	B1	2000-4999	Cloudy	None	0.3	358	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	21:00	40.97110	-73.59458	40.96682	-73.60562	16	4	SE	<2	B1	2000-4999	Cloudy	None	0.6	259	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	22:00	40.96682	-73.60562	40.96567	-73.61272	17	7	SE	<2	B2	2000-4999	Cloudy	None	0.7	246	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	23:00	40.96567	-73.61272	40.95502	-73.63363	16	7	SE	<2	B2	2000-4999	Cloudy	None	0.6	314	Standby	N/A
2023-06-27	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	00:00	40.95502	-73.63363	40.95562	-73.63972	15	7	SE	<2	B2	2000-4999	Cloudy	None	0.7	311	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	01:00	40.95562	-73.63972	40.95690	-73.62932	13	10	SW	<2	B3	2000-4999	Cloudy	None	4.2	165	Standby	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-28	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	02:00	40.95690	-73.62932	40.96745	-73.60622	13	7	ENE	<2	B2	500-999	Cloudy	None	1.3	94	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	03:00	40.96745	-73.60622	40.97025	-73.59812	15	5	SSW	<2	B1	500-999	Cloudy	None	0.5	84	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	40.97025	-73.59812	40.97257	-73.59093	16	5	E	<2	B1	500-999	Cloudy	None	0.6	15	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.97257	-73.59093	40.97435	-73.58690	17	1	ENE	<2	B1	500-999	Cloudy	None	0.4	295	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	06:00	40.97435	-73.58690	40.97328	-73.58508	17	2	ESE	<2	B1	500-999	Cloudy	None	0.1	81	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	06:00	07:00	40.97328	-73.58508	40.97032	-73.58700	17	4	ESE	<2	B1	500-999	Cloudy	None	0.1	160	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.97032	-73.58700	40.96985	-73.59122	17	2	ESE	<2	B1	500-999	Cloudy	None	0.1	239	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	09:00	40.96985	-73.59122	40.96672	-73.59347	18	2	ESE	<2	B1	500-999	Cloudy	None	0.5	222	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	10:00	40.96672	-73.59347	40.96107	-73.61255	17	2	ESE	<2	B1	1000-1999	Cloudy	None	0.4	195	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	11:00	40.96107	-73.61255	40.95812	-73.61988	16	2	ESE	<2	B1	2000-4999	Cloudy	None	0.5	136	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	12:00	40.95812	-73.61988	40.95717	-73.62397	16	4	WSW	<2	B0	≥5000	Cloudy	None	0.3	255	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	13:00	40.95717	-73.62397	40.95775	-73.62455	16	5	NW	<2	B0	≥5000	Cloudy	None	0.1	280	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.95775	-73.62455	40.96158	-73.62320	15	3	NW	<2	B1	2000-4999	Cloudy	None	0.1	319	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	15:00	40.96158	-73.62320	40.96783	-73.61818	15	4	NE	<2	B1	2000-4999	Cloudy	None	0.4	273	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	16:00	40.96783	-73.61818	40.97500	-73.60988	13	4	WNW	<2	B1	≥5000	Cloudy	Slight	0.5	54	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	17:00	40.97500	-73.60988	40.98258	-73.59813	13	4	NW	<2	B1	≥5000	Clear	Severe	0.5	53	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.98258	-73.59813	40.97438	-73.59913	13	10	WSW	<2	B2	≥5000	Clear	Severe	3.1	146	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	19:00	40.97438	-73.59913	40.97785	-73.59670	14	4	WSW	<2	B1	≥5000	Clear	Slight	0.3	45	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	20:00	40.97785	-73.59670	40.96737	-73.59202	14	6	SW	<2	B1	≥5000	Clear	Slight	0.2	17	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:38	40.96737	-73.59202	40.96308	-73.58580	17	20	SSW	<2	B4	2000-4999	Cloudy	None	0.8	108	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:38	21:00	40.96308	-73.58580	40.96332	-73.59273	17	7	WNW	<2	B3	≥5000	Cloudy	Severe	3.7	224	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	22:00	40.96332	-73.59273	40.97017	-73.58325	15	8	NE	<2	B3	≥5000	Cloudy	Moderate	0.5	142	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	23:00	40.97017	-73.58325	40.96462	-73.57877	16	6	NE	<2	B2	≥5000	Cloudy	Slight	0.8	29	Standby	N/A
2023-06-28	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	00:00	40.96462	-73.57877	40.97288	-73.57815	15	5	NE	<2	B2	≥5000	Cloudy	Slight	0.6	172	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	01:00	40.97288	-73.57815	40.97092	-73.58592	15	5	WSW	<2	B2	2000-4999	Cloudy	None	0.9	247	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	02:00	40.97092	-73.58592	40.96395	-73.58023	18	6	W	<2	B2	500-999	Cloudy	None	0.2	167	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:00	03:00	40.96395	-73.58023	40.96758	-73.58892	18	13	W	<2	B2	500-999	Cloudy	None	0.5	232	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:06	40.96758	-73.58892	40.96725	-73.58875	17	7	W	<2	B2	500-999	Cloudy	None	0.8	203	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:06	04:00	40.96725	-73.58875	40.88277	-73.72118	17	7	W	<2	B2	500-999	Cloudy	None	1	230	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.88277	-73.72118	40.79935	-73.85740	21	13	W	<2	B3	500-999	Cloudy	None	8.9	232	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana; Steinbeisser, Myka	RPS	05:00	06:00	40.79935	-73.85740	40.72490	-73.96647	21	13	W	<2	B3	500-999	Cloudy	None	9.2	272	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	06:00	07:00	40.72490	-73.96647	40.60500	-74.04602	16	12	W	<2	B3	500-999	Cloudy	None	7.9	200	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	08:00	40.60500	-74.04602	40.50543	-73.95950	20	11	W	<2	B3	500-999	Cloudy	None	8.5	189	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	09:00	40.50543	-73.95950	40.52797	-73.82427	12	7	WSW	<2	B3	500-999	Cloudy	None	8.4	121	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	10:00	40.52797	-73.82427	40.53682	-73.72042	12	7	WSW	<2	B3	1000-1999	Cloudy	None	6.5	126	Transit	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	11:00	40.53682	-73.72042	40.52257	-73.66785	18	5	NW	<2	B2	≥5000	Clear	Slight	2.9	244	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:47	40.52257	-73.66785	40.51137	-73.62867	16	6	NW	<2	B2	≥5000	Clear	Severe	3.6	144	Standby	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:47	12:00	40.51137	-73.62867	40.52035	-73.62812	15	10	NW	<2	B2	≥5000	Clear	Severe	3.2	23	Deploying/Retrieving	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	12:26	40.52035	-73.62812	40.54617	-73.64478	15	10	NW	<2	B2	≥5000	Clear	Severe	3.1	14	Deploying/Retrieving	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:26	12:38	40.54617	-73.64478	40.54617	-73.64478	12	17	NW	<2	B2	≥5000	Clear	Severe	4	279	Soft Start	N/A
2023-06-29	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:38	13:00	40.54617	-73.64478	40.54095	-73.67648	12	17	NW	<2	B2	≥5000	Clear	Severe	4	279	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:11	40.54095	-73.67648	40.54258	-73.69332	15	12	NW	<2	B3	≥5000	Clear	Severe	4.3	274	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:11	13:15	40.54258	-73.69332	40.54562	-73.69595	15	15	NNW	<2	B3	≥5000	Clear	Severe	4.1	341	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:15	13:43	40.54562	-73.69595	40.56645	-73.71402	15	11	NNW	<2	B3	≥5000	Clear	Severe	3.2	342	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:43	13:45	40.56645	-73.71402	40.56770	-73.71495	15	10	NNW	<2	B3	≥5000	Clear	Severe	3.2	339	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:45	13:55	40.56770	-73.71495	40.56603	-73.71645	15	7	NNW	<2	B3	≥5000	Clear	Severe	3	348	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:55	14:00	40.56603	-73.71645	40.56532	-73.71578	17	3	NNE	<2	B3	≥5000	Clear	Severe	3.5	164	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:28	40.56532	-73.71578	40.54183	-73.69542	12	2	NNE	<2	B2	≥5000	Clear	Severe	3.2	157	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:28	14:30	40.54183	-73.69542	40.53998	-73.69387	16	2	NE	<2	B2	≥5000	Clear	Severe	3.3	152	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:30	14:41	40.53998	-73.69387	40.54107	-73.69153	16	1	NE	<2	B2	≥5000	Clear	Slight	3.3	186	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:41	14:47	40.54107	-73.69153	40.54590	-73.69578	16	2	SSW	<2	B3	≥5000	Clear	Slight	3.3	320	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:47	15:00	40.54590	-73.69578	40.55192	-73.70098	16	3	SSW	<2	B3	≥5000	Clear	Slight	3.3	328	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:13	40.55192	-73.70098	40.56672	-73.71392	13	6	SSW	<2	B3	≥5000	Clear	Slight	3.4	340	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:13	15:15	40.56672	-73.71392	40.56775	-73.71482	11	6	SSW	<2	B3	≥5000	Clear	Slight	3.4	340	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:15	15:27	40.56775	-73.71482	40.56828	-73.71775	11	6	SSW	<2	B3	≥5000	Clear	Slight	3.3	339	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:27	15:33	40.56828	-73.71775	40.56337	-73.71377	11	11	S	<2	B3	≥5000	Cloudy	Slight	3	163	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:33	16:00	40.56337	-73.71377	40.54603	-73.69865	11	11	S	<2	B3	≥5000	Cloudy	Slight	3.3	159	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:02	40.54603	-73.69865	40.54182	-73.69500	12	13	SSE	<2	B3	≥5000	Cloudy	Moderate	3.1	158	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:02	16:03	40.54182	-73.69500	40.54063	-73.69427	12	10	SSW	<2	B3	2000-4999	Clear	Moderate	3.1	166	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:03	16:13	40.54063	-73.69427	40.54302	-73.69263	15	9	SW	<2	B3	2000-4999	Clear	Moderate	3.1	176	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:13	16:17	40.54302	-73.69263	40.54598	-73.69547	15	13	WSW	<2	B3	2000-4999	Clear	Moderate	4.3	324	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:17	16:43	40.54598	-73.69547	40.56727	-73.71387	15	13	WSW	<2	B3	2000-4999	Clear	Moderate	3.4	340	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:43	16:46	40.56727	-73.71387	40.56870	-73.71460	15	9	WSW	<2	B3	2000-4999	Clear	Moderate	3.5	344	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:46	16:57	40.56870	-73.71460	40.56713	-73.71568	17	12	SSW	<2	B3	2000-4999	Clear	Moderate	3.5	355	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:57	17:02	40.56713	-73.71568	40.56368	-73.71272	15	10	SSW	<2	B3	2000-4999	Clear	Moderate	3.2	161	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:02	17:31	40.56368	-73.71272	40.54258	-73.69448	15	11	SSW	<2	B3	2000-4999	Clear	Moderate	3.1	157	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:31	17:33	40.54258	-73.69448	40.54070	-73.69390	17	12	SSW	<2	B3	2000-4999	Clear	Slight	2.9	165	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:33	17:43	40.54070	-73.69390	40.54367	-73.69307	15	6	SSW	<2	B3	2000-4999	Clear	Slight	3.5	197	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:43	17:46	40.54367	-73.69307	40.54657	-73.69552	17	8	SW	<2	B3	2000-4999	Clear	Slight	3.8	337	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:46	18:00	40.54657	-73.69552	40.55313	-73.70123	17	8	SW	<2	B3	2000-4999	Clear	Slight	3.6	339	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.55313	-73.70123	40.56808	-73.71598	13	6	S	<2	B3	≥5000	Clear	Slight	3.5	341	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.56808	-73.71598	40.55518	-73.70500	10	15	S	<2	B3	≥5000	Cloudy	Slight	3.3	166	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.55518	-73.70500	40.54167	-73.69377	13	17	S	<2	B3	≥5000	Cloudy	Slight	3	158	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54167	-73.69377	40.55408	-73.70170	15	16	S	<2	B3	≥5000	Cloudy	None	2.9	194	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.55408	-73.70170	40.57177	-73.71332	13	12	SW	<2	B4	≥5000	Cloudy	Moderate	3.6	338	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.57177	-73.71332	40.55915	-73.70800	9	12	SW	<2	B4	≥5000	Cloudy	Severe	3.3	317	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.55915	-73.70800	40.54737	-73.69765	12	19	S	<2	B4	≥5000	Clear	None	2.7	158	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.54737	-73.69765	40.54682	-73.68777	15	17	S	<2	B5	≥5000	Cloudy	None	2.9	159	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.54682	-73.68777	40.56175	-73.68555	14	12	S	<2	B5	≥5000	Cloudy	Severe	2.9	27	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:14	40.56175	-73.68555	40.57102	-73.69650	15	13	SW	<2	B5	≥5000	Cloudy	Severe	2.8	357	Silent	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:14	21:24	40.57102	-73.69650	40.57147	-73.70973	15	16	SW	<2	B5	≥5000	Cloudy	Moderate	3.3	286	Soft Start	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:24	21:40	40.57147	-73.70973	40.56035	-73.70658	15	18	SSW	<2	B5	≥5000	Cloudy	Moderate	3.5	277	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.56035	-73.70658	40.54925	-73.69680	15	19	SSW	<2	B5	≥5000	Cloudy	Slight	2.9	160	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.54925	-73.69680	40.54352	-73.69025	14	16	SSW	<2	B5	≥5000	Cloudy	None	2.9	157	Full Power	N/A
2023-06-29	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.54352	-73.69025	40.56130	-73.70672	14	14	SSW	<2	B4	≥5000	Cloudy	Slight	3.8	320	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-06-29	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.56130	-73.70672	40.57103	-73.71710	13	10	SSW	<2	B4	≥5000	Cloudy	Slight	3	336	Full Power	N/A
2023-06-29	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.57103	-73.71710	40.55762	-73.70492	14	11	SSW	<2	B4	≥5000	Cloudy	None	3.6	205	Full Power	N/A
2023-06-29	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.55762	-73.70492	40.54222	-73.69417	15	12	SSW	<2	B4	≥5000	Cloudy	None	3	160	Full Power	N/A
2023-06-29	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:40	23:53	40.54222	-73.69417	40.54817	-73.69077	14	10	SSW	<2	B4	≥5000	Cloudy	None	3.7	230	Full Power	N/A
2023-06-29	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:53	00:00	40.54817	-73.69077	40.55185	-73.69153	15	8	SSW	<2	B3	≥5000	Cloudy	None	3.4	5	Deploying/Retrieving	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:45	40.55185	-73.69153	40.55553	-73.70375	15	12	SSW	<2	B4	2000-4999	Cloudy	None	3.4	3	Deploying/Retrieving	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:45	01:00	40.55553	-73.70375	40.54885	-73.73947	13	11	WSW	<2	B4	1000-1999	Clear	None	8.5	267	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:00	02:00	40.54885	-73.73947	40.50967	-73.91018	15	17	S	<2	B4	500-999	Clear	None	8.3	266	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	03:00	40.50967	-73.91018	40.55467	-74.02785	9	14	SSW	<2	B4	500-999	Clear	None	7.8	267	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	04:00	40.55467	-74.02785	40.67547	-74.03892	11	12	SSW	<2	B3	500-999	Clear	None	7.4	323	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	05:00	40.67547	-74.03892	40.75933	-73.95568	18	7	SW	<2	B2	500-999	Clear	None	7.1	29	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	06:00	40.75933	-73.95568	40.80153	-73.78568	18	6	S	<2	B1	200-499	Clear	None	7.1	41	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	07:00	40.80153	-73.78568	40.91133	-73.66898	18	6	S	<2	B1	200-499	Clear	None	9.1	50	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	08:00	40.91133	-73.66898	40.97313	-73.52542	15	5	S	<2	B1	200-499	Clear	None	7.3	75	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	09:00	40.97313	-73.52542	41.03442	-73.38243	22	5	S	<2	B1	200-499	Cloudy	None	7.4	64	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	09:00	09:20	41.03442	-73.38243	41.05092	-73.34400	16	5	S	<2	B1	200-499	Fog	None	7	72	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	10:00	41.05092	-73.34400	41.07652	-73.28038	14	5	S	<2	B1	1000-1999	Fog	None	3.8	72	Transit	N/A
2023-06-30	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	11:00	41.07652	-73.28038	41.16625	-73.17587	16	2	S	<2	B1	1000-1999	Fog	None	7.8	70	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:38	10:00	41.16985	-73.17592	41.12113	-73.19365	18	4	NE	<2	B2	≥5000	Precipitation	None	1.6	186	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	11:00	41.12113	-73.19365	41.04555	-73.35308	10	6	E	<2	B2	≥5000	Cloudy	None	9.4	214	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	12:00	41.04555	-73.35308	40.95687	-73.55363	11	8	S	<2	B2	≥5000	Cloudy	None	9.7	241	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	13:00	40.95687	-73.55363	40.89203	-73.71265	18	12	S	<2	B2	2000-4999	Cloudy	None	8.9	259	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.89203	-73.71265	40.80260	-73.83235	17	13	SW	<2	B2	2000-4999	Cloudy	None	8.1	229	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	15:00	40.80260	-73.83235	40.71742	-73.96955	22	14	SW	<2	B2	≥5000	Cloudy	None	8.7	267	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	15:00	16:00	40.71742	-73.96955	40.59103	-74.04140	11	18	SSW	<2	B2	≥5000	Cloudy	None	10.8	213	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	17:00	40.59103	-74.04140	40.51492	-73.86442	13	17	S	<2	B2	2000-4999	Cloudy	None	10.1	181	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.51492	-73.86442	40.53865	-73.74105	12	14	SE	<2	B2	2000-4999	Cloudy	None	8.8	99	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	18:00	19:00	40.53865	-73.74105	40.53718	-73.56785	17	10	SE	<2	B3	2000-4999	Clear	Slight	7.3	90	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:00	19:22	40.53718	-73.56785	40.55063	-73.53362	15	20	SSE	<2	B4	2000-4999	Cloudy	None	8.8	107	Transit	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	19:22	20:00	40.55063	-73.53362	40.57715	-73.51247	14	11	SSE	<2	B4	2000-4999	Cloudy	Moderate	3.2	46	Deploying/Retrieving	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:00	20:04	40.57715	-73.51247	40.57833	-73.51688	10	9	SSE	<2	B3	2000-4999	Cloudy	Severe	3.2	345	Deploying/Retrieving	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:04	20:12	40.57833	-73.51688	40.57592	-73.52740	10	9	SSE	<2	B3	2000-4999	Cloudy	Severe	3.1	281	Standby	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:12	20:22	40.57592	-73.52740	40.56780	-73.53913	9	14	S	<2	B3	2000-4999	Cloudy	Severe	4.2	244	Soft Start	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:22	20:29	40.56780	-73.53913	40.56072	-73.54378	10	15	SSW	<2	B3	2000-4999	Cloudy	Moderate	4.1	223	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:29	20:34	40.56072	-73.54378	40.55705	-73.54533	11	15	SSW	<2	B3	2000-4999	Cloudy	Moderate	4	216	Silent	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:34	20:43	40.55705	-73.54533	40.54923	-73.53928	11	15	SSW	<2	B3	2000-4999	Cloudy	Moderate	3.9	208	Soft Start	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis	RPS	20:43	21:00	40.54923	-73.53928	40.54442	-73.52167	15	16	SSE	<2	B3	2000-4999	Cloudy	Slight	4.2	123	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.54442	-73.52167	40.54413	-73.51032	16	19	SSE	<2	B4	2000-4999	Cloudy	Moderate	3.9	124	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.54413	-73.51032	40.55082	-73.53593	13	16	WSW	<2	B4	2000-4999	Cloudy	Moderate	4	304	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	21:52	40.55082	-73.53593	40.55752	-73.54932	13	14	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.9	287	Silent	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:52	22:00	40.55752	-73.54932	40.55393	-73.55350	12	14	WSW	<2	B4	2000-4999	Cloudy	Moderate	4.4	339	Soft Start	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:00	22:02	40.55393	-73.55350	40.55380	-73.55342	12	14	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.6	124	Soft Start	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:02	22:20	40.55380	-73.55342	40.54230	-73.51907	13	17	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.7	122	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.54230	-73.51907	40.53925	-73.50782	14	17	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.7	120	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.53925	-73.50782	40.54367	-73.50170	13	16	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.9	122	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.54367	-73.50170	40.54808	-73.52948	12	18	WSW	<2	B4	2000-4999	Cloudy	Moderate	2.9	272	Silent	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.54808	-73.52948	40.55482	-73.55255	14	17	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.8	305	Full Power	N/A
2023-07-02	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.55482	-73.55255	40.54500	-73.53972	14	18	WSW	<2	B4	2000-4999	Cloudy	Moderate	3.2	269	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.54500	-73.53972	40.53587	-73.50380	15	20	SE	<2	B5	2000-4999	Cloudy	None	3.8	125	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.53587	-73.50380	40.54487	-73.51537	15	10	SSE	<2	B5	2000-4999	Cloudy	None	4.6	93	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:40	01:00	40.54487	-73.51537	40.55123	-73.53920	15	13	SE	<2	B5	1000-1999	Cloudy	None	3.7	303	Silent	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:20	40.55123	-73.53920	40.54780	-73.54892	14	16	S	<2	B5	500-999	Cloudy	None	3.5	301	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:20	01:40	40.54780	-73.54892	40.54000	-73.52038	13	18	SSE	<2	B5	500-999	Cloudy	None	4.6	122	Silent	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	02:00	40.54000	-73.52038	40.54152	-73.50510	16	19	S	<2	B4	500-999	Cloudy	None	4.2	123	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:20	40.54152	-73.50510	40.54712	-73.52492	14	14	SW	<2	B4	500-999	Cloudy	None	2.7	300	Silent	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:20	02:40	40.54712	-73.52492	40.55523	-73.54865	13	16	SW	<2	B4	500-999	Cloudy	None	3.5	303	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:40	03:00	40.55523	-73.54865	40.54508	-73.53793	14	15	WSW	<2	B4	500-999	Cloudy	None	3	301	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:20	40.54508	-73.53793	40.53807	-73.51167	16	9	W	2-4	B4	500-999	Cloudy	None	3.8	173	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:20	03:40	40.53807	-73.51167	40.54095	-73.50418	16	10	W	2-4	B5	500-999	Cloudy	None	3.8	120	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:40	04:00	40.53752	-73.50418	40.54673	-73.52547	16	11	W	2-4	B5	500-999	Cloudy	None	3.3	305	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:20	40.54673	-73.52547	40.55298	-73.54723	17	10	W	2-4	B5	500-999	Cloudy	None	3.2	282	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:20	04:40	40.55298	-73.54723	40.54813	-73.54872	17	13	W	2-4	B5	500-999	Cloudy	None	3.5	321	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:40	05:00	40.54813	-73.54872	40.54150	-73.52375	13	9	SW	2-4	B5	500-999	Cloudy	None	3.6	138	Silent	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:20	40.54150	-73.52375	40.53535	-73.49693	16	11	SW	2-4	B5	500-999	Cloudy	None	4	134	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:20	05:40	40.53535	-73.49693	40.54308	-73.51298	16	7	SW	2-4	B5	500-999	Cloudy	None	2.4	322	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:40	06:00	40.54308	-73.51298	40.54877	-73.53415	18	14	SW	<2	B5	500-999	Cloudy	None	3.3	285	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:20	40.54877	-73.53415	40.55267	-73.55628	17	10	SW	<2	B4	500-999	Cloudy	None	3.5	299	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:20	06:40	40.55267	-73.55628	40.54318	-73.52880	17	9	SW	<2	B4	500-999	Cloudy	None	3.5	210	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:40	07:00	40.54318	-73.52880	40.53425	-73.50495	18	8	SW	<2	B4	500-999	Cloudy	None	3.5	120	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:20	40.53425	-73.50495	40.54248	-73.51198	18	13	SW	<2	B4	500-999	Cloudy	None	3.2	171	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:20	07:40	40.54248	-73.51198	40.54823	-73.53317	17	12	SW	<2	B4	500-999	Cloudy	None	3.8	288	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:40	08:00	40.54823	-73.53317	40.55357	-73.55157	17	10	SW	<2	B4	500-999	Cloudy	None	4	292	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:20	40.55357	-73.55157	40.54275	-73.52602	15	5	W	<2	B4	500-999	Clear	None	3.6	180	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:20	08:40	40.54275	-73.52602	40.53437	-73.50322	14	8	W	<2	B4	500-999	Clear	None	3.9	124	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:40	09:00	40.53437	-73.50322	40.54248	-73.51310	13	8	W	<2	B4	500-999	Clear	None	3.9	143	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.54248	-73.51310	40.54925	-73.53792	14	9	W	<2	B4	1000-1999	Clear	None	3.8	303	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.54925	-73.53792	40.54673	-73.53960	16	8	W	<2	B4	2000-4999	Clear	None	3.9	291	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.54673	-73.53960	40.54123	-73.51940	16	6	W	<2	B4	2000-4999	Clear	None	3.8	120	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.54123	-73.51940	40.53650	-73.49772	17	6	WSW	<2	B4	≥5000	Clear	None	3.7	121	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.53650	-73.49772	40.54420	-73.52010	16	7	W	<2	B3	≥5000	Clear	Slight	4	355	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.54420	-73.52010	40.55367	-73.54773	17	10	SW	<2	B3	≥5000	Clear	Moderate	4.1	293	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:00	11:20	40.55367	-73.54773	40.54672	-73.53855	14	7	SW	<2	B3	≥5000	Clear	Severe	4	320	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:20	11:40	40.54672	-73.53855	40.53950	-73.51200	15	10	SW	<2	B3	≥5000	Clear	Severe	3.9	125	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	11:40	12:00	40.53950	-73.51200	40.53898	-73.50333	14	9	SW	<2	B3	≥5000	Clear	Severe	3.8	118	Full Power	N/A
2023-07-03	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	12:00	12:20	40.53898	-73.50333	40.54620	-73.52970	14	10	SW	<2	B3	≥5000	Clear	Severe	4	294	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-03	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:20	12:40	40.54620	-73.52970	40.55035	-73.55435	14	11	SW	<2	B3	≥5000	Clear	Severe	4	292	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:40	13:00	40.55035	-73.55435	40.54325	-73.49515	14	6	SW	<2	B3	≥5000	Clear	Moderate	4.1	1	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.55008	-73.53282	40.53962	-73.51077	13	5	SW	<2	B3	≥5000	Clear	Severe	4.1	123	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.54325	-73.49515	40.54450	-73.52880	13	10	S	<2	B3	≥5000	Clear	Severe	3.7	152	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.53962	-73.51077	40.54450	-73.52880	13	8	SW	<2	B3	≥5000	Clear	Severe	3.7	302	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.54450	-73.52880	40.55018	-73.55493	16	9	S	<2	B3	≥5000	Clear	Severe	3.7	290	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.55018	-73.55493	40.54770	-73.52642	15	9	W	<2	B2	≥5000	Clear	None	4.1	20	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.54770	-73.52642	40.54373	-73.50793	14	6	SSW	<2	B2	≥5000	Cloudy	None	3.5	126	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:20	40.54373	-73.50793	40.53865	-73.50832	14	4	SSW	<2	B2	≥5000	Cloudy	None	3.8	103	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:20	15:40	40.53865	-73.50832	40.54513	-73.53230	16	10	SW	<2	B3	≥5000	Cloudy	Slight	3.6	300	Silent	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.54513	-73.53230	40.54735	-73.55092	15	11	SW	<2	B3	≥5000	Cloudy	Slight	3.5	299	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.54735	-73.55092	40.54792	-73.52793	13	10	WSW	<2	B3	≥5000	Cloudy	Slight	3.3	287	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.54792	-73.52793	40.55802	-73.53962	13	6	SW	<2	B3	≥5000	Cloudy	Severe	3.9	120	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.55802	-73.53962	40.55012	-73.53635	13	8	SW	<2	B3	≥5000	Cloudy	Severe	3.7	312	Silent	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:18	40.55012	-73.53635	40.54290	-73.50797	16	7	SW	<2	B3	≥5000	Cloudy	Severe	3.8	126	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:18	17:40	40.54290	-73.50797	40.53728	-73.50445	16	6	SW	<2	B3	≥5000	Cloudy	Severe	3.8	98	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.53728	-73.50445	40.54277	-73.52460	13	10	SW	<2	B3	≥5000	Cloudy	Moderate	3.7	298	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.54277	-73.52460	40.54865	-73.55507	16	8	SSW	<2	B3	≥5000	Cloudy	Slight	3.7	303	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.54865	-73.55507	40.55053	-73.53883	13	9	SSW	<2	B3	≥5000	Cloudy	Slight	4	308	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.55053	-73.53883	40.54410	-73.51523	14	13	SSE	<2	B3	≥5000	Cloudy	Slight	4	123	Silent	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.54410	-73.51523	40.53585	-73.49755	16	12	SSE	<2	B3	≥5000	Clear	Slight	3.7	121	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.53585	-73.49755	40.54257	-73.52490	16	10	SSW	<2	B3	≥5000	Clear	Moderate	4.1	274	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.54257	-73.52490	40.54810	-73.55472	16	6	SSW	<2	B3	≥5000	Clear	Moderate	4.2	302	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.54810	-73.55472	40.55002	-73.53793	13	5	SSW	<2	B3	≥5000	Clear	Moderate	4.2	315	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.55002	-73.53793	40.54377	-73.51505	15	15	SSE	<2	B3	≥5000	Cloudy	Moderate	3.5	125	Silent	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.54377	-73.51505	40.53665	-73.49812	16	15	SSE	<2	B3	≥5000	Cloudy	Moderate	3.7	124	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.53665	-73.49812	40.54335	-73.52890	15	16	SSE	<2	B4	≥5000	Cloudy	Moderate	4.5	245	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.54335	-73.52890	40.54947	-73.55895	16	8	WSW	<2	B4	≥5000	Cloudy	Severe	4.3	305	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.54947	-73.55895	40.55072	-73.54147	16	5	SW	<2	B3	≥5000	Cloudy	Severe	4.5	338	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.55072	-73.54147	40.54323	-73.51400	16	7	SSW	<2	B3	≥5000	Cloudy	Severe	3.6	127	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.54323	-73.51400	40.53518	-73.48640	15	10	SSW	<2	B3	≥5000	Clear	Moderate	3.7	121	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.53518	-73.48640	40.53065	-73.48935	15	10	SSW	<2	B3	≥5000	Clear	Moderate	3.6	126	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.53065	-73.48935	40.53883	-73.51333	15	10	SSW	<2	B3	≥5000	Clear	Moderate	3.8	300	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.53883	-73.51333	40.54587	-73.53935	16	10	SSW	<2	B3	≥5000	Clear	Moderate	3.9	145	Full Power	N/A
2023-07-03	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.54587	-73.53935	40.55358	-73.55332	14	10	SSW	<2	B3	≥5000	Clear	Slight	3.5	120	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.55358	-73.55332	40.54447	-73.51893	14	12	SW	<2	B3	≥5000	Clear	Slight	4	100	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.54447	-73.51893	40.53708	-73.49150	14	16	SW	<2	B3	2000-4999	Clear	Slight	4.1	121	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:40	00:53	40.53708	-73.49150	40.53237	-73.48343	16	20	SW	<2	B3	1000-1999	Clear	None	4	121	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Ortega Arana, Jimena	RPS	00:53	01:00	40.53237	-73.48343	40.52960	-73.48668	16	24	SSW	<2	B4	500-999	Cloudy	None	2.7	228	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:00	01:20	40.52960	-73.48668	40.53783	-73.51092	16	24	SSW	<2	B4	500-999	Cloudy	None	3.1	251	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:20	01:40	40.53783	-73.51092	40.54412	-73.53405	17	23	SW	<2	B5	500-999	Cloudy	None	3.5	301	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	02:00	40.54412	-73.53405	40.54760	-73.55495	15	18	SW	<2	B5	500-999	Cloudy	None	3.4	305	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:20	40.54760	-73.55495	40.54963	-73.53782	13	19	SW	<2	B5	500-999	Cloudy	None	3.4	304	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:20	02:40	40.54963	-73.53782	40.54240	-73.51137	15	16	S	<2	B5	500-999	Cloudy	None	3.5	123	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:40	03:00	40.54240	-73.51137	40.53600	-73.50103	15	14	S	<2	B4	500-999	Cloudy	None	3.6	122	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:20	40.53600	-73.50103	40.54313	-73.53128	18	12	SW	<2	B4	500-999	Cloudy	None	2.8	252	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:20	03:40	40.54313	-73.53128	40.55095	-73.54357	17	14	SW	<2	B4	500-999	Cloudy	None	3.1	300	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:40	04:00	40.55095	-73.54357	40.54508	-73.54975	16	12	SW	<2	B4	500-999	Cloudy	None	3.1	287	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:20	40.54508	-73.54975	40.54120	-73.50770	16	12	SW	<2	B4	500-999	Cloudy	None	4.3	120	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:20	04:40	40.54120	-73.50770	40.50087	-73.50387	15	8	SW	<2	B4	500-999	Cloudy	None	4.1	124	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:40	05:00	40.50087	-73.50387	40.54130	-73.52530	18	4	S	<2	B4	500-999	Cloudy	None	3.2	304	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:20	40.54130	-73.52530	40.54537	-73.55177	16	13	S	<2	B4	500-999	Cloudy	None	3.3	292	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:20	05:40	40.54537	-73.55177	40.54898	-73.53750	16	10	S	<2	B3	500-999	Cloudy	None	3.3	299	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:40	06:00	40.54898	-73.53750	40.54343	-73.50502	16	8	SW	<2	B3	500-999	Cloudy	None	4	126	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:20	40.54343	-73.50502	40.53777	-73.50373	16	8	SW	<2	B3	500-999	Cloudy	None	3.7	40	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:20	06:40	40.53777	-73.50373	40.54790	-73.54165	16	8	SW	<2	B3	500-999	Cloudy	None	3.5	290	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:40	07:00	40.54790	-73.54165	40.54567	-73.55533	15	6	SW	<2	B2	500-999	Cloudy	None	3.8	300	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:00	07:20	40.54567	-73.55533	40.54762	-73.53778	15	2	SW	<2	B2	500-999	Cloudy	None	4	314	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:20	07:40	40.54762	-73.53778	40.54075	-73.51220	14	6	S	<2	B2	500-999	Cloudy	None	4	119	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana; Dyachkov, Sergey	RPS	07:40	08:00	40.54075	-73.51220	40.54012	-73.49182	14	3	SW	<2	B2	500-999	Cloudy	None	3.5	123	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:00	08:20	40.54012	-73.49182	40.54295	-73.52252	16	6	S	<2	B2	500-999	Cloudy	None	3.9	180	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:20	08:40	40.54295	-73.52252	40.54552	-73.54883	17	9	S	<2	B2	500-999	Cloudy	None	4.2	295	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	08:40	09:00	40.54552	-73.54883	40.54675	-73.53343	16	13	S	<2	B2	500-999	Cloudy	None	3.8	230	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.54675	-73.53343	40.54198	-73.51573	16	8	S	<2	B2	500-999	Cloudy	None	3.7	125	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.54198	-73.51573	40.53403	-73.49927	17	8	S	<2	B3	1000-1999	Cloudy	None	3.8	119	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.53403	-73.49927	40.54102	-73.52512	16	11	S	<2	B3	2000-4999	Cloudy	None	4.1	270	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.54102	-73.52512	40.54983	-73.55357	17	12	S	<2	B3	≥5000	Cloudy	None	4.4	290	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.54983	-73.55357	40.54767	-73.53342	14	8	SW	<2	B3	≥5000	Cloudy	None	3.9	49	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.54767	-73.53342	40.53925	-73.50698	16	6	SW	<2	B3	≥5000	Cloudy	None	3.4	122	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:20	40.53925	-73.50698	40.54403	-73.51148	14	15	S	<2	B3	≥5000	Cloudy	None	2.8	181	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:20	11:40	40.54403	-73.51148	40.55232	-73.54178	13	14	S	<2	B3	≥5000	Cloudy	None	4.3	299	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:40	12:00	40.55232	-73.54178	40.54567	-73.53753	13	20	S	<2	B3	≥5000	Cloudy	Slight	4.1	301	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	12:20	40.54567	-73.53753	40.53612	-73.50828	15	13	S	<2	B3	≥5000	Clear	Moderate	4.4	126	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:20	12:40	40.53612	-73.50828	40.53597	-73.50763	15	22	S	<2	B3	≥5000	Clear	Severe	4.4	109	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:40	13:00	40.53597	-73.50763	40.54332	-73.53407	14	18	S	<2	B3	≥5000	Clear	Severe	3.9	301	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.54332	-73.53407	40.53838	-73.52005	15	13	SSW	<2	B3	≥5000	Clear	Severe	4	306	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.53838	-73.52005	40.53158	-73.50633	16	13	SSE	<2	B4	≥5000	Clear	Severe	3.8	123	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.53158	-73.50633	40.54010	-73.52370	16	14	SSW	<2	B4	≥5000	Clear	Severe	4.3	56	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.54010	-73.52370	40.54497	-73.53788	17	12	S	<2	B4	≥5000	Clear	Severe	3.6	282	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.54497	-73.53788	40.54207	-73.53870	16	10	WSW	<2	B3	≥5000	Clear	Severe	4.2	125	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.54207	-73.53870	40.53493	-73.50765	18	9	W	<2	B3	≥5000	Clear	Slight	3.4	184	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:20	40.53493	-73.50765	40.53675	-73.53558	18	12	WSW	<2	B3	≥5000	Clear	Slight	3.1	296	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:20	15:40	40.53675	-73.53558	40.53845	-73.51817	13	10	SW	<2	B3	≥5000	Clear	Slight	2.8	274	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.53845	-73.51817	40.53448	-73.49798	16	5	SW	<2	B3	≥5000	Clear	Slight	4.4	120	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.53448	-73.49798	40.54013	-73.52590	16	9	SW	<2	B3	≥5000	Clear	Moderate	3.5	7	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.54013	-73.52590	40.54362	-73.53980	16	11	SW	<2	B3	≥5000	Cloudy	Slight	3.7	307	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.54362	-73.53980	40.53620	-73.51107	18	6	SW	<2	B3	≥5000	Cloudy	Slight	4.4	67	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.53620	-73.51107	40.54525	-73.51685	14	8	SSE	<2	B3	≥5000	Cloudy	Slight	4.1	129	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.54525	-73.51685	40.55135	-73.53928	16	12	WSW	<2	B3	≥5000	Cloudy	None	3.6	304	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.55135	-73.53928	40.56507	-73.54025	14	10	WSW	<2	B3	≥5000	Precipitation	None	3.6	301	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:20	40.56507	-73.54025	40.56508	-73.52162	11	3	S	<2	B2	≥5000	Cloudy	None	4.8	53	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:20	18:40	40.56508	-73.52162	40.54263	-73.51963	11	11	S	<2	B2	≥5000	Cloudy	None	3.7	187	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.54263	-73.51963	40.53897	-73.50508	16	10	S	<2	B2	≥5000	Cloudy	None	3.5	189	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.53897	-73.50508	40.54667	-73.52112	16	5	WNW	<2	B2	≥5000	Cloudy	None	3.5	30	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.54667	-73.52112	40.55625	-73.54503	16	10	WNW	<2	B2	≥5000	Cloudy	Slight	3.7	303	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.55625	-73.54503	40.54967	-73.53600	12	6	W	<2	B2	≥5000	Cloudy	None	4.4	13	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.54967	-73.53600	40.53355	-73.52432	15	11	SW	<2	B2	≥5000	Cloudy	None	3.9	202	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.53355	-73.52432	40.53662	-73.50605	16	3	S	<2	B2	≥5000	Cloudy	Slight	4.5	114	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.53662	-73.50605	40.54282	-73.52887	18	9	W	<2	B2	≥5000	Cloudy	None	3.7	309	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.54282	-73.52887	40.54025	-73.54725	16	10	WNW	<2	B2	≥5000	Cloudy	None	4.2	304	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.54025	-73.54725	40.53293	-73.51968	16	5	SW	<2	B2	≥5000	Cloudy	None	4.1	126	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.53293	-73.51968	40.53655	-73.50547	16	7	NE	<2	B2	≥5000	Cloudy	None	4.2	123	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.53655	-73.50547	40.54485	-73.53538	16	10	WNW	<2	B2	≥5000	Clear	None	4	322	Soft Start	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.54485	-73.53538	40.54470	-73.55248	16	8	WSW	<2	B2	≥5000	Clear	Severe	4	300	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.54470	-73.55248	40.53663	-73.52177	16	5	SSW	<2	B2	≥5000	Clear	Severe	3.7	150	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	23:07	40.53663	-73.52177	40.54018	-73.50470	16	6	S	<2	B2	≥5000	Clear	Severe	4.4	120	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:07	23:17	40.53663	-73.52177	40.54018	-73.50470	16	6	S	<2	B2	≥5000	Clear	Severe	4.4	120	Soft Start	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:17	23:19	40.54018	-73.50470	40.54832	-73.53443	16	8	SSE	<2	B2	≥5000	Clear	Severe	4.2	326	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:19	23:24	40.54018	-73.50470	40.54832	-73.53443	16	8	SSE	<2	B2	≥5000	Clear	Severe	4.2	326	Silent	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:24	23:40	40.54018	-73.50470	40.54832	-73.53443	16	8	SSE	<2	B2	≥5000	Clear	Severe	4.2	326	Full Power	N/A
2023-07-04	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.54832	-73.53443	40.54288	-73.54163	16	9	SE	<2	B2	≥5000	Clear	Moderate	4.1	300	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:26	40.54288	-73.54163	40.53498	-73.51162	16	8	SSE	<2	B2	≥5000	Clear	Moderate	3.8	125	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:26	00:36	40.53498	-73.51162	40.53842	-73.49670	16	7	SE	<2	B2	≥5000	Clear	Slight	3.9	121	Soft Start	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:36	00:45	40.53842	-73.49670	40.54188	-73.50852	14	9	NNE	<2	B2	2000-4999	Clear	None	4.2	305	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena; Dalton, Tavis	RPS	00:45	01:00	40.54188	-73.50852	40.54457	-73.51843	14	5	NNE	<2	B2	1000-1999	Clear	None	3.6	302	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:13	40.54457	-73.51843	40.55100	-73.54217	16	4	N	<2	B2	500-999	Clear	None	3.7	300	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:13	02:00	40.55100	-73.54217	40.53493	-73.51263	14	4	NNW	<2	B1	500-999	Clear	None	3.6	302	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:10	40.53493	-73.51263	40.54043	-73.50533	17	3	W	<2	B1	500-999	Clear	None	3.5	120	Soft Start	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:10	02:14	40.54043	-73.50533	40.54222	-73.50902	14	4	W	<2	B1	500-999	Clear	None	3.9	346	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:14	02:20	40.54222	-73.50902	40.54397	-73.51515	14	4	W	<2	B1	500-999	Clear	None	3.7	311	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	02:20	02:42	40.54397	-73.51515	40.55100	-73.54132	14	4	W	<2	B1	500-999	Clear	None	3.5	303	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:42	03:00	40.55100	-73.54132	40.54528	-73.54783	14	5	WNW	<2	B1	500-999	Clear	None	3.3	301	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:19	40.54528	-73.54783	40.53582	-73.51472	13	5	WNW	<2	B1	500-999	Clear	None	3.9	140	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:19	03:29	40.53582	-73.51472	40.54163	-73.50600	13	5	WNW	<2	B1	500-999	Clear	None	3.7	120	Soft Start	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:29	03:35	40.54163	-73.50600	40.54328	-73.51162	13	5	WNW	<2	B1	500-999	Clear	None	3	318	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:35	03:39	40.54328	-73.51162	40.54512	-73.51840	13	5	WNW	<2	B1	500-999	Clear	None	4	296	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:39	03:59	40.54512	-73.51840	40.55133	-73.54140	13	5	WNW	<2	B1	500-999	Clear	None	3.6	303	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:59	04:02	40.54512	-73.51840	40.55133	-73.54140	13	5	WNW	<2	B1	500-999	Clear	None	3.6	303	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:02	04:03	40.55133	-73.54140	40.54168	-73.53802	14	7	WNW	<2	B1	500-999	Clear	None	3.8	302	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:03	04:32	40.55133	-73.54140	40.54168	-73.53802	14	7	WNW	<2	B1	500-999	Clear	None	3.8	302	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:32	04:40	40.54168	-73.53802	40.53555	-73.50947	14	4	WNW	<2	B1	500-999	Clear	None	3.9	125	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:40	05:00	40.53555	-73.50947	40.54397	-73.51515	18	4	WNW	<2	B1	500-999	Clear	None	4.1	99	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:00	05:20	40.54397	-73.51515	40.55218	-73.54413	16	9	WNW	<2	B1	500-999	Clear	None	3.5	303	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:20	05:40	40.55218	-73.54413	40.54942	-73.53567	14	7	WNW	<2	B1	500-999	Clear	None	3.3	275	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	05:40	06:00	40.54942	-73.53567	40.55048	-73.50633	16	7	WNW	<2	B1	500-999	Clear	None	4.1	96	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:00	06:20	40.55048	-73.50633	40.57508	-73.51832	16	7	WNW	<2	B1	500-999	Clear	None	3.9	100	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:20	06:40	40.57508	-73.51832	40.56188	-73.52062	16	7	WNW	<2	B1	500-999	Clear	None	3.5	255	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	06:40	07:00	40.56188	-73.52062	40.54498	-73.51930	16	7	WNW	<2	B1	500-999	Clear	None	3.5	186	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	07:15	40.54498	-73.51930	40.54705	-73.52792	16	1	WNW	<2	B1	500-999	Clear	None	3.7	194	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:15	07:41	40.54705	-73.52792	40.55000	-73.53053	16	10	NW	<2	B1	500-999	Clear	None	3.6	6	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:41	07:56	40.55000	-73.53053	40.57118	-73.52187	10	7	NW	<2	B1	500-999	Clear	None	3.7	6	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	07:56	08:20	40.57118	-73.52187	40.54922	-73.51988	11	5	NW	<2	B1	500-999	Clear	None	3.1	185	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:20	08:40	40.54922	-73.51988	40.53817	-73.52647	11	6	NW	<2	B1	500-999	Clear	None	3.3	190	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:40	09:00	40.53817	-73.52647	40.55888	-73.50463	13	4	W	<2	B1	500-999	Clear	None	3.3	313	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.55888	-73.50463	40.56268	-73.49495	13	4	W	<2	B1	500-999	Cloudy	None	3.7	70	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.56268	-73.49495	40.56488	-73.49305	13	5	W	<2	B1	500-999	Cloudy	None	3.4	95	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.56488	-73.49305	40.55642	-73.51075	13	3	NE	<2	B1	500-999	Clear	None	3.3	241	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.55642	-73.51075	40.54800	-73.53608	14	6	NE	<2	B1	500-999	Clear	Severe	3.5	242	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.54800	-73.53608	40.55210	-73.51917	16	2	NE	<2	B1	500-999	Clear	Severe	3.1	199	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.55210	-73.51917	40.56217	-73.49792	15	5	NW	<2	B1	500-999	Clear	Moderate	4.1	68	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:00	11:24	40.56217	-73.49792	40.56417	-73.49515	13	6	E	<2	B1	500-999	Clear	Moderate	4.1	72	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:24	11:28	40.56217	-73.49792	40.56417	-73.49515	13	6	E	<2	B1	500-999	Clear	Moderate	4.1	72	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:28	11:45	40.56417	-73.49515	40.55138	-73.52185	12	2	E	<2	B1	1000-1999	Clear	Moderate	4.4	251	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	11:45	12:00	40.55138	-73.52185	40.54945	-73.53667	12	2	E	<2	B1	2000-4999	Clear	Moderate	4.1	247	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:00	12:20	40.54945	-73.53667	40.55515	-73.51308	15	3	E	<2	B1	2000-4999	Clear	Moderate	3.4	146	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:20	12:40	40.55515	-73.51308	40.56625	-73.48697	13	7	E	<2	B1	2000-4999	Clear	Moderate	4.1	67	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	12:40	13:00	40.56625	-73.48697	40.56362	-73.49703	12	7	E	<2	B1	≥5000	Clear	Severe	3.9	87	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.56362	-73.49703	40.55127	-73.52268	12	7	SW	<2	B2	≥5000	Clear	Severe	4.1	256	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:20	13:39	40.55127	-73.52268	40.54765	-73.52952	12	6	WSW	<2	B2	≥5000	Clear	Severe	4	252	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:39	13:43	40.55127	-73.52268	40.54765	-73.52952	12	6	WSW	<2	B2	≥5000	Clear	Severe	4	252	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:43	14:00	40.54765	-73.52952	40.55968	-73.50413	12	7	SSE	<2	B2	≥5000	Clear	Severe	3.9	67	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.55968	-73.50413	40.56693	-73.49065	14	5	SW	<2	B2	≥5000	Clear	Moderate	4.6	66	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.56693	-73.49065	40.55347	-73.51882	12	3	SSE	<2	B1	≥5000	Clear	Slight	3.5	238	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.55347	-73.51882	40.55092	-73.53313	15	4	SE	<2	B1	≥5000	Clear	Slight	3.7	241	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:00	15:28	40.55092	-73.53313	40.56235	-73.49918	14	6	SW	<2	B1	≥5000	Clear	Slight	3.8	301	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:28	15:40	40.56235	-73.49918	40.56555	-73.48400	12	3	SSE	<2	B1	≥5000	Clear	Slight	4.1	70	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	15:40	16:00	40.56555	-73.48400	40.56405	-73.49727	12	3	S	<2	B1	≥5000	Clear	Slight	3.8	60	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:19	40.56405	-73.49727	40.55122	-73.52410	12	9	SW	<2	B2	2000-4999	Fog	Moderate	3.6	249	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:19	16:22	40.56405	-73.49727	40.55122	-73.52410	12	9	SW	<2	B2	2000-4999	Fog	Moderate	3.6	249	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:22	16:40	40.55122	-73.52410	40.54915	-73.52765	12	12	SSW	<2	B3	2000-4999	Fog	Moderate	3.6	249	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.54915	-73.52765	40.55752	-73.51007	13	4	WSW	<2	B2	2000-4999	Fog	Severe	3.7	71	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.55752	-73.51007	40.56657	-73.48717	12	4	SW	<2	B2	≥5000	Clear	Severe	3.4	70	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.56657	-73.48717	40.56212	-73.50698	12	4	SSW	<2	B2	≥5000	Clear	Moderate	3.8	39	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.56212	-73.50698	40.55482	-73.52217	12	12	SSW	<2	B3	≥5000	Clear	Moderate	3.4	251	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:00	18:19	40.55482	-73.52217	40.55092	-73.52462	14	13	SSW	<2	B3	≥5000	Clear	Slight	3.5	256	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:19	18:24	40.55482	-73.52217	40.55092	-73.52462	14	13	SSW	<2	B3	≥5000	Clear	Slight	3.5	256	Silent	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:24	18:40	40.55092	-73.52462	40.56022	-73.50513	13	4	SSW	<2	B2	≥5000	Clear	Slight	3.8	71	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	18:40	19:00	40.56022	-73.50513	40.57180	-73.48953	13	5	SSW	<2	B2	≥5000	Clear	Slight	3.4	72	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:00	19:20	40.57180	-73.48953	40.55927	-73.51342	12	11	SW	<2	B3	≥5000	Clear	Slight	3.5	292	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:20	19:40	40.55927	-73.51342	40.55012	-73.53753	13	12	SW	<2	B3	≥5000	Clear	Slight	4	253	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	19:40	20:00	40.55012	-73.53753	40.55625	-73.51410	15	13	SSW	<2	B3	≥5000	Clear	Moderate	4	231	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:00	20:20	40.55625	-73.51410	40.56627	-73.48803	13	8	SSE	<2	B3	≥5000	Clear	Moderate	4.2	73	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:20	20:40	40.56627	-73.48803	40.56290	-73.50630	12	8	SSW	<2	B3	≥5000	Clear	Severe	3.6	29	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dalton, Tavis	RPS	20:40	21:00	40.56290	-73.50630	40.55325	-73.52732	13	16	SSW	<2	B4	≥5000	Clear	Severe	4	248	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.55325	-73.52732	40.55267	-73.52215	13	15	SSW	<2	B4	≥5000	Clear	Severe	4.1	275	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.55267	-73.52215	40.56348	-73.49962	14	11	SW	<2	B4	≥5000	Clear	Severe	3.7	74	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.56348	-73.49962	40.56962	-73.49185	13	12	SW	<2	B4	≥5000	Clear	Severe	3.6	70	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:00	22:20	40.56962	-73.49185	40.55507	-73.51952	13	12	SSW	<2	B4	≥5000	Clear	Severe	3.8	275	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:20	22:40	40.55507	-73.51952	40.54613	-73.53577	14	11	SSW	<2	B4	≥5000	Clear	Severe	3.9	250	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	22:40	23:00	40.54613	-73.53577	40.55675	-73.51433	15	11	SSW	<2	B4	≥5000	Clear	Severe	4	115	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:00	23:20	40.55675	-73.51433	40.56067	-73.49330	15	13	SW	<2	B4	≥5000	Clear	Severe	3.7	70	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:20	23:40	40.56067	-73.49330	40.57160	-73.50122	15	13	SW	<2	B4	≥5000	Clear	Severe	3.8	192	Full Power	N/A
2023-07-05	Brooks McCall	HRG	Visual	Dyachkov, Sergey	RPS	23:40	00:00	40.57160	-73.50122	40.56067	-73.50707	15	13	SW	<2	B4	≥5000	Clear	Severe	4	70	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.56067	-73.50707	40.55037	-73.53247	13	16	SW	<2	B4	≥5000	Clear	Severe	3.3	252	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.55037	-73.53247	40.55165	-73.52542	14	13	SSW	<2	B4	2000-4999	Clear	Moderate	3.9	304	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:40	01:00	40.55165	-73.52542	40.55585	-73.51697	14	7	SW	<2	B3	2000-4999	Clear	Slight	3.6	76	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana; Dalton, Tavis	RPS	01:00	01:20	40.55585	-73.51697	40.56877	-73.48763	13	7	S	<2	B2	1000-1999	Clear	None	3.8	68	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:20	01:40	40.56877	-73.48763	40.56430	-73.50417	12	6	W	<2	B3	500-999	Clear	None	3.5	10	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	01:40	02:00	40.56430	-73.50417	40.55372	-73.52623	13	12	SW	<2	B3	500-999	Clear	None	3.7	253	Silent	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:00	02:20	40.55372	-73.52623	40.54917	-73.52917	13	14	SW	<2	B3	500-999	Clear	None	3.7	250	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:20	02:40	40.54917	-73.52917	40.56083	-73.50717	13	5	SSW	<2	B3	500-999	Clear	None	4.1	56	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dalton, Tavis; Cardenas, Ana	RPS	02:40	03:00	40.56083	-73.50717	40.57052	-73.49190	13	5	SSW	<2	B3	500-999	Clear	None	4.1	70	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:00	03:20	40.57052	-73.49190	40.56427	-73.50878	12	6	SSW	<2	B2	500-999	Clear	None	4.1	61	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:20	03:40	40.56427	-73.50878	40.55267	-73.52175	12	6	SSW	<2	B2	500-999	Clear	None	3.5	251	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	03:40	04:00	40.55267	-73.52175	40.53680	-73.53117	15	10	SSW	<2	B2	500-999	Clear	None	2.5	228	Silent	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:00	04:15	40.53680	-73.53117	40.54217	-73.54717	14	8	SSW	<2	B2	500-999	Clear	None	3.2	290	Standby	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:15	04:55	40.54217	-73.54717	40.54680	-73.57855	14	9	SSW	<2	B2	500-999	Clear	None	3	310	Deploying/Retrieving	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	04:55	05:00	40.54680	-73.57855	40.54668	-73.58430	14	10	SSW	<2	B2	500-999	Clear	None	2.8	275	Standby	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Dyachkov, Sergey	RPS	05:00	06:00	40.54668	-73.58430	40.53473	-73.74975	13	8	SSW	<2	B2	500-999	Clear	None	6	275	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Cardenas, Ana	RPS	06:00	07:00	40.53473	-73.74975	40.50640	-73.93222	14	9	SSW	<2	B2	500-999	Clear	None	7.9	277	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Cardenas, Ana	RPS	07:00	08:00	40.50640	-73.93222	40.55778	-74.02883	10	6	SW	<2	B2	500-999	Clear	None	7.6	275	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Dyachkov, Sergey; Steinbeisser, Myka	RPS	08:00	09:00	40.55778	-74.02883	40.68403	-74.03255	11	8	W	<2	B2	500-999	Clear	None	6.4	351	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:56	40.68403	-74.03255	40.70353	-73.97363	15	2	SSW	<2	B2	1000-1999	Clear	None	6.2	33	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:10	17:00	40.70310	-73.97347	40.63823	-74.05717	10	6	ESE	<2	B2	500-999	Clear	Severe	1.5	347	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.63823	-74.05717	40.50875	-73.96332	16	23	SSE	<2	B5	2000-4999	Clear	Severe	8.5	191	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	18:00	18:15	40.50875	-73.96332	40.51518	-73.89695	10	26	SE	<2	B5	≤ 199	Fog	None	11.1	126	Transit	Fog
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:15	18:34	40.51518	-73.89695	40.52513	-73.82532	16	24	SE	<2	B5	500-999	Fog	None	10.7	91	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	18:34	19:00	40.52513	-73.82532	40.53740	-73.73297	13	18	SE	<2	B4	≤ 199	Fog	None	9.9	93	Transit	Fog
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:00	20:00	40.53740	-73.73297	40.55215	-73.54708	17	17	SE	<2	B3	2000-4999	Clear	Slight	9.9	92	Transit	N/A
2023-07-06	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	21:00	40.55215	-73.54708	40.55870	-73.49193	10	17	SE	<2	B3	≥5000	Clear	Moderate	3.9	94	Standby	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:47	40.55870	-73.49193	40.56178	-73.50912	13	12	SE	<2	B3	≥5000	Clear	Severe	3.6	96	Standby	N/A
2023-07-06	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:47	22:00	40.56178	-73.50912	40.56028	-73.51937	13	10	WNW	<2	B3	≥5000	Clear	Severe	2.3	274	Deploying/Retrieving	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:00	22:20	40.56028	-73.51937	40.55692	-73.53890	13	3	NW	<2	B3	≥5000	Clear	Severe	2.3	274	Deploying/Retrieving	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:20	22:40	40.55692	-73.53890	40.54788	-73.54572	13	3	NW	<2	B3	≥5000	Clear	Severe	3.3	266	Deploying/Retrieving	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:40	23:00	40.54788	-73.54572	40.53855	-73.52108	13	3	NW	<2	B3	≥5000	Clear	Severe	4	113	Soft Start	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.53855	-73.52108	40.52420	-73.52420	13	11	NW	<2	B3	≥5000	Clear	Severe	4.2	148	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.52420	-73.52420	40.50943	-73.48568	13	12	NW	<2	B4	≥5000	Clear	Severe	3.4	150	Full Power	N/A
2023-07-06	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.50943	-73.48568	40.49837	-73.47237	13	12	NW	<2	B4	≥5000	Clear	Severe	3.4	147	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	01:00	40.49837	-73.47237	40.45102	-73.41490	22	17	SSE	<2	B4	≥5000	Clear	Moderate	3.9	150	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:00	01:25	40.45102	-73.41490	40.42935	-73.38867	22	18	SE	<2	B4	500-999	Clear	None	3.8	150	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:25	01:35	40.42935	-73.38867	40.42220	-73.37950	24	15	SE	<2	B4	500-999	Clear	None	3.8	149	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:35	02:00	40.42220	-73.37950	40.42853	-73.37578	24	17	SE	<2	B4	500-999	Clear	None	3.8	149	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:00	02:02	40.42853	-73.37578	40.43272	-73.38158	25	9	SE	<2	B3	500-999	Clear	None	3.6	323	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:02	02:09	40.43272	-73.38158	40.43835	-73.38842	25	8	SE	<2	B3	500-999	Clear	None	3.6	332	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:09	03:00	40.43835	-73.38842	40.47023	-73.42712	28	5	S	<2	B3	500-999	Clear	None	3.6	332	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	03:00	04:00	40.47023	-73.42712	40.51640	-73.48310	26	7	S	<2	B3	500-999	Clear	None	3.6	316	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	04:00	04:38	40.51640	-73.48310	40.54460	-73.51752	25	7	S	<2	B3	500-999	Clear	None	3.6	329	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	04:38	04:40	40.54460	-73.51752	40.54633	-73.51948	26	7	S	<2	B3	500-999	Clear	None	3.5	329	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	04:40	05:00	40.54633	-73.51948	40.55677	-73.53165	26	7	S	<2	B3	500-999	Clear	None	3.4	330	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:00	05:18	40.55677	-73.53165	40.54418	-73.52498	14	3	S	<2	B3	500-999	Clear	None	2.7	314	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:18	05:23	40.54418	-73.52498	40.54065	-73.52027	17	8	SE	<2	B3	500-999	Clear	None	3.7	149	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:23	05:35	40.54065	-73.52027	40.53153	-73.50923	17	7	SE	<2	B3	500-999	Clear	None	3.7	154	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:35	06:00	40.53153	-73.50923	40.53475	-73.52793	19	9	S	<2	B3	500-999	Cloudy	None	3.7	149	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:00	06:31	40.53475	-73.52793	40.55520	-73.51607	17	8	S	<2	B3	500-999	Cloudy	None	3.2	320	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:31	06:44	40.55520	-73.51607	40.55715	-73.49910	14	6	S	<2	B2	500-999	Cloudy	None	4.4	95	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:44	07:00	40.55715	-73.49910	40.55113	-73.49007	13	3	SE	<2	B2	500-999	Clear	None	4.4	95	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:00	07:34	40.55113	-73.49007	40.54450	-73.52400	15	8	SE	<2	B3	500-999	Clear	None	3	247	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:34	07:37	40.54450	-73.52400	40.54227	-73.52207	17	8	S	<2	B3	500-999	Cloudy	None	4.4	168	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:37	08:00	40.54227	-73.52207	40.52440	-73.50060	17	8	S	<2	B3	500-999	Cloudy	None	4.7	149	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	09:00	40.52440	-73.50060	40.47738	-73.44342	19	5	S	<2	B3	500-999	Cloudy	None	4	153	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:41	40.47738	-73.44342	40.43633	-73.39378	24	3	S	<2	B2	500-999	Cloudy	None	3.8	127	Full Power	N/A
2023-07-07	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:41	10:00	40.43633	-73.39378	40.43093	-73.38715	28	2	SE	<2	B2	1000-1999	Clear	None	3.7	144	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	11:00	40.43093	-73.38715	40.41495	-73.37707	27	3	SE	<2	B2	2000-4999	Clear	None	3.6	147	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:00	11:02	40.41495	-73.37707	40.41163	-73.37050	25	6	SSE	<2	B2	2000-4999	Clear	None	3.3	138	Silent	N/A
2023-07-07	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:02	11:17	40.41163	-73.37050	40.42032	-73.37172	24	6	SE	<2	B2	2000-4999	Clear	None	3.3	138	Soft Start	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:17	11:30	40.42032	-73.37172	40.42975	-73.38307	25	6	SE	<2	B2	2000-4999	Clear	None	3.8	344	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:30	11:35	40.42975	-73.38307	40.43632	-73.38548	24	5	SE	<2	B2	2000-4999	Cloudy	None	3.8	341	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:35	12:00	40.43632	-73.38548	40.45742	-73.41100	23	7	SE	<2	B3	2000-4999	Cloudy	None	3.9	332	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:20	40.45742	-73.41100	40.47337	-73.43022	24	3	S	<2	B1	2000-4999	Cloudy	None	3.9	331	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:20	12:40	40.47337	-73.43022	40.48632	-73.44592	26	3	NE	<2	B1	2000-4999	Cloudy	None	3.8	331	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.48632	-73.44592	40.49893	-73.46122	25	3	NE	<2	B1	2000-4999	Cloudy	None	3.8	329	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.49893	-73.46122	40.51722	-73.48357	22	5	NNE	<2	B2	≥5000	Cloudy	Moderate	3.6	331	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:55	40.51722	-73.48357	40.54537	-73.51770	19	6	NNE	<2	B2	≥5000	Clear	Severe	3.8	329	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:55	13:58	40.54537	-73.51770	40.54730	-73.51988	18	6	NNE	<2	B2	≥5000	Clear	Severe	4.2	330	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:58	14:00	40.54730	-73.51988	40.54255	-73.51428	18	8	NNE	<2	B2	≥5000	Clear	Severe	3.8	343	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:12	40.54255	-73.51428	40.54373	-73.52012	17	7	NNE	<2	B2	≥5000	Clear	Moderate	4.2	328	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:12	14:14	40.54373	-73.52012	40.54220	-73.51832	17	7	NE	<2	B2	≥5000	Clear	Moderate	4.8	141	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:14	15:00	40.54220	-73.51832	40.50988	-73.47903	17	8	NE	<2	B2	≥5000	Clear	Slight	3.7	136	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	16:00	40.50988	-73.47903	40.46148	-73.42023	18	11	NE	<2	B2	≥5000	Clear	Slight	4	151	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:30	40.46148	-73.42023	40.43227	-73.38483	24	10	ESE	<2	B3	≥5000	Clear	Moderate	3.9	149	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:30	16:33	40.43227	-73.38483	40.43077	-73.38297	22	11	SSE	<2	B3	≥5000	Cloudy	Slight	3.9	148	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:33	16:57	40.43077	-73.38297	40.42980	-73.38733	22	12	SSE	<2	B3	≥5000	Cloudy	Slight	4	151	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:57	17:02	40.42980	-73.38733	40.43355	-73.39175	22	6	SSE	<2	B3	≥5000	Cloudy	Slight	3.7	324	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:02	18:00	40.43355	-73.39175	40.47365	-73.44035	28	6	SE	<2	B3	≥5000	Cloudy	Slight	3.8	330	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	19:00	40.47365	-73.44035	40.52615	-73.50412	24	5	SE	<2	B3	≥5000	Clear	Slight	3.9	329	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:21	40.52615	-73.50412	40.54248	-73.52407	16	4	SE	<2	B3	≥5000	Clear	Slight	3.9	330	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:21	19:24	40.54248	-73.52407	40.54513	-73.52765	16	6	SE	<2	B3	≥5000	Clear	Slight	3.7	328	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:24	19:45	40.54513	-73.52765	40.54570	-73.52048	16	7	SE	<2	B3	≥5000	Clear	Slight	3.3	315	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:45	19:50	40.54570	-73.52048	40.54052	-73.51430	16	14	SE	<2	B3	≥5000	Clear	Slight	4.2	153	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:50	20:00	40.54052	-73.51430	40.52872	-73.49997	16	14	SE	<2	B3	≥5000	Clear	Slight	4.1	150	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	21:00	40.52872	-73.49997	40.48817	-73.45070	16	14	SE	<2	B3	≥5000	Clear	Moderate	4	151	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	22:00	40.48817	-73.45070	40.44252	-73.39530	19	13	SSE	<2	B3	≥5000	Clear	Moderate	4	150	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:06	40.44252	-73.39530	40.43402	-73.38508	27	13	SE	<2	B3	≥5000	Clear	Slight	3.8	149	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:06	22:09	40.43402	-73.38508	40.43238	-73.38295	26	13	SSE	<2	B3	≥5000	Clear	Slight	3.8	148	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:09	22:32	40.43238	-73.38295	40.43053	-73.38725	26	10	SSE	<2	B2	≥5000	Clear	Slight	3.9	147	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:32	22:36	40.43053	-73.38725	40.39122	-73.39122	28	5	SE	<2	B2	≥5000	Cloudy	None	3.7	333	Silent	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:36	23:00	40.39122	-73.39122	40.45208	-73.41320	28	3	SE	<2	B1	≥5000	Cloudy	None	3.8	330	Full Power	N/A
2023-07-07	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	00:00	40.45208	-73.41320	40.49637	-73.46692	23	3	SE	<2	B1	≥5000	Cloudy	None	3.9	331	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:57	40.49637	-73.46692	40.54290	-73.52357	20	3	SSE	<2	B2	2000-4999	Cloudy	None	3.9	331	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:57	01:00	40.54290	-73.52357	40.54460	-73.52565	16	3	SSE	<2	B2	1000-1999	Cloudy	None	3.6	331	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:27	40.54460	-73.52565	40.54628	-73.52032	16	1	S	<2	B2	500-999	Cloudy	None	3.7	330	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:27	01:34	40.54628	-73.52032	40.54217	-73.51527	16	11	SE	<2	B4	500-999	Cloudy	None	3.4	150	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:34	02:00	40.54217	-73.51527	40.52418	-73.49350	16	11	SE	<2	B4	500-999	Cloudy	None	3.5	150	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	03:00	40.52418	-73.49350	40.48405	-73.44475	18	10	SE	<2	B4	500-999	Cloudy	None	3.5	151	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:59	40.48405	-73.44475	40.43445	-73.38462	19	11	SE	<2	B3	500-999	Cloudy	None	3.7	145	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:59	04:02	40.43445	-73.38462	40.43285	-73.38265	28	10	SE	<2	B4	500-999	Cloudy	None	3.9	151	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:02	04:24	40.43285	-73.38265	40.42593	-73.39930	28	10	SE	<2	B4	500-999	Cloudy	None	3.9	150	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:24	04:33	40.42593	-73.39930	40.42945	-73.40795	24	11	SE	<2	B4	500-999	Cloudy	None	3.4	286	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:33	04:37	40.42945	-73.40795	40.43353	-73.40578	24	11	SE	<2	B4	500-999	Cloudy	None	4	7	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:37	04:41	40.43353	-73.40578	40.43657	-73.40207	28	2	SE	<2	B1	500-999	Cloudy	None	3.8	63	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:41	04:53	40.43657	-73.40207	40.44507	-73.38987	28	2	SE	<2	B1	500-999	Cloudy	None	3.8	63	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:53	04:56	40.44507	-73.38987	40.44670	-73.39092	25	2	SE	<2	B1	500-999	Cloudy	None	3.8	62	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:56	05:00	40.44670	-73.39092	40.44982	-73.38557	25	2	SE	<2	B1	500-999	Cloudy	None	3.8	59	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:18	40.44982	-73.38557	40.46043	-73.40257	23	3	SW	<2	B1	500-999	Cloudy	None	3.8	343	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:18	05:22	40.46043	-73.40257	40.45772	-73.40678	23	3	SE	<2	B1	500-999	Cloudy	None	4.1	243	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:22	05:35	40.45772	-73.40678	40.44913	-73.41903	23	5	SE	<2	B1	500-999	Cloudy	None	3.8	238	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:35	05:38	40.44913	-73.41903	40.44717	-73.42175	25	4	SE	<2	B1	500-999	Clear	None	3.5	241	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:38	06:00	40.44717	-73.42175	40.45700	-73.44062	28	4	SE	<2	B1	500-999	Clear	None	3.5	248	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:01	40.45700	-73.44062	40.45960	-73.43873	23	2	SW	<2	B1	500-999	Clear	None	3.7	12	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:01	06:05	40.45960	-73.43873	40.46357	-73.43308	23	2	SW	<2	B1	500-999	Clear	None	4.1	56	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:05	06:17	40.46357	-73.43308	40.47157	-73.42193	22	3	ESE	<2	B1	500-999	Cloudy	None	4.3	61	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:17	06:20	40.47157	-73.42193	40.47365	-73.41925	23	3	ESE	<2	B1	500-999	Cloudy	None	3.5	59	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:41	40.47365	-73.41925	40.48705	-73.43363	22	3	ESE	<2	B1	500-999	Cloudy	None	3.2	43	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:41	06:46	40.48705	-73.43363	40.48408	-73.43878	18	6	SW	<2	B2	500-999	Cloudy	None	4.2	245	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:46	06:51	40.48408	-73.43878	40.48028	-73.44418	18	6	SW	<2	B2	500-999	Cloudy	None	3.6	245	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:51	06:53	40.48028	-73.44418	40.47867	-73.44648	18	6	SW	<2	B2	500-999	Clear	None	3.7	238	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:53	06:58	40.47867	-73.44648	40.47565	-73.45087	18	6	SW	<2	B2	500-999	Clear	None	3.7	240	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:58	07:01	40.47565	-73.45087	40.47378	-73.45347	24	6	SW	<2	B2	500-999	Clear	None	3.7	242	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:01	07:28	40.47378	-73.45347	40.48767	-73.46857	24	6	SW	<2	B2	500-999	Clear	None	3.7	241	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:28	07:32	40.48767	-73.46857	40.48968	-73.46560	19	2	SW	<2	B1	500-999	Clear	None	3.6	68	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:32	07:44	40.48968	-73.46560	40.48785	-73.45403	19	2	SW	<2	B1	500-999	Clear	None	3.5	59	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:44	07:46	40.48785	-73.45403	40.49965	-73.45170	18	2	SW	<2	B1	500-999	Clear	None	3.6	61	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:46	08:00	40.49965	-73.45170	40.50648	-73.45440	18	2	SW	<2	B1	500-999	Clear	None	3.4	43	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	08:10	40.50648	-73.45440	40.51367	-73.46627	19	2	SW	<2	B1	500-999	Clear	None	3.4	334	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:10	08:15	40.51367	-73.46627	40.51012	-73.47142	18	3	SE	<2	B1	500-999	Clear	None	4.1	237	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:15	08:26	40.51012	-73.47142	40.50215	-73.48283	18	2	SE	<2	B1	500-999	Clear	None	4.3	238	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:26	08:29	40.50215	-73.48283	40.50003	-73.48575	19	2	SE	<2	B1	500-999	Clear	None	3.6	236	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:29	08:53	40.50003	-73.48575	40.51258	-73.50187	24	2	SE	<2	B1	500-999	Clear	None	3.6	250	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:53	08:58	40.51258	-73.50187	40.51602	-73.49697	20	3	SE	<2	B1	500-999	Cloudy	None	3.8	50	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:58	09:00	40.51602	-73.49697	40.51787	-73.49430	18	2	SW	<2	B1	1000-1999	Cloudy	None	3.8	40	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:09	40.51787	-73.49430	40.52443	-73.48508	19	2	SW	<2	B1	1000-1999	Fog	None	3.8	50	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:09	09:12	40.52443	-73.48508	40.52592	-73.48292	19	2	SW	<2	B1	2000-4999	Fog	None	4.1	40	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:12	09:38	40.52592	-73.48292	40.53987	-73.49800	18	3	SW	<2	B1	2000-4999	Fog	None	4.3	39	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:38	09:43	40.53987	-73.49800	40.53638	-73.50287	20	3	SE	<2	B1	2000-4999	Cloudy	None	3.8	238	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:43	09:56	40.53638	-73.50287	40.52795	-73.51472	19	3	SE	<2	B1	2000-4999	Cloudy	None	3.6	237	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:56	09:58	40.52795	-73.51472	40.52612	-73.51830	19	3	SE	<2	B1	2000-4999	Cloudy	None	3.8	238	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:58	10:00	40.52612	-73.51830	40.53247	-73.52573	16	2	SE	<2	B1	2000-4999	Cloudy	None	3.8	268	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:15	40.53247	-73.52573	40.53550	-73.52150	16	2	SE	<2	B1	≥5000	Cloudy	None	3.7	267	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:15	10:20	40.53550	-73.52150	40.54390	-73.50977	16	4	SW	<2	B1	≥5000	Cloudy	None	3.8	48	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	10:32	40.54390	-73.50977	40.54532	-73.50638	17	3	SW	<2	B1	≥5000	Cloudy	None	3.8	50	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:32	10:35	40.54532	-73.50638	40.53277	-73.49053	15	3	SW	<2	B1	≥5000	Cloudy	None	3.4	50	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:35	10:55	40.53277	-73.49053	40.52962	-73.49503	15	2	SW	<2	B1	≥5000	Cloudy	None	3.4	50	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:55	10:59	40.52962	-73.49503	40.52890	-73.49515	16	2	SE	<2	B1	≥5000	Cloudy	None	3.5	239	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:59	11:00	40.52890	-73.49515	40.52932	-73.49548	19	2	SE	<2	B1	≥5000	Cloudy	None	3.2	238	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:11	40.52932	-73.49548	40.52162	-73.50645	17	4	W	<2	B2	2000-4999	Cloudy	None	3.7	242	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:11	11:14	40.52162	-73.50645	40.51900	-73.50972	17	4	W	<2	B2	2000-4999	Cloudy	None	3.7	244	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:14	11:39	40.51900	-73.50972	40.50558	-73.49308	17	4	W	<2	B2	2000-4999	Cloudy	None	3.5	220	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:39	11:44	40.50558	-73.49308	40.50872	-73.48848	18	5	SW	<2	B2	2000-4999	Cloudy	None	3.3	60	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:44	11:56	40.50872	-73.48848	40.51678	-73.47713	18	5	SW	<2	B2	2000-4999	Cloudy	None	3.5	60	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:56	12:00	40.51678	-73.47713	40.51855	-73.47388	17	5	SE	<2	B2	2000-4999	Cloudy	None	3.3	60	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:32	40.51855	-73.47388	40.50600	-73.45985	17	5	E	<2	B2	2000-4999	Cloudy	None	3	93	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:32	12:37	40.50600	-73.45985	40.50355	-73.46328	18	2	NW	<2	B2	2000-4999	Clear	Moderate	4	242	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:37	12:38	40.50355	-73.46328	40.49545	-73.47488	18	2	NW	<2	B2	2000-4999	Clear	Moderate	3.9	238	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:38	12:41	40.49545	-73.47488	40.49358	-73.47732	22	1	E	<2	B2	2000-4999	Clear	Moderate	3.8	240	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:41	13:00	40.49358	-73.47732	40.48015	-73.47090	22	1	E	<2	B2	2000-4999	Clear	Moderate	3.3	222	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.48015	-73.47090	40.49067	-73.44668	22	5	ESE	<2	B1	≥5000	Clear	Severe	3.2	165	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.49067	-73.44668	40.48758	-73.42730	18	7	ENE	<2	B1	≥5000	Clear	Severe	3.4	61	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.48758	-73.42730	40.47742	-73.43067	18	8	ENE	<2	B1	≥5000	Clear	Severe	3.1	132	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.47742	-73.43067	40.45918	-73.44225	23	2	ESE	<2	B1	≥5000	Cloudy	Moderate	3.6	226	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.45918	-73.44225	40.45330	-73.43045	24	5	ESE	<2	B1	≥5000	Clear	Moderate	3	158	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.45330	-73.43045	40.46447	-73.41428	25	4	ESE	<2	B2	≥5000	Clear	Moderate	3	70	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:20	40.46447	-73.41428	40.45738	-73.39158	26	11	ESE	<2	B2	≥5000	Clear	Moderate	3.6	58	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:20	15:40	40.45738	-73.39158	40.44698	-73.40440	24	10	ESE	<2	B2	≥5000	Clear	Slight	3	199	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:40	16:00	40.44698	-73.40440	40.43413	-73.41190	22	8	SSE	<2	B2	≥5000	Clear	Slight	3.3	240	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:07	40.43413	-73.41190	40.42485	-73.39828	27	11	SSE	<2	B3	≥5000	Clear	Moderate	3.7	148	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:07	17:00	40.42485	-73.39828	40.38520	-73.35100	25	13	SSE	<2	B3	≥5000	Clear	Moderate	3.7	144	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.38520	-73.35100	40.34588	-73.29530	22	14	SE	<2	B3	≥5000	Clear	Moderate	3.6	149	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:03	40.34588	-73.29530	40.34237	-73.29025	31	13	SE	<2	B2	≥5000	Clear	Slight	3.9	145	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:03	18:14	40.34237	-73.29025	40.33562	-73.27787	31	13	SE	<2	B2	≥5000	Clear	Slight	3.9	145	Soft Start	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:14	18:20	40.33562	-73.27787	40.33358	-73.26592	32	12	SE	<2	B3	≥5000	Clear	Slight	4.1	115	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:20	18:40	40.33358	-73.26592	40.32993	-73.24278	32	12	SE	<2	B3	≥5000	Clear	Slight	3.9	116	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:40	19:00	40.32993	-73.24278	40.32573	-73.21428	35	12	SE	<2	B3	≥5000	Clear	Slight	4.1	112	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:26	40.32573	-73.21428	40.34157	-73.22800	34	5	SE	<2	B2	≥5000	Clear	Slight	4.3	46	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:26	19:29	40.32573	-73.21428	40.34157	-73.22800	34	5	SE	<2	B2	≥5000	Clear	Slight	4.3	46	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:29	19:40	40.34157	-73.22800	40.32322	-73.23617	34	8	SE	<2	B2	≥5000	Clear	Slight	3.6	270	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:40	19:43	40.34157	-73.22800	40.32322	-73.23617	34	8	SE	<2	B2	≥5000	Clear	Slight	3.6	270	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:43	20:00	40.32322	-73.23617	40.32250	-73.24838	35	11	S	<2	B2	≥5000	Clear	Slight	3.8	203	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:20	40.32250	-73.24838	40.34238	-73.24348	35	4	S	<2	B2	≥5000	Clear	Slight	3.9	23	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:20	20:40	40.34238	-73.24348	40.33480	-73.25708	36	5	S	<2	B2	≥5000	Clear	Slight	3.8	4	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:40	21:00	40.33480	-73.25708	40.32048	-73.26893	34	10	S	<2	B3	≥5000	Cloudy	None	3.8	208	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.32048	-73.26893	40.33565	-73.27525	35	4	SW	<2	B2	≥5000	Cloudy	None	4.1	315	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.33565	-73.27525	40.33157	-73.24930	32	13	SSE	<2	B3	≥5000	Cloudy	None	3.6	119	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.33157	-73.24930	40.32740	-73.22312	34	11	SSE	<2	B3	≥5000	Cloudy	None	3.7	116	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:19	40.32740	-73.22312	40.33558	-73.21905	34	12	SE	<2	B4	≥5000	Cloudy	None	3.9	114	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:19	22:38	40.33558	-73.21905	40.33575	-73.24525	37	9	SSE	<2	B3	≥5000	Cloudy	None	3.9	281	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:38	22:48	40.33575	-73.24525	40.32730	-73.24602	34	10	SSE	<2	B3	≥5000	Cloudy	None	3.9	281	Soft Start	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:48	22:54	40.32730	-73.24602	40.32492	-73.23765	35	15	SSE	<2	B4	≥5000	Cloudy	None	4.3	127	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:54	23:00	40.32492	-73.23765	40.32315	-73.23098	35	15	SSE	<2	B4	≥5000	Cloudy	None	3.7	123	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:34	40.32315	-73.23098	40.31128	-73.18618	36	15	SSE	<2	B4	≥5000	Cloudy	None	3.7	122	Full Power	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:34	23:37	40.31128	-73.18618	40.31060	-73.18380	38	13	SSE	<2	B4	≥5000	Cloudy	None	3.6	124	Silent	N/A
2023-07-08	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:37	00:00	40.31060	-73.18380	40.31343	-73.17178	38	13	SSE	<2	B4	≥5000	Cloudy	None	3.6	123	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:04	40.31343	-73.17178	40.31510	-73.18412	38	6	SSW	<2	B3	≥5000	Cloudy	None	4	323	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:04	00:09	40.31510	-73.18412	40.31698	-73.19122	36	5	SSW	<2	B3	≥5000	Cloudy	None	4.1	303	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:09	00:53	40.31698	-73.19122	40.33033	-73.24175	37	11	ESE	<2	B3	2000-4999	Cloudy	None	3.4	301	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:53	00:56	40.33033	-73.24175	40.33070	-73.24278	35	9	S	<2	B3	1000-1999	Cloudy	None	3.3	303	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:56	01:00	40.33070	-73.24278	40.33193	-73.24398	35	9	WNW	<2	B3	1000-1999	Cloudy	None	3.6	314	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:19	40.33193	-73.24398	40.32737	-73.24590	34	6	S	<2	B2	500-999	Cloudy	None	3.8	349	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:19	01:27	40.32737	-73.24590	40.32517	-73.23618	35	6	SW	<2	B2	500-999	Cloudy	None	3.6	115	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:27	02:00	40.32517	-73.23618	40.31493	-73.19753	35	6	SW	<2	B2	500-999	Cloudy	None	3.8	124	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:08	40.31493	-73.19753	40.31195	-73.18628	37	9	S	<2	B2	500-999	Cloudy	None	3.6	122	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:08	02:29	40.31195	-73.18628	40.30982	-73.16678	37	9	S	<2	B2	500-999	Cloudy	None	3.5	122	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:29	02:40	40.30982	-73.16678	40.31547	-73.17698	38	4	S	<2	B2	500-999	Clear	None	3.7	11	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:40	02:50	40.31547	-73.17698	40.31868	-73.18905	38	8	S	<2	B2	500-999	Clear	None	3.5	299	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:50	03:00	40.31868	-73.18905	40.32115	-73.19843	38	7	S	<2	B3	500-999	Clear	None	3.4	298	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:33	40.32115	-73.19843	40.33182	-73.23882	35	5	S	<2	B2	500-999	Clear	None	3.4	302	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:33	03:35	40.33182	-73.23882	40.33258	-73.24167	35	2	SE	<2	B2	500-999	Clear	None	3.3	239	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:35	04:00	40.33258	-73.24167	40.33008	-73.25617	35	2	SE	<2	B2	500-999	Clear	None	3.4	300	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:07	40.33008	-73.25617	40.32757	-73.24513	35	12	SE	<2	B4	500-999	Clear	None	3.8	170	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:07	04:12	40.32757	-73.24513	40.32640	-73.23895	35	7	SE	<2	B3	500-999	Clear	None	3.5	110	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:12	04:55	40.32640	-73.23895	40.31238	-73.18572	35	7	SE	<2	B3	500-999	Clear	None	3.8	170	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:55	04:57	40.31238	-73.18572	40.31208	-73.18452	38	9	SE	<2	B3	500-999	Clear	None	3.5	122	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:57	05:00	40.31208	-73.18452	40.31177	-73.18335	38	9	SE	<2	B3	500-999	Clear	None	3.6	121	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:32	40.31177	-73.18335	40.31500	-73.18165	38	9	SE	<2	B3	500-999	Clear	None	3.6	122	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:32	05:37	40.31500	-73.18165	40.31653	-73.18747	37	5	SE	<2	B2	500-999	Cloudy	None	3.3	302	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:37	06:00	40.31653	-73.18747	40.32268	-73.21080	38	6	SE	<2	B2	500-999	Cloudy	None	3.3	301	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:00	06:23	40.32268	-73.21080	40.33045	-73.23963	36	9	SE	<2	B3	500-999	Cloudy	None	3.3	303	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:23	06:26	40.33045	-73.23963	40.33133	-73.24318	35	8	S	<2	B3	500-999	Cloudy	None	3.3	305	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:26	06:58	40.33133	-73.24318	40.32785	-73.24233	35	8	S	<2	B3	500-999	Cloudy	None	3.3	303	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:58	07:02	40.32785	-73.24233	40.32678	-73.23828	34	5	S	<2	B2	500-999	Clear	None	3.6	121	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:02	07:44	40.32678	-73.23828	40.31315	-73.18675	35	6	SE	<2	B2	500-999	Clear	None	3.6	119	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:44	07:48	40.31315	-73.18675	40.31218	-73.18342	34	7	SE	<2	B3	500-999	Cloudy	None	3.6	124	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:48	08:00	40.31218	-73.18342	40.30648	-73.17247	36	7	SE	<2	B3	500-999	Cloudy	None	3.6	123	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:16	40.30648	-73.17247	40.31568	-73.18228	37	5	SE	<2	B3	500-999	Cloudy	None	3	60	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:16	08:21	40.31568	-73.18228	40.31708	-73.18752	36	4	S	<2	B2	500-999	Cloudy	None	3.5	300	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:21	09:00	40.31708	-73.18752	40.32913	-73.23305	36	3	S	<2	B2	500-999	Cloudy	None	3.4	300	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:04	40.32913	-73.23305	40.33078	-73.23922	35	1	S	<2	B2	1000-1999	Cloudy	None	3.5	299	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:04	09:06	40.33078	-73.23922	40.33148	-73.24182	35	2	S	<2	B2	2000-4999	Cloudy	None	3.5	297	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:06	09:32	40.33148	-73.24182	40.32893	-73.24437	34	2	S	<2	B2	≥5000	Cloudy	None	3.4	297	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:32	09:37	40.32893	-73.24437	40.32733	-73.23813	35	1	SW	<2	B2	≥5000	Cloudy	None	3.4	115	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:37	10:00	40.32733	-73.23813	40.32105	-73.21427	35	2	SW	<2	B2	≥5000	Cloudy	None	3.6	115	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:21	40.32105	-73.21427	40.31378	-73.18673	35	3	SW	<2	B2	≥5000	Cloudy	None	3.6	114	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:21	10:24	40.31378	-73.18673	40.31298	-73.18380	38	3	SW	<2	B2	≥5000	Cloudy	Slight	3.4	113	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:24	10:42	40.31298	-73.18380	40.31652	-73.18307	38	3	SW	<2	B2	≥5000	Cloudy	None	3.2	113	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:42	10:46	40.31652	-73.18307	40.31767	-73.18737	36	3	S	<2	B2	≥5000	Cloudy	None	3.2	300	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:46	11:00	40.31767	-73.18737	40.32170	-73.20297	37	3	S	<2	B2	≥5000	Cloudy	None	3.9	293	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:25	40.32170	-73.20297	40.33127	-73.23883	37	4	S	<2	B2	≥5000	Cloudy	None	3.8	301	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:25	11:27	40.33127	-73.23883	40.33187	-73.24093	37	4	S	<2	B2	≥5000	Cloudy	None	3.6	304	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:27	11:44	40.33187	-73.24093	40.32942	-73.24367	37	4	S	<2	B2	≥5000	Cloudy	None	3.6	299	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:44	11:47	40.32942	-73.24367	40.32805	-73.23857	35	13	S	<2	B4	≥5000	Cloudy	None	3.9	119	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:47	12:00	40.32805	-73.23857	40.32045	-73.21005	35	12	S	<2	B4	≥5000	Cloudy	None	4	123	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:28	40.32045	-73.21005	40.31443	-73.18705	36	13	ESE	<2	B4	≥5000	Clear	Moderate	3.7	121	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:28	12:30	40.31443	-73.18705	40.31370	-73.18422	36	13	ESE	<2	B4	≥5000	Clear	Moderate	3.5	121	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:30	12:48	40.31370	-73.18422	40.31067	-73.18280	37	12	ESE	<2	B4	≥5000	Clear	Moderate	3.6	122	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:48	12:52	40.31067	-73.18280	40.31217	-73.18835	37	6	E	<2	B2	≥5000	Cloudy	Moderate	4	296	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:52	13:00	40.31217	-73.18835	40.31448	-73.19697	37	6	E	<2	B2	≥5000	Cloudy	Moderate	4.2	302	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:33	40.31448	-73.19697	40.32608	-73.24105	37	7	SSE	<2	B3	≥5000	Cloudy	Moderate	3.7	301	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:33	13:36	40.32608	-73.24105	40.32702	-73.24437	36	9	SSE	<2	B3	≥5000	Cloudy	Moderate	3.6	302	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:36	13:52	40.32702	-73.24437	40.33288	-73.24203	36	7	S	<2	B3	≥5000	Cloudy	Moderate	3.6	304	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:52	13:56	40.33288	-73.24203	40.33153	-73.23677	34	14	SSE	<2	B4	≥5000	Cloudy	Moderate	3.5	122	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:56	14:00	40.33153	-73.23677	40.33093	-73.23438	35	15	SE	<2	B4	≥5000	Cloudy	Moderate	3.6	123	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:37	40.33093	-73.23438	40.31938	-73.19060	35	7	SE	<2	B3	≥5000	Cloudy	Moderate	3.7	119	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:37	14:40	40.31793	-73.18568	40.31693	-73.18147	36	6	SE	<2	B3	≥5000	Cloudy	Slight	3.6	119	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	14:54	40.31693	-73.18147	40.31093	-73.18255	36	8	SE	<2	B3	≥5000	Cloudy	None	4.1	119	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:54	15:00	40.31093	-73.18255	40.31175	-73.18507	38	11	SE	<2	B3	≥5000	Cloudy	None	4	310	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:42	40.31175	-73.18507	40.32667	-73.24102	37	10	SE	<2	B3	≥5000	Cloudy	None	3.8	298	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:42	15:45	40.32667	-73.24102	40.32752	-73.24527	35	9	SE	<2	B3	≥5000	Cloudy	None	3.3	300	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:45	15:59	40.32752	-73.24527	40.33275	-73.24203	35	9	SE	<2	B3	≥5000	Cloudy	None	4.4	294	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:59	16:00	40.33275	-73.24203	40.33240	-73.24117	34	15	SSE	<2	B4	≥5000	Cloudy	None	3.8	133	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:04	40.33240	-73.24117	40.33045	-73.23488	34	17	SSE	<2	B4	≥5000	Cloudy	None	3.8	128	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:04	16:42	40.33045	-73.23488	40.31722	-73.18483	36	20	SSE	<2	B5	≥5000	Cloudy	None	3.8	125	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:42	16:43	40.31722	-73.18483	40.31687	-73.18340	36	20	SSE	<2	B5	≥5000	Cloudy	None	3.9	122	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:43	16:57	40.31687	-73.18340	40.31208	-73.18383	34	11	SSE	<2	B4	≥5000	Cloudy	None	3.8	119	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:57	17:03	40.31208	-73.18383	40.31410	-73.19137	36	9	SSE	<2	B4	≥5000	Cloudy	None	3.3	302	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:03	17:44	40.31410	-73.19137	40.32725	-73.24130	34	11	SSE	<2	B4	≥5000	Cloudy	None	3.8	304	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:44	17:45	40.32725	-73.24130	40.32767	-73.24328	34	11	SSE	<2	B4	≥5000	Cloudy	None	3.5	301	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	17:45	18:00	40.32767	-73.24328	40.33102	-73.25092	34	11	S	<2	B4	≥5000	Cloudy	None	3.5	296	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:20	40.33102	-73.25092	40.32520	-73.21718	34	10	S	<2	B5	≥5000	Cloudy	None	4.4	23	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:20	18:40	40.32520	-73.21718	40.31768	-73.18880	32	16	SE	<2	B5	≥5000	Cloudy	None	4.2	120	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:40	19:00	40.31768	-73.18880	40.30563	-73.16282	38	18	SE	<2	B6	≥5000	Cloudy	None	4.3	123	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:20	40.30563	-73.16282	40.31228	-73.18250	38	18	SE	<2	B6	≥5000	Cloudy	None	3.9	228	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:20	20:08	40.31228	-73.18250	40.31830	-73.20483	38	11	SE	<2	B5	≥5000	Cloudy	None	3.9	302	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:08	20:25	40.31830	-73.20483	40.32435	-73.22763	37	9	SE	<2	B5	≥5000	Cloudy	None	3.7	302	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:25	20:38	40.32435	-73.22763	40.32740	-73.25842	35	6	SE	<2	B5	≥5000	Cloudy	None	3.7	305	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:38	20:45	40.32740	-73.25842	40.32952	-73.23568	35	8	SE	<2	B5	≥5000	Cloudy	None	4.2	342	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:45	21:00	40.32952	-73.23568	40.32550	-73.22028	35	19	SE	<2	B5	≥5000	Cloudy	None	3.6	125	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:25	40.32550	-73.22028	40.31595	-73.18432	34	16	ESE	<2	B5	≥5000	Cloudy	None	3.7	126	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:25	21:26	40.31595	-73.18432	40.31563	-73.18317	35	18	SE	<2	B4	≥5000	Cloudy	None	3.8	123	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:26	22:00	40.31563	-73.18317	40.33495	-73.19182	36	22	SE	<2	B5	≥5000	Cloudy	None	3.8	125	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:03	40.33495	-73.19182	40.33117	-73.19598	37	12	ESE	<2	B4	≥5000	Cloudy	None	4	270	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:03	22:11	40.33117	-73.19598	40.32257	-73.19985	26	19	SE	<2	B5	≥5000	Cloudy	None	3.7	212	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:11	22:22	40.32257	-73.19985	40.31205	-73.20460	36	19	SE	<2	B5	≥5000	Cloudy	None	3.9	210	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:22	22:24	40.31205	-73.20460	40.31045	-73.20532	36	19	SE	<2	B5	≥5000	Cloudy	None	3.9	213	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:24	22:47	40.31045	-73.20532	40.31268	-73.22942	36	14	SE	<2	B4	≥5000	Cloudy	None	3.8	211	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:47	22:56	40.31268	-73.22942	40.32055	-73.22570	35	14	ESE	<2	B4	≥5000	Cloudy	None	3.9	34	Silent	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:56	23:00	40.32055	-73.22570	40.32585	-73.22327	35	14	ESE	<2	B4	≥5000	Cloudy	None	3.7	37	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.32585	-73.22327	40.34063	-73.21072	34	14	ESE	<2	B4	≥5000	Cloudy	None	3.9	33	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.34063	-73.21072	40.32180	-73.21265	35	19	ESE	<2	B5	≥5000	Cloudy	None	3.9	121	Full Power	N/A
2023-07-09	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.32180	-73.21265	40.30860	-73.22440	38	19	ESE	<2	B5	≥5000	Cloudy	None	3.7	213	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.30860	-73.22440	40.31292	-73.20445	36	16	SSE	<2	B4	2000-4999	Cloudy	None	3.7	296	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.31292	-73.20445	40.31297	-73.18413	36	23	ESE	<2	B6	2000-4999	Cloudy	None	3.7	105	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:40	00:50	40.31297	-73.18413	40.31300	-73.17223	38	22	ESE	<2	B6	1000-1999	Cloudy	None	3.7	104	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	00:50	01:00	40.31300	-73.17223	40.31303	-73.15570	38	22	SE	<2	B6	500-999	Cloudy	None	3.7	104	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:32	40.31303	-73.15570	40.31313	-73.11582	36	22	SE	<2	B6	500-999	Cloudy	None	3.7	104	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:32	01:34	40.31313	-73.11582	40.31323	-73.11220	37	22	E	<2	B6	500-999	Cloudy	None	3.8	101	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:34	02:01	40.31323	-73.11220	40.31937	-73.10730	37	22	E	<2	B6	500-999	Cloudy	None	3.7	100	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:01	02:06	40.31937	-73.10730	40.31930	-73.12003	37	15	SE	<2	B6	500-999	Cloudy	None	3.6	281	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:06	03:00	40.31930	-73.12003	40.31920	-73.19128	37	15	SE	<2	B6	500-999	Cloudy	None	3.5	284	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:20	40.31920	-73.19128	40.32063	-73.21823	38	13	SE	<2	B4	500-999	Precipitation	None	4	279	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:20	03:40	40.32063	-73.21823	40.31343	-73.20333	36	15	SE	<2	B4	500-999	Precipitation	None	4.1	228	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:40	04:00	40.31343	-73.20333	40.31360	-73.17782	37	16	SE	<2	B5	500-999	Precipitation	None	3.8	103	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:20	40.31360	-73.17782	40.31367	-73.15348	37	13	SE	<2	B5	500-999	Precipitation	None	3.4	99	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:20	04:40	40.31367	-73.15348	40.31362	-73.12793	36	12	SE	<2	B4	500-999	Precipitation	None	3.1	96	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:40	05:00	40.31362	-73.12793	40.30963	-73.10615	35	13	SE	<2	B4	500-999	Precipitation	None	3.6	104	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:20	40.30963	-73.10615	40.31870	-73.11110	35	7	SE	<2	B3	500-999	Precipitation	None	3.8	132	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	05:40	40.31870	-73.11110	40.31872	-73.13575	35	10	SE	<2	B3	500-999	Precipitation	None	3.7	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:40	06:00	40.31872	-73.13575	40.31872	-73.15770	34	13	SE	<2	B4	500-999	Precipitation	None	3.5	285	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:20	40.31872	-73.15770	40.31868	-73.18463	38	11	SE	<2	B3	500-999	Cloudy	None	3.6	284	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:40	40.31868	-73.18463	40.32320	-73.20815	34	10	SE	<2	B3	500-999	Cloudy	None	3.4	281	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:40	07:00	40.32320	-73.20815	40.31398	-73.20803	36	11	SE	<2	B4	500-999	Precipitation	None	4.3	306	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:20	40.31398	-73.20803	40.31405	-73.17665	35	17	SE	<2	B5	500-999	Precipitation	None	3.4	110	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:20	07:40	40.31405	-73.17665	40.31403	-73.15383	35	22	SE	<2	B6	500-999	Precipitation	None	3.9	105	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:40	08:00	40.31403	-73.15383	40.31407	-73.13288	35	24	SE	<2	B6	500-999	Precipitation	None	4	100	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	08:20	40.31407	-73.13288	40.31550	-73.14987	36	10	SE	<2	B6	500-999	Precipitation	None	4	107	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:20	08:40	40.31550	-73.14987	40.31815	-73.11070	36	11	SW	<2	B5	500-999	Precipitation	None	3.7	237	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:40	09:00	40.31815	-73.11070	40.31812	-73.13737	36	11	SW	<2	B5	500-999	Precipitation	None	3.8	269	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:41	40.31812	-73.13737	40.31815	-73.19860	37	10	SW	<2	B3	1000-1999	Cloudy	None	3.6	297	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:41	09:45	40.31815	-73.19860	40.31802	-73.20220	36	12	SW	<2	B3	≥5000	Cloudy	None	3.7	271	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:45	10:00	40.31802	-73.20220	40.32113	-73.21652	38	14	SW	<2	B3	≥5000	Cloudy	None	3.5	239	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:16	40.32113	-73.21652	40.31458	-73.20295	38	7	SW	<2	B3	≥5000	Cloudy	None	3.9	100	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:16	10:20	40.31458	-73.20295	40.31465	-73.19630	37	4	SW	<2	B3	≥5000	Cloudy	None	3.9	99	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	11:00	40.31465	-73.19630	40.31460	-73.14888	36	3	SW	<2	B3	≥5000	Cloudy	None	3.7	107	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:20	40.31460	-73.14888	40.31470	-73.11882	35	7	W	<2	B3	≥5000	Cloudy	None	3.8	102	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:20	11:40	40.31470	-73.11882	40.31080	-73.09555	36	7	W	<2	B3	≥5000	Cloudy	None	3.8	97	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:40	12:00	40.31080	-73.09555	40.31768	-73.11222	35	6	W	<2	B2	≥5000	Cloudy	None	4	42	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:20	40.31768	-73.11222	40.31770	-73.14392	35	6	W	<2	B2	≥5000	Cloudy	None	3.7	282	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:20	12:40	40.31770	-73.14392	40.31765	-73.16882	38	14	SW	<2	B4	≥5000	Cloudy	None	4	281	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.31765	-73.16882	40.31763	-73.19730	36	13	SW	<2	B4	≥5000	Cloudy	None	4	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:28	40.31763	-73.19730	40.31515	-73.20270	36	12	WNW	<2	B4	≥5000	Cloudy	Severe	4.1	282	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:28	13:32	40.31515	-73.20270	40.31515	-73.19588	36	8	NNW	<2	B3	≥5000	Cloudy	Severe	3.9	104	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:32	14:00	40.31515	-73.19588	40.31523	-73.16370	36	8	NW	<2	B3	≥5000	Cloudy	Severe	3.7	102	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:30	40.31523	-73.16370	40.31523	-73.11588	36	7	WNW	<2	B3	≥5000	Cloudy	Moderate	3.5	83	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:30	14:33	40.31523	-73.11588	40.31525	-73.11335	36	3	WNW	<2	B3	≥5000	Cloudy	Slight	3.7	80	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:33	15:03	40.31525	-73.11335	40.31713	-73.10297	36	3	WNW	<2	B3	≥5000	Clear	Slight	3.7	78	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:03	15:08	40.31713	-73.10297	40.31717	-73.11900	38	13	WNW	<2	B3	≥5000	Clear	Slight	4.4	283	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:08	16:00	40.31717	-73.11900	40.31710	-73.19013	38	13	WNW	<2	B3	≥5000	Clear	Slight	3.9	282	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:04	40.31710	-73.19013	40.31708	-73.19850	34	12	WNW	<2	B3	≥5000	Cloudy	Moderate	3.9	284	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:04	16:06	40.31708	-73.19850	40.31713	-73.20065	34	12	WNW	<2	B4	≥5000	Cloudy	Moderate	4	285	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:06	16:35	40.31713	-73.20065	40.31572	-73.19998	34	14	WNW	<2	B4	≥5000	Cloudy	Moderate	4.1	285	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:35	16:40	40.31572	-73.19998	40.31573	-73.19302	34	9	WNW	<2	B3	≥5000	Cloudy	Severe	3.7	102	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:38	40.31573	-73.19302	40.31587	-73.11400	34	10	W	<2	B3	≥5000	Clear	Severe	3.9	104	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:38	17:42	40.31587	-73.11400	40.31625	-73.10873	36	8	NW	<2	B3	≥5000	Clear	Severe	3.7	100	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:42	18:00	40.31625	-73.10873	40.31672	-73.09573	36	9	NW	<2	B3	≥5000	Clear	Severe	3.4	86	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:17	40.31672	-73.09573	40.31328	-73.11605	38	11	WNW	<2	B3	≥5000	Clear	Moderate	4.9	194	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:17	19:00	40.31328	-73.11605	40.31337	-73.18028	38	19	WNW	<2	B5	≥5000	Cloudy	Slight	3.4	289	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:16	40.31337	-73.18028	40.31332	-73.19968	38	20	WNW	<2	B5	≥5000	Clear	Slight	3.8	289	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:16	19:19	40.31332	-73.19968	40.31327	-73.20213	38	18	W	<2	B5	≥5000	Clear	Slight	3.8	281	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:19	19:33	40.31327	-73.20213	40.31132	-73.22072	38	18	W	<2	B5	≥5000	Clear	Slight	3.8	281	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:33	19:49	40.31132	-73.22072	40.31868	-73.21242	34	18	W	<2	B5	≥5000	Cloudy	Slight	3.3	296	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:49	19:56	40.31868	-73.21242	40.31733	-73.20290	34	12	W	<2	B5	≥5000	Cloudy	Slight	3.5	132	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:56	20:00	40.31733	-73.20290	40.31738	-73.19938	38	12	W	<2	B5	≥5000	Clear	Slight	3.7	106	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:03	40.31738	-73.19938	40.31738	-73.19388	38	12	W	<2	B5	≥5000	Clear	Slight	3.5	103	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:03	21:00	40.31738	-73.19388	40.31743	-73.12045	38	12	W	<2	B5	≥5000	Clear	Slight	3.7	102	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:03	40.31743	-73.12045	40.31753	-73.11503	36	10	NW	<2	B3	≥5000	Clear	Severe	3.8	102	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:03	21:05	40.31753	-73.11503	40.31767	-73.11128	36	7	NW	<2	B3	≥5000	Clear	Slight	4	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:05	21:32	40.31767	-73.11128	40.31390	-73.10992	34	10	NW	<2	B3	≥5000	Clear	Slight	3.8	283	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:32	21:39	40.31390	-73.10992	40.31390	-73.12013	36	12	NW	<2	B4	≥5000	Clear	Severe	4	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:39	22:00	40.31390	-73.12013	40.31393	-73.17572	36	7	NW	<2	B3	≥5000	Clear	Slight	4	283	Silent	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:20	40.31393	-73.17572	40.31378	-73.20372	36	10	NW	<2	B3	≥5000	Clear	Slight	3.8	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:20	22:40	40.31378	-73.20372	40.31395	-73.14698	36	12	NW	<2	B4	≥5000	Clear	Severe	4	283	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:40	23:00	40.31395	-73.14698	40.31393	-73.17572	34	11	W	<2	B4	≥5000	Clear	Severe	4	282	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.31393	-73.17572	40.33045	-73.20372	34	9	W	<2	B3	≥5000	Clear	Slight	3.6	71	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.33045	-73.20372	40.31955	-73.18793	34	5	NW	<2	B2	≥5000	Clear	Severe	3.8	102	Full Power	N/A
2023-07-10	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.31955	-73.18793	40.31963	-73.16040	35	3	NW	<2	B1	≥5000	Clear	Slight	3.9	102	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:11	40.31963	-73.16040	40.31960	-73.11377	34	6	NW	<2	B2	≥5000	Clear	Slight	3.8	103	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:11	00:13	40.31960	-73.11377	40.31960	-73.11222	36	4	NW	<2	B2	≥5000	Clear	Slight	3.8	102	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:13	00:48	40.31960	-73.11222	40.31447	-73.11033	36	3	NW	<2	B2	2000-4999	Clear	Slight	3.9	285	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:48	01:00	40.31447	-73.11033	40.31445	-73.13368	38	12	NW	<2	B3	1000-1999	Clear	Slight	3.9	282	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:00	01:44	40.31445	-73.13368	40.31435	-73.19883	36	11	NW	<2	B4	500-999	Clear	None	3.9	281	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:44	01:46	40.31435	-73.19883	40.31435	-73.19992	36	10	NW	<2	B3	500-999	Clear	None	3.4	281	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:46	02:00	40.31435	-73.19992	40.31388	-73.21872	36	10	NW	<2	B3	500-999	Clear	None	3.8	285	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:00	02:16	40.31388	-73.21872	40.31908	-73.20440	34	10	NW	<2	B3	500-999	Clear	None	3.9	343	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:16	02:25	40.31908	-73.20440	40.31890	-73.19348	36	6	NW	<2	B2	500-999	Clear	None	3.8	114	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:25	03:00	40.31890	-73.19348	40.31907	-73.14950	35	4	NW	<2	B2	500-999	Clear	None	3.5	104	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:21	40.31907	-73.14950	40.31907	-73.11423	36	3	NNW	<2	B2	500-999	Clear	None	3.9	96	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:21	03:24	40.31907	-73.11423	40.31918	-73.11010	37	2	NNW	<2	B2	500-999	Clear	None	4	98	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:24	03:57	40.31918	-73.11010	40.31503	-73.11223	37	2	NNW	<2	B2	500-999	Clear	None	3.8	98	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:57	04:00	40.31503	-73.11223	40.31502	-73.11507	38	6	NW	<2	B2	500-999	Clear	None	3.6	234	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:02	40.31502	-73.11507	40.31502	-73.11783	38	11	NNW	<2	B3	500-999	Clear	None	3.6	289	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:02	04:25	40.31502	-73.11783	40.32310	-73.13822	38	11	NNW	<2	B4	500-999	Clear	None	3.6	285	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:25	04:46	40.32310	-73.13822	40.32433	-73.11095	35	14	NW	<2	B4	500-999	Clear	None	3.9	68	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:46	05:00	40.32433	-73.11095	40.31547	-73.10275	38	10	NW	<2	B3	500-999	Clear	None	3.9	108	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:08	40.31547	-73.10275	40.31497	-73.11200	35	11	NNW	<2	B4	500-999	Clear	None	3.3	251	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:08	05:13	40.31497	-73.11200	40.31500	-73.12165	36	7	NNW	<2	B3	500-999	Clear	None	3.6	281	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:13	06:00	40.31500	-73.12165	40.31502	-73.17807	37	6	NNW	<2	B2	500-999	Clear	None	3.5	285	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:14	40.31502	-73.17807	40.31493	-73.19807	35	11	NW	<2	B4	500-999	Clear	None	3.8	278	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:14	06:17	40.31493	-73.19807	40.31493	-73.20110	36	15	NW	<2	B4	500-999	Clear	None	3.8	283	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:17	06:47	40.31493	-73.20110	40.31840	-73.20217	36	15	NW	<2	B4	500-999	Clear	None	3.8	281	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:47	06:52	40.31840	-73.20217	40.31847	-73.19528	35	4	NW	<2	B2	500-999	Clear	None	3.7	107	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:52	07:00	40.31847	-73.19528	40.31847	-73.18613	35	4	NW	<2	B2	500-999	Clear	None	3.8	100	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:50	40.31847	-73.18613	40.31853	-73.11533	36	3	NW	<2	B2	500-999	Clear	None	3.8	102	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:50	07:53	40.31853	-73.11533	40.31860	-73.11190	35	5	NW	<2	B2	500-999	Clear	None	3.8	101	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:53	08:00	40.31860	-73.11190	40.32008	-73.10652	35	5	NW	<2	B2	500-999	Clear	None	3.1	101	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:24	40.32008	-73.10652	40.31552	-73.11233	37	4	NW	<2	B2	500-999	Clear	None	2.9	25	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:24	08:28	40.31552	-73.11233	40.31555	-73.11828	36	9	NW	<2	B3	500-999	Clear	None	3.7	291	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:28	09:00	40.31555	-73.11828	40.31558	-73.15402	36	10	NW	<2	B3	500-999	Clear	None	3.6	291	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:28	40.31558	-73.15402	40.31557	-73.19833	36	11	NW	<2	B4	1000-1999	Clear	None	3.8	289	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:28	09:30	40.31557	-73.19833	40.31558	-73.20225	35	11	NW	<2	B4	2000-4999	Clear	None	3.9	291	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:30	10:00	40.31558	-73.20225	40.31790	-73.20660	36	11	NW	<2	B4	≥5000	Clear	None	4	290	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:02	40.31790	-73.20660	40.31787	-73.19557	34	12	NNW	<2	B4	≥5000	Clear	None	5	87	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:02	11:00	40.31787	-73.19557	40.31808	-73.12095	34	10	NNW	<2	B3	≥5000	Clear	None	4.7	84	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:02	40.31808	-73.12095	40.31810	-73.11565	34	10	NNW	<2	B3	≥5000	Clear	Severe	3.6	104	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:02	11:05	40.31810	-73.11565	40.31815	-73.11233	34	10	NNW	<2	B3	≥5000	Clear	Severe	3.7	104	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:05	11:48	40.31815	-73.11233	40.32680	-73.14332	34	10	NNW	<2	B3	≥5000	Clear	Severe	3.6	101	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:48	11:53	40.32680	-73.14332	40.32193	-73.14332	35	9	NNW	<2	B3	≥5000	Clear	Severe	4	198	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:53	12:05	40.32193	-73.14332	40.30975	-73.14333	35	10	NNW	<2	B3	≥5000	Clear	Severe	3.8	194	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:05	12:07	40.30975	-73.14333	40.30682	-73.14348	35	10	NNW	<2	B3	≥5000	Clear	Severe	3.8	193	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:07	12:36	40.30682	-73.14348	40.30538	-73.16687	35	10	NNW	<2	B3	≥5000	Clear	Severe	3.7	203	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:36	12:41	40.30538	-73.16687	40.31048	-73.16688	34	15	NNW	<2	B4	≥5000	Clear	Severe	3.4	12	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:41	12:54	40.31048	-73.16688	40.32282	-73.16850	34	14	NNW	<2	B4	≥5000	Clear	Severe	3.4	12	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:54	12:56	40.32282	-73.16850	40.32525	-73.16850	34	14	NNW	<2	B4	≥5000	Clear	Severe	3.6	12	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:56	13:00	40.32525	-73.16850	40.32810	-73.16620	35	15	NNW	<2	B4	≥5000	Clear	Severe	3.6	14	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.32810	-73.16620	40.31143	-73.15507	36	13	NNW	<2	B4	≥5000	Clear	Severe	3.4	38	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.31143	-73.15507	40.29720	-73.16775	36	8	WNW	<2	B3	≥5000	Clear	Severe	4.1	193	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.29720	-73.16775	40.30370	-73.17845	34	10	WNW	<2	B3	≥5000	Clear	Severe	3.9	264	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.30370	-73.17845	40.32687	-73.17867	38	6	NNW	<2	B2	≥5000	Clear	Severe	3.5	8	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.32687	-73.17867	40.32185	-73.19030	35	4	NNW	<2	B2	≥5000	Clear	Severe	3.9	11	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.32185	-73.19030	40.30448	-73.18857	34	5	WNW	<2	B2	≥5000	Clear	Severe	3.6	146	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:20	40.30448	-73.18857	40.29927	-73.15240	38	6	WNW	<2	B2	≥5000	Clear	Moderate	3.6	194	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:20	15:40	40.29927	-73.15240	40.29815	-73.13413	38	5	WNW	<2	B2	≥5000	Clear	Moderate	3.7	111	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:40	16:00	40.29815	-73.13413	40.31530	-73.13148	40	5	WNW	<2	B2	≥5000	Clear	Moderate	3.4	71	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.31530	-73.13148	40.33125	-73.14178	36	8	WSW	<2	B3	≥5000	Clear	Severe	3.7	15	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.33125	-73.14178	40.31887	-73.12255	36	11	WSW	<2	B4	≥5000	Clear	Severe	4.6	232	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.31887	-73.12255	40.31250	-73.09643	34	10	W	<2	B3	≥5000	Clear	Severe	3.8	121	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.31250	-73.09643	40.30562	-73.06812	34	7	SW	<2	B3	≥5000	Clear	Severe	4.1	124	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:20	17:41	40.30562	-73.06812	40.29877	-73.04028	38	10	SW	<2	B3	≥5000	Clear	Severe	4	121	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:41	18:00	40.29877	-73.04028	40.29028	-73.04150	36	10	SW	<2	B3	≥5000	Clear	Severe	3.9	123	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:35	40.29028	-73.04150	40.30455	-73.08607	40	14	SW	<2	B3	≥5000	Clear	Severe	3.9	319	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:35	19:00	40.30455	-73.08607	40.31228	-73.11800	38	13	W	<2	B3	≥5000	Clear	Moderate	3.7	301	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:20	40.31228	-73.11800	40.31817	-73.14325	38	11	SW	<2	B3	≥5000	Clear	Moderate	3.7	303	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:20	20:00	40.31817	-73.14325	40.32377	-73.17895	38	11	SW	<2	B3	≥5000	Clear	Moderate	3	300	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:30	40.32377	-73.17895	40.31955	-73.19530	36	10	SW	<2	B3	≥5000	Clear	Moderate	2.6	24	Deploying/Retrieving	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:30	21:00	40.31955	-73.19530	40.32023	-73.15742	34	6	SW	<2	B3	≥5000	Clear	Moderate	2.5	103	Deploying/Retrieving	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:10	40.32023	-73.15742	40.32220	-73.14287	36	7	SSW	<2	B3	≥5000	Clear	Moderate	3.7	90	Soft Start	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:10	21:19	40.32220	-73.14287	40.32127	-73.13028	36	8	SW	<2	B3	≥5000	Clear	Severe	3.8	94	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:19	21:25	40.32127	-73.13028	40.31942	-73.12268	36	6	SSE	<2	B3	≥5000	Clear	Severe	3.7	123	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:25	22:00	40.31942	-73.12268	40.30952	-73.08193	36	7	SSE	<2	B3	≥5000	Clear	Severe	3.7	119	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:24	40.30952	-73.08193	40.30067	-73.04527	38	9	SSE	<2	B3	≥5000	Clear	Severe	3.8	120	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:24	22:32	40.30067	-73.04527	40.29762	-73.03475	36	14	SSE	<2	B4	≥5000	Clear	Severe	3.8	123	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:32	22:56	40.29762	-73.03475	40.29693	-73.05252	36	14	SSE	<2	B4	≥5000	Clear	Severe	3.5	141	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:56	23:00	40.29693	-73.05252	40.29630	-73.05722	35	15	SSE	<2	B4	≥5000	Clear	Severe	3.7	299	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:02	40.29630	-73.05722	40.29872	-73.05982	35	15	SSE	<2	B4	≥5000	Clear	Severe	3.9	300	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:02	23:53	40.29872	-73.05982	40.31528	-73.12778	35	15	SSE	<2	B4	≥5000	Clear	Severe	3.8	300	Full Power	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:53	23:55	40.31528	-73.12778	40.31593	-73.13067	36	15	SSE	<2	B4	≥5000	Clear	Slight	3.7	301	Silent	N/A
2023-07-11	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:55	00:00	40.31593	-73.13067	40.31647	-73.13315	36	15	SSE	<2	B4	≥5000	Clear	Slight	3.8	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:27	40.31647	-73.13315	40.31817	-73.13173	36	15	SSE	<2	B4	≥5000	Clear	Slight	3.8	299	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:27	00:33	40.31817	-73.13173	40.31593	-73.12227	36	14	S	<2	B4	2000-4999	Clear	None	4.1	120	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:33	01:00	40.31593	-73.12227	40.30875	-73.09247	36	11	S	<2	B4	1000-1999	Clear	None	3.9	114	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:00	01:31	40.30875	-73.09247	40.29788	-73.04820	38	9	SW	<2	B3	500-999	Clear	None	3.8	121	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:31	01:33	40.29788	-73.04820	40.29680	-73.04343	40	10	SW	<2	B3	500-999	Clear	None	3.9	119	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:33	02:00	40.29680	-73.04343	40.29097	-73.04155	40	10	SW	<2	B3	500-999	Clear	None	3.8	122	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:00	02:13	40.29097	-73.04155	40.29723	-73.05117	38	10	SW	<2	B3	500-999	Clear	None	3.6	349	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:13	02:18	40.29723	-73.05117	40.29895	-73.05837	40	14	SW	<2	B3	500-999	Clear	None	3.8	289	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:18	03:00	40.29895	-73.05837	40.31168	-73.11060	40	14	SW	<2	B3	500-999	Clear	None	3.8	303	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:12	40.31168	-73.11060	40.31588	-73.12807	38	15	SW	<2	B4	500-999	Clear	None	3.7	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:12	03:14	40.31588	-73.12807	40.31655	-73.13073	38	15	SW	<2	B4	500-999	Clear	None	3.7	304	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:14	03:57	40.31655	-73.13073	40.31760	-73.13133	38	15	SW	<2	B4	500-999	Clear	None	3.6	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:57	04:00	40.31760	-73.13133	40.31677	-73.12783	36	8	SW	<2	B3	500-999	Clear	None	3.9	124	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:02	40.31677	-73.12783	40.31628	-73.12590	36	8	SW	<2	B3	500-999	Clear	None	3.8	105	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:02	04:59	40.31628	-73.12590	40.29822	-73.05130	36	8	SW	<2	B3	500-999	Clear	None	3.9	106	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:59	05:00	40.29822	-73.05130	40.29755	-73.04877	39	6	SW	<2	B2	500-999	Clear	None	3.6	110	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	05:00	05:02	40.29755	-73.04877	40.29728	-73.04772	40	5	SW	<2	B2	500-999	Clear	None	3.7	109	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:02	05:06	40.29728	-73.04772	40.29597	-73.04253	40	5	SW	<2	B2	500-999	Clear	None	3.7	109	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:06	05:26	40.29597	-73.04253	40.28580	-73.02422	40	7	SW	<2	B3	500-999	Clear	None	3.1	110	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:26	05:54	40.28580	-73.02422	40.29995	-73.04138	40	6	SW	<2	B2	500-999	Clear	None	3.7	107	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:54	05:59	40.29995	-73.04138	40.30152	-73.04755	40	7	SW	<2	B3	500-999	Clear	None	3.8	296	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:59	06:00	40.30152	-73.04755	40.30170	-73.04843	40	8	SW	<2	B3	500-999	Clear	None	3.8	302	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:59	40.30170	-73.04843	40.32078	-73.12718	40	8	SW	<2	B3	500-999	Clear	None	3.8	299	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:59	07:02	40.32078	-73.12718	40.32153	-73.12995	40	12	SW	<2	B3	500-999	Clear	None	3.7	300	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:02	07:28	40.32153	-73.12995	40.31707	-73.13172	40	13	SW	<2	B3	500-999	Clear	None	3.5	313	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:28	07:32	40.31707	-73.13172	40.31580	-73.12592	38	16	SW	<2	B3	500-999	Clear	None	3.9	119	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:32	08:00	40.31580	-73.12592	40.30745	-73.09175	38	15	SW	<2	B3	500-999	Clear	None	3.3	120	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:29	40.30745	-73.09175	40.29818	-73.05385	38	5	SW	<2	B2	500-999	Clear	None	3.6	107	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:29	08:32	40.29818	-73.05385	40.29740	-73.05033	40	5	SW	<2	B2	500-999	Clear	None	3.7	108	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:32	08:58	40.29740	-73.05033	40.29923	-73.03912	40	6	SW	<2	B2	500-999	Clear	None	3.5	126	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:58	09:00	40.29923	-73.03912	40.29953	-73.04177	40	7	SW	<2	B3	500-999	Clear	None	4.5	292	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:03	40.29953	-73.04177	40.30092	-73.04765	40	7	SW	<2	B3	1000-1999	Clear	None	4.2	293	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:03	10:00	40.30092	-73.04765	40.31882	-73.12117	40	6	SW	<2	B2	2000-4999	Clear	None	3.7	270	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:03	40.31882	-73.12117	40.32018	-73.12692	36	6	SW	<2	B2	≥5000	Clear	Slight	3.7	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:03	10:06	40.32018	-73.12692	40.32108	-73.12975	36	7	SW	<2	B3	≥5000	Clear	Slight	3.8	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:06	10:29	40.32108	-73.12975	40.31690	-73.13252	36	9	SW	<2	B3	≥5000	Clear	Slight	3.8	329	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:29	10:34	40.31690	-73.13252	40.31517	-73.12600	36	6	SW	<2	B2	≥5000	Clear	Moderate	3.9	107	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:34	11:00	40.31517	-73.12600	40.30820	-73.09728	36	5	SW	<2	B2	≥5000	Clear	Moderate	3.8	106	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:28	40.30820	-73.09728	40.29698	-73.05133	38	6	SW	<2	B2	≥5000	Clear	Moderate	3.9	123	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:28	11:32	40.29698	-73.05133	40.29623	-73.04762	38	6	SW	<2	B2	≥5000	Clear	Moderate	4.1	120	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:32	11:59	40.29623	-73.04762	40.29908	-73.04257	38	5	SW	<2	B2	≥5000	Clear	Moderate	3.8	141	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:59	12:03	40.29908	-73.04257	40.30027	-73.04727	38	7	SW	<2	B3	≥5000	Clear	Moderate	4.2	302	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:03	13:00	40.30027	-73.04727	40.31735	-73.11790	38	7	SW	<2	B3	≥5000	Clear	Moderate	3.6	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:04	40.31735	-73.11790	40.31958	-73.12685	36	8	WNW	<2	B3	≥5000	Clear	Severe	3.9	299	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:04	13:06	40.31958	-73.12685	40.31958	-73.12685	36	9	WSW	<2	B3	≥5000	Clear	Severe	4	300	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:06	13:33	40.31958	-73.12685	40.31608	-73.13210	36	10	WSW	<2	B3	≥5000	Clear	Severe	4	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:33	13:38	40.31608	-73.13210	40.31417	-73.12423	36	9	WSW	<2	B3	≥5000	Clear	Severe	3.8	119	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:38	14:00	40.31417	-73.12423	40.30885	-73.10232	36	9	WSW	<2	B3	≥5000	Clear	Severe	3.9	122	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:28	40.30885	-73.10232	40.29808	-73.05823	36	5	WSW	<2	B2	≥5000	Clear	Severe	3.9	114	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:28	14:31	40.29808	-73.05823	40.29715	-73.05392	36	4	WSW	<2	B2	≥5000	Clear	Severe	4	113	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:31	15:00	40.29715	-73.05392	40.29588	-73.04007	36	3	WSW	<2	B1	≥5000	Clear	Severe	4	113	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:01	40.29588	-73.04007	40.29705	-73.04568	40	13	NW	<2	B2	≥5000	Clear	Severe	3.9	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:01	15:34	40.29705	-73.04568	40.29408	-73.03223	40	13	NW	<2	B2	≥5000	Clear	Severe	4	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:34	15:44	40.29408	-73.03223	40.29652	-73.04390	40	11	NW	<2	B2	≥5000	Clear	Severe	4	257	Soft Start	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:44	15:45	40.29652	-73.04390	40.29652	-73.04390	40	11	NW	<2	B2	≥5000	Clear	Severe	3.7	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:45	15:50	40.29652	-73.04390	40.29698	-73.04552	40	11	NW	<2	B2	≥5000	Clear	Severe	3.7	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:50	16:00	40.29698	-73.04552	40.30080	-73.06117	40	11	NW	<2	B2	≥5000	Clear	Severe	3.7	302	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:49	40.30080	-73.06117	40.31720	-73.12877	38	11	W	<2	B3	≥5000	Clear	Severe	3.7	302	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:49	16:52	40.31720	-73.12877	40.31820	-73.13302	36	10	WSW	<2	B3	≥5000	Clear	Moderate	3.8	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:52	17:23	40.31820	-73.13302	40.32187	-73.13035	36	10	WSW	<2	B3	≥5000	Clear	Moderate	3.9	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:23	17:29	40.32187	-73.13035	40.31987	-73.12220	36	6	SSE	<2	B3	≥5000	Clear	Moderate	3.7	123	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:29	18:00	40.31987	-73.12220	40.31040	-73.08327	36	5	SSE	<2	B3	≥5000	Clear	Moderate	3.8	122	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:29	40.31040	-73.08327	40.30105	-73.04780	38	7	SSE	<2	B3	≥5000	Clear	Moderate	3.8	120	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:29	18:31	40.30105	-73.04780	40.30078	-73.04373	40	8	SSE	<2	B3	≥5000	Clear	Moderate	3.8	121	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:31	18:57	40.30078	-73.04373	40.29608	-73.04428	40	8	SSE	<2	B3	≥5000	Clear	Moderate	3.3	121	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:57	19:06	40.29608	-73.04428	40.29897	-73.05610	40	11	SW	<2	B3	≥5000	Clear	Moderate	3.7	305	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:06	20:03	40.31525	-73.12300	40.31653	-73.12840	40	11	SW	<2	B3	≥5000	Clear	Moderate	4	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:03	20:05	40.31653	-73.12840	40.31745	-73.13218	38	12	SW	<2	B3	≥5000	Clear	Moderate	4	300	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:05	20:32	40.31745	-73.13218	40.31638	-73.13640	38	12	SW	<2	B3	≥5000	Clear	Moderate	4	302	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:32	20:42	40.31638	-73.13640	40.31352	-73.12412	38	12	S	<2	B3	≥5000	Clear	Moderate	3.9	113	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:42	21:00	40.31352	-73.12412	40.30825	-73.10250	38	12	S	<2	B3	≥5000	Clear	Moderate	3.8	121	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:30	40.30825	-73.10250	40.29775	-73.05923	48	11	SSE	<2	B3	≥5000	Clear	Severe	3.8	122	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:30	21:33	40.29775	-73.05923	40.29700	-73.05607	40	10	SE	<2	B3	≥5000	Clear	Severe	4	121	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:33	22:00	40.29700	-73.05607	40.29578	-73.03450	40	10	SE	<2	B3	≥5000	Clear	Severe	4	121	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:03	40.29578	-73.03450	40.29825	-73.04155	38	15	SE	<2	B4	≥5000	Clear	Severe	3.8	329	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:03	22:10	40.29825	-73.04155	40.30033	-73.05005	38	15	SE	<2	B4	≥5000	Clear	Severe	3.8	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:10	23:00	40.30033	-73.05005	40.31672	-73.11732	38	15	SE	<2	B4	≥5000	Clear	Severe	3.8	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:06	40.31672	-73.11732	40.31920	-73.12748	38	11	SE	<2	B4	≥5000	Clear	Severe	3.8	300	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:06	23:10	40.31920	-73.12748	40.32010	-73.13098	38	11	SE	<2	B4	≥5000	Clear	Slight	3.9	301	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:10	23:42	40.32010	-73.13098	40.32010	-73.13800	38	11	SE	<2	B4	≥5000	Clear	Slight	3.8	301	Full Power	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:42	23:49	40.32010	-73.13800	40.31770	-73.12378	36	11	SE	<2	B4	≥5000	Clear	Slight	3.7	116	Silent	N/A
2023-07-12	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:49	00:00	40.31770	-73.12378	40.31507	-73.11302	36	11	SE	<2	B4	≥5000	Clear	Slight	3.8	121	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:49	40.31507	-73.11302	40.29857	-73.04502	36	9	SSE	<2	B3	≥5000	Clear	None	3.9	122	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:49	00:51	40.29857	-73.04502	40.29793	-73.04228	36	9	SSE	<2	B3	2000-4999	Clear	None	3.8	122	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:51	01:00	40.29793	-73.04228	40.29577	-73.03373	36	13	SSE	<2	B4	1000-1999	Clear	None	3.8	121	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:36	40.29577	-73.03373	40.28793	-73.05718	40	12	SSW	<2	B4	500-999	Clear	None	3.8	125	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:36	01:44	40.28793	-73.05718	40.29522	-73.05443	40	9	SSE	<2	B3	500-999	Cloudy	None	4	29	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:44	01:54	40.29522	-73.05443	40.30788	-73.04918	40	11	SSE	<2	B4	500-999	Cloudy	None	3.8	36	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:54	01:57	40.30788	-73.04918	40.30973	-73.04847	40	12	SSE	<2	B4	500-999	Cloudy	None	3.9	31	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:57	02:16	40.30973	-73.04847	40.31398	-73.05882	40	10	SSE	<2	B3	500-999	Cloudy	None	3.9	30	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:16	02:24	40.31398	-73.05882	40.30652	-73.06203	40	18	SSE	<2	B5	500-999	Cloudy	None	3.9	217	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:24	02:34	40.30652	-73.06203	40.29570	-73.06653	40	18	SSE	<2	B5	500-999	Cloudy	None	3.9	209	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:34	02:37	40.29570	-73.06653	40.29292	-73.06770	40	19	S	<2	B5	500-999	Cloudy	None	3.9	211	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:37	02:58	40.29292	-73.06770	40.29397	-73.07962	40	20	S	<2	B5	500-999	Cloudy	None	3.8	211	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	02:58	03:00	40.29397	-73.07962	40.29562	-73.07890	40	6	S	<2	B2	500-999	Clear	None	3.9	24	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:04	40.29562	-73.07890	40.30077	-73.07677	40	7	S	<2	B3	500-999	Clear	None	3.8	24	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:04	03:15	40.30077	-73.07677	40.31188	-73.07217	40	6	S	<2	B2	500-999	Clear	None	3.8	21	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:15	03:20	40.31188	-73.07217	40.31682	-73.07020	40	5	S	<2	B2	500-999	Clear	None	3.8	23	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:20	03:38	40.31682	-73.07020	40.31825	-73.08180	38	6	S	<2	B2	500-999	Clear	None	3.8	21	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:38	03:44	40.31825	-73.08180	40.31185	-73.08457	38	10	SSE	<2	B3	500-999	Clear	None	3.8	205	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:44	03:55	40.31185	-73.08457	40.30120	-73.08897	38	19	S	<2	B5	500-999	Clear	None	3.7	206	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:55	03:58	40.30120	-73.08897	40.29885	-73.08990	38	13	S	<2	B4	500-999	Clear	None	3.7	207	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:58	04:00	40.29885	-73.08990	40.29637	-73.09093	38	13	S	<2	B4	500-999	Clear	None	3.7	206	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:20	40.29637	-73.09093	40.29902	-73.10218	40	19	S	<2	B5	500-999	Clear	None	3.6	210	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:20	04:40	40.29902	-73.10218	40.32028	-73.09335	40	11	S	<2	B4	500-999	Clear	None	3.9	33	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:40	05:00	40.32028	-73.09335	40.32492	-73.10375	40	11	S	<2	B4	500-999	Clear	None	3.8	34	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:20	40.32492	-73.10375	40.30692	-73.11130	38	19	S	<2	B5	500-999	Clear	None	3.6	213	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	05:40	40.30692	-73.11130	40.29788	-73.12480	40	18	S	<2	B5	500-999	Clear	None	3.9	211	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:40	06:00	40.29788	-73.12480	40.32022	-73.11812	40	13	S	<2	B4	500-999	Clear	None	3.7	337	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:20	40.32022	-73.11812	40.32137	-73.10020	36	8	S	<2	B3	500-999	Clear	None	3.8	30	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:40	40.32137	-73.10020	40.31822	-73.12565	36	8	S	<2	B3	500-999	Clear	None	4.1	212	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:40	07:00	40.31822	-73.12565	40.31818	-73.15187	36	8	S	<2	B3	500-999	Clear	None	3.9	283	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:20	40.31818	-73.15187	40.31813	-73.19028	38	16	S	<2	B4	500-999	Clear	None	3.9	284	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:20	07:39	40.31813	-73.19028	40.31847	-73.20712	38	15	S	<2	B4	500-999	Clear	None	4	278	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:39	08:02	40.31847	-73.20712	40.32125	-73.23167	38	15	S	<2	B4	500-999	Clear	None	3.9	294	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:02	08:20	40.32125	-73.23167	40.32668	-73.25780	34	13	S	<2	B4	500-999	Clear	None	3.6	280	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:20	08:23	40.32668	-73.25780	40.34360	-73.27817	34	9	SSW	<2	B3	500-999	Clear	None	3.9	324	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:23	09:00	40.34360	-73.27817	40.36325	-73.30180	32	7	SSW	<2	B3	500-999	Clear	None	3.8	323	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.36325	-73.30180	40.37622	-73.31750	32	9	SSW	<2	B3	1000-1999	Clear	None	3.8	321	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.37622	-73.31750	40.39080	-73.33525	32	8	SSW	<2	B3	2000-4999	Clear	None	3.9	320	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.39080	-73.33525	40.40528	-73.35282	30	7	SSW	<2	B3	≥5000	Clear	None	3.8	318	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.40528	-73.35282	40.42152	-73.37237	29	8	SSW	<2	B3	≥5000	Clear	Slight	3.8	319	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.42152	-73.37237	40.43515	-73.38887	32	6	SSW	<2	B2	≥5000	Clear	Slight	3.7	319	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.43515	-73.38887	40.44032	-73.40613	24	5	SSW	<2	B2	≥5000	Clear	Moderate	3.7	320	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:20	40.44032	-73.40613	40.41885	-73.38965	24	5	SSW	<2	B2	≥5000	Clear	Moderate	3.6	234	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:20	11:40	40.41885	-73.38965	40.43478	-73.39417	24	6	SSW	<2	B2	≥5000	Clear	Moderate	3.9	147	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:40	12:00	40.43478	-73.39417	40.45352	-73.41693	24	10	SSW	<2	B3	≥5000	Clear	Moderate	3.6	329	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:20	40.45352	-73.41693	40.46625	-73.43228	25	10	SSW	<2	B3	≥5000	Clear	Moderate	3.8	329	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:20	12:40	40.46625	-73.43228	40.48052	-73.44958	25	10	SSW	<2	B3	≥5000	Clear	Moderate	3.9	331	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.48052	-73.44958	40.49458	-73.46667	25	9	SSW	<2	B3	≥5000	Clear	Moderate	4	331	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.49458	-73.46667	40.54005	-73.52205	28	8	SSW	<2	B3	≥5000	Clear	Severe	3.8	331	Full Power	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:01	40.54005	-73.52205	40.53702	-73.52430	20	8	SSW	<2	B3	≥5000	Cloudy	Slight	3.6	314	Silent	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:01	14:51	40.53702	-73.52430	40.52170	-73.52803	20	7	SSW	<2	B3	≥5000	Cloudy	Slight	3	311	Standby	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:51	14:55	40.52170	-73.52803	40.52282	-73.52638	20	9	SSW	<2	B3	≥5000	Cloudy	Slight	1.4	97	Deploying/Retrieving	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:55	15:00	40.52282	-73.52638	40.52590	-73.53075	20	10	SSW	<2	B3	≥5000	Cloudy	Moderate	3.3	326	Transit	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	16:00	40.52590	-73.53075	40.51873	-73.73232	20	10	S	<2	B3	≥5000	Cloudy	Moderate	9.3	314	Transit	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	17:00	40.51873	-73.73232	40.50463	-73.93247	26	11	WNW	<2	B4	≥5000	Cloudy	Moderate	8.8	280	Transit	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	18:00	40.50463	-73.93247	40.56817	-74.03033	18	13	N	<2	B4	≥5000	Cloudy	Slight	8.7	274	Transit	N/A
2023-07-13	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:41	40.56817	-74.03033	40.61737	-74.06422	18	17	S	<2	B4	≥5000	Cloudy	Slight	6.7	0	Transit	N/A
2023-07-14	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:42	23:00	40.61738	-74.06420	40.64407	-74.05630	18	11	S	<2	B4	1000-1999	Precipitation	None	0.1	154	Transit	N/A
2023-07-14	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	00:00	40.64407	-74.05630	40.77923	-73.93398	22	11	S	<2	B4	1000-1999	Precipitation	None	9.8	16	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	01:00	40.77923	-73.93398	40.83327	-73.77268	10	13	ESE	<2	B4	1000-1999	Cloudy	None	10.7	85	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	02:00	40.83327	-73.77268	40.94583	-73.63353	18	10	ESE	<2	B3	500-999	Cloudy	None	9.1	54	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	03:00	40.94583	-73.63353	40.97510	-73.59783	17	2	NE	<2	B3	500-999	Cloudy	None	9.4	61	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	03:00	04:00	40.97510	-73.59783	40.97043	-73.60577	15	4	NE	<2	B2	500-999	Cloudy	None	0.5	57	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	04:00	05:00	40.97043	-73.60577	40.96973	-73.60395	21	17	NE	<2	B5	500-999	Precipitation	None	1.6	237	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	05:00	06:00	40.96973	-73.60395	40.96785	-73.61612	14	3	NNE	<2	B1	500-999	Precipitation	None	0.8	106	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	07:00	40.96785	-73.61612	40.97098	-73.60957	16	2	NE	<2	B1	500-999	Cloudy	None	0.4	332	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	08:00	40.97098	-73.60957	40.97595	-73.58423	16	3	NNE	<2	B1	500-999	Cloudy	None	0.2	138	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	09:00	40.97595	-73.58423	41.03843	-73.37798	16	5	NNE	<2	B1	500-999	Cloudy	None	9.3	74	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	10:00	41.03843	-73.37798	41.10335	-73.22210	14	6	NNW	<2	B2	1000-1999	Clear	None	8.9	65	Transit	N/A
2023-07-15	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:32	41.10335	-73.22210	41.16657	-73.17413	17	5	NNW	<2	B2	≥5000	Clear	None	8.8	70	Transit	N/A
2023-07-17	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:09	23:00	41.17000	-73.17492	41.17000	-73.17492	14	7	SW	<2	B3	≥5000	Clear	Slight	0.1	38	Transit	N/A
2023-07-17	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	00:00	41.08542	-73.26248	41.08542	-73.26248	16	18	SW	<2	B5	≥5000	Clear	Slight	9.3	258	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	01:00	41.02067	-73.41477	41.02067	-73.41477	11	13	WSW	<2	B4	2000-4999	Clear	None	7.9	253	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	02:00	40.96173	-73.55037	40.96173	-73.55037	12	11	SW	<2	B4	500-999	Cloudy	None	7.5	254	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	03:00	40.88960	-73.71200	40.88960	-73.71200	14	5	S	<2	B2	500-999	Clear	None	7.5	240	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	03:00	04:00	40.80082	-73.78985	40.80082	-73.78985	16	10	SW	<2	B3	500-999	Clear	None	6.8	275	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	04:00	05:00	40.74232	-73.96920	40.74232	-73.96920	11	11	SW	<2	B4	500-999	Cloudy	None	10.6	197	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:00	06:00	40.62782	-74.05283	40.62782	-74.05283	16	12	SW	<2	B4	500-999	Cloudy	None	9.4	172	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:00	07:00	40.50413	-73.94650	40.50413	-73.94650	20	14	SW	<2	B4	500-999	Cloudy	None	9.6	107	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:00	08:00	40.54138	-73.88353	40.54138	-73.88353	9	2	SW	<2	B1	500-999	Cloudy	None	4.3	56	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	09:00	40.55337	-73.73637	40.55337	-73.73637	14	2	SW	<2	B1	500-999	Cloudy	None	7.4	100	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:35	40.55352	-73.70540	40.55352	-73.70540	13	2	SW	<2	B1	1000-1999	Cloudy	None	0.3	275	Transit	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:35	10:00	40.55607	-73.70813	40.55607	-73.70813	13	3	SW	<2	B1	2000-4999	Cloudy	None	0.5	272	Standby	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:04	40.54650	-73.69660	40.54650	-73.69660	16	5	SW	<2	B1	2000-4999	Cloudy	None	2.6	152	Standby	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:04	10:47	40.54362	-73.69388	40.54362	-73.69388	16	4	SW	<2	B1	2000-4999	Cloudy	None	2.6	152	Deploying/Retrieving	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:47	10:58	40.51075	-73.66668	40.51075	-73.66668	18	3	SW	<2	B1	2000-4999	Cloudy	None	3.7	70	Soft Start	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:58	11:00	40.52088	-73.66310	40.52088	-73.66310	16	2	SW	<2	B1	2000-4999	Cloudy	None	4.3	334	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:59	40.51985	-73.66243	40.51985	-73.66243	15	3	SW	<2	B1	2000-4999	Cloudy	None	4.1	348	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:59	12:03	40.54647	-73.67030	40.54647	-73.67030	16	3	SW	<2	B1	2000-4999	Cloudy	None	4	111	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:03	12:27	40.54572	-73.66145	40.54572	-73.66145	16	3	SW	<2	B1	2000-4999	Cloudy	None	4.1	106	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:27	12:29	40.54310	-73.62958	40.54300	-73.62958	16	3	SW	<2	B1	2000-4999	Cloudy	None	4	108	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:29	13:00	40.54288	-73.62642	40.54288	-73.62642	16	3	SW	<2	B1	2000-4999	Cloudy	None	3.9	108	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:04	40.54570	-73.62210	40.54570	-73.62210	12	10	WSW	<2	B3	2000-4999	Cloudy	Moderate	4.1	290	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:04	13:29	40.54658	-73.63085	40.54658	-73.63085	12	8	WSW	<2	B3	2000-4999	Cloudy	Moderate	4.2	289	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:29	13:33	40.54973	-73.66755	40.54973	-73.66755	12	11	WSW	<2	B4	2000-4999	Cloudy	None	3.7	290	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:33	14:00	40.55117	-73.67213	40.55117	-73.67213	14	13	WSW	<2	B4	2000-4999	Cloudy	None	3.9	317	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:46	40.54553	-73.66247	40.54553	-73.66247	15	9	S	<2	B3	≥5000	Cloudy	None	3.7	113	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:46	14:52	40.54643	-73.67268	40.54643	-73.67268	15	5	S	<2	B2	≥5000	Cloudy	None	3.9	110	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:52	15:00	40.54572	-73.66520	40.54572	-73.66520	15	7	S	<2	B3	≥5000	Cloudy	None	3.7	106	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:17	40.54500	-73.65657	40.54500	-73.65657	14	10	S	<2	B3	≥5000	Cloudy	None	3.9	108	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:17	15:21	40.54288	-73.63032	40.54288	-73.63032	15	12	S	<2	B3	≥5000	Cloudy	Slight	3.9	105	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:21	15:43	40.54118	-73.62598	40.54118	-73.62598	15	12	S	<2	B3	≥5000	Cloudy	Slight	3.4	147	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:43	15:49	40.54565	-73.62393	40.54565	-73.62393	12	13	S	<2	B3	≥5000	Cloudy	Slight	3.1	289	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:49	16:00	40.54632	-73.63183	40.54632	-73.63183	12	12	S	<2	B3	≥5000	Cloudy	Slight	3.8	290	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:17	40.54730	-73.64357	40.54730	-73.64357	12	10	WNW	<2	B3	≥5000	Cloudy	Moderate	3.3	289	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:17	16:19	40.54922	-73.66665	40.54922	-73.66665	13	9	WNW	<2	B3	≥5000	Cloudy	None	3.2	286	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:19	16:42	40.54933	-73.66832	40.54933	-73.66832	13	10	WNW	<2	B3	≥5000	Cloudy	None	3.2	287	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:42	16:48	40.54645	-73.67057	40.54645	-73.67057	12	13	ESE	<2	B4	≥5000	Cloudy	None	3.7	114	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:48	17:12	40.54562	-73.66203	40.54562	-73.66203	14	16	ESE	<2	B4	≥5000	Cloudy	None	3.9	112	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:12	17:14	40.54295	-73.63005	40.54295	-73.63005	12	14	SSE	<2	B4	≥5000	Cloudy	None	3.8	110	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:14	17:36	40.54253	-73.62755	40.54253	-73.62755	12	16	SSE	<2	B4	≥5000	Cloudy	None	3.6	128	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:36	17:43	40.54580	-73.62430	40.54580	-73.62430	12	20	WNW	<2	B5	2000-4999	Precipitation	None	3.4	288	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:43	17:44	40.54653	-73.63243	40.54653	-73.63243	12	27	WNW	<2	B6	2000-4999	Precipitation	None	3	297	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:44	18:00	40.54668	-73.63410	40.54668	-73.63410	12	26	WNW	<2	B6	2000-4999	Cloudy	None	3	265	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	18:00	18:02	40.54820	-73.65178	40.54820	-73.65178	12	22	S	<2	B6	2000-4999	Cloudy	None	3.5	291	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	18:02	18:05	40.54862	-73.65647	40.54862	-73.65647	12	19	SW	<2	B6	500-999	Precipitation	None	3.4	302	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Ortega Arana, Jimena	RPS	18:05	18:19	40.54903	-73.65922	40.54903	-73.65922	12	35	W	<2	B8	200-499	Precipitation	None	3.1	283	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:19	18:28	40.55007	-73.67437	40.55007	-73.67437	14	18	WNW	<2	B5	500-999	Precipitation	None	3.7	287	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:28	19:01	40.55113	-73.68737	40.55113	-73.68737	14	11	WNW	<2	B5	500-999	Precipitation	None	3.7	289	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:01	19:11	40.54850	-73.69433	40.54850	-73.69433	15	13	ESE	<2	B4	2000-4999	Cloudy	None	4	101	Soft Start	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:11	19:18	40.54693	-73.68040	40.54693	-73.68040	14	12	ESE	<2	B4	2000-4999	Cloudy	None	3.9	112	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:18	19:24	40.54612	-73.67150	40.54612	-73.67150	14	9	ESE	<2	B3	2000-4999	Cloudy	None	4	112	Silent	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:24	19:38	40.54540	-73.66273	40.54540	-73.66273	14	6	ESE	<2	B3	2000-4999	Cloudy	None	3.9	108	Full Power	N/A
2023-07-18	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:38	19:47	40.54385	-73.64382	40.54385	-73.64382	12	3	SSE	<2	B3	2000-4999	Precipitation	None	4.1	110	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:47	19:48	40.54272	-73.63063	40.54272	-73.63063	12	2	SSE	<2	B3	2000-4999	Cloudy	None	4	111	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:48	20:00	40.54250	-73.62763	40.54250	-73.62763	12	2	SSE	<2	B3	2000-4999	Cloudy	None	4	108	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	20:07	40.54283	-73.61670	40.54283	-73.61670	12	7	NNE	<2	B3	2000-4999	Cloudy	None	3.7	25	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:07	20:14	40.54618	-73.62365	40.54618	-73.62365	12	5	S	<2	B3	2000-4999	Cloudy	None	3.1	283	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:14	20:41	40.54662	-73.63297	40.54662	-73.63297	12	5	S	<2	B3	2000-4999	Cloudy	None	3.4	293	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:41	20:43	40.54933	-73.66642	40.54933	-73.66642	13	6	SSE	<2	B3	2000-4999	Cloudy	None	3.4	287	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:43	20:59	40.55008	-73.67053	40.55008	-73.67053	13	6	SSE	<2	B3	2000-4999	Cloudy	None	4.1	306	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:59	21:05	40.54638	-73.67525	40.54638	-73.67525	14	10	SSE	<2	B3	2000-4999	Cloudy	None	3.9	112	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:05	21:29	40.54535	-73.66303	40.54535	-73.66303	14	10	SSE	<2	B3	2000-4999	Cloudy	None	3.7	110	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:29	21:31	40.54253	-73.63018	40.54253	-73.63018	14	4	SSW	<2	B2	2000-4999	Cloudy	None	3.8	109	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:31	21:44	40.54207	-73.62840	40.54207	-73.62840	14	7	SSW	<2	B3	2000-4999	Precipitation	None	3.4	140	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:44	21:50	40.54350	-73.61833	40.54350	-73.61833	14	6	SSW	<2	B3	1000-1999	Precipitation	None	3.7	7	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:50	21:56	40.54615	-73.62502	40.54615	-73.62502	12	8	SSW	<2	B3	2000-4999	Precipitation	None	3.5	264	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:56	22:00	40.54637	-73.63350	40.54637	-73.63350	12	6	SSW	<2	B3	2000-4999	Cloudy	Moderate	3.7	290	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:00	22:21	40.54650	-73.63513	40.54650	-73.63513	12	6	SSW	<2	B2	2000-4999	Cloudy	Moderate	3.8	287	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:21	22:24	40.54917	-73.66700	40.54917	-73.66700	12	6	SSW	<2	B2	2000-4999	Clear	Moderate	3.7	289	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:24	22:40	40.54932	-73.66895	40.54932	-73.66895	15	6	SSW	<2	B2	2000-4999	Clear	Moderate	3.7	289	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:40	22:46	40.54572	-73.67163	40.54572	-73.67163	13	8	SSW	<2	B3	2000-4999	Clear	Moderate	3.6	109	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:46	23:00	40.54517	-73.66350	40.54517	-73.66350	12	12	SSW	<2	B4	2000-4999	Clear	Moderate	3.6	112	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:10	40.54390	-73.64827	40.54390	-73.64827	12	12	SSW	<2	B4	2000-4999	Clear	Moderate	3.7	110	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:10	23:12	40.54247	-73.63133	40.54247	-73.63133	13	9	SSW	<2	B3	2000-4999	Clear	None	3.7	111	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:12	23:29	40.54230	-73.62917	40.54230	-73.62917	13	9	SSW	<2	B3	2000-4999	Cloudy	None	3.7	110	Full Power	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:29	23:36	40.54558	-73.62363	40.54558	-73.62363	12	9	SSW	<2	B3	2000-4999	Cloudy	None	3.6	285	Silent	N/A
2023-07-18	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:36	00:00	40.54615	-73.63290	40.54615	-73.63290	13	9	SSW	<2	B3	2000-4999	Cloudy	None	3.7	292	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:01	40.54820	-73.65773	40.54820	-73.65773	12	8	WSW	<2	B3	2000-4999	Cloudy	None	3.8	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:01	00:04	40.54898	-73.66627	40.54898	-73.66627	12	7	WSW	<2	B3	2000-4999	Cloudy	None	3.6	293	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:04	00:23	40.54935	-73.66958	40.54935	-73.66958	12	8	WSW	<2	B3	2000-4999	Cloudy	None	3.6	302	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:23	00:29	40.54552	-73.67145	40.54552	-73.67145	12	7	ESE	<2	B3	2000-4999	Cloudy	None	3.8	83	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:29	00:53	40.54502	-73.66293	40.54502	-73.66293	12	9	ESE	<2	B3	1000-1999	Cloudy	None	3.7	107	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:53	00:55	40.54232	-73.63065	40.54232	-73.63065	12	14	S	<2	B3	1000-1999	Cloudy	None	3.9	108	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:55	01:00	40.54210	-73.62783	40.54210	-73.62783	12	14	S	<2	B3	1000-1999	Cloudy	None	3.8	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:15	40.54095	-73.62470	40.54095	-73.62470	12	14	S	<2	B3	500-999	Cloudy	None	3.1	161	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:15	01:24	40.54675	-73.62232	40.54675	-73.62232	12	12	S	<2	B4	500-999	Cloudy	None	3.3	267	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:24	01:49	40.54592	-73.63220	40.54592	-73.63220	12	10	S	<2	B3	500-999	Cloudy	None	3.6	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:49	01:51	40.54888	-73.66685	40.54888	-73.66685	12	9	S	<2	B3	500-999	Cloudy	None	3.8	287	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:51	02:00	40.54902	-73.66958	40.54902	-73.66958	12	9	S	<2	B3	500-999	Cloudy	None	3.9	291	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:11	40.54950	-73.68002	40.54950	-73.68002	14	11	SW	<2	B3	500-999	Clear	None	3.7	233	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:11	02:16	40.54503	-73.67162	40.54503	-73.67162	14	3	SW	<2	B3	500-999	Clear	None	4.1	72	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:16	02:40	40.54505	-73.66398	40.54505	-73.66398	14	4	SW	<2	B3	500-999	Clear	None	3.9	113	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:40	02:42	40.54220	-73.63097	40.54220	-73.63097	12	6	SW	<2	B3	500-999	Clear	None	4.2	110	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:42	03:00	40.54197	-73.62805	40.54197	-73.62805	12	6	SW	<2	B3	500-999	Clear	None	4.2	108	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:09	40.54615	-73.61730	40.54615	-73.61730	12	3	SW	<2	B1	500-999	Clear	None	3.6	322	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:09	03:34	40.54597	-73.63343	40.54597	-73.63343	12	7	S	<2	B3	500-999	Clear	None	3.8	283	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:34	03:36	40.54873	-73.66683	40.54873	-73.66683	13	9	S	<2	B3	500-999	Clear	None	3.9	282	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:36	03:59	40.54893	-73.66970	40.54893	-73.66970	13	9	S	<2	B3	500-999	Clear	None	3.8	282	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:59	04:00	40.54445	-73.67212	40.54445	-73.67212	14	7	S	<2	B3	500-999	Clear	None	3.8	61	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:04	40.54512	-73.67107	40.54512	-73.67107	14	7	S	<2	B3	500-999	Clear	None	3.9	63	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:04	04:28	40.54502	-73.66542	40.54502	-73.66542	14	5	S	<2	B2	500-999	Clear	None	3.9	102	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:28	04:31	40.54213	-73.63113	40.54213	-73.63113	12	11	S	<2	B4	500-999	Clear	None	3.6	107	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:31	04:52	40.54165	-73.62767	40.54165	-73.62767	12	11	S	<2	B4	500-999	Clear	None	4	128	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:52	04:56	40.54555	-73.62567	40.54555	-73.62567	12	16	S	<2	B4	500-999	Clear	None	3.5	289	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:56	05:00	40.54568	-73.63130	40.54568	-73.63130	12	16	S	<2	B4	500-999	Clear	None	3.7	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:00	05:21	40.54602	-73.63600	40.54602	-73.63600	12	16	S	<2	B4	500-999	Clear	None	3.7	284	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:21	05:24	40.54867	-73.66647	40.54867	-73.66647	13	14	S	<2	B4	500-999	Clear	None	3.8	277	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:24	05:42	40.54947	-73.67002	40.54947	-73.67002	13	8	S	<2	B3	500-999	Clear	None	3.7	316	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:42	05:46	40.54528	-73.67025	40.54528	-73.67025	15	5	S	<2	B2	500-999	Clear	None	3.9	90	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:46	06:00	40.54473	-73.66412	40.54473	-73.66412	15	6	S	<2	B2	500-999	Clear	None	3.9	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:00	06:09	40.54345	-73.64868	40.54345	-73.64868	13	7	S	<2	B3	500-999	Clear	None	4.1	113	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:09	06:12	40.54198	-73.63093	40.54198	-73.63093	14	7	S	<2	B3	500-999	Clear	None	4.1	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:12	06:31	40.54118	-73.62752	40.54118	-73.62752	14	7	S	<2	B3	500-999	Clear	None	3.8	146	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:31	06:36	40.54548	-73.62505	40.54548	-73.62505	12	13	S	<2	B3	500-999	Clear	None	3.6	268	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:36	07:00	40.54553	-73.63133	40.54553	-73.63133	12	13	S	<2	B3	500-999	Clear	None	3.8	286	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:00	07:01	40.54832	-73.66500	40.54832	-73.66500	14	12	S	<2	B4	500-999	Clear	None	3.7	288	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:01	07:04	40.54848	-73.66725	40.54848	-73.66725	14	12	S	<2	B4	500-999	Clear	None	3.8	287	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:04	07:21	40.54915	-73.66952	40.54915	-73.66952	14	11	S	<2	B4	500-999	Clear	None	3.6	328	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:21	07:25	40.54475	-73.67087	40.54475	-73.67087	13	5	S	<2	B2	500-999	Clear	None	4.7	83	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:25	07:48	40.54457	-73.66407	40.54457	-73.66407	14	6	S	<2	B2	500-999	Clear	None	4.7	106	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:48	07:51	40.54162	-73.62963	40.54162	-73.62963	14	5	S	<2	B2	500-999	Clear	None	3.9	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:51	08:00	40.54108	-73.62710	40.54108	-73.62710	14	5	S	<2	B2	500-999	Clear	None	3.8	130	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:09	40.53920	-73.61998	40.53920	-73.61998	12	7	SW	<2	B3	500-999	Clear	None	3.4	40	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:09	08:13	40.54487	-73.62583	40.54487	-73.62583	12	16	SW	<2	B4	500-999	Clear	None	3.9	280	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:13	08:37	40.54525	-73.63105	40.54525	-73.63105	12	12	SW	<2	B4	500-999	Clear	None	3.8	280	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:37	08:42	40.54837	-73.66632	40.54837	-73.66632	13	16	SW	<2	B4	500-999	Clear	None	3.9	283	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:42	08:58	40.55092	-73.67195	40.55092	-73.67195	13	12	SW	<2	B4	500-999	Clear	None	3.8	306	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:58	09:00	40.54470	-73.66652	40.54470	-73.66652	14	9	SW	<2	B3	1000-1999	Clear	None	3.8	102	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:01	40.54458	-73.66527	40.54458	-73.66527	14	9	SW	<2	B3	2000-4999	Clear	None	3.9	103	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:01	09:26	40.54427	-73.66145	40.54427	-73.66145	14	10	SW	<2	B3	2000-4999	Cloudy	None	3.7	103	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:26	09:29	40.54158	-73.63075	40.54158	-73.63075	12	8	SW	<2	B3	2000-4999	Cloudy	None	3.7	104	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:29	09:48	40.54062	-73.62692	40.54062	-73.62692	12	7	SW	<2	B3	≥5000	Cloudy	None	3.7	129	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:48	09:52	40.54482	-73.62683	40.54482	-73.62683	12	8	SW	<2	B3	≥5000	Cloudy	None	3.3	282	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:52	10:00	40.54528	-73.63155	40.54528	-73.63155	12	12	SW	<2	B4	≥5000	Cloudy	None	3.3	284	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:16	40.54610	-73.64168	40.54610	-73.64168	12	9	SW	<2	B3	≥5000	Cloudy	None	3.9	284	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:16	10:19	40.54827	-73.66678	40.54827	-73.66678	13	10	SW	<2	B3	≥5000	Cloudy	None	4	283	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:19	10:22	40.54893	-73.67030	40.54893	-73.67030	13	8	SW	<2	B3	≥5000	Cloudy	None	3.8	326	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:22	10:26	40.55085	-73.67282	40.55085	-73.67282	15	7	SW	<2	B3	≥5000	Cloudy	None	3.8	293	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:26	10:34	40.54912	-73.67737	40.54912	-73.67737	15	6	SW	<2	B2	≥5000	Cloudy	None	3.9	217	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:34	10:36	40.54487	-73.67035	40.54487	-73.67035	14	3	SW	<2	B1	≥5000	Cloudy	None	4.3	104	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:36	10:39	40.54415	-73.66230	40.54415	-73.66230	15	2	SW	<2	B1	≥5000	Cloudy	None	3.6	103	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:39	10:41	40.54358	-73.65707	40.54358	-73.65707	15	3	SW	<2	B1	≥5000	Cloudy	None	3.6	104	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:41	11:00	40.54278	-73.65865	40.54278	-73.65865	15	3	SW	<2	B1	≥5000	Cloudy	None	3.4	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:00	11:10	40.53710	-73.66128	40.53710	-73.66128	15	3	SW	<2	B1	≥5000	Cloudy	None	3.9	284	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:10	11:13	40.54468	-73.66833	40.54468	-73.66833	14	4	SW	<2	B2	≥5000	Cloudy	None	3.6	115	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:13	11:39	40.54445	-73.66575	40.54445	-73.66575	14	4	SW	<2	B2	≥5000	Cloudy	None	3.7	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:39	11:42	40.54150	-73.63058	40.54150	-73.63058	12	3	SW	<2	B1	≥5000	Cloudy	None	3.4	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:42	12:01	40.54105	-73.62807	40.54105	-73.62807	12	3	SW	<2	B1	≥5000	Cloudy	None	3.3	131	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:01	12:05	40.54460	-73.62600	40.54460	-73.62600	14	10	S	<2	B3	≥5000	Cloudy	None	4.2	289	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:05	12:32	40.54515	-73.63173	40.54515	-73.63173	14	9	S	<2	B3	≥5000	Cloudy	None	4.1	290	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:32	12:35	40.54807	-73.66735	40.54807	-73.66735	14	14	S	<2	B4	≥5000	Cloudy	None	3.5	290	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:35	12:50	40.54952	-73.67023	40.54952	-73.67023	13	13	S	<2	B4	≥5000	Cloudy	None	3.6	333	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:50	12:55	40.54472	-73.67133	40.54472	-73.67133	13	10	S	<2	B3	≥5000	Cloudy	None	4.2	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:55	13:00	40.54392	-73.66043	40.54392	-73.66043	13	4	S	<2	B2	≥5000	Cloudy	None	3.6	113	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:21	40.54385	-73.65992	40.54385	-73.65992	14	5	WSW	<2	B2	2000-4999	Cloudy	None	3.6	111	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:21	13:24	40.54137	-73.63037	40.54137	-73.63037	12	8	SSE	<2	B3	2000-4999	Cloudy	None	3.7	110	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:24	13:40	40.54015	-73.62740	40.54015	-73.62740	12	10	SSE	<2	B3	2000-4999	Cloudy	None	3.4	143	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	13:44	40.54460	-73.62623	40.54460	-73.62623	12	10	WSW	<2	B3	2000-4999	Cloudy	None	3.6	289	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:44	14:00	40.54500	-73.63203	40.54500	-73.63203	14	8	WSW	<2	B3	2000-4999	Cloudy	None	3.7	290	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:09	40.54648	-73.64942	40.54648	-73.64942	12	8	WSW	<2	B3	2000-4999	Cloudy	None	3.8	284	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:09	14:12	40.54787	-73.66657	40.54787	-73.66657	13	7	WSW	<2	B3	2000-4999	Cloudy	None	4	282	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:12	14:27	40.54860	-73.66967	40.54860	-73.66967	13	7	WSW	<2	B3	2000-4999	Cloudy	None	3.9	317	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:27	14:32	40.54440	-73.67128	40.54440	-73.67128	15	6	WSW	<2	B2	2000-4999	Cloudy	None	4.1	100	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:32	14:56	40.54415	-73.66567	40.54415	-73.66567	15	7	WSW	<2	B2	2000-4999	Cloudy	None	3.8	103	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:56	15:00	40.54125	-73.63073	40.54125	-73.63073	12	6	WSW	<2	B2	2000-4999	Cloudy	None	3.9	101	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:00	15:17	40.54115	-73.62928	40.54115	-73.62928	12	6	WSW	<2	B2	2000-4999	Cloudy	None	4	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:17	15:21	40.54438	-73.62663	40.54438	-73.62663	12	2	SW	<2	B2	2000-4999	Cloudy	None	3.8	291	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:21	15:46	40.54487	-73.63192	40.54487	-73.63192	12	2	SW	<2	B2	2000-4999	Cloudy	None	3.8	288	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:46	15:48	40.54782	-73.66677	40.54782	-73.66677	13	10	SW	<2	B3	2000-4999	Cloudy	None	3.9	291	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:48	16:00	40.54835	-73.66928	40.54835	-73.66928	13	10	SSE	<2	B3	2000-4999	Cloudy	None	3.9	309	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:05	40.55017	-73.67612	40.55017	-73.67612	14	15	SSE	<2	B4	2000-4999	Cloudy	None	3.3	205	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:05	16:08	40.54430	-73.66795	40.54430	-73.66795	14	18	ESE	<2	B5	2000-4999	Precipitation	None	4.4	104	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:08	16:14	40.54378	-73.66293	40.54378	-73.66293	14	16	SSE	<2	B5	2000-4999	Precipitation	None	3.7	112	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:14	16:20	40.54313	-73.65498	40.54313	-73.65498	14	12	SSE	<2	B4	1000-1999	Precipitation	None	3.9	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	17:12	40.54230	-73.64645	40.54230	-73.64645	12	7	SSE	<2	B3	1000-1999	Precipitation	None	3.9	104	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:12	17:15	40.54425	-73.66873	40.54425	-73.66873	14	5	SSE	<2	B2	1000-1999	Precipitation	None	4.2	106	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:15	17:38	40.54367	-73.66110	40.54367	-73.66110	14	6	SSE	<2	B2	1000-1999	Precipitation	None	3.8	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:38	17:40	40.54112	-73.63088	40.54112	-73.63088	14	9	ESE	<2	B3	2000-4999	Precipitation	None	3.9	112	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	17:42	40.54030	-73.62858	40.54030	-73.62858	12	7	ESE	<2	B3	2000-4999	Precipitation	None	3.6	140	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:42	17:57	40.53922	-73.62668	40.53922	-73.62668	12	10	ESE	<2	B3	2000-4999	Precipitation	None	3.7	138	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:57	17:59	40.54423	-73.62143	40.54423	-73.62143	12	2	SSW	<2	B2	2000-4999	Cloudy	None	3.6	287	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:59	18:05	40.54432	-73.62622	40.54432	-73.62622	12	2	SSW	<2	B2	2000-4999	Cloudy	None	3.8	287	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:05	18:29	40.54485	-73.63357	40.54485	-73.63357	17	2	SSW	<2	B2	2000-4999	Cloudy	None	3.8	288	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:29	18:31	40.54773	-73.66823	40.54773	-73.66823	14	3	S	<2	B2	2000-4999	Cloudy	None	3.6	290	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:31	18:50	40.54778	-73.66848	40.54778	-73.66848	14	3	S	<2	B2	2000-4999	Cloudy	None	3.6	299	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:50	18:54	40.54417	-73.67063	40.54417	-73.67063	14	8	S	<2	B2	2000-4999	Cloudy	Slight	4.4	106	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:54	19:00	40.54375	-73.66328	40.54375	-73.66328	14	8	S	<2	B2	2000-4999	Cloudy	Slight	3.8	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:00	19:18	40.54322	-73.65720	40.54322	-73.65720	14	8	S	<2	B2	2000-4999	Cloudy	Slight	3.9	110	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:18	19:38	40.54013	-73.62710	40.54013	-73.62710	12	3	S	<2	B2	2000-4999	Clear	Slight	3.8	105	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:38	19:43	40.54412	-73.62630	40.54412	-73.62630	13	5	S	<2	B2	2000-4999	Clear	Slight	3.8	287	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:43	20:00	40.54475	-73.63385	40.54475	-73.63385	13	5	S	<2	B2	2000-4999	Clear	Slight	3.9	288	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	20:08	40.54660	-73.65527	40.54660	-73.65527	12	6	S	<2	B2	2000-4999	Clear	Moderate	3.6	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:08	20:10	40.54753	-73.66698	40.54753	-73.66698	14	7	S	<2	B2	2000-4999	Clear	Moderate	3.9	291	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:10	20:27	40.54763	-73.66853	40.54763	-73.66853	14	7	S	<2	B2	2000-4999	Clear	Moderate	3.9	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:27	20:32	40.54422	-73.67127	40.54422	-73.67127	14	5	S	<2	B2	2000-4999	Clear	Severe	4.1	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:32	20:57	40.54367	-73.66368	40.54367	-73.66368	14	5	S	<2	B2	2000-4999	Clear	Severe	3.7	106	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:57	20:59	40.54083	-73.63097	40.54083	-73.63097	12	6	S	<2	B2	2000-4999	Clear	Severe	3.4	109	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:59	21:00	40.54013	-73.62848	40.54013	-73.62848	12	6	S	<2	B2	2000-4999	Clear	Severe	4.5	137	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:15	40.53820	-73.62603	40.53820	-73.62603	12	6	SSW	<2	B2	≥5000	Clear	Severe	4.2	160	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:15	21:21	40.54413	-73.62652	40.54413	-73.62652	12	8	SSW	<2	B3	≥5000	Clear	Severe	3.5	280	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:21	21:46	40.54470	-73.63517	40.54470	-73.63517	12	8	SSW	<2	B3	≥5000	Clear	Severe	4	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:46	21:48	40.54735	-73.66690	40.54735	-73.66690	14	9	SSW	<2	B3	≥5000	Clear	Severe	3.8	290	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:48	22:00	40.54753	-73.66945	40.54753	-73.66945	14	10	SSW	<2	B3	≥5000	Clear	Severe	3.8	289	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:00	22:07	40.54882	-73.67880	40.54882	-73.67880	13	5	SSW	<2	B2	≥5000	Clear	Severe	3.9	254	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:07	22:13	40.54393	-73.67127	40.54393	-73.67127	13	5	SSW	<2	B2	≥5000	Clear	Severe	3.7	86	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:13	22:37	40.54343	-73.66362	40.54343	-73.66362	13	5	SSW	<2	B2	≥5000	Clear	Severe	3.7	113	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:37	22:40	40.54067	-73.63162	40.54067	-73.63162	12	4	SSW	<2	B2	≥5000	Clear	Severe	3.5	106	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:40	22:55	40.54025	-73.62785	40.54025	-73.62785	12	4	SSW	<2	B2	≥5000	Clear	Severe	4.3	121	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:55	23:00	40.54403	-73.62457	40.54403	-73.62457	12	4	SSW	<2	B2	≥5000	Clear	Severe	3.4	274	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:01	40.54408	-73.62960	40.54408	-73.62960	13	4	SSW	<2	B2	≥5000	Clear	Severe	3.7	292	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:01	23:28	40.54438	-73.63325	40.54438	-73.63325	13	4	SSW	<2	B2	≥5000	Clear	Severe	3.6	291	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:28	23:30	40.54722	-73.66643	40.54722	-73.66643	12	4	SSW	<2	B2	≥5000	Clear	Severe	3.7	292	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:30	23:48	40.54785	-73.66848	40.54785	-73.66848	12	4	SSW	<2	B2	≥5000	Clear	Severe	3.4	309	Full Power	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:48	23:55	40.54380	-73.67130	40.54380	-73.67130	15	9	SSW	<2	B3	≥5000	Clear	Slight	3.5	107	Silent	N/A
2023-07-19	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:55	00:00	40.54327	-73.66370	40.54327	-73.66370	15	9	SSW	<2	B3	≥5000	Clear	Slight	3.8	107	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:18	40.54307	-73.66078	40.54307	-73.66078	14	10	SE	<2	B3	2000-4999	Clear	Slight	3.7	111	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:18	00:20	40.54065	-73.63130	40.54065	-73.63130	12	9	SE	<2	B3	2000-4999	Clear	None	3.8	109	Silent	N/A
2023-07-20	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:42	40.54047	-73.62865	40.54047	-73.62865	12	10	SE	<2	B3	2000-4999	Clear	None	3.7	109	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:42	00:48	40.54440	-73.62530	40.54440	-73.62530	12	12	SSE	<2	B3	1000-1999	Clear	None	3.2	264	Silent	N/A
2023-07-20	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:48	01:00	40.54430	-73.63395	40.54430	-73.63395	12	8	SSE	<2	B3	1000-1999	Clear	None	3.8	285	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:13	40.54560	-73.64918	40.54560	-73.64918	12	7	SSE	<2	B2	500-999	Clear	None	3.7	289	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:13	01:15	40.54745	-73.66995	40.54745	-73.66995	12	7	SSE	<2	B2	500-999	Clear	None	3.7	290	Silent	N/A
2023-07-20	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:15	01:44	40.54770	-73.67233	40.54770	-73.67233	12	7	SSE	<2	B2	500-999	Clear	None	3.6	290	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:44	01:54	40.54343	-73.69872	40.54343	-73.69872	12	10	S	<2	B2	500-999	Clear	None	3.8	159	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:54	02:03	40.54293	-73.68475	40.54293	-73.68475	12	7	S	<2	B2	500-999	Clear	None	4	100	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:03	02:09	40.54358	-73.67132	40.54358	-73.67132	12	8	S	<2	B3	500-999	Clear	None	4	97	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:09	02:31	40.54320	-73.66425	40.54320	-73.66425	12	8	S	<2	B3	500-999	Clear	None	3.9	108	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:31	02:33	40.54042	-73.63082	40.54042	-73.63082	12	5	S	<2	B2	500-999	Clear	None	4	111	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:33	02:55	40.54018	-73.62872	40.54018	-73.62872	12	5	S	<2	B2	500-999	Clear	None	4.1	111	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:55	03:00	40.54377	-73.62607	40.54377	-73.62607	13	6	S	<2	B2	500-999	Clear	None	3.6	271	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:25	40.54403	-73.63328	40.54403	-73.63328	12	5	S	<2	B2	500-999	Clear	None	3.8	289	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:25	03:27	40.54685	-73.66650	40.54685	-73.66650	12	5	S	<2	B2	500-999	Clear	None	3.7	292	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:27	03:49	40.54712	-73.66883	40.54712	-73.66883	12	5	S	<2	B2	500-999	Clear	None	3.8	292	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:49	03:51	40.54318	-73.66755	40.54318	-73.66755	12	5	S	<2	B2	500-999	Clear	None	4.5	111	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:51	04:00	40.54307	-73.66523	40.54307	-73.66523	13	6	S	<2	B3	500-999	Clear	None	4.9	106	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:14	40.54142	-73.64577	40.54142	-73.64577	12	3	S	<2	B1	500-999	Clear	None	3.9	105	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:14	04:17	40.54020	-73.63140	40.54020	-73.63140	12	2	S	<2	B1	500-999	Clear	None	3.5	106	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:17	04:45	40.54007	-73.62795	40.54007	-73.62795	12	2	S	<2	B1	500-999	Clear	None	3.9	67	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:45	04:51	40.54477	-73.65277	40.54477	-73.65277	12	3	S	<2	B1	500-999	Clear	None	3.6	285	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:51	05:00	40.54468	-73.65882	40.54468	-73.65882	12	3	S	<2	B1	500-999	Clear	None	3.6	274	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:17	40.54882	-73.66398	40.54882	-73.66398	12	2	S	<2	B1	500-999	Clear	None	4.1	8	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:17	05:23	40.54488	-73.65215	40.54488	-73.65215	12	3	S	<2	B1	500-999	Clear	None	2.9	273	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:23	05:56	40.54463	-73.65943	40.54463	-73.65943	12	3	S	<2	B1	500-999	Clear	None	3.9	282	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:56	05:59	40.54537	-73.70390	40.54537	-73.70390	12	3	S	<2	B1	500-999	Clear	None	3.9	278	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:59	06:00	40.54597	-73.70698	40.54597	-73.70698	12	6	S	<2	B2	500-999	Clear	None	2.9	313	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:20	40.54612	-73.70730	40.54612	-73.70730	12	6	S	<2	B2	500-999	Clear	None	2.9	315	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:24	40.54433	-73.70723	40.54433	-73.70723	13	6	S	<2	B2	500-999	Clear	None	3.9	95	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:24	06:56	40.54448	-73.70232	40.54448	-73.70232	13	6	S	<2	B2	500-999	Clear	None	4	97	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:56	06:59	40.54382	-73.65702	40.54382	-73.65702	13	6	S	<2	B2	500-999	Clear	None	3.4	100	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:59	07:21	40.54277	-73.65315	40.54277	-73.65315	13	6	S	<2	B2	500-999	Clear	None	3.7	156	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:21	07:26	40.54530	-73.65200	40.54530	-73.65200	12	9	S	<2	B3	500-999	Clear	None	4.1	248	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:26	07:58	40.54490	-73.65815	40.54490	-73.65815	12	8	S	<2	B3	500-999	Clear	None	3.8	282	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:58	08:00	40.54553	-73.70003	40.54553	-73.70003	12	7	S	<2	B3	500-999	Clear	None	3.9	279	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	08:02	40.54567	-73.70545	40.54567	-73.70545	12	8	S	<2	B3	500-999	Clear	None	3.9	278	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:02	08:19	40.54638	-73.70853	40.54638	-73.70853	12	7	S	<2	B3	500-999	Clear	None	3.8	315	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:19	08:23	40.54510	-73.70682	40.54510	-73.70682	12	6	SSW	<2	B2	500-999	Clear	None	4.4	95	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:23	08:55	40.54503	-73.70175	40.54503	-73.70175	12	5	SSW	<2	B2	500-999	Clear	None	3.9	97	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:55	08:58	40.54438	-73.65708	40.54438	-73.65708	12	5	SSW	<2	B2	500-999	Clear	None	3.7	93	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:58	09:00	40.54543	-73.65278	40.54543	-73.65278	14	6	SSW	<2	B2	500-999	Clear	None	3.2	31	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:30	40.54837	-73.65318	40.54837	-73.65318	14	5	SW	<2	B2	1000-1999	Cloudy	None	3.6	316	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:30	09:32	40.54632	-73.69293	40.54632	-73.69293	15	5	SW	<2	B2	1000-1999	Cloudy	None	4.2	333	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:32	09:46	40.54742	-73.69390	40.54742	-73.69390	15	6	SW	<2	B2	1000-1999	Cloudy	None	3.7	336	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:46	09:48	40.55808	-73.70317	40.55808	-73.70317	12	5	SW	<2	B2	1000-1999	Cloudy	None	3.4	335	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:48	10:00	40.56007	-73.70462	40.56007	-73.70462	12	7	SW	<2	B2	1000-1999	Cloudy	None	3.3	346	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:10	40.56815	-73.70888	40.56815	-73.70888	11	7	SW	<2	B2	1000-1999	Cloudy	None	3.5	345	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:10	10:14	40.56483	-73.71732	40.56483	-73.71732	12	3	SW	<2	B2	1000-1999	Cloudy	None	4.3	154	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:14	10:39	40.56152	-73.71435	40.56152	-73.71435	12	4	SW	<2	B2	1000-1999	Cloudy	None	3.8	153	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:39	10:52	40.54028	-73.69595	40.54028	-73.69595	16	3	SW	<2	B2	1000-1999	Cloudy	Slight	3.6	152	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:52	10:56	40.53970	-73.68708	40.53970	-73.68708	16	6	SW	<2	B2	1000-1999	Cloudy	Slight	3.9	326	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:56	11:00	40.54332	-73.69058	40.54332	-73.69058	15	5	SW	<2	B2	1000-1999	Cloudy	Slight	3.7	334	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:20	40.54477	-73.69187	40.54477	-73.69187	15	5	SW	<2	B2	1000-1999	Cloudy	Slight	3.7	340	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:20	11:40	40.56345	-73.70695	40.56345	-73.70695	15	8	SW	<2	B3	2000-4999	Clear	None	3.5	348	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:40	12:00	40.56188	-73.71515	40.56188	-73.71515	15	5	SW	<2	B2	≥5000	Clear	None	3.5	160	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:20	40.54460	-73.70018	40.54460	-73.70018	15	5	SW	<2	B2	≥5000	Clear	None	3.5	163	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:20	12:40	40.53705	-73.68617	40.53705	-73.68617	15	12	SW	<2	B4	≥5000	Clear	None	3.8	30	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.55583	-73.70162	40.55583	-73.70162	14	8	SW	<2	B3	≥5000	Clear	None	3.6	341	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.56995	-73.71207	40.56995	-73.71207	10	6	ESE	<2	B2	≥5000	Clear	Severe	3.5	310	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.55315	-73.70803	40.55315	-73.70803	10	6	ESE	<2	B2	≥5000	Clear	Severe	3.5	158	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.53770	-73.69597	40.53770	-73.69597	16	6	ESE	<2	B2	≥5000	Clear	Severe	3.4	184	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.54168	-73.68965	40.54168	-73.68965	16	3	ESE	<2	B1	≥5000	Clear	Severe	3.6	321	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.56085	-73.70662	40.56085	-73.70662	12	3	ESE	<2	B1	≥5000	Clear	Severe	3.6	334	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.56818	-73.72140	40.56818	-73.72140	11	5	ESE	<2	B2	≥5000	Clear	Severe	3.9	171	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:20	40.55285	-73.70820	40.55285	-73.70820	13	11	SSE	<2	B2	≥5000	Clear	Severe	4	159	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:20	15:40	40.53867	-73.68883	40.53867	-73.68883	16	11	SSE	<2	B2	≥5000	Clear	Severe	4.3	83	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:40	16:00	40.54473	-73.66035	40.54473	-73.66035	14	10	SSE	<2	B2	≥5000	Clear	Severe	3.8	82	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	17:00	40.54727	-73.63580	40.54727	-73.63580	14	10	SSE	<2	B3	≥5000	Clear	Severe	3.9	117	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:10	40.52918	-73.55275	40.52918	-73.55275	17	11	ESE	<2	B3	≥5000	Clear	Severe	3.4	119	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:10	17:12	40.52692	-73.54215	40.52692	-73.54215	17	9	SSE	<2	B3	≥5000	Clear	Severe	3.5	119	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:12	17:22	40.52582	-73.54112	40.52582	-73.54112	19	8	SSE	<2	B3	≥5000	Clear	Severe	2.8	205	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:22	17:27	40.52308	-73.55298	40.52308	-73.55298	19	9	SSE	<2	B3	≥5000	Clear	Severe	3.4	270	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:27	18:00	40.52413	-73.55963	40.52413	-73.55963	19	7	SSE	<2	B3	≥5000	Clear	Severe	3.5	298	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:30	40.53240	-73.59793	40.53240	-73.59793	15	9	SSE	<2	B2	≥5000	Clear	Severe	3.8	82	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:30	18:33	40.54170	-73.64112	40.54170	-73.64112	12	10	SSE	<2	B2	≥5000	Clear	Severe	3.6	300	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:33	18:53	40.54208	-73.64270	40.54208	-73.64270	12	10	SSE	<2	B2	≥5000	Clear	Severe	3.6	301	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:53	18:58	40.53512	-73.64330	40.53512	-73.64330	14	8	SSE	<2	B2	≥5000	Clear	Severe	3.9	28	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:58	19:00	40.54025	-73.64227	40.54025	-73.64227	14	8	SSE	<2	B2	≥5000	Clear	Severe	4.1	19	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:20	40.54152	-73.64210	40.54152	-73.64210	14	8	SSE	<2	B2	≥5000	Clear	Severe	4.2	19	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:20	19:40	40.55867	-73.65417	40.55867	-73.65417	10	10	SSE	<2	B2	≥5000	Clear	Moderate	3.9	294	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:40	20:00	40.54767	-73.66503	40.54767	-73.66503	13	13	SSE	<2	B2	≥5000	Clear	Moderate	3.5	187	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:20	40.53358	-73.67877	40.53358	-73.67877	17	11	S	<2	B3	≥5000	Cloudy	Moderate	4	274	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:20	20:40	40.54880	-73.68950	40.54880	-73.68950	13	4	S	<2	B3	≥5000	Cloudy	Moderate	3.7	13	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:40	21:00	40.55242	-73.67725	40.55242	-73.67725	13	7	S	<2	B3	≥5000	Cloudy	Moderate	3.6	215	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.53882	-73.69128	40.53882	-73.69128	16	8	WSW	<2	B3	≥5000	Cloudy	Severe	4.3	303	Silent	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.55658	-73.70855	40.55658	-73.70855	14	7	WSW	<2	B3	≥5000	Clear	Severe	3.8	339	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.57287	-73.72270	40.57287	-73.72270	12	9	ENE	<2	B3	≥5000	Clear	Severe	3.7	281	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:20	40.56218	-73.71653	40.56218	-73.71653	17	11	WSW	<2	B4	≥5000	Clear	Moderate	3.7	165	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:20	22:40	40.54133	-73.69862	40.54133	-73.69862	17	11	WSW	<2	B4	≥5000	Clear	Moderate	3.7	162	Full Power	N/A
2023-07-20	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:40	23:00	40.54613	-73.69435	40.54613	-73.69435	17	11	WSW	<2	B4	≥5000	Clear	Moderate	3.7	335	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-20	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.56265	-73.70873	40.56265	-73.70873	15	5	WSW	<2	B2	≥5000	Clear	Moderate	3.7	337	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.56550	-73.71983	40.56550	-73.71983	16	5	WSW	<2	B2	≥5000	Clear	Moderate	3.5	158	Full Power	N/A
2023-07-20	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.55028	-73.70662	40.55028	-73.70662	16	5	WSW	<2	B2	≥5000	Clear	Severe	3.4	156	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.53312	-73.69245	40.53312	-73.69245	16	11	SSE	<2	B3	≥5000	Clear	Slight	4.3	115	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.55082	-73.69870	40.55082	-73.69870	16	10	WSW	<2	B3	2000-4999	Clear	None	3.6	339	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:40	01:00	40.56715	-73.71240	40.56715	-73.71240	16	9	WSW	<2	B3	1000-1999	Clear	None	3.7	359	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:20	40.56465	-73.72003	40.56465	-73.72003	16	13	SSW	<2	B3	500-999	Clear	None	3.5	137	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:20	01:40	40.54637	-73.70342	40.54637	-73.70342	15	13	SSW	<2	B4	500-999	Clear	None	3.8	159	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:40	01:50	40.53058	-73.68963	40.53058	-73.68963	15	14	SW	<2	B4	500-999	Clear	None	3.4	169	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:50	02:00	40.52532	-73.68207	40.52532	-73.68207	14	16	SW	<2	B4	500-999	Clear	None	3.5	47	Soft Start	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:24	40.53408	-73.68555	40.53408	-73.68555	14	15	SW	<2	B4	500-999	Clear	None	3.6	346	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:24	02:40	40.55335	-73.70165	40.55335	-73.70165	13	6	SSW	<2	B2	500-999	Clear	None	3.7	340	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:40	03:00	40.56742	-73.71388	40.56742	-73.71388	16	6	SSW	<2	B2	500-999	Clear	None	3.7	337	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:20	40.55292	-73.71732	40.55292	-73.71732	12	7	SSW	<2	B3	500-999	Clear	None	3.6	246	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:20	03:40	40.54608	-73.70342	40.54608	-73.70342	16	8	SSW	<2	B3	500-999	Clear	None	3.7	159	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:40	04:00	40.54015	-73.69008	40.54015	-73.69008	16	5	SSW	<2	B2	500-999	Clear	None	3.2	325	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:20	40.55575	-73.70417	40.55575	-73.70417	16	6	SSW	<2	B2	500-999	Clear	None	3.6	337	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:20	04:40	40.57212	-73.71927	40.57212	-73.71927	15	6	SSW	<2	B2	500-999	Clear	None	3.7	289	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:40	05:00	40.55827	-73.71420	40.55827	-73.71420	16	6	SW	<2	B2	500-999	Clear	None	3.8	163	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:20	40.53867	-73.70105	40.53867	-73.70105	17	12	SW	<2	B4	500-999	Clear	None	4	174	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	05:40	40.54797	-73.69777	40.54797	-73.69777	15	6	SSW	<2	B2	500-999	Clear	None	3.7	326	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:40	06:00	40.56593	-73.71328	40.56593	-73.71328	11	5	SSW	<2	B2	500-999	Clear	None	3.6	328	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:20	40.55728	-73.71627	40.55728	-73.71627	13	12	SW	<2	B4	500-999	Clear	None	3.7	161	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:40	40.54007	-73.70968	40.54007	-73.70968	13	12	SW	<2	B4	500-999	Clear	None	3.5	186	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:40	07:00	40.55065	-73.70777	40.55065	-73.70777	13	12	S	<2	B4	500-999	Clear	None	3.8	342	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:20	40.57040	-73.72052	40.57040	-73.72052	14	9	S	<2	B3	500-999	Clear	None	3.4	300	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:20	07:40	40.55918	-73.71773	40.55918	-73.71773	14	12	SW	<2	B4	500-999	Clear	None	3.4	159	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:40	08:00	40.54500	-73.70702	40.54500	-73.70702	14	12	SW	<2	B4	500-999	Clear	None	3.5	217	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	08:20	40.54602	-73.70397	40.54602	-73.70397	16	9	SW	<2	B3	500-999	Cloudy	None	3.7	328	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:20	08:40	40.56203	-73.71792	40.56203	-73.71792	12	7	SW	<2	B3	500-999	Cloudy	None	3.7	332	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:40	09:00	40.56372	-73.72152	40.56372	-73.72152	12	8	SW	<2	B3	1000-1999	Cloudy	None	3.9	159	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.54573	-73.70632	40.54573	-73.70632	16	10	SW	<2	B3	2000-4999	Cloudy	None	3.7	190	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:20	09:38	40.54725	-73.70532	40.54725	-73.70532	16	8	SW	<2	B3	≥5000	Cloudy	None	3.8	327	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:38	09:44	40.56615	-73.71848	40.56615	-73.71848	12	6	SW	<2	B2	≥5000	Cloudy	None	3.8	32	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:44	10:00	40.56615	-73.71848	40.56615	-73.71848	12	6	SW	<3	B3	≥5001	Cloudy	None	3.8	32	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:05	40.56718	-73.72442	40.56718	-73.72442	12	8	SW	<2	B3	≥5000	Cloudy	None	4.1	151	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:05	10:18	40.56718	-73.72442	40.56718	-73.72442	15	7	SW	<2	B3	≥5000	Precipitation	None	3.7	157	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:18	10:21	40.54730	-73.70555	40.54730	-73.70555	15	9	SW	<2	B3	≥5000	Precipitation	None	4	329	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	10:21	10:38	40.56053	-73.71700	40.56053	-73.71700	15	5	SW	<2	B2	≥5000	Precipitation	None	3.8	340	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	10:38	10:41	40.54827	-73.70782	40.54827	-73.70782	15	5	SW	<3	B3	≥5001	Precipitation	None	3.8	340	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	10:41	10:56	40.54827	-73.70782	40.54827	-73.70782	15	5	SW	<4	B4	≥5002	Precipitation	None	3.8	340	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	10:56	11:01	40.56053	-73.71700	40.56053	-73.71700	15	5	SW	<5	B5	≥5003	Precipitation	None	3.8	340	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:01	11:20	40.56053	-73.71700	40.56053	-73.71700	15	5	SW	<3	B3	≥5001	Precipitation	None	3.8	340	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:20	11:25	40.56325	-73.72080	40.56325	-73.72080	15	14	SW	<2	B4	≥5000	Precipitation	None	3.8	150	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:25	11:38	40.56325	-73.72080	40.56325	-73.72080	15	14	SW	<3	B5	≥5001	Precipitation	None	3.8	150	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:38	11:42	40.54538	-73.70588	40.54538	-73.70588	15	14	SW	<2	B4	≥5000	Precipitation	None	3.5	193	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:42	11:59	40.54538	-73.70588	40.54538	-73.70588	15	14	SW	<3	B5	≥5001	Precipitation	None	3.5	193	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:59	12:03	40.54772	-73.70607	40.54772	-73.70607	15	8	SW	<2	B3	≥5000	Precipitation	None	3.7	339	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:03	12:18	40.54772	-73.70607	40.54772	-73.70607	15	8	SW	<3	B4	≥5001	Precipitation	None	3.7	339	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:18	12:22	40.56143	-73.71878	40.56143	-73.71878	14	15	SW	<2	B4	≥5000	Cloudy	None	3.8	159	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:22	12:41	40.56143	-73.71878	40.56143	-73.71878	14	15	SW	<3	B5	≥5001	Cloudy	None	3.8	159	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:41	13:00	40.55487	-73.71312	40.55487	-73.71312	14	14	SW	<2	B4	≥5000	Cloudy	None	3.8	159	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.54833	-73.70752	40.54833	-73.70752	14	15	SSW	<2	B4	≥5000	Cloudy	None	3.7	159	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.54953	-73.70782	40.54953	-73.70782	14	12	SSW	<2	B4	≥5000	Precipitation	None	3.7	340	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.56718	-73.71827	40.56718	-73.71827	14	7	SSE	<2	B3	≥5000	Precipitation	None	3.7	36	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.56475	-73.72198	40.56475	-73.72198	12	7	SSE	<2	B3	≥5000	Cloudy	None	4	144	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.54267	-73.70677	40.54267	-73.70677	16	6	SSE	<2	B2	≥5000	Cloudy	None	3.6	224	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.54878	-73.70742	40.54878	-73.70742	15	4	SSE	<2	B2	≥5000	Clear	Slight	3.5	329	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:00	15:21	40.56455	-73.71852	40.56455	-73.71852	11	7	SSE	<2	B2	≥5000	Clear	Moderate	4.1	38	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:21	15:40	40.56157	-73.69715	40.56157	-73.69715	15	11	SW	<2	B3	≥5000	Clear	Moderate	3.9	222	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:40	16:00	40.54935	-73.71962	40.54935	-73.71962	14	11	SW	<2	B3	≥5000	Clear	Moderate	3.7	215	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.54710	-73.70268	40.54710	-73.70268	15	6	SSW	<2	B2	≥5000	Clear	Moderate	3.8	55	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.55425	-73.67708	40.55425	-73.67708	16	11	SSW	<2	B3	≥5000	Precipitation	Slight	3.9	184	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:08	40.53683	-73.67705	40.53683	-73.67705	16	9	SSW	<2	B3	≥5000	Cloudy	Slight	4.2	171	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:08	17:20	40.54375	-73.64603	40.54375	-73.64603	12	6	SSW	<2	B2	≥5000	Cloudy	Slight	3.8	27	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.55692	-73.64557	40.55692	-73.64557	12	8	WSW	<2	B3	≥5000	Cloudy	Slight	3.8	300	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.54150	-73.65400	40.54150	-73.65400	12	7	SSW	<2	B3	≥5000	Cloudy	Moderate	3.7	197	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:00	18:24	40.54197	-73.64127	40.54197	-73.64127	12	2	WSW	<2	B2	≥5000	Cloudy	Moderate	4.2	42	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:24	18:40	40.54627	-73.64488	40.54627	-73.64488	12	8	SW	<2	B3	≥5000	Clear	Moderate	3.9	133	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:40	19:10	40.54123	-73.62025	40.54123	-73.62025	12	6	SW	<2	B3	≥5000	Clear	Moderate	3.8	118	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:10	19:20	40.53247	-73.58000	40.53247	-73.58000	16	6	SW	<2	B3	≥5000	Clear	Moderate	3.9	120	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:20	19:40	40.52950	-73.56633	40.52143	-73.54148	18	4	SSE	<2	B2	≥5000	Clear	Moderate	4	119	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:40	20:00	40.52143	-73.54148	40.52772	-73.54670	17	21	S	<2	B4	≥5000	Clear	Moderate	3.9	175	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	20:20	40.52772	-73.54670	40.53375	-73.57437	17	13	SW	<2	B4	≥5000	Clear	Moderate	3.7	299	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:20	20:40	40.53375	-73.57437	40.53913	-73.59878	13	12	SW	<2	B4	≥5000	Clear	Severe	3.9	298	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:40	21:00	40.53913	-73.59878	40.54498	-73.62612	12	14	SW	<2	B4	≥5000	Clear	Severe	3.9	298	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:09	40.54498	-73.62612	40.54813	-73.64040	12	13	WSW	<2	B4	≥5000	Clear	Severe	3.9	296	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:09	21:11	40.54813	-73.64040	40.54842	-73.64163	12	12	SW	<2	B4	≥5000	Clear	Severe	3.7	300	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:11	21:33	40.54842	-73.64163	40.54505	-73.64367	12	14	SW	<2	B4	≥5000	Clear	Severe	3.7	300	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:33	21:38	40.54505	-73.64367	40.54358	-73.63578	12	13	SSW	<2	B4	≥5000	Clear	Severe	3.7	104	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:38	22:00	40.54358	-73.63578	40.53912	-73.61493	12	15	SW	<2	B4	≥5000	Clear	Severe	3.7	118	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:00	22:42	40.53912	-73.61493	40.52543	-73.54992	13	15	SW	<2	B5	≥5000	Clear	Severe	3.7	120	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:42	22:45	40.52543	-73.54992	40.52508	-73.54795	13	15	SW	<2	B5	≥5000	Clear	Severe	3.7	111	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:45	23:00	40.52508	-73.54795	40.53415	-73.53655	12	17	SW	<2	B5	≥5000	Clear	Severe	3.6	108	Full Power	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:16	40.53415	-73.53655	40.52658	-73.54168	12	17	SW	<2	B5	≥5000	Clear	Severe	4.2	73	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:16	23:20	40.52658	-73.54168	40.52760	-73.54663	12	17	SW	<2	B5	≥5000	Clear	Severe	3.4	301	Silent	N/A
2023-07-21	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:20	00:00	40.52760	-73.54663	40.53752	-73.59275	12	17	SW	<2	B5	≥5000	Clear	Severe	3.8	297	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:32	40.53752	-73.59275	40.54767	-73.63945	16	14	WSW	<2	B4	≥5000	Clear	Severe	3.7	296	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:32	00:34	40.54767	-73.63945	40.54830	-73.64225	17	15	WSW	<2	B4	≥5000	Clear	Moderate	3.7	297	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:34	01:00	40.54830	-73.64225	40.54300	-73.65098	18	16	WNW	<2	B4	≥5000	Clear	Slight	3.6	298	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:02	40.54300	-73.65098	40.54440	-73.64023	14	10	NW	<2	B3	500-999	Clear	None	3.9	88	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:02	01:08	40.54440	-73.64023	40.54388	-73.63758	14	8	NW	<2	B3	500-999	Clear	None	3.8	114	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:08	02:00	40.54388	-73.63758	40.52887	-73.56852	14	8	NW	<2	B3	500-999	Clear	None	3.9	120	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:11	40.52887	-73.56852	40.52515	-73.55120	18	8	W	<2	B3	500-999	Clear	None	3.7	119	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:11	02:15	40.52515	-73.55120	40.52580	-73.54863	17	8	W	<2	B3	500-999	Clear	None	3.8	115	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:15	02:48	40.52580	-73.54863	40.52603	-73.54067	17	8	W	<2	B3	500-999	Clear	None	3.6	78	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:48	03:00	40.52603	-73.54067	40.52863	-73.55207	15	15	NW	<2	B3	500-999	Clear	None	3.7	305	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:07	40.52863	-73.55207	40.53945	-73.55827	17	12	NW	<2	B4	500-999	Clear	None	3.8	292	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:07	03:48	40.53945	-73.55827	40.52645	-73.54105	16	8	NW	<2	B3	500-999	Clear	None	3.8	112	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:48	03:51	40.52645	-73.54105	40.52722	-73.54515	15	14	NW	<2	B4	500-999	Clear	None	3.6	294	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:51	04:00	40.52722	-73.54515	40.52913	-73.55427	15	17	NW	<2	B5	500-999	Clear	None	3.8	296	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	05:00	40.52913	-73.55427	40.54708	-73.63670	17	19	NW	<2	B5	500-999	Clear	None	3.8	299	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:02	40.54708	-73.63670	40.54770	-73.63948	12	10	NW	<2	B3	500-999	Clear	None	3.8	297	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:02	05:06	40.54770	-73.63948	40.54937	-73.64187	17	19	NW	<2	B5	500-999	Clear	None	3.8	301	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:06	05:27	40.54937	-73.64187	40.54467	-73.64335	17	17	NW	<2	B5	500-999	Clear	None	3.6	341	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:27	05:31	40.54467	-73.64335	40.54360	-73.63842	17	12	NW	<2	B4	500-999	Clear	None	3.9	111	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:31	06:00	40.54360	-73.63842	40.53487	-73.59805	17	9	NW	<2	B3	500-999	Clear	None	3.9	120	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:34	40.53487	-73.59805	40.54182	-73.55317	16	10	NW	<2	B3	500-999	Clear	None	4	119	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:34	06:39	40.54182	-73.55317	40.52802	-73.54865	16	10	NW	<2	B3	500-999	Clear	None	3.3	116	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:39	07:00	40.52802	-73.54865	40.52768	-73.53525	16	10	NW	<2	B3	500-999	Clear	None	3.4	39	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:03	40.52768	-73.53525	40.52627	-73.53967	15	8	NW	<2	B3	500-999	Clear	None	3.9	230	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:03	07:08	40.52627	-73.53967	40.52697	-73.54488	15	15	NW	<2	B4	500-999	Clear	None	3.7	281	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:08	08:00	40.52697	-73.54488	40.54115	-73.61002	15	18	NW	<2	B4	500-999	Clear	None	3.7	293	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:00	08:19	40.54115	-73.61002	40.54758	-73.63947	14	9	NW	<2	B3	500-999	Clear	None	3.8	300	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:19	08:21	40.54758	-73.63947	40.54902	-73.64195	12	12	NW	<2	B4	500-999	Clear	None	3.9	329	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:21	08:39	40.54902	-73.64195	40.54493	-73.64497	12	17	NW	<2	B5	500-999	Clear	None	4.1	330	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:39	08:44	40.54493	-73.64497	40.54353	-73.63845	12	10	NW	<2	B3	500-999	Clear	None	3.8	106	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina; Steinbeisser, Myka	RPS	08:44	09:00	40.54353	-73.63845	40.53950	-73.61983	12	12	NW	<2	B4	500-999	Clear	None	3.7	106	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:51	40.53950	-73.61983	40.52502	-73.55343	13	14	NW	<2	B4	1000-1999	Clear	None	3.6	107	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:51	09:54	40.52502	-73.55343	40.52572	-73.54842	20	10	NW	<2	B3	≥5000	Clear	None	3.6	108	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:54	10:00	40.52572	-73.54842	40.52928	-73.54637	20	5	NW	<2	B2	≥5000	Clear	None	3.7	65	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:19	40.52928	-73.54637	40.53412	-73.58015	20	11	NW	<2	B4	≥5000	Clear	None	4	22	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:19	10:22	40.53412	-73.58015	40.53182	-73.58345	17	8	NW	<2	B3	≥5000	Clear	Slight	4.6	292	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:22	11:00	40.53182	-73.58345	40.52612	-73.58750	17	12	NW	<2	B4	≥5000	Clear	Slight	4.5	299	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:00	11:09	40.52612	-73.58750	40.51337	-73.59995	16	10	W	<2	B3	≥5000	Clear	Moderate	3.6	222	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:09	12:00	40.51337	-73.59995	40.53313	-73.60268	16	14	W	<2	B4	≥5000	Clear	Moderate	3.2	225	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:00	12:58	40.53313	-73.60268	40.55505	-73.68827	16	14	W	<2	B4	≥5000	Clear	Moderate	4.5	305	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:58	13:00	40.55505	-73.68827	40.55577	-73.69133	13	13	W	<2	B4	≥5000	Clear	Moderate	4.6	301	Soft Start	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	13:17	40.55577	-73.69133	40.56302	-73.71742	13	13	W	<2	B4	≥5000	Clear	Moderate	4.6	300	Soft Start	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:17	13:23	40.56302	-73.71742	40.56415	-73.72583	14	11	NNW	<2	B4	≥5000	Clear	Severe	3.8	307	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:23	13:31	40.56415	-73.72583	40.56507	-73.73752	14	13	WNW	<2	B4	≥5000	Clear	Severe	3.9	289	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:31	13:40	40.56507	-73.73752	40.56598	-73.75055	12	10	NNW	<2	B3	≥5000	Clear	Severe	4	287	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.56598	-73.75055	40.56800	-73.77425	12	11	NNW	<2	B4	≥5000	Clear	Severe	4	291	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.56800	-73.77425	40.56637	-73.79200	11	7	WNW	<2	B3	≥5000	Clear	Severe	3.9	286	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.56637	-73.79200	40.56453	-73.77073	19	6	NNW	<2	B2	≥5000	Clear	Severe	3.9	99	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.56453	-73.77073	40.56220	-73.74318	11	8	NNW	<2	B2	≥5000	Clear	Severe	4	102	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:00	15:20	40.56220	-73.74318	40.56068	-73.71797	12	5	NNW	<2	B2	≥5000	Clear	Severe	3.9	106	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:20	15:40	40.56068	-73.71797	40.56592	-73.74440	17	7	NNE	<2	B2	≥5000	Clear	Moderate	3.8	352	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:40	16:00	40.56592	-73.74440	40.56827	-73.76672	11	11	NW	<2	B2	≥5000	Clear	Moderate	4.2	288	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.56827	-73.76672	40.56388	-73.78773	10	8	WNW	<2	B3	≥5000	Clear	Moderate	3.9	288	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.56388	-73.78773	40.56275	-73.76512	10	5	SSE	<2	B2	≥5000	Clear	Moderate	3.3	120	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.56275	-73.76512	40.56967	-73.74910	10	5	SSE	<2	B2	≥5000	Clear	Moderate	4.1	105	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.56967	-73.74910	40.56782	-73.77505	12	8	WNW	<2	B3	≥5000	Cloudy	Moderate	3.8	306	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.56782	-73.77505	40.56508	-73.79397	12	9	WSW	<2	B3	≥5000	Clear	Moderate	3.7	287	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.56508	-73.79397	40.56295	-73.76752	10	2	SSW	<2	B1	≥5000	Clear	Severe	4.1	163	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:00	19:00	40.56295	-73.76752	40.56093	-73.67728	11	1	SSE	<2	B1	≥5000	Clear	Severe	4	108	Standby	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:00	20:00	40.56093	-73.67728	40.55320	-73.64468	10	8	SSW	<2	B2	≥5000	Cloudy	Slight	3.7	106	Standby	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	20:18	40.55320	-73.64468	40.54633	-73.64267	10	11	SSW	<2	B3	≥5000	Cloudy	Slight	3.7	292	Standby	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:18	20:28	40.54633	-73.64267	40.54617	-73.64150	14	4	SW	<2	B2	≥5000	Cloudy	Slight	3.7	286	Soft Start	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:28	20:51	40.54617	-73.64150	40.54500	-73.63717	13	4	SW	<2	B2	≥5000	Cloudy	Slight	3.7	286	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:51	20:59	40.54500	-73.63717	40.54413	-73.63315	13	5	SSE	<2	B2	≥5000	Cloudy	Slight	3.7	286	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	20:59	22:00	40.54413	-73.63315	40.52955	-73.56583	12	5	SSE	<2	B2	≥5000	Cloudy	Slight	3.4	119	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:00	22:10	40.52955	-73.56583	40.52565	-73.54787	15	3	SSE	<2	B1	≥5000	Cloudy	Slight	3.4	118	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:10	22:13	40.52565	-73.54787	40.52577	-73.54527	15	3	SSE	<2	B1	≥5000	Cloudy	Slight	4.1	113	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:13	22:41	40.52577	-73.54527	40.52588	-73.54112	15	3	SSE	<2	B1	≥5000	Cloudy	Slight	4.1	91	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:41	22:47	40.52588	-73.54112	40.52722	-73.54757	13	7	SSE	<2	B3	≥5000	Cloudy	Slight	3.5	298	Silent	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:47	23:00	40.52722	-73.54757	40.53023	-73.54467	13	7	SSE	<2	B3	≥5000	Cloudy	Slight	3.6	298	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:58	40.53023	-73.54467	40.54713	-73.63913	13	7	SSE	<2	B3	≥5000	Cloudy	Severe	3.7	300	Full Power	N/A
2023-07-22	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:58	00:00	40.54713	-73.63913	40.54775	-73.64183	12	5	SE	<2	B2	≥5000	Clear	Severe	3.8	301	Silent	N/A
2023-07-23	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:25	40.54775	-73.64183	40.54282	-73.63583	12	4	SSW	<2	B2	≥5000	Clear	Moderate	3.8	300	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:25	00:32	40.54282	-73.63583	40.54218	-73.63298	12	5	SSE	<2	B2	≥5000	Clear	Slight	3.8	118	Silent	N/A
2023-07-23	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:32	01:00	40.54218	-73.63298	40.53568	-73.60292	12	6	SSE	<2	B2	1000-1999	Clear	None	3.8	120	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:00	01:35	40.53568	-73.60292	40.52455	-73.55163	12	6	SSE	<2	B2	500-999	Clear	None	3.8	119	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:35	01:38	40.52455	-73.55163	40.52483	-73.55085	12	3	SSE	<2	B1	500-999	Clear	None	3.4	102	Silent	N/A
2023-07-23	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:38	02:00	40.52483	-73.55085	40.52630	-73.53490	12	2	SSE	<2	B1	500-999	Clear	None	3.2	76	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Alwin, Alicia; Cardenas, Ana	RPS	02:00	02:06	40.52630	-73.53490	40.52558	-73.53918	14	13	S	<2	B3	500-999	Clear	None	4.1	231	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:06	02:17	40.52558	-73.53918	40.53307	-73.54747	15	7	S	<2	B2	500-999	Clear	None	3.8	286	Silent	N/A
2023-07-23	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:17	02:53	40.53307	-73.54747	40.53063	-73.56162	15	5	S	<2	B2	500-999	Clear	None	3.8	38	Full Power	N/A
2023-07-23	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:53	03:00	40.53063	-73.56162	40.53552	-73.56577	18	6	SW	<2	B2	500-999	Clear	None	3.6	307	Silent	N/A
2023-07-23	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:22	40.53552	-73.56577	40.53473	-73.53790	16	4	S	<2	B2	500-999	Clear	None	3.9	21	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees) Latitude	Survey Start Position (Decimal Degrees) Longitude	Survey End Position (Decimal Degrees) Latitude	Survey End Position (Decimal Degrees) Longitude	Water Depth (m)	Wind Speed (kts)	Wind Direction	Sea Conditions Swell Height (m)	Sea Conditions Beaufort (B0 - B12)	Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info Speed (kts)	Vessel Info Heading (Degrees)	Vessel Info Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	Inhibiting Factors to Observations
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:22	03:32	40.53473	-73.53790	40.52645	-73.53840	14	3	SW	<2	B1	500-999	Clear	None	3.6	128	Soft Start	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:32	03:37	40.52645	-73.53840	40.52685	-73.54488	15	6	SW	<2	B2	500-999	Clear	None	3.7	275	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:37	03:39	40.52685	-73.54488	40.52732	-73.54710	16	5	SW	<2	B2	500-999	Clear	None	3.8	289	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:39	04:00	40.52732	-73.54710	40.53338	-73.57475	16	3	SW	<2	B2	500-999	Clear	None	3.8	291	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:49	40.53338	-73.57475	40.54732	-73.63907	16	3	SW	<2	B2	500-999	Clear	None	3.7	300	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:49	04:53	40.54732	-73.63907	40.54840	-73.64258	15	10	SW	<2	B3	500-999	Clear	None	3.8	299	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:53	05:00	40.54840	-73.64258	40.55273	-73.64977	15	10	SW	<2	B3	500-999	Clear	None	3.8	328	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:15	40.55273	-73.64977	40.54417	-73.64348	15	10	SW	<2	B3	500-999	Clear	None	3.8	278	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:15	05:20	40.54417	-73.64348	40.54202	-73.63315	12	4	SW	<2	B2	500-999	Clear	None	3.8	105	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	06:00	40.54202	-73.63315	40.53092	-73.58185	12	4	SW	<2	B2	500-999	Clear	None	3.5	112	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:23	40.53092	-73.58185	40.52455	-73.55252	16	4	SW	<2	B2	500-999	Clear	None	3.8	114	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:23	07:00	40.52455	-73.55252	40.54975	-73.53193	13	3	SW	<2	B1	500-999	Clear	None	3.9	115	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	08:00	40.54975	-73.53193	40.53857	-73.50630	13	3	SW	<2	B1	500-999	Clear	None	3.1	63	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:06	40.53857	-73.50630	40.53490	-73.51532	18	2	SW	<2	B1	500-999	Clear	None	2.9	232	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:06	08:20	40.53490	-73.51532	40.52738	-73.53465	18	1	SW	<2	B1	500-999	Clear	None	4	255	Soft Start	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:20	08:25	40.52738	-73.53465	40.52585	-73.54147	15	3	SW	<2	B1	500-999	Clear	None	4.1	250	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:25	08:27	40.52585	-73.54147	40.52657	-73.54387	15	5	SW	<2	B1	500-999	Clear	None	3.8	255	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:27	09:00	40.52657	-73.54387	40.52627	-73.53572	15	7	SW	<2	B1	500-999	Clear	None	3.9	310	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:06	40.52627	-73.53572	40.52742	-73.54903	15	4	SW	<2	B1	1000-1999	Clear	None	4	265	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:06	10:00	40.52742	-73.54903	40.54173	-73.61488	17	4	SW	<2	B1	2000-4999	Clear	None	3.8	293	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:13	40.54173	-73.61488	40.54702	-73.63928	12	3	SW	<2	B1	≥5000	Clear	None	4	293	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:13	10:17	40.54702	-73.63928	40.54935	-73.64340	12	4	SW	<2	B1	≥5000	Clear	None	3.9	295	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:17	10:34	40.54935	-73.64340	40.54455	-73.64537	12	7	SW	<2	B1	≥5000	Clear	Slight	4.3	343	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:34	10:38	40.54455	-73.64537	40.54320	-73.63893	12	6	SW	<2	B1	≥5000	Clear	Moderate	4.1	106	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:38	11:00	40.54320	-73.63893	40.53817	-73.61597	12	4	SW	<2	B1	≥5000	Clear	Severe	4.1	113	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:42	40.53817	-73.61597	40.52455	-73.55323	14	8	SW	<2	B3	≥5000	Clear	Severe	3.8	120	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:42	11:44	40.52455	-73.55323	40.52257	-73.55292	14	6	SW	<2	B2	≥5000	Clear	Severe	3.8	120	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:44	12:00	40.52257	-73.55292	40.52925	-73.53443	14	5	SW	<2	B2	≥5000	Clear	Severe	3.5	128	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:12	40.52925	-73.53443	40.52593	-73.54348	13	4	SW	<2	B2	≥5000	Clear	Severe	4.7	209	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:12	12:15	40.52593	-73.54348	40.52680	-73.54675	15	11	SW	<2	B3	≥5000	Clear	Severe	4	298	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:15	13:00	40.52680	-73.54675	40.53960	-73.60545	14	10	SW	<2	B3	≥5000	Clear	Severe	3.9	299	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:21	40.53960	-73.60545	40.54695	-73.63940	16	9	WNW	<2	B3	≥5000	Clear	Severe	3.9	299	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:21	13:24	40.54695	-73.63940	40.54943	-73.64400	12	8	WNW	<2	B3	≥5000	Clear	Severe	4.1	299	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:24	13:36	40.54943	-73.64400	40.54430	-73.64438	12	10	WNW	<2	B3	≥5000	Clear	Severe	4.5	339	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:36	13:41	40.54430	-73.64438	40.54293	-73.63822	16	8	ENE	<2	B3	≥5000	Clear	Severe	3.9	119	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:41	14:00	40.54293	-73.63822	40.53812	-73.61632	16	6	ENE	<2	B3	≥5000	Clear	Severe	3.5	119	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:49	40.53812	-73.61632	40.52455	-73.55375	14	4	ENE	<2	B2	≥5000	Clear	Severe	3.6	111	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:49	14:54	40.52455	-73.55375	40.52550	-73.54883	20	2	ENE	<2	B1	≥5000	Clear	Severe	3.6	108	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:54	15:00	40.52550	-73.54883	40.54647	-73.54660	20	4	ENE	<2	B2	≥5000	Clear	Severe	3.6	54	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:18	40.54647	-73.54660	40.52528	-73.54165	15	6	NNW	<2	B1	≥5000	Clear	Severe	3.8	14	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:18	15:22	40.52528	-73.54165	40.52667	-73.54697	15	8	WNW	<2	B1	≥5000	Clear	Severe	4.3	302	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:22	16:00	40.52667	-73.54697	40.53663	-73.59203	15	8	WNW	<2	B1	≥5000	Clear	Severe	4	303	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:34	40.53663	-73.59203	40.54683	-73.63967	16	9	WSW	<2	B3	≥5000	Clear	Severe	3.7	301	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:34	16:37	40.54683	-73.63967	40.54792	-73.64268	16	7	WSW	<2	B3	≥5000	Clear	Severe	3.4	299	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:37	17:00	40.54792	-73.64268	40.54412	-73.64463	12	8	WSW	<2	B3	≥5000	Clear	Severe	3.9	320	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:05	40.54412	-73.64463	40.54243	-73.63663	12	6	SSW	<2	B3	≥5000	Clear	Severe	3.5	123	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:05	18:00	40.54243	-73.63663	40.52817	-73.57102	12	7	SSE	<2	B3	≥5000	Clear	Severe	3.7	117	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:09	40.52817	-73.57102	40.52432	-73.55337	18	7	SSE	<2	B3	≥5000	Clear	Moderate	3.7	119	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:09	18:11	40.52432	-73.55337	40.52453	-73.55045	18	6	SW	<2	B3	≥5000	Clear	Moderate	3.3	117	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:11	18:33	40.52453	-73.55045	40.52782	-73.54320	18	6	SW	<2	B3	≥5000	Clear	Moderate	4.5	81	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:33	18:37	40.52782	-73.54320	40.52700	-73.54903	15	12	SW	<2	B3	≥5000	Clear	Moderate	3.9	244	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:37	19:00	40.52700	-73.54903	40.53245	-73.57415	15	10	SW	<2	B3	≥5000	Clear	Moderate	3.4	279	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:43	40.53245	-73.57415	40.54468	-73.63030	16	10	NNW	<2	B3	≥5000	Clear	Moderate	3.4	299	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:43	19:47	40.54468	-73.63030	40.54533	-73.63357	14	10	NNW	<2	B3	≥5000	Clear	Severe	3.6	300	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:47	20:00	40.54533	-73.63357	40.53735	-73.63797	14	10	NNW	<2	B3	≥5000	Clear	Severe	3.5	296	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:18	40.53735	-73.63797	40.53677	-73.61178	16	14	SSE	<2	B3	≥5000	Clear	Severe	3.5	138	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:18	20:25	40.53677	-73.61178	40.54180	-73.61715	12	9	S	<2	B3	≥5000	Clear	Severe	3.6	16	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:25	20:43	40.54180	-73.61715	40.54682	-73.64010	12	9	S	<2	B3	≥5000	Clear	Severe	3.5	306	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:43	20:46	40.54682	-73.64010	40.54768	-73.64307	12	11	S	<2	B3	≥5000	Clear	Severe	3.7	299	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:46	21:00	40.54768	-73.64307	40.54990	-73.65497	12	11	S	<2	B3	≥5000	Clear	Severe	3.8	313	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:10	40.54990	-73.65497	40.54402	-73.64452	12	13	SE	<2	B4	≥5000	Clear	Severe	3.8	232	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:10	21:15	40.54402	-73.64452	40.54223	-73.63662	16	12	SE	<2	B4	≥5000	Clear	Severe	3.8	105	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:15	22:00	40.54223	-73.63662	40.53005	-73.58087	14	14	SE	<2	B4	≥5000	Clear	Severe	4.1	127	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:16	40.53005	-73.58087	40.52437	-73.55383	14	16	SE	<2	B5	≥5000	Clear	Severe	3.9	122	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:16	22:19	40.52437	-73.55383	40.52458	-73.55115	14	16	SE	<2	B5	≥5000	Clear	Severe	3.8	109	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:19	22:45	40.52458	-73.55115	40.52522	-73.54167	14	16	SE	<2	B5	≥5000	Clear	Severe	4.1	89	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:45	22:50	40.52522	-73.54167	40.52678	-73.54893	12	16	SE	<2	B5	≥5000	Clear	Severe	4.2	275	Silent	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:50	23:00	40.52678	-73.54893	40.52910	-73.55925	12	17	SE	<2	B5	≥5000	Clear	Slight	3.7	302	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:58	40.52910	-73.55925	40.54615	-73.63787	12	17	SE	<2	B5	≥5000	Clear	Slight	3.7	298	Full Power	N/A
2023-07-23	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:58	00:00	40.54615	-73.63787	40.54673	-73.64047	12	14	SE	<2	B5	≥5000	Clear	Slight	3.9	301	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:01	40.54673	-73.64047	40.54730	-73.64292	12	15	ESE	<2	B5	≥5000	Clear	Slight	3.8	298	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:01	00:28	40.54730	-73.64292	40.54353	-73.64332	12	11	SE	<2	B4	2000-4999	Clear	Slight	3.8	308	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:28	00:33	40.54353	-73.64332	40.54213	-73.63690	12	16	ESE	<2	B5	2000-4999	Clear	None	3.4	122	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:33	01:00	40.54213	-73.63690	40.53585	-73.60768	12	17	SSE	<2	B5	1000-1999	Clear	None	3.6	120	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:00	01:37	40.53585	-73.60768	40.52410	-73.55405	16	17	S	<2	B5	500-999	Clear	None	3.7	119	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:37	01:41	40.52410	-73.55405	40.52508	-73.54975	18	15	S	<2	B5	500-999	Clear	None	3.6	122	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia; Cardenas, Ana	RPS	01:41	02:00	40.52508	-73.54975	40.53323	-73.53882	18	14	S	<2	B5	500-999	Clear	None	4	48	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:07	40.53323	-73.53882	40.52562	-73.54737	13	20	SSW	<2	B5	500-999	Clear	None	3.8	219	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:07	02:29	40.52562	-73.54737	40.53535	-73.53768	17	19	SSW	<2	B5	500-999	Clear	None	4.1	269	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:29	02:44	40.53535	-73.53768	40.52540	-73.54265	16	16	S	<2	B4	500-999	Clear	None	3.3	134	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:44	02:48	40.52540	-73.54265	40.52663	-73.54892	15	18	SSW	<2	B5	500-999	Clear	None	3.8	300	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:48	03:00	40.52663	-73.54892	40.53068	-73.56732	15	18	SSW	<2	B5	500-999	Clear	None	3.7	300	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:56	40.53068	-73.56732	40.54640	-73.63952	19	15	SSW	<2	B4	500-999	Clear	None	3.7	281	Full Power	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:56	04:00	40.54640	-73.63952	40.54763	-73.64352	12	15	SSW	<2	B4	500-999	Clear	None	3.8	283	Silent	N/A
2023-07-24	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:30	40.54763	-73.64352	40.54327	-73.64687	12	13	SSW	<2	B4	500-999	Clear	None	3.8	312	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:30	04:36	40.54327	-73.64687	40.54247	-73.63913	12	13	S	<2	B4	500-999	Clear	None	3.5	78	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:36	05:00	40.54247	-73.63913	40.54720	-73.64247	12	11	SW	<2	B4	500-999	Clear	None	3.9	117	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:00	05:41	40.54720	-73.64247	40.52432	-73.55545	14	9	SW	<2	B3	500-999	Clear	None	3.9	113	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:41	05:45	40.52432	-73.55545	40.52498	-73.55040	20	11	SW	<2	B4	500-999	Clear	None	3.5	123	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Steinbeisser, Myka	RPS	05:45	06:00	40.52498	-73.55040	40.53590	-73.53843	20	9	S	<2	B3	500-999	Clear	None	4	45	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:00	06:16	40.53590	-73.53843	40.52548	-73.54380	13	12	SW	<2	B4	500-999	Clear	None	4	111	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:16	06:22	40.52548	-73.54380	40.52628	-73.54775	13	17	SW	<2	B5	500-999	Clear	None	3.8	300	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	06:22	07:00	40.52628	-73.54775	40.53658	-73.59513	13	17	SW	<2	B5	500-999	Clear	None	3.7	296	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:00	07:32	40.53658	-73.59513	40.54618	-73.63928	12	16	S	<2	B5	500-999	Clear	None	3.7	296	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:32	07:38	40.54618	-73.63928	40.55042	-73.64445	12	16	S	<2	B5	500-999	Clear	None	3.9	298	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia; Szmidt, Paulina	RPS	07:38	08:00	40.55042	-73.64445	40.54282	-73.65187	12	16	S	<2	B5	500-999	Clear	None	4.1	357	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:02	40.54282	-73.65187	40.54282	-73.64113	15	9	S	<2	B3	500-999	Clear	None	4.8	95	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:02	08:06	40.54282	-73.64113	40.54238	-73.63907	15	13	S	<2	B4	500-999	Clear	None	4	110	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:06	09:00	40.54238	-73.63907	40.52773	-73.57173	15	14	S	<2	B4	500-999	Clear	None	3.9	111	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:00	09:11	40.52773	-73.57173	40.52318	-73.55078	19	8	S	<2	B3	1000-1999	Clear	None	3.9	111	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:11	09:15	40.52318	-73.55078	40.52310	-73.54690	20	6	S	<2	B2	2000-4999	Clear	None	3.7	113	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:15	09:43	40.52310	-73.54690	40.52472	-73.54108	20	6	S	<2	B2	2000-4999	Clear	None	4.6	77	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:43	09:48	40.52472	-73.54108	40.52622	-73.54783	17	8	S	<2	B3	≥5000	Cloudy	None	3.7	291	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	09:48	10:00	40.52622	-73.54783	40.52970	-73.56395	17	7	S	<2	B3	≥5000	Cloudy	None	3.7	290	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:00	10:56	40.52970	-73.56395	40.54553	-73.63693	19	7	S	<2	B3	≥5000	Cloudy	None	3.8	293	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	10:56	11:00	40.54553	-73.63693	40.54718	-73.64225	18	7	SW	<2	B3	≥5000	Cloudy	None	3.8	297	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:00	11:01	40.54718	-73.64225	40.54965	-73.64428	18	7	SW	<2	B3	≥5000	Cloudy	None	4	324	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:01	11:17	40.54965	-73.64428	40.54342	-73.64460	18	6	SW	<2	B2	≥5000	Cloudy	None	4.3	345	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:17	11:22	40.54342	-73.64460	40.54225	-73.63908	19	8	SW	<2	B3	≥5000	Cloudy	None	3.7	115	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	11:22	12:00	40.54225	-73.63908	40.53267	-73.59503	19	4	SW	<2	B2	≥5000	Cloudy	None	3.7	116	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:00	12:26	40.53267	-73.59503	40.52398	-73.55510	17	6	SW	<2	B2	≥5000	Cloudy	None	3.7	119	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:26	12:30	40.52398	-73.55510	40.52423	-73.55040	16	6	SW	<2	B2	≥5000	Cloudy	None	3.7	116	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:30	12:55	40.52423	-73.55040	40.52522	-73.54383	16	3	SW	<2	B1	≥5000	Cloudy	None	4.1	70	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:55	12:58	40.52522	-73.54383	40.52605	-73.54784	15	10	SW	<2	B3	≥5000	Cloudy	None	4	296	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Alwin, Alicia	RPS	12:58	13:00	40.52605	-73.54784	40.52622	-73.54855	15	10	SW	<2	B3	≥5000	Cloudy	None	3.8	300	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	13:00	14:00	40.52622	-73.54855	40.54280	-73.62477	18	8	WSW	<2	B3	≥5000	Cloudy	None	3.8	302	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:00	14:04	40.54280	-73.62477	40.54590	-73.63922	12	8	WSW	<2	B3	≥5000	Cloudy	None	3.9	298	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:04	14:07	40.54590	-73.63922	40.54690	-73.64300	12	7	WSW	<2	B3	≥5000	Cloudy	None	4	292	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:07	14:26	40.54690	-73.64300	40.54357	-73.64565	12	6	WSW	<2	B2	≥5000	Cloudy	None	3.9	306	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:26	14:31	40.54357	-73.64565	40.54218	-73.63947	12	8	WSW	<2	B3	≥5000	Cloudy	None	3.8	114	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Steinbeisser, Myka	RPS	14:31	15:00	40.54218	-73.63947	40.53447	-73.60397	12	7	WSW	<2	B3	≥5000	Cloudy	None	3.8	114	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:00	15:32	40.53447	-73.60397	40.52383	-73.55500	16	6	S	<2	B3	≥5000	Cloudy	None	3.9	117	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:32	15:35	40.52383	-73.55500	40.52405	-73.55150	18	7	S	<2	B3	≥5000	Cloudy	None	3.9	118	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	15:35	16:00	40.52405	-73.55150	40.52578	-73.53992	18	7	S	<2	B3	≥5000	Cloudy	None	3.7	69	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:00	16:04	40.52578	-73.53992	40.52650	-73.55035	18	8	SW	<2	B3	≥5000	Cloudy	None	4	257	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	16:04	17:00	40.52650	-73.55035	40.54235	-73.62383	18	6	WSW	<2	B2	≥5000	Cloudy	None	3.9	300	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:00	17:13	40.54235	-73.62383	40.54585	-73.63975	16	9	WNW	<2	B3	≥5000	Cloudy	None	3.7	299	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:13	17:15	40.54585	-73.63975	40.54753	-73.64262	18	10	NNE	<2	B3	≥5000	Cloudy	Moderate	3.6	298	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:15	17:39	40.54753	-73.64262	40.54228	-73.64203	12	9	ENE	<2	B3	≥5000	Cloudy	Moderate	4.3	338	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:39	17:43	40.54228	-73.64203	40.54115	-73.63703	12	13	SSE	<2	B4	≥5000	Cloudy	Moderate	3.3	128	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	17:43	18:00	40.54115	-73.63703	40.53695	-73.61805	16	15	SSE	<2	B4	≥5000	Cloudy	Moderate	3.7	121	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:00	18:45	40.53695	-73.61805	40.52372	-73.55697	15	13	SSE	<2	B4	≥5000	Cloudy	Moderate	3.6	119	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:45	18:47	40.52372	-73.55697	40.52390	-73.55472	19	13	SE	<2	B4	≥5000	Cloudy	Moderate	3.7	111	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	18:47	19:12	40.52390	-73.55472	40.52510	-73.54465	19	13	SE	<2	B4	≥5000	Cloudy	Moderate	4.3	84	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:12	19:18	40.52510	-73.54465	40.52660	-73.55193	17	10	SSE	<2	B3	≥5000	Cloudy	Moderate	3.6	289	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	19:18	20:00	40.52660	-73.55193	40.53767	-73.60285	17	10	SSE	<2	B3	≥5000	Cloudy	Moderate	3.9	297	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:00	20:28	40.53767	-73.60285	40.54603	-73.64082	16	10	ESE	<2	B3	≥5000	Clear	Severe	3.7	296	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:28	20:30	40.54603	-73.64082	40.54770	-73.64233	12	10	S	<2	B3	≥5000	Clear	Severe	3.6	319	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:30	20:55	40.54770	-73.64233	40.54177	-73.63865	12	10	S	<2	B3	≥5000	Clear	Severe	4.2	350	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:55	20:57	40.54177	-73.63865	40.54122	-73.63658	12	12	SSE	<2	B4	≥5000	Clear	Severe	4.2	128	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Cardenas, Ana	RPS	20:57	21:00	40.54122	-73.63658	40.54048	-73.63352	12	18	SSE	<2	B4	≥5000	Clear	Severe	3.7	121	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:00	21:56	40.54048	-73.63352	40.52375	-73.55690	12	16	SSE	<2	B4	≥5000	Clear	Severe	4	122	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	21:56	21:59	40.52375	-73.55690	40.52393	-73.55432	12	18	SSE	<2	B5	≥5000	Clear	Severe	4	114	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	21:59	22:21	40.52393	-73.55432	40.52188	-73.54753	12	17	SSE	<2	B5	≥5000	Clear	Severe	4.4	85	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:21	22:29	40.52188	-73.54753	40.52442	-73.55848	12	17	SSE	<2	B5	≥5000	Clear	Severe	4.4	85	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	22:29	23:00	40.52442	-73.55848	40.53320	-73.59893	13	15	SE	<2	B4	≥5000	Clear	Severe	3.7	306	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:00	23:31	40.53320	-73.59893	40.54233	-73.64097	13	15	SE	<2	B4	≥5000	Clear	Severe	3.8	298	Full Power	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:31	23:34	40.54233	-73.64097	40.54312	-73.64382	12	11	SSE	<2	B4	≥5000	Clear	Severe	3.8	299	Silent	N/A
2023-07-24	Brooks McCall	HRG	Visual	Szmidt, Paulina	RPS	23:34	00:00	40.54312	-73.64382	40.54093	-73.65435	12	11	SSE	<2	B4	≥5000	Clear	Severe	3.9	311	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:00	00:08	40.54093	-73.65435	40.54237	-73.64225	14	16	SSE	<2	B4	≥5000	Clear	None	3.6	126	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:08	00:10	40.54237	-73.64225	40.54135	-73.63718	12	15	SSE	<2	B4	2000-4999	Clear	None	3.7	120	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Ortega Arana, Jimena	RPS	00:10	01:00	40.54135	-73.63718	40.52788	-73.57507	12	16	SSE	<2	B4	1000-1999	Clear	None	3.7	120	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:13	40.52788	-73.57507	40.52368	-73.55553	17	17	SSE	<2	B4	500-999	Clear	None	3.8	118	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:13	01:16	40.52368	-73.55553	40.52445	-73.55348	18	8	SE	<2	B3	500-999	Clear	None	3.6	106	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:16	01:32	40.52445	-73.55348	40.53958	-73.55312	18	9	SE	<2	B3	500-999	Clear	None	3.8	58	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:32	01:52	40.53958	-73.55312	40.53570	-73.57470	18	12	SE	<2	B4	500-999	Clear	None	3.4	314	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:52	02:00	40.53570	-73.57470	40.52865	-73.57732	18	11	SE	<2	B3	500-999	Clear	None	4	208	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:03	40.52865	-73.57732	40.52500	-73.57862	17	16	SSW	<2	B3	500-999	Clear	None	3.7	206	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:03	02:06	40.52500	-73.57862	40.52210	-73.57975	17	16	SSW	<2	B3	500-999	Clear	None	3.7	207	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:06	02:20	40.52210	-73.57975	40.52582	-73.59063	17	20	SSW	<2	B3	500-999	Clear	None	3.8	210	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:20	02:24	40.52582	-73.59063	40.52910	-73.58940	19	13	SSW	<2	B3	500-999	Clear	None	3.9	25	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:24	02:33	40.52910	-73.58940	40.53972	-73.58548	19	13	SSW	<2	B3	500-999	Clear	None	3.9	28	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:33	02:35	40.53972	-73.58548	40.54165	-73.58473	14	10	SSW	<2	B3	500-999	Clear	None	3.8	29	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:35	02:48	40.54165	-73.58473	40.54165	-73.58473	14	10	SSW	<2	B3	500-999	Clear	None	3.9	29	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:48	02:53	40.54165	-73.58473	40.54022	-73.59752	12	18	NE	<2	B5	500-999	Clear	None	3.9	238	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:53	03:00	40.54022	-73.59752	40.53715	-73.59872	12	18	NE	<2	B5	500-999	Clear	None	3.9	206	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:04	40.53715	-73.59872	40.52772	-73.60217	16	19	NE	<2	B5	500-999	Clear	None	3.8	200	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:04	03:06	40.52772	-73.60217	40.52657	-73.60255	17	18	NE	<2	B5	500-999	Clear	None	3.8	200	Silent	N/A
2023-07-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:06	03:23	40.52657	-73.60255	40.52908	-73.61395	17	19	NE	<2	B5	500-999	Clear	None	3.9	200	Full Power	N/A
2023-07-25	Brooks McCall	HRG	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:23	03:28	40.52908	-73.61395	40.53453	-73.61198	17	15	NNE	<2	B4	500-999	Clear	None	3.9	26	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:28	03:39	40.53453	-73.61198	40.54443	-73.60827	14	12	NNE	<2	B4	500-999	Clear	None	4	26	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:39	03:41	40.54443	-73.60827	40.54663	-73.60738	13	10	NNE	<2	B3	500-999	Clear	None	3.6	24	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:41	04:00	40.54663	-73.60738	40.55470	-73.61438	13	12	NNE	<2	B4	500-999	Clear	None	3.6	23	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:20	40.55470	-73.61438	40.53773	-73.62092	13	16	NNE	<2	B4	500-999	Clear	None	3.9	219	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:20	04:40	40.53773	-73.62092	40.52997	-73.63457	12	15	NNE	<2	B4	500-999	Clear	None	3.7	210	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:40	05:03	40.52997	-73.63457	40.55237	-73.62842	12	16	NNE	<2	B4	500-999	Clear	None	4.2	352	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:03	05:20	40.55237	-73.62842	40.55615	-73.64908	12	14	NNW	<2	B4	500-999	Clear	None	3.2	325	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	05:40	40.55615	-73.64908	40.54917	-73.67225	10	12	WNW	<2	B4	500-999	Clear	None	3.9	278	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:42	06:00	40.54917	-73.67225	40.54608	-73.67412	15	12	WSW	<2	B4	500-999	Clear	None	3.9	195	Soft Start	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:12	40.54608	-73.67412	40.54187	-73.67535	15	11	SW	<2	B4	500-999	Clear	None	3.8	200	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:12	06:18	40.54187	-73.67535	40.54727	-73.67310	13	9	SW	<2	B3	500-999	Clear	None	3.8	57	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:18	06:40	40.54727	-73.67310	40.54198	-73.67535	13	9	SW	<2	B3	500-999	Clear	None	3.6	19	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:40	07:00	40.54198	-73.67535	40.56225	-73.67488	13	8	SW	<2	B3	500-999	Clear	None	3.8	57	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:20	40.56225	-73.67488	40.54422	-73.67068	15	10	SW	<2	B3	500-999	Clear	None	3.8	191	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:20	07:40	40.54422	-73.67068	40.54673	-73.67763	13	8	SW	<2	B3	500-999	Clear	None	4	127	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:40	08:00	40.54673	-73.67763	40.56378	-73.68135	13	6	SW	<2	B2	500-999	Clear	None	3.7	16	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:20	40.56378	-73.68135	40.55940	-73.67568	10	5	WSW	<2	B2	500-999	Clear	None	3.5	324	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:20	08:40	40.55940	-73.67568	40.54073	-73.66957	11	7	SW	<2	B3	500-999	Clear	None	3.7	197	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:40	09:00	40.54073	-73.66957	40.56558	-73.67790	16	13	SW	<2	B4	500-999	Clear	None	4.1	230	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.56558	-73.67790	40.57392	-73.67515	10	7	S	<2	B3	1000-1999	Clear	None	3.8	10	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.57392	-73.67515	40.55880	-73.68130	10	6	S	<2	B2	2000-4999	Clear	None	4	13	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.55880	-73.68130	40.54185	-73.68657	11	7	SSW	<2	B3	≥5000	Clear	None	3.7	193	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:07	40.54185	-73.68657	40.54182	-73.67837	13	7	SSW	<2	B3	≥5000	Clear	Slight	3.9	180	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:07	10:13	40.54182	-73.67837	40.54912	-73.67843	16	5	SW	<2	B2	≥5000	Clear	Slight	3.8	358	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:13	10:33	40.54912	-73.67843	40.57027	-73.67818	17	7	WSW	<2	B3	≥5000	Clear	Slight	4.1	5	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:33	10:37	40.57027	-73.67818	40.57357	-73.67688	8	3	WSW	<2	B1	≥5000	Clear	Slight	3.8	3	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:37	10:43	40.57357	-73.67688	40.57147	-73.68145	8	3	SW	<2	B1	≥5000	Clear	Slight	4.1	352	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:43	10:45	40.57147	-73.68145	40.56835	-73.68157	8	6	SW	<2	B2	≥5000	Clear	Moderate	4.1	192	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:45	11:00	40.56835	-73.68157	40.55642	-73.68175	8	8	SW	<2	B3	≥5000	Clear	Moderate	3.9	192	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:20	40.55642	-73.68175	40.54170	-73.67685	11	12	S	<2	B4	≥5000	Clear	Severe	4	193	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:20	11:40	40.54170	-73.67685	40.56430	-73.67208	11	12	S	<2	B4	≥5000	Clear	Severe	3.5	22	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:40	12:00	40.56430	-73.67208	40.55445	-73.67112	11	5	S	<2	B2	≥5000	Clear	Severe	4.2	37	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:20	40.55445	-73.67112	40.54417	-73.65828	11	5	S	<2	B2	≥5000	Clear	Severe	3.9	192	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:20	12:40	40.54417	-73.65828	40.54210	-73.64072	11	5	S	<2	B2	≥5000	Clear	Severe	3.8	109	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.54210	-73.64072	40.53612	-73.61352	11	5	S	<2	B2	≥5000	Clear	Severe	3.7	118	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:44	40.53612	-73.61352	40.52377	-73.55682	12	4	S	<2	B2	≥5000	Clear	Severe	3.6	121	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:44	13:48	40.52377	-73.55682	40.52462	-73.55267	17	8	SE	<2	B3	≥5000	Clear	Severe	3.7	117	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:48	14:00	40.52462	-73.55267	40.53278	-73.54062	17	7	SSW	<2	B3	≥5000	Clear	Severe	3.9	49	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:08	40.53278	-73.54062	40.52547	-73.54070	14	5	SSW	<2	B2	≥5000	Clear	Severe	4.2	95	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:08	14:12	40.52547	-73.54070	40.52683	-73.54647	13	7	SW	<2	B3	≥5000	Clear	Severe	4.6	279	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:12	14:30	40.52683	-73.54647	40.53180	-73.56925	16	7	SW	<2	B3	≥5000	Clear	Severe	3.7	297	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:30	14:33	40.53180	-73.56925	40.53395	-73.57293	17	6	SW	<2	B2	≥5000	Clear	Severe	3.7	288	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:33	14:48	40.53395	-73.57293	40.53837	-73.56173	16	3	SW	<2	B1	≥5000	Clear	Severe	4.3	353	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:48	14:52	40.53837	-73.56173	40.53395	-73.56288	15	9	SSW	<2	B3	≥5000	Clear	Severe	3.8	202	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:52	15:00	40.53395	-73.56288	40.52692	-73.56563	15	12	SSW	<2	B4	≥5000	Clear	Severe	4	205	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:02	40.52692	-73.56563	40.52087	-73.56792	18	13	SW	<2	B4	≥5000	Clear	Severe	4	210	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:02	15:06	40.52087	-73.56792	40.51915	-73.56967	18	13	SW	<2	B4	≥5000	Clear	Severe	4	209	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:06	15:24	40.51915	-73.56967	40.52968	-73.58030	19	14	SW	<2	B4	≥5000	Clear	Severe	4.1	240	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:24	15:29	40.52968	-73.58030	40.52850	-73.57487	18	9	S	<2	B3	≥5000	Clear	Moderate	3.7	107	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:29	15:45	40.52850	-73.57487	40.52402	-73.55285	18	9	S	<2	B3	≥5000	Clear	Moderate	3.9	117	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:45	15:50	40.52402	-73.55285	40.52243	-73.54878	18	8	S	<2	B3	≥5000	Clear	Moderate	3.5	121	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:50	16:00	40.52243	-73.54878	40.52755	-73.54467	18	8	S	<2	B3	≥5000	Clear	Moderate	3.4	138	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:13	40.52755	-73.54467	40.52807	-73.55133	17	8	SW	<2	B3	≥5000	Clear	Moderate	3.8	357	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:13	16:20	40.52807	-73.55133	40.52845	-73.54285	18	12	S	<2	B4	≥5000	Clear	Severe	3.7	154	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.52845	-73.54285	40.52958	-73.51167	16	9	S	<2	B3	≥5000	Clear	Severe	3.9	87	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.52958	-73.51167	40.52902	-73.52837	18	12	SW	<2	B4	≥5000	Clear	Severe	3.8	244	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.52902	-73.52837	40.54532	-73.52563	17	10	SSW	<2	B3	≥5000	Clear	Severe	3.5	1	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.54532	-73.52563	40.56082	-73.51232	16	12	SSW	<2	B4	≥5000	Clear	Severe	4.2	19	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.56082	-73.51232	40.56383	-73.51967	18	16	SSW	<2	B4	≥5000	Clear	Severe	3.5	139	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:20	40.56383	-73.51967	40.57957	-73.51990	12	11	S	<2	B3	≥5000	Clear	Severe	3.8	345	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:20	18:40	40.57957	-73.51990	40.57428	-73.53515	8	20	S	<2	B5	≥5000	Clear	Severe	3.7	181	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:40	19:00	40.57428	-73.53515	40.56938	-73.52640	12	13	SSW	<2	B4	≥5000	Clear	Severe	4.1	354	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:20	40.56938	-73.52640	40.55045	-73.52105	10	20	SW	<2	B5	≥5000	Clear	Moderate	4.3	184	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:20	19:40	40.55045	-73.52105	40.56845	-73.52147	14	23	S	<2	B6	≥5000	Cloudy	Slight	3.9	124	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:40	20:00	40.56845	-73.52147	40.57578	-73.51615	11	11	SW	<2	B4	≥5000	Cloudy	Slight	3.9	358	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:14	40.57578	-73.51615	40.57150	-73.53193	9	22	WSW	<2	B6	≥5000	Cloudy	None	4	181	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:14	20:23	40.57150	-73.53193	40.57150	-73.53193	10	41	W	<2	B9	2000-4999	Precipitation	None	2.8	260	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:23	20:33	40.57150	-73.53193	40.55048	-73.53558	13	24	WSW	<2	B6	2000-4999	Cloudy	None	3.8	154	Soft Start	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:33	20:40	40.55048	-73.53558	40.55025	-73.52620	13	18	WSW	<2	B5	2000-4999	Precipitation	None	3.8	154	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:40	21:00	40.55025	-73.52620	40.56055	-73.50548	13	18	SW	<2	B5	2000-4999	Precipitation	None	4	60	Silent	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.56055	-73.50548	40.57230	-73.49430	12	16	WNW	<2	B5	2000-4999	Precipitation	None	3.6	72	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.57230	-73.49430	40.56048	-73.51665	16	20	WNW	<2	B5	2000-4999	Precipitation	None	3	262	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.56048	-73.51665	40.55220	-73.53768	12	10	WNW	<2	B3	2000-4999	Precipitation	None	3.8	249	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:20	40.55220	-73.53768	40.55435	-73.51920	13	8	WNW	<2	B3	2000-4999	Precipitation	None	4.1	190	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:20	22:40	40.55435	-73.51920	40.56167	-73.49342	13	12	WNW	<2	B4	2000-4999	Precipitation	None	3.2	67	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:40	23:00	40.56167	-73.49342	40.55045	-73.50223	13	13	WNW	<2	B4	2000-4999	Precipitation	None	3.6	144	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.55045	-73.50223	40.57133	-73.49907	12	13	WNW	<2	B4	≥5000	Cloudy	None	3.8	317	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.57133	-73.49907	40.58543	-73.48917	12	14	WNW	<2	B4	≥5000	Cloudy	None	3.5	26	Full Power	N/A
2023-07-25	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.58543	-73.48917	40.58412	-73.48710	12	14	WNW	<2	B4	≥5000	Cloudy	None	4.7	125	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:00	00:20	40.58412	-73.48710	40.56978	-73.50450	9	8	WNW	<2	B3	≥5000	Cloudy	None	3.7	306	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:20	00:40	40.56978	-73.50450	40.55563	-73.50887	11	7	WNW	<2	B3	2000-4999	Cloudy	None	3.7	208	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	00:40	01:00	40.55563	-73.50887	40.55288	-73.50412	13	6	WNW	<2	B3	1000-1999	Cloudy	None	3.8	207	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:00	01:20	40.55288	-73.50412	40.58262	-73.49590	15	11	NNE	<2	B3	500-999	Clear	None	3.9	356	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:20	01:40	40.58262	-73.49590	40.57893	-73.48462	11	5	NNE	<2	B2	500-999	Clear	None	3.8	27	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	01:40	02:00	40.57893	-73.48462	40.58555	-73.49152	10	3	NNE	<2	B1	500-999	Clear	None	3.6	148	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:00	02:20	40.58555	-73.49152	40.56808	-73.50515	10	7	NNE	<2	B3	500-999	Clear	None	3.8	303	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:20	02:40	40.56808	-73.50515	40.54943	-73.51208	12	2	SSE	<2	B2	500-999	Clear	None	3.6	205	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana; Alwin, Alicia	RPS	02:40	03:00	40.54943	-73.51208	40.55038	-73.50302	14	6	SSW	<2	B2	500-999	Clear	None	3.5	165	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:00	03:20	40.55038	-73.50302	40.57778	-73.49775	14	2	SSW	<2	B1	500-999	Clear	None	3.7	11	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:20	03:40	40.57778	-73.49775	40.58107	-73.48602	10	4	SSW	<2	B2	500-999	Clear	None	3.7	20	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	03:40	04:00	40.58107	-73.48602	40.58653	-73.49297	11	2	SSW	<2	B1	500-999	Clear	None	4	179	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:00	04:20	40.58653	-73.49297	40.57247	-73.50393	12	4	SSW	<2	B2	500-999	Clear	None	3.6	300	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:20	04:40	40.57247	-73.50393	40.55432	-73.51525	12	4	SSW	<2	B2	500-999	Clear	None	3.8	206	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	04:40	05:00	40.55432	-73.51525	40.55165	-73.50495	12	5	SSW	<2	B2	500-999	Clear	None	3.5	226	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:00	05:20	40.55165	-73.50495	40.58007	-73.49743	13	5	SSW	<2	B2	500-999	Clear	None	4	347	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:20	05:40	40.58007	-73.49743	40.57758	-73.49557	9	4	S	<2	B2	500-999	Clear	None	3.8	18	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Alwin, Alicia	RPS	05:40	06:00	40.57758	-73.49557	40.56763	-73.47918	9	5	S	<2	B2	500-999	Clear	None	3.7	120	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:00	06:20	40.56763	-73.47918	40.57563	-73.45348	10	6	S	<2	B2	500-999	Cloudy	None	3.5	139	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:20	06:40	40.57563	-73.45348	40.57657	-73.46680	10	6	S	<2	B2	500-999	Cloudy	None	4	354	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	06:40	07:00	40.57657	-73.46680	40.56525	-73.46887	11	4	S	<2	B2	500-999	Clear	None	3.7	208	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:00	07:22	40.56525	-73.46887	40.56172	-73.47998	11	8	S	<2	B3	500-999	Clear	None	3.8	198	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:22	07:37	40.56172	-73.47998	40.57932	-73.48437	12	9	S	<2	B3	500-999	Clear	None	3.8	342	Soft Start	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:37	07:44	40.57932	-73.48437	40.58528	-73.48900	12	9	S	<2	B3	500-999	Clear	None	3.9	5	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina; Alwin, Alicia	RPS	07:44	07:55	40.58528	-73.48900	40.58588	-73.49948	11	7	S	<2	B3	500-999	Clear	None	3.6	322	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	07:55	08:00	40.58588	-73.49948	40.58202	-73.50113	8	3	SW	<2	B1	500-999	Clear	None	3.8	222	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:00	08:20	40.58202	-73.50113	40.55772	-73.50878	9	2	SW	<2	B1	500-999	Clear	None	4	204	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:20	08:40	40.55772	-73.50878	40.55130	-73.50680	14	2	SW	<2	B1	500-999	Clear	None	3.9	217	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka; Szmidt, Paulina	RPS	08:40	09:00	40.55130	-73.50680	40.56748	-73.50170	14	3	S	<2	B1	500-999	Clear	None	4.4	19	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:00	09:20	40.56748	-73.50170	40.58567	-73.48842	12	5	S	<2	B2	1000-1999	Clear	None	3.9	16	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:20	09:40	40.58567	-73.48842	40.57470	-73.50357	9	4	SSE	<2	B2	2000-4999	Clear	None	4.1	200	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	09:40	10:00	40.57470	-73.50357	40.55655	-73.51088	13	5	SW	<2	B2	≥5000	Clear	None	3.9	219	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:00	10:20	40.55655	-73.51088	40.55755	-73.50518	14	6	SW	<2	B2	≥5000	Clear	None	3.7	250	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:20	10:40	40.55755	-73.50518	40.57443	-73.49992	14	4	WSW	<2	B2	≥5000	Clear	Slight	3.8	11	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	10:40	11:00	40.57443	-73.49992	40.58825	-73.49743	11	5	WSW	<2	B2	≥5000	Clear	Slight	3.9	16	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:00	11:20	40.58825	-73.49743	40.56405	-73.50720	13	6	SW	<2	B2	≥5000	Clear	Moderate	3.8	251	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:20	11:40	40.56405	-73.50720	40.55455	-73.50622	11	5	SW	<2	B2	≥5000	Clear	Moderate	4	206	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	11:40	12:00	40.55455	-73.50622	40.57008	-73.50137	11	5	SW	<2	B2	≥5000	Clear	Severe	3.8	22	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:00	12:22	40.57008	-73.50137	40.58563	-73.49653	9	2	S	<2	B1	≥5000	Clear	Severe	3.7	25	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:22	12:40	40.58563	-73.49653	40.58727	-73.48853	8	3	S	<2	B1	≥5000	Clear	Severe	3.8	36	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Alwin, Alicia	RPS	12:40	13:00	40.58727	-73.48853	40.57687	-73.50335	9	3	S	<2	B1	≥5000	Clear	Severe	3.8	283	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:00	13:20	40.57687	-73.50335	40.55373	-73.51713	14	10	SW	<2	B3	≥5000	Clear	Severe	4	207	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:20	13:40	40.55373	-73.51713	40.55882	-73.50513	16	14	WSW	<2	B4	≥5000	Clear	Severe	3.6	235	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	13:40	14:00	40.55882	-73.50513	40.57700	-73.49940	14	10	SW	<2	B3	≥5000	Clear	Severe	3.6	26	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:00	14:20	40.57700	-73.49940	40.58760	-73.49460	10	6	SW	<2	B2	≥5000	Clear	Severe	4.3	16	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:20	14:40	40.58760	-73.49460	40.57392	-73.50442	7	6	WSW	<2	B2	≥5000	Clear	Severe	4	280	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Steinbeisser, Myka	RPS	14:40	15:00	40.57392	-73.50442	40.55577	-73.51225	10	6	SW	<2	B2	≥5000	Clear	Severe	3.7	204	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:00	15:20	40.55577	-73.51225	40.55870	-73.50535	14	11	SW	<2	B4	≥5000	Clear	Severe	4.4	241	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:20	15:40	40.55870	-73.50535	40.57808	-73.49928	13	7	SE	<2	B3	≥5000	Clear	Severe	3.7	27	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	15:40	16:00	40.57808	-73.49928	40.58370	-73.48517	10	8	WSW	<2	B3	≥5000	Clear	Severe	3.6	28	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:00	16:20	40.58370	-73.48517	40.57907	-73.50298	10	13	SW	<2	B3	≥5000	Clear	Severe	3	185	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:20	16:40	40.57907	-73.50298	40.55970	-73.50900	14	16	SW	<2	B3	≥5000	Clear	Severe	4.1	209	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	16:40	17:00	40.55970	-73.50900	40.56012	-73.50510	16	10	SW	<2	B3	≥5000	Clear	Severe	3.9	205	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:00	17:20	40.56012	-73.50510	40.58157	-73.49842	14	10	SSW	<2	B3	≥5000	Clear	Severe	3.8	30	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:20	17:40	40.58157	-73.49842	40.58085	-73.49193	10	8	SW	<2	B3	≥5000	Clear	Severe	4	32	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	17:40	18:00	40.58085	-73.49193	40.58292	-73.50193	14	13	SW	<2	B4	≥5000	Clear	Severe	3.6	243	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:00	18:20	40.58292	-73.50193	40.55637	-73.51155	9	16	SW	<2	B4	≥5000	Clear	Severe	3.8	204	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:20	18:40	40.55637	-73.51155	40.55503	-73.50588	14	16	SSE	<2	B4	≥5000	Clear	Severe	3.4	233	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	18:40	19:00	40.55503	-73.50588	40.57893	-73.49942	14	9	WNW	<2	B3	≥5000	Clear	Slight	3.5	354	Silent	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:00	19:20	40.57893	-73.49942	40.58062	-73.48450	10	8	WSW	<2	B3	≥5000	Clear	Slight	3.9	26	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:20	19:40	40.58062	-73.48450	40.58395	-73.50143	9	9	S	<2	B3	≥5000	Clear	Slight	4.2	91	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	19:40	20:00	40.58395	-73.50143	40.56783	-73.50685	9	14	S	<2	B4	≥5000	Clear	Moderate	2.3	184	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:00	20:20	40.56783	-73.50685	40.54893	-73.51050	12	16	SSW	<2	B4	≥5000	Clear	Moderate	3.7	206	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:20	20:40	40.54893	-73.51050	40.56750	-73.50310	14	9	SSE	<2	B3	≥5000	Clear	Severe	4.3	112	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Cardenas, Ana	RPS	20:40	21:00	40.56750	-73.50310	40.58725	-73.49418	10	10	SW	<2	B3	≥5000	Clear	Severe	4	25	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:00	21:20	40.58725	-73.49418	40.58325	-73.48120	8	9	SW	<2	B3	≥5000	Clear	Severe	4.6	81	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:20	21:40	40.58325	-73.48120	40.58123	-73.50297	12	13	SW	<2	B4	≥5000	Clear	Severe	3.7	316	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Ortega Arana, Jimena	RPS	21:40	22:00	40.58123	-73.50297	40.56475	-73.50807	14	15	SW	<2	B4	≥5000	Clear	Severe	3.9	206	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:00	22:20	40.56475	-73.50807	40.55210	-73.50523	12	22	SW	<2	B6	≥5000	Clear	Severe	3.9	206	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:20	22:40	40.55210	-73.50523	40.57335	-73.50150	12	22	SW	<2	B6	≥5000	Clear	Severe	4.1	38	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	22:40	23:00	40.57335	-73.50150	40.58308	-73.49015	12	22	SW	<2	B6	≥5000	Clear	Severe	3.6	28	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:00	23:20	40.58308	-73.49015	40.58660	-73.48890	10	14	SW	<2	B4	≥5000	Clear	Severe	3.8	288	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:20	23:40	40.58660	-73.48890	40.57702	-73.50448	10	20	SW	<2	B5	≥5000	Clear	Severe	3.6	205	Full Power	N/A
2023-07-26	*Brooks McCall*	*HRG*	Visual	Szmidt, Paulina	RPS	23:40	00:00	40.57702	-73.50448	40.56155	-73.50915	10	27	SW	<2	B6	≥5000	Clear	Moderate	3.5	212	Full Power	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	11:44	12:00	40.41800	-74.03500	40.43000	-74.02500	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	20	N/A	Transit	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:00	13:00	40.43000	-74.02500	40.53500	-73.80100	N/A	N/A	N/A	<2	B5	≥5000	Clear	Slight	20	N/A	Transit	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.53500	-73.80100	40.61900	-73.57976	N/A	N/A	N/A	<2	B5	≥5000	Clear	Slight	20	N/A	Transit	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	14:00	15:00	40.61900	-73.57976	40.62832	-73.57639	N/A	N/A	N/A	<2	B5	≥5000	Clear	Slight	20	N/A	Transit	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	18:00	18:49	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	≥5000	Cloudy	None	0	N/A	Standby	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	18:49	18:52	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	≥5000	Cloudy	None	0	N/A	Soft Start	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	18:52	19:01	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	≥5000	Cloudy	None	0	N/A	Standby	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	19:01	19:21	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	≥5000	Cloudy	None	0	N/A	Soft Start	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	19:21	19:30	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	≥5000	Cloudy	None	0	N/A	Full Power	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	19:30	20:00	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	1000-1999	Precipitation	None	0	N/A	Full Power	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	20:00	21:00	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	2000-4999	Cloudy	None	0	N/A	Full Power	N/A
2023-06-14	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	21:00	21:32	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B0	2000-4999	Cloudy	None	0	N/A	Full Power	N/A
2023-06-15	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:00	12:32	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	0	N/A	Standby	N/A
2023-06-15	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:32	12:40	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Clear	Severe	0	N/A	Soft Start	N/A
2023-06-15	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:40	13:00	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Clear	Severe	0	N/A	Full Power	N/A
2023-06-15	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	14:00	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Clear	Moderate	0	N/A	Full Power	N/A
2023-06-15	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	14:00	15:00	40.62832	-73.57639	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	0	N/A	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-16	*Bella Marie*	HRG	Visual	Lee, Dobbs	RPS	11:11	12:11	40.62832	-73.57639	40.53830	-73.70693	N/A	N/A	N/A	<2	B0	≥5000	Clear	Slight	17.5	160	Transit	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:11	12:30	40.53830	-73.70693	40.53904	-73.70718	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	1	240	Standby	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:30	12:38	40.53904	-73.70718	40.54137	-73.70816	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	2	250	Deploying/Retrieving	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:38	12:45	40.54137	-73.70816	40.54431	-73.70917	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	2.1	320	Standby	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:45	12:52	40.54431	-73.70917	40.54939	-73.71211	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	2.5	320	Soft Start	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	12:52	13:00	40.54939	-73.71211	40.55453	-73.71434	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	2.5	320	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:00	13:20	40.55453	-73.71434	40.56286	-73.71781	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	2.1	320	Silent	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:20	13:40	40.56286	-73.71781	40.55339	-73.71371	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	3.1	340	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	13:40	14:00	40.55339	-73.71371	40.56267	-73.71768	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	3.2	340	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	14:00	14:20	40.56267	-73.71768	40.56243	-73.71758	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	3.7	0	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	14:20	14:40	40.56243	-73.71758	40.55335	-73.71376	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	3	180	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	14:40	15:00	40.55335	-73.71376	40.56314	-73.72216	N/A	N/A	N/A	<2	B1	≥5000	Clear	Slight	4	180	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	15:00	15:20	40.56314	-73.72216	40.55748	-73.71858	N/A	N/A	N/A	<2	B2	≥5000	Clear	Slight	3.3	160	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	15:20	15:40	40.55748	-73.71858	40.56050	-73.70751	N/A	N/A	N/A	<2	B2	≥5000	Clear	Slight	3.6	160	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	15:40	16:02	40.56050	-73.70751	40.56050	-73.70751	N/A	N/A	N/A	<2	B2	≥5000	Cloudy	None	4	330	Full Power	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Ruiz Villanueva, Arturo	RPS	16:02	16:11	40.56050	-73.70751	40.55742	-73.71701	N/A	N/A	N/A	<2	B2	≥5000	Cloudy	None	3.5	130	Standby	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Lee, Dobbs	RPS	16:11	17:00	40.55742	-73.71701	40.54848	-73.70986	N/A	N/A	N/A	<2	B2	≥5000	Cloudy	None	3.7	200	Standby	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Lee, Dobbs	RPS	17:00	17:23	40.54848	-73.70986	40.54855	-73.70839	N/A	N/A	N/A	<2	B2	≥5000	Cloudy	None	3.6	70	Standby	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Lee, Dobbs	RPS	17:23	18:00	40.54855	-73.70839	40.60716	-73.57027	N/A	N/A	N/A	<2	B3	≥5000	Cloudy	None	18.5	90	Transit	N/A
2023-06-16	*Bella Marie*	HRG	Visual	Lee, Dobbs	RPS	18:00	18:11	40.60716	-73.57027	40.62832	-73.57639	N/A	N/A	N/A	<2	B1	≥5000	Cloudy	None	6.8	20	Transit	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.62783	-73.57647	40.60192	-73.56930	2	7	NE	<2	B1	≥5000	Clear	None	3.5	301	Transit	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:00	12:37	40.60192	-73.56930	40.58207	-73.73172	5	7	NE	<2	B1	≥5000	Clear	None	6.7	187	Transit	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:37	13:00	40.58207	-73.73172	40.58312	-73.74055	6	6	NE	<2	B1	≥5000	Clear	None	0.1	14	Deploying/Retrieving	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:00	14:00	40.58312	-73.74055	40.57637	-73.74542	4	6	ENE	<2	B1	≥5000	Clear	Moderate	3.9	280	Deploying/Retrieving	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:00	14:10	40.57637	-73.74542	40.57275	-73.74467	10	5	NE	<2	B2	≥5000	Clear	Moderate	1.8	223	Standby	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:10	14:17	40.57275	-73.74467	40.57038	-73.74320	12	6	NE	<2	B1	≥5000	Clear	Moderate	1.9	217	Soft Start	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:17	14:40	40.57275	-73.74467	40.57038	-73.74320	12	6	NE	<2	B1	≥5000	Clear	Moderate	1.9	217	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:40	15:00	40.57038	-73.74320	40.56787	-73.74207	13	6	NE	<2	B1	≥5000	Clear	Moderate	2	183	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:00	16:00	40.56787	-73.74207	40.56310	-73.74237	13	5	E	<2	B2	≥5000	Clear	Moderate	2.2	18	Reduced Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:00	16:13	40.56310	-73.74237	40.56310	-73.74237	13	8	SE	<2	B2	≥5000	Clear	None	3.5	10	Reduced Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:13	16:40	40.56310	-73.74237	40.57247	-73.74208	13	8	SE	<2	B2	≥5000	Clear	None	3.5	13	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.57247	-73.74208	40.58077	-73.73703	10	8	SE	<2	B2	≥5000	Clear	None	3.5	190	Silent	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:00	17:20	40.58077	-73.73703	40.57273	-73.74165	6	8	SE	<2	B2	≥5000	Clear	None	3.1	197	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:20	17:40	40.57273	-73.74165	40.57287	-73.73745	10	8	SE	<2	B2	≥5000	Clear	None	3.9	17	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:40	18:00	40.57287	-73.73745	40.58123	-73.74078	9	8	SE	<2	B2	≥5000	Clear	None	3.5	199	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:00	18:20	40.58123	-73.74078	40.57292	-73.73728	10	11	SE	<2	B2	≥5000	Clear	None	2.9	185	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:20	18:37	40.57292	-73.73728	40.58315	-73.73998	9	11	SE	<2	B2	≥5000	Clear	None	3	12	Full Power	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:37	19:00	40.58315	-73.73998	40.57528	-73.72582	10	11	SE	<2	B2	≥5000	Clear	None	3.6	135	Deploying/Retrieving	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	19:00	20:00	40.57528	-73.72582	40.56767	-73.58178	12	11	SE	<2	B2	≥5000	Clear	None	3.6	144	Transit	N/A
2023-06-19	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	20:00	20:34	40.56767	-73.58178	40.62827	-73.57652	8	11	SE	<2	B2	≥5000	Clear	None	8.5	22	Transit	N/A
2023-06-20	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:38	11:00	40.62830	-73.57653	40.59237	-73.56962	1	7	SE	<2	B2	≥5000	Clear	None	8.5	60	Transit	N/A
2023-06-20	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:00	11:43	40.59237	-73.56962	40.62830	-73.57653	4	16	SE	<2	B2	≥5000	Clear	None	8.5	195	Transit	N/A
2023-06-23	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	09:02	09:50	40.62725	-73.57635	40.57875	-73.52927	3	5	E	<2	B1	1000-1999	Cloudy	None	3.3	157	Transit	N/A
2023-06-23	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	09:50	10:45	40.57875	-73.52927	40.62753	-73.57443	8	9	E	<2	B2	≥5000	Cloudy	None	4.4	219	Standby	N/A
2023-06-23	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	10:45	11:36	40.62753	-73.57443	40.62827	-73.57652	1	7	E	<2	B1	≥5000	Cloudy	None	0	20	Transit	N/A
2023-06-24	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:03	12:00	40.62830	-73.57653	40.56518	-73.70887	1	2	NE	<2	B1	1000-1999	Fog	None	0.2	60	Transit	N/A
2023-06-24	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:00	13:00	40.56518	-73.70887	40.55840	-73.60953	10	7	NE	<2	B1	1000-1999	Fog	None	8.9	266	Transit	N/A
2023-06-24	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:00	14:00	40.55840	-73.60953	40.62827	-73.57655	11	6	S	<2	B2	200-499	Fog	None	8	98	Transit	N/A
2023-06-24	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:29	17:01	40.62827	-73.57655	40.58687	-73.57182	2	5	S	<2	B1	1000-1999	Fog	Slight	2.5	164	Transit	N/A
2023-06-24	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:01	17:30	40.58687	-73.57182	40.62827	-73.57655	7	6	S	<2	B1	200-499	Fog	Slight	10	57	Transit	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:00	12:00	40.62830	-73.57653	40.55692	-73.70092	1	2	NE	<2	B1	200-499	Fog	Slight	10	57	Transit	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:00	12:47	40.55692	-73.70092	40.55028	-73.72873	4	3	NE	<2	B1	1000-1999	Fog	Slight	10	284	Transit	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:47	12:55	40.55028	-73.72873	40.55335	-73.73455	16	3	NE	<2	B1	1000-1999	Fog	Slight	2.5	328	Soft Start	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:55	13:00	40.55335	-73.73455	40.55972	-73.73690	16	3	NE	<2	B1	1000-1999	Fog	Slight	2.5	328	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:00	13:20	40.55972	-73.73690	40.55010	-73.73707	14	3	SW	<2	B1	≥5000	Clear	Moderate	3.2	16	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:20	13:40	40.55010	-73.73707	40.57217	-73.73523	3	3	SW	<2	B1	≥5000	Clear	Moderate	5	96	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:40	13:43	40.57217	-73.73523	40.56842	-73.73578	11	3	SW	<2	B1	500-999	Fog	Slight	3.1	194	Silent	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:43	14:00	40.56842	-73.73578	40.56492	-73.73692	12	3	SW	<2	B1	200-499	Fog	Slight	2	189	Deploying/Retrieving	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	14:00	15:00	40.56492	-73.73692	40.56088	-73.74117	13	5	SW	<2	B1	200-499	Fog	Slight	1.1	208	Standby	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:00	15:34	40.56088	-73.74117	40.56475	-73.73500	11	5	SW	<2	B1	500-999	Fog	Slight	3.4	344	Deploying/Retrieving	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:34	15:41	40.56475	-73.73500	40.56363	-73.73612	11	6	SW	<2	B1	500-999	Fog	Slight	1.6	69	Soft Start	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:41	15:43	40.56363	-73.73612	40.56882	-73.73835	11	6	SW	<2	B1	500-999	Fog	Slight	3.5	239	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:43	16:00	40.56882	-73.73835	40.57057	-73.73830	12	6	SW	<2	B1	200-499	Fog	Slight	2.6	344	Silent	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:00	16:36	40.57057	-73.73830	40.56460	-73.73530	11	5	SW	<2	B1	500-999	Fog	Slight	2.7	12	Silent	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:36	16:43	40.56460	-73.73530	40.56747	-73.73843	12	5	SW	<2	B1	500-999	Fog	Slight	2.8	175	Soft Start	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:43	17:00	40.56747	-73.73843	40.58025	-73.73750	11	5	SW	<2	B1	500-999	Fog	Slight	2.6	176	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:00	17:20	40.58025	-73.73750	40.57115	-73.73797	8	6	SSE	<2	B1	1000-1999	Clear	None	3.1	23	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:20	17:58	40.57115	-73.73797	40.58335	-73.73523	8	6	SSE	<2	B1	1000-1999	Clear	Slight	3	23	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:58	18:07	40.58335	-73.73523	40.56972	-73.73552	8	6	SSE	<2	B1	1000-1999	Clear	Slight	3.1	114	Silent	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	18:07	18:20	40.56972	-73.73552	40.58322	-73.73480	12	8	SSE	<2	B2	2000-4999	Clear	Slight	3	199	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	18:20	18:40	40.58322	-73.73480	40.56828	-73.73768	8	8	SSE	<2	B2	2000-4999	Clear	Slight	3.1	92	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	18:40	19:00	40.56828	-73.73768	40.57057	-73.73830	13	8	SSE	<2	B2	2000-4999	Clear	Slight	3.2	260	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	19:00	19:37	40.57057	-73.73830	40.58293	-73.73932	12	6	SSE	<2	B1	500-999	Fog	Slight	2.9	12	Full Power	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	19:37	20:04	40.58293	-73.73932	40.57627	-73.73365	12	6	SSE	<2	B1	500-999	Fog	Slight	2.6	175	Deploying/Retrieving	N/A
2023-06-25	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	20:04	21:00	40.57627	-73.73365	40.62830	-73.57653	13	6	SSE	<2	B1	500-999	Fog	Slight	2.4	176	Transit	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	09:00	10:29	40.62828	-73.57655	40.62828	-73.57655	1	3	SSE	<2	B1	500-999	Cloudy	None	0	13	Transit	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:29	10:40	40.58753	-73.49077	40.58178	-73.49083	11	2	SE	<2	B1	≥5000	Cloudy	None	2.6	209	Deploying/Retrieving	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:40	10:47	40.58178	-73.49083	40.57722	-73.48953	12	2	SE	<2	B1	≥5000	Cloudy	None	1.6	189	Soft Start	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:47	11:00	40.57722	-73.48953	40.57598	-73.50190	11	2	SE	<2	B1	≥5000	Cloudy	None	3	180	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.57598	-73.50190	40.59095	-73.49703	12	2	SE	<2	B1	≥5000	Cloudy	None	3.6	114	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.59095	-73.49703	40.58078	-73.50008	8	2	SE	<2	B1	≥5000	Cloudy	Moderate	3.1	96	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58078	-73.50008	40.58935	-73.49757	11	2	SE	<2	B1	≥5000	Cloudy	Slight	2.8	214	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.58935	-73.49757	40.58202	-73.49570	4	2	SE	<2	B1	≥5000	Cloudy	Moderate	2.8	22	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.58202	-73.49570	40.57202	-73.52040	11	2	SE	<2	B1	≥5000	Cloudy	Severe	2.9	214	Silent	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.57202	-73.52040	40.58258	-73.53008	13	2	SE	<2	B1	≥5000	Cloudy	Severe	3.9	242	Full Power	N/A

Date (YYYY-MM-DD)	**Vessel Name**	**Vessel Type** (HRG, Geotechnical, UXO, Environmental)	**Visual, PAM, or Both**	**Observer's Name** (Last, First)	**PSO Affiliation**	**Start of Watch** (UTC; HH:MM)	**End of Watch** (UTC; HH:MM)	**Survey Start Position** (Decimal Degrees)		**Survey End Position** (Decimal Degrees)		**Water Depth** (m)	**Wind**		**Sea Conditions**		**Visibility** (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	**Weather Condition** (Clear, Cloudy, Precipitation, Fog)	**Glare Strength** (None, Slight, Moderate, Severe)	**Vessel Info**			**Inhibiting Factors to Observations**
								Latitude	**Longitude**	**Latitude**	**Longitude**		**Speed** (kts)	**Direction**	**Swell Height** (m)	**Beaufort** (B0 - B12)				**Speed** (kts)	**Heading** (Degrees)	**Vessel activity** (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	13:00	13:56	40.58258	-73.53008	40.57025	-73.52545	4	3	SE	<2	B1	≥5000	Cloudy	None	2.2	324	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	13:56	14:19	40.57025	-73.52545	40.56638	-73.52967	10	3	SE	<2	B1	≥5000	Cloudy	None	2.9	322	Silent	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:19	14:30	40.56638	-73.52967	40.57062	-73.52868	10	4	SE	<2	B1	≥5000	Cloudy	None	1	81	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:30	14:43	40.57062	-73.52868	40.57700	-73.53295	10	3	SE	<2	B1	≥5000	Cloudy	None	1.8	342	Silent	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:43	15:00	40.57700	-73.53295	40.57175	-73.52525	10	3	SE	<2	B1	≥5000	Cloudy	None	2.4	38	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.57175	-73.52525	40.58293	-73.52642	12	3	SE	<2	B1	2000-4999	Cloudy	None	4	271	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.58293	-73.52642	40.57902	-73.52940	8	3	SE	<2	B1	2000-4999	Cloudy	None	3.2	178	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.57902	-73.52940	40.57500	-73.52387	10	5	SE	<2	B1	2000-4999	Cloudy	None	2.5	359	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.57500	-73.52387	40.57760	-73.52468	11	5	SE	<2	B1	2000-4999	Cloudy	None	2.6	182	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.57760	-73.52468	40.57682	-73.52468	10	8	SSE	<2	B1	2000-4999	Cloudy	None	3.2	359	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.57682	-73.52468	40.57395	-73.52395	11	12	SSE	<2	B1	2000-4999	Cloudy	None	3	175	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:00	17:20	40.57395	-73.52395	40.57743	-73.52917	10	8	SSE	<2	B1	2000-4999	Cloudy	None	3.4	189	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:20	17:40	40.57743	-73.52917	40.58355	-73.52830	11	9	SSE	<2	B1	2000-4999	Cloudy	None	3.2	2	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:40	18:11	40.58355	-73.52830	40.57653	-73.52917	11	8	SSE	<2	B1	≥5000	Cloudy	None	3.1	5	Full Power	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:11	18:36	40.57653	-73.52917	40.58355	-73.53102	11	8	SSE	<2	B1	≥5000	Cloudy	None	2.1	359	Deploying/Retrieving	N/A
2023-06-26	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:36	19:08	40.58355	-73.53102	40.62828	-73.57655	1	8	SSE	<2	B1	≥5000	Cloudy	None	3.4	189	Transit	N/A
2023-06-28	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	09:13	10:00	40.62828	-73.57655	40.56447	-73.55548	1	3	SW	<2	B1	1000-1999	Cloudy	None	0	13	Transit	N/A
2023-06-28	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	10:00	10:49	40.56447	-73.55548	40.62828	-73.57655	12	3	SW	<2	B1	2000-4999	Cloudy	None	11.9	262	Transit	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	08:59	09:35	40.62830	-73.57652	40.57895	-73.52630	9	3	NW	<2	B1	2000-4999	Cloudy	None	1.3	174	Transit	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	09:35	10:03	40.57895	-73.52630	40.57470	-73.52265	9	3	NW	<2	B1	≥5000	Clear	Severe	1.3	188	Deploying/Retrieving	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:03	10:10	40.57470	-73.52265	40.57093	-73.52097	9	3	NW	<2	B1	≥5000	Clear	Severe	1.9	164	Soft Start	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:10	10:20	40.57093	-73.52097	40.57593	-73.52910	10	3	NW	<2	B1	≥5000	Clear	Severe	4.2	150	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:20	10:40	40.57593	-73.52910	40.57983	-73.52627	10	3	NW	<2	B1	≥5000	Clear	Severe	3.8	154	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	10:40	11:00	40.57983	-73.52627	40.58048	-73.53085	10	3	NW	<2	B1	≥5000	Clear	Severe	3.2	353	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58048	-73.53085	40.57352	-73.52860	9	3	NW	<2	B1	≥5000	Clear	Severe	3.2	354	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.57352	-73.52860	40.57867	-73.52623	11	3	NW	<2	B1	≥5000	Clear	Severe	3.1	341	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.57867	-73.52623	40.58055	-73.53122	10	3	NW	<2	B1	≥5000	Clear	Severe	3.7	178	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.58055	-73.53122	40.57250	-73.52648	9	3	NW	<2	B1	≥5000	Clear	Severe	3.1	358	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.57250	-73.52648	40.57968	-73.52692	11	3	NW	<2	B1	≥5000	Clear	Severe	3.3	268	Silent	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.57968	-73.52692	40.58310	-73.53182	9	3	NW	<2	B1	≥5000	Clear	Severe	3.3	175	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	13:00	13:20	40.58310	-73.53182	40.57260	-73.52793	9	9	NW	<2	B1	≥5000	Clear	Severe	3.5	182	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	13:20	13:40	40.57260	-73.52793	40.58113	-73.52782	9	9	NW	<2	B1	≥5000	Clear	Severe	3.2	359	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	13:40	14:00	40.58113	-73.52782	40.58062	-73.52782	9	9	NW	<2	B1	≥5000	Clear	Severe	3.1	4	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:00	14:20	40.58062	-73.52782	40.57807	-73.53132	10	7	NW	<2	B1	≥5000	Clear	Severe	3.9	173	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:20	14:40	40.57807	-73.53132	40.57568	-73.52627	9	9	NW	<2	B1	≥5000	Clear	Severe	3	182	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	14:40	15:00	40.57568	-73.52627	40.58327	-73.53132	9	6	NW	<2	B1	≥5000	Clear	Severe	3.1	180	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58327	-73.53132	40.57793	-73.53160	8	6	NW	<2	B1	≥5000	Clear	Slight	4.2	76	Silent	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.57793	-73.53160	40.57512	-73.52650	9	6	NW	<2	B1	≥5000	Clear	Slight	3.4	356	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.57512	-73.52650	40.58332	-73.52943	11	6	NW	<2	B1	≥5000	Clear	Slight	3.5	177	Silent	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.58332	-73.52943	40.57828	-73.53208	6	6	NW	<2	B1	≥5000	Clear	None	3.2	188	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.57828	-73.53208	40.57310	-73.52930	9	7	NW	<2	B1	≥5000	Clear	None	3.4	359	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.57310	-73.52930	40.57945	-73.52853	11	6	NW	<2	B1	≥5000	Clear	None	3.7	253	Silent	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:00	17:20	40.57945	-73.52853	40.57908	-73.53275	7	8	NW	<2	B1	≥5000	Clear	None	3.1	180	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:20	17:40	40.57908	-73.53275	40.57547	-73.52732	8	8	NW	<2	B1	≥5000	Clear	None	2.8	352	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	17:40	18:08	40.57547	-73.52732	40.57532	-73.52745	8	9	NW	<2	B1	≥5000	Clear	None	2.4	182	Full Power	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:08	18:39	40.57532	-73.52745	40.57275	-73.53537	9	9	WNW	<2	B1	≥5000	Clear	None	2.5	176	Deploying/Retrieving	N/A
2023-06-29	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	18:39	19:18	40.57275	-73.53537	40.62830	-73.57652	6	9	WNW	<2	B1	≥5000	Clear	None	2.3	319	Transit	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	09:02	09:38	40.62827	-73.57502	40.58315	-73.53097	1	2	SW	<2	B1	500-999	Cloudy	None	0	13	Transit	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	09:38	10:09	40.58315	-73.53097	40.57527	-73.52527	7	2	SW	<2	B1	2000-4999	Cloudy	None	3.9	73	Deploying/Retrieving	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	10:09	10:16	40.57527	-73.52527	40.57128	-73.52622	11	2	SW	<2	B1	2000-4999	Fog	None	2.5	186	Soft Start	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	10:16	10:40	40.57128	-73.52622	40.58112	-73.53383	13	4	SW	<2	B1	2000-4999	Fog	None	2.8	233	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	10:40	11:00	40.58112	-73.53383	40.57947	-73.53340	8	4	SW	<2	B1	2000-4999	Fog	Moderate	3.1	182	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:00	11:20	40.57947	-73.53340	40.57443	-73.53193	8	5	SW	<2	B1	2000-4999	Fog	None	3.3	190	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:20	11:40	40.57443	-73.53193	40.57697	-73.50642	11	5	SW	<2	B1	≥5000	Cloudy	None	4.2	50	Silent	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	11:40	12:10	40.57697	-73.50642	40.58975	-73.49727	6	4	SW	<2	B1	≥5000	Cloudy	None	3.5	201	Silent	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:10	12:20	40.58975	-73.49727	40.58202	-73.50418	8	5	SW	<2	B1	≥5000	Cloudy	None	3	33	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:20	12:40	40.58202	-73.50418	40.58493	-73.49862	8	5	SW	<2	B1	≥5000	Cloudy	None	3.1	221	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	12:40	13:00	40.58493	-73.49862	40.58500	-73.50307	8	5	SW	<2	B1	≥5000	Cloudy	None	3	222	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:00	13:20	40.58500	-73.50307	40.57987	-73.50005	9	3	SW	<2	B1	2000-4999	Cloudy	Moderate	2.8	32	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:20	13:40	40.57987	-73.50005	40.59125	-73.49747	11	3	SW	<2	B1	2000-4999	Cloudy	Moderate	3.5	212	Silent	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	13:40	14:00	40.59125	-73.49747	40.57967	-73.50440	11	3	SW	<2	B1	2000-4999	Cloudy	Moderate	4.5	88	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	14:00	14:20	40.57967	-73.50440	40.58280	-73.49870	11	7	S	<2	B1	1000-1999	Cloudy	Slight	3.7	11	Silent	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	14:20	14:40	40.58280	-73.49870	40.58730	-73.50180	11	7	S	<2	B1	1000-1999	Cloudy	Slight	3.8	221	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	14:40	15:00	40.58730	-73.50180	40.58322	-73.49820	12	7	S	<2	B1	1000-1999	Cloudy	Slight	3.6	12	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:00	15:20	40.58322	-73.49820	40.58600	-73.50187	11	7	S	<2	B1	2000-4999	Cloudy	Slight	2.9	218	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:20	15:40	40.58600	-73.50187	40.57540	-73.51862	11	7	S	<2	B1	2000-4999	Cloudy	Slight	2.7	189	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	15:40	16:00	40.57540	-73.51862	40.58923	-73.50020	11	7	S	<2	B1	2000-4999	Cloudy	Slight	2.8	35	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:00	16:20	40.58923	-73.50020	40.58927	-73.50017	11	7	S	<2	B1	2000-4999	Cloudy	Slight	1.1	258	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:20	16:40	40.58927	-73.50017	40.57880	-73.49665	11	7	S	<2	B1	1000-1999	Cloudy	Slight	3.1	67	Silent	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Reid, Connor	RPS	16:40	17:00	40.57880	-73.49665	40.59160	-73.49352	11	7	S	<2	B1	1000-1999	Cloudy	Slight	4.1	136	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:00	17:13	40.59160	-73.49352	40.58018	-73.49655	6	8	S	<2	B2	2000-4999	Cloudy	None	3.5	57	Full Power	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:13	17:46	40.58018	-73.49655	40.56825	-73.51627	11	8	S	<2	B2	2000-4999	Cloudy	None	3.6	220	Deploying/Retrieving	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	17:46	18:00	40.56825	-73.51627	40.60397	-73.56938	13	8	S	<2	B2	2000-4999	Cloudy	None	9.1	270	Transit	N/A
2023-06-30	*Bella Marie*	HRG	Visual	Figueroa, Lorena	RPS	18:00	18:17	40.60397	-73.56938	40.62752	-73.57442	6	8	S	<2	B2	2000-4999	Cloudy	None	6.9	356	Transit	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	08:59	10:06	40.62827	-73.57655	40.58033	-73.78243	2	2	S	<2	B0	1000-1999	Cloudy	None	1.8	22	Transit	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:06	10:36	40.58033	-73.78243	40.56858	-73.77738	8	2	S	<2	B0	1000-1999	Cloudy	None	2.2	351	Deploying/Retrieving	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:36	10:43	40.56858	-73.77738	40.56732	-73.78008	8	2	S	<2	B0	≥5000	Cloudy	Severe	2.8	158	Soft Start	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:43	11:00	40.56732	-73.78008	40.58263	-73.78062	8	2	S	<2	B0	≥5000	Clear	Severe	2.4	314	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58263	-73.78062	40.57317	-73.78210	8	2	SSW	<2	B0	≥5000	Clear	Severe	2.9	27	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.57317	-73.78210	40.58037	-73.78065	8	2	S	<2	B1	≥5000	Clear	Severe	3.3	199	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58037	-73.78065	40.57818	-73.77927	8	2	S	<2	B1	≥5000	Clear	Severe	2.9	18	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:04	40.57818	-73.77927	40.57120	-73.77678	9	3	S	<2	B1	≥5000	Clear	Severe	3.3	196	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:04	13:00	40.57120	-73.77678	40.57782	-73.69683	11	3	S	<2	B1	≥5000	Clear	Severe	4	109	Reduced Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:12	40.57782	-73.69683	40.58088	-73.68133	9	6	S	<2	B1	≥5000	Clear	Severe	3.9	111	Reduced Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:12	13:20	40.58088	-73.68133	40.57602	-73.67895	9	6	S	<2	B1	≥5000	Clear	Severe	3.2	94	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.57602	-73.67895	40.57383	-73.68305	9	6	S	<2	B1	≥5000	Clear	Severe	3.4	193	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.57383	-73.68305	40.57313	-73.67878	9	6	S	<2	B1	≥5000	Clear	Severe	3.7	14	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.57313	-73.67878	40.57928	-73.68280	9	7	S	<2	B1	≥5000	Clear	Severe	2.8	188	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.57928	-73.68280	40.56800	-73.68080	9	8	S	<2	B1	≥5000	Clear	Severe	3.5	26	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.56800	-73.68080	40.58043	-73.67842	11	8	S	<2	B1	≥5000	Clear	Severe	4.1	266	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58043	-73.67842	40.57243	-73.68250	5	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.6	200	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.57243	-73.68250	40.57463	-73.67825	9	6	SSE	<2	B1	≥5000	Cloudy	None	3.3	14	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.57463	-73.67825	40.57773	-73.68230	10	6	SSE	<2	B1	≥5000	Cloudy	None	3.3	194	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.57773	-73.68230	40.56957	-73.67820	5	9	SSE	<2	B2	≥5000	Cloudy	None	3.2	18	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.56957	-73.67820	40.58070	-73.68073	10	9	SSE	<2	B2	≥5000	Cloudy	None	3.1	199	Silent	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.58070	-73.68073	40.57318	-73.68197	5	9	SSE	<2	B2	≥5000	Cloudy	None	4.2	105	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:12	40.57318	-73.68197	40.57953	-73.68175	9	8	SE	<2	B2	≥5000	Cloudy	None	3	8	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:12	17:40	40.57953	-73.68175	40.57258	-73.67762	9	8	SE	<2	B2	≥5000	Cloudy	None	2.2	195	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	18:00	40.57258	-73.67762	40.57252	-73.67763	9	8	SE	<2	B2	≥5000	Cloudy	None	2.3	177	Full Power	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:00	18:22	40.57252	-73.67763	40.56560	-73.66912	9	8	SE	<2	B2	≥5000	Cloudy	None	2.4	172	Deploying/Retrieving	N/A
2023-07-01	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:22	19:06	40.56560	-73.66912	40.62827	-73.57655	9	8	SE	<2	B2	≥5000	Cloudy	None	0.2	46	Transit	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	08:57	09:37	40.62827	-73.57655	40.58045	-73.67800	1	10	SSE	<2	B1	200-499	Cloudy	None	1	13	Transit	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:37	10:08	40.58045	-73.67800	40.56918	-73.67838	5	10	SSE	<2	B2	≥5000	Cloudy	None	9.3	198	Deploying/Retrieving	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:08	10:15	40.56918	-73.67838	40.56593	-73.67857	9	10	SSE	<2	B2	≥5000	Cloudy	None	2.1	183	Soft Start	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:15	10:40	40.56593	-73.67857	40.57662	-73.67738	11	11	SSE	<2	B2	≥5000	Cloudy	None	4	301	Full Power	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:40	11:00	40.57662	-73.67738	40.57268	-73.68142	8	12	SSE	<2	B2	≥5000	Cloudy	None	3	187	Full Power	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:00	11:20	40.57268	-73.68142	40.58090	-73.68090	6	12	SSE	<2	B2	≥5000	Cloudy	None	2.8	15	Full Power	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:20	11:40	40.58090	-73.68090	40.56958	-73.67700	11	12	SSE	<2	B2	≥5000	Cloudy	None	3.6	107	Full Power	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:40	12:00	40.56958	-73.67700	40.62757	-73.57437	11	12	SSE	<2	B2	≥5000	Cloudy	None	3.87	210	Full Power	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:23	40.62757	-73.57437	40.57893	-73.67832	6	12	SSE	<2	B2	≥5000	Cloudy	None	2.6	199	Deploying/Retrieving	N/A
2023-07-02	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:23	13:06	40.57893	-73.67832	40.62752	-73.57442	7	12	SSE	<2	B3	≥5000	Cloudy	None	3	177	Transit	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:56	10:41	40.56930	-73.67795	40.56722	-73.68097	7	9	SW	<2	B2	≥5000	Cloudy	Severe	2.4	16	Transit	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:41	11:11	40.56722	-73.68097	40.56805	-73.67733	7	9	SW	<2	B2	≥5000	Cloudy	Severe	1.6	258	Deploying/Retrieving	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:11	11:18	40.56805	-73.67733	40.56722	-73.68097	9	9	SW	<2	B2	≥5000	Cloudy	Severe	1.8	178	Soft Start	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:18	12:00	40.56722	-73.68097	40.57330	-73.68090	9	9	SW	<2	B2	≥5000	Cloudy	Severe	2.4	16	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.57330	-73.68090	40.57102	-73.67665	9	5	WSW	<2	B2	≥5000	Cloudy	Severe	3.1	8	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.57102	-73.67665	40.58052	-73.67647	9	5	WSW	<2	B2	≥5000	Cloudy	Severe	3.3	192	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.58052	-73.67647	40.56922	-73.68048	5	5	WSW	<2	B2	≥5000	Cloudy	Slight	3	190	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:20	40.56922	-73.68048	40.57588	-73.67630	10	5	WSW	<2	B2	≥5000	Cloudy	Slight	3.3	13	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:20	13:40	40.57588	-73.67630	40.57665	-73.68033	8	5	SW	<2	B1	≥5000	Clear	Severe	3.2	190	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:40	14:00	40.57665	-73.68033	40.57222	-73.67610	8	5	SW	<2	B1	≥5000	Clear	Moderate	3.6	14	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.57222	-73.67610	40.58093	-73.67908	9	7	SW	<2	B1	≥5000	Clear	Moderate	3.9	187	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58093	-73.67908	40.57122	-73.68000	5	7	SW	<2	B1	≥5000	Clear	Moderate	4.7	119	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.57122	-73.68000	40.57652	-73.67577	8	8	S	<2	B1	≥5000	Clear	Moderate	3.6	107	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:00	15:20	40.57652	-73.67577	40.57393	-73.67978	8	8	S	<2	B1	≥5000	Clear	Moderate	3.6	118	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:20	15:40	40.57393	-73.67978	40.56817	-73.67693	8	8	S	<2	B1	≥5000	Clear	Moderate	3.2	14	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:40	16:00	40.56817	-73.67693	40.58092	-73.67533	11	8	S	<2	B1	≥5000	Clear	Moderate	4.1	298	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.58092	-73.67533	40.57040	-73.67947	5	6	SSW	<2	B1	≥5000	Cloudy	Slight	3.3	193	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.57040	-73.67947	40.57590	-73.67527	9	6	SSW	<2	B1	≥5000	Cloudy	Slight	3.3	7	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.57590	-73.67527	40.57528	-73.67922	8	6	SSW	<2	B1	≥5000	Cloudy	Slight	3.2	196	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:00	17:20	40.57528	-73.67922	40.57023	-73.67493	10	6	SSW	<2	B1	≥5000	Cloudy	Slight	2.9	8	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:20	17:40	40.57023	-73.67493	40.58075	-73.67905	9	6	SSW	<2	B1	≥5000	Cloudy	Slight	3.3	191	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:40	18:00	40.58075	-73.67905	40.56765	-73.67492	5	6	SSW	<2	B1	≥5000	Cloudy	Slight	2.8	22	Silent	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:00	18:20	40.56765	-73.67492	40.57783	-73.68403	11	6	SW	<2	B1	≥5000	Cloudy	Slight	3.2	334	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:20	18:40	40.57783	-73.68403	40.58030	-73.68418	11	6	SW	<2	B1	≥5000	Cloudy	Slight	3.1	183	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:40	19:00	40.58030	-73.68418	40.58218	-73.67047	7	6	SW	<2	B1	≥5000	Cloudy	Slight	4.2	17	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	19:00	19:20	40.58218	-73.67047	40.58048	-73.67040	5	6	SW	<2	B1	≥5000	Cloudy	Slight	3.5	280	Full Power	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	19:20	19:42	40.58048	-73.67040	40.57377	-73.65307	6	6	SW	<2	B1	≥5000	Cloudy	Slight	3.7	139	Deploying/Retrieving	N/A
2023-07-03	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	19:42	20:18	40.57377	-73.65307	40.62827	-73.57652	8	6	SW	<2	B1	≥5000	Cloudy	Slight	2.6	100	Transit	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:56	10:45	40.62830	-73.57653	40.58290	-73.73580	1	5	SW	<2	B1	≥5000	Cloudy	None	3	13	Transit	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:45	11:15	40.58290	-73.73580	40.56978	-73.73573	5	5	SW	<2	B2	≥5000	Cloudy	None	3.6	312	Deploying/Retrieving	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:15	11:22	40.56978	-73.73573	40.57082	-73.73830	12	5	SW	<2	B3	≥5000	Cloudy	None	2.9	164	Soft Start	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:22	11:40	40.57082	-73.73830	40.58243	-73.73475	12	5	SW	<2	B3	≥5000	Cloudy	None	3.1	8	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58243	-73.73475	40.56957	-73.73758	6	5	SW	<2	B3	≥5000	Cloudy	None	2.8	209	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:20	40.56957	-73.73758	40.57032	-73.73568	11	5	SW	<2	B3	≥5000	Cloudy	Slight	4.2	302	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:20	12:40	40.57032	-73.73568	40.57830	-73.74030	11	5	SW	<2	B3	≥5000	Cloudy	Slight	3.9	245	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:40	13:00	40.57830	-73.74030	40.57830	-73.73652	11	5	SW	<2	B3	≥5000	Cloudy	Slight	3.5	27	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.57830	-73.73652	40.58243	-73.73985	10	6	SSW	<2	B3	≥5000	Cloudy	Slight	2.6	186	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.58243	-73.73985	40.57075	-73.73685	7	6	SW	<2	B3	≥5000	Cloudy	Slight	3.4	19	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.57075	-73.73685	40.57845	-73.73998	8	6	SW	<2	B3	≥5000	Cloudy	Slight	2.9	200	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:00	14:20	40.57845	-73.73998	40.57233	-73.74028	9	6	SW	<2	B3	≥5000	Clear	Slight	3.7	17	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:20	14:40	40.57233	-73.74028	40.58275	-73.73947	11	6	SW	<2	B2	≥5000	Clear	Slight	3.3	17	Silent	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:40	15:00	40.58275	-73.73947	40.56947	-73.73818	6	6	SW	<2	B2	≥5000	Clear	Slight	3.8	12	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.56947	-73.73818	40.58005	-73.73563	11	6	SW	<2	B2	≥5000	Clear	Slight	4.2	308	Silent	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.58005	-73.73563	40.57182	-73.73995	7	6	SW	<2	B1	≥5000	Clear	Slight	3.8	191	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.57182	-73.73995	40.57887	-73.73553	11	6	SW	<2	B1	≥5000	Clear	Slight	4.1	26	Silent	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:00	16:20	40.57887	-73.73553	40.57982	-73.73915	11	6	SW	<2	B1	≥5000	Cloudy	Slight	3.3	193	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:20	16:40	40.57982	-73.73915	40.57250	-73.73585	7	6	SW	<2	B1	≥5000	Cloudy	Slight	3.9	19	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:40	17:00	40.57250	-73.73585	40.58200	-73.73885	11	6	SW	<2	B1	≥5000	Precipitation	Slight	3	200	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:20	40.58200	-73.73885	40.57207	-73.73940	11	6	SW	<2	B1	≥5000	Precipitation	Slight	3.3	19	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:20	17:40	40.57207	-73.73940	40.58217	-73.73392	7	6	SW	<2	B0	≥5000	Cloudy	Slight	3.7	16	Silent	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	18:00	40.58217	-73.73392	40.57147	-73.73920	11	6	SW	<2	B0	≥5000	Cloudy	Slight	3.7	16	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:00	18:20	40.57147	-73.73920	40.57733	-73.73405	12	6	SW	<2	B0	≥5000	Cloudy	Slight	2.9	10	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:20	18:26	40.57733	-73.73405	40.57282	-73.73403	8	6	SW	<2	B1	≥5000	Cloudy	Slight	3.8	189	Full Power	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:26	18:48	40.57282	-73.73403	40.55658	-73.73640	12	6	SW	<2	B1	≥5000	Cloudy	Slight	3.9	175	Deploying/Retrieving	N/A
2023-07-04	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:48	19:32	40.55658	-73.73640	40.62760	-73.57447	16	6	SW	<2	B1	≥5000	Cloudy	Slight	5.2	149	Transit	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	08:59	09:40	40.62827	-73.57652	40.57755	-73.54743	6	5	SE	<2	B1	500-999	Fog	Slight	0.1	46	Transit	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:40	10:10	40.57755	-73.54743	40.58135	-73.53748	7	5	SE	<2	B1	500-999	Fog	Slight	1.2	54	Deploying/Retrieving	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:10	10:17	40.58135	-73.53748	40.58210	-73.53455	7	5	SE	<2	B1	500-999	Fog	Slight	1.3	74	Soft Start	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:17	10:40	40.58210	-73.53455	40.58173	-73.53662	7	5	SE	<2	B1	500-999	Fog	Slight	2.8	76	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:40	11:00	40.58173	-73.53662	40.58163	-73.53725	8	5	SE	<2	B1	500-999	Fog	Slight	3.4	256	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58163	-73.53725	40.58612	-73.52053	7	3	ENE	<2	B1	500-999	Fog	Severe	2.8	85	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.58612	-73.52053	40.58147	-73.53857	6	3	ENE	<2	B1	500-999	Fog	Severe	1.8	189	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58147	-73.53857	40.58562	-73.52257	7	3	ENE	<2	B1	500-999	Fog	Severe	2.9	98	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.58562	-73.52257	40.58197	-73.53728	6	2	E	<2	B0	1000-1999	Fog	Moderate	3.6	253	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.58197	-73.53728	40.58530	-73.52452	6	2	E	<2	B0	1000-1999	Fog	Moderate	2.4	77	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.58530	-73.52452	40.58282	-73.53457	6	2	E	<2	B0	2000-4999	Fog	Moderate	3.6	270	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.58282	-73.53457	40.58280	-73.53515	7	3	E	<2	B0	≥5000	Fog	Moderate	3.2	100	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	14:00	40.58280	-73.53515	40.58358	-73.53208	7	3	E	<2	B0	≥5000	Clear	Moderate	3.3	280	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.58358	-73.53208	40.58440	-73.52937	7	3	E	<2	B0	≥5000	Clear	Moderate	2.8	76	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58440	-73.52937	40.58562	-73.52467	7	4	SE	<2	B0	≥5000	Clear	Severe	3.1	274	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.58562	-73.52467	40.58450	-73.52958	7	4	E	<2	B0	≥5000	Clear	Severe	3.4	77	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58450	-73.52958	40.58308	-73.53570	4	3	SSW	<2	B1	≥5000	Clear	Slight	3.5	87	Silent	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.58308	-73.53570	40.58630	-73.52307	6	3	SSW	<2	B1	≥5000	Clear	Slight	3.2	266	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.58630	-73.52307	40.58125	-73.53862	6	4	SSW	<2	B1	≥5000	Clear	Slight	3.6	81	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.58125	-73.53862	40.58703	-73.51733	7	5	SSW	<2	B1	≥5000	Clear	Slight	3.6	294	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.58703	-73.51733	40.59162	-73.49035	5	5	SSW	<2	B1	≥5000	Clear	Slight	4.9	85	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.59162	-73.49035	40.59047	-73.50232	6	5	SSW	<2	B1	≥5000	Clear	Slight	3.2	81	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:20	40.59047	-73.50232	40.59227	-73.48923	7	5	SSW	<2	B1	≥5000	Clear	Slight	2.9	271	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:20	17:40	40.59227	-73.48923	40.59173	-73.49227	8	5	SSW	<2	B1	≥5000	Clear	Slight	3.4	62	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	18:00	40.59173	-73.49227	40.59060	-73.50273	7	5	SSW	<2	B1	≥5000	Clear	Slight	3.1	275	Full Power	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:00	18:22	40.59060	-73.50273	40.59257	-73.48558	7	5	SSW	<2	B1	≥5000	Clear	Slight	2.9	277	Silent	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:22	18:41	40.59257	-73.48558	40.59057	-73.50403	7	5	SSW	<2	B1	≥5000	Clear	Slight	4.2	264	Deploying/Retrieving	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:41	19:00	40.59057	-73.50403	40.58218	-73.54472	7	5	SSW	<2	B1	≥5000	Clear	Moderate	0.7	7	Transit	N/A
2023-07-05	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	19:00	19:40	40.58218	-73.54472	40.62830	-73.57653	17	9	S	<2	B1	≥5000	Clear	Slight	4.4	252	Transit	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:00	09:41	40.62827	-73.57653	40.58632	-73.51683	10	4	S	<2	B0	500-999	Clear	None	1	13	Transit	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:41	10:11	40.58632	-73.51683	40.59000	-73.50577	8	3	S	<2	B1	2000-4999	Fog	Severe	2.9	89	Deploying/Retrieving	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:11	10:18	40.59000	-73.50577	40.59063	-73.50348	5	3	S	<2	B0	2000-4999	Fog	Severe	1.8	84	Soft Start	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:18	10:40	40.59063	-73.50348	40.59165	-73.49630	5	3	S	<2	B0	2000-4999	Fog	Severe	1.5	90	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:40	11:00	40.59165	-73.49630	40.59135	-73.49932	4	3	S	<2	B0	2000-4999	Fog	Severe	3.3	267	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:00	11:20	40.59135	-73.49932	40.59233	-73.49107	5	3	S	<2	B0	2000-4999	Fog	Slight	2.9	85	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:20	11:40	40.59233	-73.49107	40.59015	-73.50407	5	3	S	<2	B0	2000-4999	Fog	Slight	3.2	271	Silent	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:40	12:00	40.59015	-73.50407	40.59258	-73.48978	5	4	S	<2	B0	2000-4999	Fog	Slight	3.2	48	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:20	40.59258	-73.48978	40.59150	-73.50033	5	4	S	<2	B0	1000-1999	Fog	Slight	3.4	258	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:20	12:29	40.59150	-73.50033	40.59262	-73.49027	7	4	S	<2	B0	1000-1999	Fog	Slight	3.2	91	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:29	13:00	40.59262	-73.49027	40.58867	-73.48910	7	4	S	<2	B0	≤ 199	Fog	Slight	3.2	87	Standby	Fog
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:34	40.58867	-73.48910	40.59045	-73.48792	8	5	S	<2	B1	≤ 199	Fog	Moderate	3	275	Standby	Fog
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:34	14:04	40.59045	-73.48792	40.59352	-73.48170	7	6	S	<2	B1	500-999	Fog	Slight	2.9	306	Silent	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:04	14:11	40.59352	-73.48170	40.59317	-73.48650	7	6	S	<2	B1	≥5000	Clear	Slight	2.4	332	Soft Start	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:11	14:40	40.59317	-73.48650	40.59220	-73.49520	5	6	S	<2	B1	≥5000	Clear	Slight	3.2	264	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:40	14:58	40.59220	-73.49520	40.59060	-73.49845	3	7	S	<2	B1	≥5000	Clear	Slight	3.2	91	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:58	15:55	40.59060	-73.49845	40.59000	-73.49583	3	7	S	<2	B1	≤ 199	Fog	Slight	2.8	256	Standby	Fog
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:55	16:25	40.59000	-73.49583	40.59003	-73.49553	7	5	S	<2	B1	500-999	Fog	Slight	2.8	261	Silent	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:25	16:33	40.59003	-73.49553	40.59105	-73.49482	5	8	S	<2	B1	2000-4999	Fog	Moderate	3.2	276	Soft Start	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:33	17:00	40.59105	-73.49482	40.59113	-73.49243	5	8	S	<2	B1	≥5000	Clear	Moderate	2.9	273	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:00	17:23	40.59113	-73.49243	40.58993	-73.50238	6	8	S	<2	B1	≥5000	Clear	Slight	3.3	93	Full Power	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:23	17:51	40.58993	-73.50238	40.58057	-73.50708	6	8	S	<2	B1	≥5000	Clear	Slight	2.8	272	Deploying/Retrieving	N/A
2023-07-06	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:51	18:28	40.58057	-73.50708	40.62748	-73.57442	2	7	S	<2	B1	≥5000	Cloudy	Slight	2.4	182	Transit	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:05	09:36	40.62827	-73.57653	40.58944	-73.50056	10	7	S	<2	B0	≥5000	Cloudy	Slight	0.5	32	Transit	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:36	10:06	40.58944	-73.50056	40.58910	-73.50057	11	6	S	<2	B0	≥5000	Cloudy	Slight	2	202	Deploying/Retrieving	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:06	10:13	40.58910	-73.50057	40.58125	-73.50068	11	6	S	<2	B0	≥5000	Cloudy	Slight	3	27	Soft Start	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:13	10:40	40.58125	-73.50068	40.57902	-73.49920	10	6	SE	<2	B0	≥5000	Cloudy	Slight	3.2	210	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:40	11:00	40.57902	-73.49920	40.59045	-73.49997	11	6	SE	<2	B0	≥5000	Cloudy	Slight	3.4	260	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.59045	-73.49997	40.58042	-73.50288	6	3	SE	<2	B0	≥5000	Clear	Severe	3.2	23	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.58042	-73.50288	40.58982	-73.49525	11	3	SE	<2	B0	≥5000	Clear	Severe	3.1	33	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58982	-73.49525	40.58483	-73.50132	6	3	SE	<2	B0	≥5000	Clear	Severe	3.4	207	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.58483	-73.50132	40.58242	-73.49742	9	3	SSE	<2	B0	≥5000	Cloudy	Moderate	3.7	21	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.58242	-73.49742	40.58850	-73.50002	11	3	SSE	<2	B1	≥5000	Cloudy	Severe	3.4	210	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.58850	-73.50002	40.57902	-73.49920	8	3	SSE	<2	B1	≥5000	Clear	Severe	3.1	28	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.57902	-73.49920	40.59018	-73.49463	11	6	SE	<2	B1	≥5000	Clear	Severe	4.6	260	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.59018	-73.49463	40.58252	-73.50152	11	6	SE	<2	B1	≥5000	Clear	Severe	3.3	204	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.58252	-73.50152	40.58757	-73.49523	11	6	SE	<2	B1	≥5000	Clear	Severe	2.7	30	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.58757	-73.49523	40.58772	-73.49972	10	6	SE	<2	B1	≥5000	Clear	Severe	3.2	200	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58772	-73.49972	40.58355	-73.49630	10	6	SE	<2	B1	≥5000	Clear	Severe	3.5	32	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.58355	-73.49630	40.58700	-73.49975	11	6	SE	<2	B1	≥5000	Clear	Severe	3.4	204	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58700	-73.49975	40.57955	-73.50172	7	5	SE	<2	B1	≥5000	Clear	None	3.2	24	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.57955	-73.50172	40.59223	-73.49480	11	5	SE	<2	B1	≥5000	Clear	None	4.1	339	Silent	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.59223	-73.49480	40.58107	-73.50128	3	5	SE	<2	B1	≥5000	Clear	Slight	4.2	88	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.58107	-73.50128	40.58838	-73.49425	11	6	SE	<2	B1	≥5000	Clear	Slight	3.8	17	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.58838	-73.49425	40.58492	-73.49983	10	8	SE	<2	B1	≥5000	Clear	Slight	2.9	207	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.58492	-73.49983	40.58405	-73.49542	9	8	SE	<2	B1	≥5000	Cloudy	Slight	3.2	22	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:20	40.58405	-73.49542	40.58908	-73.50073	9	7	SSE	<2	B1	≥5000	Cloudy	Slight	3.2	211	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:20	17:40	40.58908	-73.50073	40.58282	-73.49760	10	7	SSE	<2	B1	≥5000	Cloudy	Slight	3.1	28	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	18:00	40.58282	-73.49760	40.58285	-73.49757	9	7	SSE	<2	B1	≥5000	Clear	Slight	3.8	51	Silent	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:00	18:10	40.58285	-73.49757	40.58483	-73.49947	9	7	SSE	<2	B1	≥5000	Cloudy	Slight	3.7	53	Full Power	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:10	18:30	40.58483	-73.49947	40.58535	-73.50857	9	7	SSE	<2	B1	≥5000	Cloudy	Slight	3.3	297	Deploying/Retrieving	N/A
2023-07-07	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:30	19:11	40.58535	-73.50857	40.62827	-73.57653	8	7	SSE	<2	B1	≥5000	Clear	Slight	0.1	13	Transit	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:03	09:55	40.62830	-73.57653	40.57232	-73.76792	1	2	ENE	<2	B1	500-999	Fog	None	0.1	13	Transit	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:55	10:25	40.57232	-73.76792	40.57973	-73.76743	11	2	ENE	<2	B1	1000-1999	Fog	None	3	289	Deploying/Retrieving	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:25	10:32	40.57973	-73.76743	40.58268	-73.76598	8	2	ENE	<2	B0	2000-4999	Fog	Slight	1.8	16	Soft Start	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:32	10:45	40.58268	-73.76598	40.58622	-73.78288	6	2	ENE	<2	B0	2000-4999	Fog	Slight	3.6	7	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:45	11:00	40.58622	-73.78288	40.58215	-73.79158	5	2	ENE	<2	B1	2000-4999	Fog	Slight	3.2	269	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:00	11:20	40.58215	-73.79158	40.58428	-73.78842	7	2	ENE	<2	B1	2000-4999	Fog	Slight	3.2	317	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:20	11:40	40.58428	-73.78842	40.58578	-73.78678	6	2	ENE	<2	B0	≥5000	Cloudy	Moderate	3.2	316	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:40	12:00	40.58578	-73.78678	40.58790	-73.77333	6	3	ENE	<2	B1	≥5000	Cloudy	Moderate	3.2	86	Silent	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:20	40.58790	-73.77333	40.58692	-73.78108	7	3	ENE	<2	B1	≥5000	Cloudy	Moderate	3.2	325	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:20	12:40	40.58692	-73.78108	40.58762	-73.77752	6	3	ENE	<2	B1	≥5000	Cloudy	Moderate	3.2	83	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:40	13:00	40.58762	-73.77752	40.58645	-73.78492	6	2	ENE	<2	B1	≥5000	Cloudy	Moderate	3.2	272	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:20	40.58645	-73.78492	40.58603	-73.77552	5	2	ENE	<2	B1	≥5000	Clear	Moderate	3.2	89	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:20	13:40	40.58603	-73.77552	40.57243	-73.78665	5	2	ENE	<2	B1	≥5000	Clear	Moderate	3.7	197	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:40	14:00	40.57243	-73.78665	40.58692	-73.78337	10	2	ENE	<2	B1	≥5000	Clear	Moderate	4.1	27	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:00	14:20	40.58692	-73.78337	40.57323	-73.78253	4	3	SE	<2	B1	≥5000	Clear	Moderate	2.8	84	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:20	14:40	40.57323	-73.78253	40.58585	-73.78397	10	3	SE	<2	B1	≥5000	Clear	Moderate	3.1	277	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:40	15:00	40.58585	-73.78397	40.58665	-73.78412	5	5	SE	<2	B1	≥5000	Clear	Slight	3	10	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:00	15:20	40.58665	-73.78412	40.58740	-73.78010	5	6	SE	<2	B1	≥5000	Clear	Slight	3.1	91	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:20	15:40	40.58740	-73.78010	40.58727	-73.78120	5	6	SE	<2	B1	≥5000	Clear	Slight	3.2	270	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:40	16:00	40.58727	-73.78120	40.58723	-73.78207	5	6	SE	<2	B1	≥5000	Cloudy	Moderate	3	90	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:00	16:20	40.58723	-73.78207	40.58843	-73.77393	7	6	S	<2	B1	≥5000	Cloudy	Slight	3.5	269	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:20	16:40	40.58843	-73.77393	40.58682	-73.78533	5	6	S	<2	B1	≥5000	Cloudy	Slight	3.4	126	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:40	17:00	40.58682	-73.78533	40.58828	-73.77848	5	7	S	<2	B1	≥5000	Cloudy	Slight	4.3	267	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:00	17:21	40.58828	-73.77848	40.58687	-73.78590	3	7	SSE	<2	B2	≥5000	Clear	Slight	3.1	92	Full Power	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:21	17:47	40.58687	-73.78590	40.57520	-73.77780	5	7	SSE	<2	B2	≥5000	Clear	Slight	3.5	256	Deploying/Retrieving	N/A
2023-07-08	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:47	18:51	40.57520	-73.77780	40.62748	-73.57445	11	7	SSE	<2	B2	≥5000	Clear	Slight	5	167	Transit	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:09	09:45	40.62830	-73.57653	40.57660	-73.67593	3	2	SSE	<2	B0	2000-4999	Cloudy	None	0.2	46	Transit	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:45	10:15	40.57660	-73.67593	40.56673	-73.67262	6	6	SSE	<2	B0	≥5000	Cloudy	None	2.9	12	Deploying/Retrieving	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:15	10:23	40.56673	-73.67262	40.57008	-73.67575	7	4	SSE	<2	B1	≥5000	Cloudy	Slight	4	283	Soft Start	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:23	10:40	40.57008	-73.67575	40.57013	-73.67597	6	4	SSE	<2	B1	≥5000	Cloudy	Slight	3.7	10	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:40	11:00	40.57013	-73.67597	40.58088	-73.66837	6	4	SSE	<2	B1	≥5000	Cloudy	Slight	3.3	12	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58088	-73.66837	40.57998	-73.68837	5	3	SE	<2	B1	≥5000	Cloudy	Slight	4.2	153	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.57998	-73.68837	40.58052	-73.66802	5	3	SE	<2	B1	≥5000	Cloudy	Slight	4.5	56	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:13	40.58052	-73.66802	40.58028	-73.68813	6	3	SE	<2	B1	≥5000	Cloudy	Slight	2.3	310	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:13	12:20	40.58028	-73.68813	40.57752	-73.67900	5	4	SSE	<2	B1	≥5000	Cloudy	Severe	4.3	51	Reduced Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:56	40.57752	-73.67900	40.58055	-73.70985	7	4	SSE	<2	B1	≥5000	Cloudy	Moderate	4.2	299	Reduced Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:56	13:00	40.58055	-73.70985	40.58245	-73.74417	7	4	SSE	<2	B1	≥5000	Cloudy	Moderate	4.1	292	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.58245	-73.74417	40.58255	-73.74320	6	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.5	260	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.58255	-73.74320	40.58303	-73.73108	6	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.2	110	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.58303	-73.73108	40.58233	-73.74727	6	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.5	268	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.58233	-73.74727	40.58320	-73.73190	6	6	SSE	<2	B1	≥5000	Cloudy	Slight	4.1	59	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58320	-73.73190	40.58138	-73.74742	7	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.4	281	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.58138	-73.74742	40.58327	-73.73178	7	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.5	58	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58327	-73.73178	40.58248	-73.74498	4	6	SSE	<2	B1	≥5000	Cloudy	Slight	2.6	104	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.58248	-73.74498	40.58315	-73.72758	5	6	SSE	<2	B1	≥5000	Cloudy	Slight	3.1	251	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.58315	-73.72758	40.58273	-73.74465	3	8	SSE	<2	B1	≥5000	Cloudy	Slight	3.5	83	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.58273	-73.74465	40.58350	-73.73358	3	7	SSE	<2	B2	≥5000	Cloudy	Slight	3	241	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.58350	-73.73358	40.58343	-73.73958	3	8	SSE	<2	B2	≥5000	Cloudy	Slight	2.5	112	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.58343	-73.73958	40.58367	-73.73192	3	8	SSE	<2	B3	≥5000	Cloudy	Slight	3.3	277	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:20	40.58367	-73.73192	40.58373	-73.73422	3	8	SSE	<2	B3	≥5000	Cloudy	Slight	2.2	109	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:20	17:40	40.58373	-73.73422	40.58298	-73.74398	3	10	SSE	<2	B3	≥5000	Cloudy	Slight	3.5	282	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	17:59	40.58298	-73.74398	40.58300	-73.73110	3	12	SSE	<2	B4	≥5000	Cloudy	Slight	2.7	49	Full Power	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:59	18:27	40.58300	-73.73110	40.57835	-73.72832	8	12	SSE	<2	B4	≥5000	Cloudy	Slight	2	139	Deploying/Retrieving	N/A
2023-07-09	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:27	19:32	40.57835	-73.72832	40.62830	-73.57653	11	13	SSE	<2	B4	≥5000	Cloudy	Slight	1.09	306	Transit	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:48	12:16	40.62650	-73.57410	40.57590	-73.52555	4	7	NW	<2	B0	≥5000	Cloudy	Severe	3.4	59	Transit	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:16	13:00	40.57590	-73.52555	40.58012	-73.53183	9	6	NW	<2	B2	≥5000	Cloudy	Severe	3.7	70	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:27	40.58012	-73.53183	40.57573	-73.53120	9	6	NW	<2	B2	≥5000	Cloudy	Slight	3.6	145	Deploying/Retrieving	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:27	13:35	40.57573	-73.53120	40.57243	-73.52895	10	6	NW	<2	B2	≥5000	Cloudy	Moderate	1.8	174	Soft Start	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:35	14:00	40.57243	-73.52895	40.57692	-73.52910	10	6	NW	<2	B2	≥5000	Cloudy	Moderate	3.3	151	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:00	14:20	40.57692	-73.52910	40.58548	-73.51993	10	6	NW	<2	B2	≥5000	Clear	Slight	3.5	359	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:20	14:35	40.58548	-73.51993	40.58020	-73.53985	9	6	NW	<2	B2	≥5000	Clear	Slight	4.3	231	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:20	14:35	40.58548	-73.51993	40.58020	-73.53985	9	6	NW	<3	B3	≥5001	Clear	Slight	4.3	231	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:35	14:45	40.58020	-73.53985	40.58495	-73.52155	8	6	NW	<2	B2	≥5000	Clear	Slight	3	71	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:45	15:20	40.58495	-73.52155	40.58078	-73.53770	9	7	W	<2	B2	≥5000	Cloudy	Severe	3	87	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:20	15:49	40.58078	-73.53770	40.58415	-73.52590	8	7	W	<2	B2	≥5000	Cloudy	Severe	3.3	251	Full Power	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:49	16:14	40.58415	-73.52590	40.57938	-73.50112	8	8	W	<2	B2	≥5000	Cloudy	Severe	2.7	87	Deploying/Retrieving	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:14	16:40	40.57938	-73.50112	40.59158	-73.49400	9	8	W	<2	B2	≥5000	Cloudy	Severe	3.2	122	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:40	17:00	40.59158	-73.49400	40.58838	-73.48923	8	7	W	<2	B2	≥5000	Cloudy	Severe	4.2	273	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:00	18:00	40.58838	-73.48923	40.57938	-73.52672	8	8	NW	<2	B2	≥5000	Clear	Moderate	3.7	204	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:00	18:35	40.57938	-73.52672	40.56767	-73.53342	9	8	NW	<2	B2	≥5000	Cloudy	Moderate	2.3	95	Silent	N/A
2023-07-10	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:35	19:08	40.56767	-73.53342	40.62827	-73.57655	8	8	NW	<2	B2	≥5000	Clear	Moderate	10	267	Transit	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:04	10:00	40.62827	-73.57655	40.57237	-73.73988	1	7	NW	<2	B0	2000-4999	Clear	None	0.5	13	Transit	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:00	10:06	40.57237	-73.73988	40.58432	-73.77618	12	8	WNW	<2	B1	≥5000	Clear	Moderate	13.6	287	Transit	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:06	10:36	40.58432	-73.77618	40.57353	-73.77435	10	8	WNW	<2	B1	≥5000	Clear	Severe	3.7	12	Deploying/Retrieving	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:36	10:43	40.57353	-73.77435	40.56993	-73.77948	11	6	WNW	<2	B1	≥5000	Clear	Severe	3	180	Soft Start	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:43	11:00	40.56993	-73.77948	40.58020	-73.78483	10	6	WNW	<2	B1	≥5000	Clear	Severe	4.1	291	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:00	11:20	40.58020	-73.78483	40.57723	-73.78090	10	6	WNW	<2	B1	≥5000	Clear	Severe	3	20	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:20	11:40	40.57723	-73.78090	40.58497	-73.78373	11	6	WNW	<2	B1	≥5000	Clear	Severe	3.2	200	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:40	12:00	40.58497	-73.78373	40.57390	-73.78137	10	6	WNW	<2	B1	≥5000	Clear	Severe	2.7	19	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:20	40.57390	-73.78137	40.58482	-73.78354	10	6	WNW	<2	B1	≥5000	Clear	Severe	3.2	199	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:20	12:40	40.58482	-73.78354	40.57543	-73.78090	11	6	WNW	<2	B1	≥5000	Clear	Severe	3.2	17	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:40	13:00	40.57543	-73.78090	40.57683	-73.78492	10	6	WNW	<2	B1	≥5000	Clear	Severe	3.2	196	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:11	40.57683	-73.78492	40.58245	-73.77982	9	6	WNW	<2	B1	≥5000	Clear	Severe	3.2	24	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:11	13:41	40.58245	-73.77982	40.58177	-73.77685	10	6	WNW	<2	B1	≥5000	Clear	Severe	3.4	108	Silent	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:41	13:48	40.58177	-73.77685	40.58342	-73.78457	9	6	WNW	<2	B1	≥5000	Clear	Moderate	2.8	27	Soft Start	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:48	14:00	40.58342	-73.78457	40.57995	-73.78417	7	6	WNW	<2	B1	≥5000	Clear	Moderate	4	20	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:00	14:20	40.57995	-73.78417	40.57767	-73.78437	8	6	WNW	<2	B1	≥5000	Clear	Moderate	2.9	203	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:20	14:40	40.57767	-73.78437	40.58217	-73.78088	9	6	WNW	<2	B1	≥5000	Clear	Moderate	3	17	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:40	15:00	40.58217	-73.78088	40.57988	-73.78378	8	6	WNW	<2	B1	≥5000	Clear	Moderate	3	194	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:00	15:20	40.57988	-73.78378	40.57835	-73.78020	9	8	SW	<2	B1	≥5000	Clear	Moderate	3.2	23	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:20	15:40	40.57835	-73.78020	40.57745	-73.78408	9	8	SW	<2	B1	≥5000	Clear	Moderate	3.1	210	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	15:40	16:00	40.57745	-73.78408	40.57683	-73.78027	9	8	SW	<2	B1	≥5000	Clear	Moderate	3.6	15	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:00	16:20	40.57683	-73.78027	40.57912	-73.78358	9	8	SW	<2	B1	≥5000	Clear	Moderate	3.2	202	Full Power	N/A

Date (YYYY-MM-DD)	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Visual, PAM, or Both	Observer's Name (Last, First)	PSO Affiliation	Start of Watch (UTC; HH:MM)	End of Watch (UTC; HH:MM)	Survey Start Position (Decimal Degrees)		Survey End Position (Decimal Degrees)		Water Depth (m)	Wind		Sea Conditions		Visibility (<0.05, 0.05-0.1, 0.1-0.3, 0.3-0.5, 0.5-1, 1-2, 2-5, >5 km)	Weather Condition (Clear, Cloudy, Precipitation, Fog)	Glare Strength (None, Slight, Moderate, Severe)	Vessel Info			Inhibiting Factors to Observations
								Latitude	Longitude	Latitude	Longitude		Speed (kts)	Direction	Swell Height (m)	Beaufort (B0 - B12)				Speed (kts)	Heading (Degrees)	Vessel activity (Transit, Soft Start, Testing, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby, Reduced Power)	
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:20	16:40	40.57912	-73.78358	40.57767	-73.77993	8	8	SW	<2	B1	≥5000	Clear	Moderate	3.6	15	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	16:40	17:00	40.57767	-73.77993	40.57690	-73.78380	5	8	SW	<2	B1	≥5000	Clear	Moderate	3.2	202	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:00	17:20	40.57690	-73.78380	40.57777	-73.77975	9	6	SSW	<2	B2	≥5000	Clear	Slight	2.6	23	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:20	17:40	40.57777	-73.77975	40.58188	-73.78270	9	6	SSW	<2	B2	≥5000	Clear	Slight	3.3	197	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:40	17:49	40.58188	-73.78270	40.56917	-73.77967	8	6	SSW	<2	B2	≥5000	Clear	Slight	3.4	13	Full Power	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	17:49	18:15	40.56917	-73.77967	40.57658	-73.76068	5	6	SSW	<2	B2	≥5000	Clear	Slight	3.7	159	Deploying/Retrieving	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	18:15	19:00	40.57658	-73.76068	40.58122	-73.57838	8	7	SSW	<2	B3	≥5000	Clear	Slight	5.8	108	Transit	N/A
2023-07-11	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	19:00	19:25	40.58122	-73.57838	40.62827	-73.57655	10	7	SSW	<2	B1	≥5000	Clear	Slight	11.5	41	Transit	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:01	10:03	40.62827	-73.57655	40.58012	-73.77522	1	5	W	<2	B0	≥5000	Clear	Slight	0.1	59	Transit	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:03	10:33	40.58012	-73.77522	40.57723	-73.77555	10	3	W	<2	B1	≥5000	Clear	Severe	3.1	286	Deploying/Retrieving	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:33	10:41	40.57723	-73.77555	40.57057	-73.78085	10	6	W	<2	B1	≥5000	Clear	Severe	1.5	202	Soft Start	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:41	11:00	40.57057	-73.78085	40.58480	-73.78198	6	6	W	<2	B1	≥5000	Clear	Severe	4.2	226	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58480	-73.78198	40.57425	-73.77988	6	6	W	<2	B1	≥5000	Clear	Severe	3.2	19	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.57425	-73.77988	40.58535	-73.78165	10	6	W	<2	B1	≥5000	Clear	Severe	3.2	202	Silent	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58535	-73.78165	40.57428	-73.77970	6	6	W	<2	B1	≥5000	Clear	Severe	3	13	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.57428	-73.77970	40.58583	-73.78147	10	6	W	<2	B1	≥5000	Clear	Severe	3.1	207	Silent	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.58583	-73.78147	40.57322	-73.77983	5	6	W	<2	B1	≥5000	Clear	Severe	3.6	15	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.57322	-73.77983	40.58508	-73.78138	10	6	W	<2	B1	≥5000	Clear	Severe	2.8	223	Silent	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.58508	-73.78138	40.58768	-73.76107	9	6	W	<2	B1	≥5000	Clear	Severe	3	25	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.58768	-73.76107	40.57232	-73.77985	5	6	W	<2	B1	≥5000	Clear	Severe	3.7	81	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.57232	-73.77985	40.57225	-73.77993	9	6	W	<2	B1	≥5000	Clear	Severe	3	232	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.57225	-73.77993	40.58727	-73.77653	9	8	SW	<2	B1	≥5000	Clear	Severe	4.2	227	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58727	-73.77653	40.57313	-73.77945	9	8	SW	<2	B1	≥5000	Clear	Severe	3	196	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.57313	-73.77945	40.58332	-73.78137	10	8	SW	<2	B1	≥5000	Clear	Severe	3	209	Silent	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58332	-73.78137	40.57535	-73.77860	9	8	SW	<2	B1	≥5000	Clear	Moderate	3.8	23	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.57535	-73.77860	40.58670	-73.78058	10	8	SW	<2	B1	≥5000	Clear	Moderate	2.7	192	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.58670	-73.78058	40.57627	-73.77827	5	8	SW	<2	B1	≥5000	Clear	Slight	3.5	20	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.57627	-73.77827	40.58690	-73.78033	10	8	SW	<2	B1	≥5000	Clear	Slight	2.8	204	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.58690	-73.78033	40.57792	-73.77778	6	8	SW	<2	B1	≥5000	Clear	Slight	3	29	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.57792	-73.77778	40.58250	-73.77866	10	8	SW	<2	B1	≥5000	Clear	Slight	3.1	204	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:24	40.58250	-73.77866	40.57395	-73.77747	7	8	SW	<2	B1	≥5000	Clear	Slight	3.9	359	Full Power	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:24	17:52	40.57395	-73.77747	40.56737	-73.73403	8	8	SW	<2	B1	≥5000	Clear	Slight	3.4	102	Deploying/Retrieving	N/A
2023-07-12	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:52	18:39	40.56737	-73.73403	40.62760	-73.57443	7	8	SW	<2	B1	≥5000	Clear	Slight	13.4	302	Transit	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	08:58	09:40	40.62833	-73.57639	40.56537	-73.65767	1	6	SW	<2	B0	200-499	Clear	None	2.3	241	Transit	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	09:40	10:10	40.56537	-73.65767	40.57675	-73.65152	11	6	SW	<2	B2	2000-4999	Clear	Slight	3.5	270	Deploying/Retrieving	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:10	10:17	40.57675	-73.65152	40.57965	-73.66090	8	8	SW	<2	B2	≥5000	Clear	Slight	1.4	36	Soft Start	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:17	10:45	40.57965	-73.66090	40.58082	-73.68485	6	8	SW	<2	B2	≥5000	Clear	Moderate	4.4	301	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	10:45	11:00	40.58082	-73.68485	40.58033	-73.68533	6	8	SW	<2	B2	≥5000	Clear	Severe	3.4	97	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:00	11:20	40.58033	-73.68533	40.57983	-73.68720	6	8	SW	<2	B2	≥5000	Clear	Severe	3	48	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:20	11:40	40.57983	-73.68720	40.58105	-73.66998	7	8	SW	<2	B2	≥5000	Clear	Severe	3.9	249	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	11:40	12:00	40.58105	-73.66998	40.58120	-73.68125	7	10	SW	<2	B2	≥5000	Clear	Severe	3.2	100	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:00	12:20	40.58120	-73.68125	40.58120	-73.67138	7	10	S	<2	B2	≥5000	Clear	Severe	2.7	280	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:20	12:42	40.58120	-73.67138	40.58127	-73.68297	7	10	S	<2	B2	≥5000	Clear	Severe	3.6	127	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	12:42	13:00	40.58127	-73.68297	40.57520	-73.71467	7	10	S	<2	B2	≥5000	Clear	Severe	3	275	Reduced Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:00	13:20	40.57520	-73.71467	40.57200	-73.73907	10	12	S	<2	B2	≥5000	Clear	Moderate	4.2	268	Reduced Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:20	13:34	40.57200	-73.73907	40.57872	-73.73248	10	12	S	<2	B2	≥5000	Clear	Severe	2.7	16	Full Power	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	13:34	14:01	40.57872	-73.73248	40.57217	-73.72290	10	14	S	<2	B2	≥5000	Clear	Severe	1.6	186	Deploying/Retrieving	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	14:01	15:00	40.57217	-73.72290	40.62512	-73.57363	12	14	S	<2	B3	≥5000	Cloudy	Severe	6.6	71	Transit	N/A
2023-07-13	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:11	40.62512	-73.57363	40.62830	-73.57652	2	14	S	<2	B1	≥5000	Cloudy	Severe	5.1	349	Transit	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	09:00	10:09	40.62833	-73.57639	40.57440	-73.77855	1	6	S	<2	B0	≥5000	Cloudy	Severe	0.2	48	Transit	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:09	10:44	40.57440	-73.77855	40.58643	-73.78357	9	16	S	<2	B1	≥5000	Cloudy	Severe	3.6	275	Deploying/Retrieving	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:44	10:51	40.58643	-73.78357	40.58647	-73.78365	9	16	S	<2	B1	≥5000	Cloudy	Severe	4.4	87	Soft Start	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	10:51	11:00	40.58647	-73.78365	40.58532	-73.77605	9	16	S	<2	B1	≥5000	Cloudy	Severe	2.2	211	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:00	11:20	40.58532	-73.77605	40.57760	-73.77722	5	4	S	<2	B1	≥5000	Cloudy	None	2.9	202	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:20	11:40	40.57760	-73.77722	40.58402	-73.77427	9	4	S	<2	B1	≥5000	Cloudy	None	3.4	29	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	11:40	12:00	40.58402	-73.77427	40.58537	-73.78478	5	4	S	<2	B1	≥5000	Cloudy	Slight	3.4	294	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:00	12:20	40.58537	-73.78478	40.58095	-73.78463	7	4	S	<2	B1	≥5000	Cloudy	Slight	3.2	292	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:20	12:40	40.58095	-73.78463	40.58315	-73.77837	8	2	SW	<2	B1	≥5000	Cloudy	Slight	4	300	Silent	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	12:40	13:00	40.58315	-73.77837	40.57878	-73.77708	7	2	SW	<2	B1	≥5000	Cloudy	Slight	3.3	204	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:00	13:20	40.57878	-73.77708	40.57813	-73.77855	7	2	SW	<2	B1	≥5000	Cloudy	Slight	2.2	211	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:20	13:40	40.57813	-73.77855	40.58102	-73.74665	7	2	SW	<2	B1	≥5000	Cloudy	Slight	4.7	165	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	13:40	14:00	40.58102	-73.74665	40.57477	-73.73872	7	2	SW	<2	B1	≥5000	Cloudy	Slight	4.6	69	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:00	14:20	40.57477	-73.73872	40.58308	-73.73927	7	2	SW	<2	B1	≥5000	Cloudy	Slight	3	195	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:20	14:40	40.58308	-73.73927	40.56957	-73.74032	7	2	SSW	<2	B1	≥5000	Cloudy	Slight	4.2	100	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	14:40	15:00	40.56957	-73.74032	40.58288	-73.73778	7	2	SSW	<2	B1	≥5000	Cloudy	Slight	3	101	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:00	15:20	40.58288	-73.73778	40.57120	-73.73878	6	5	SSW	<2	B1	≥5000	Cloudy	Slight	2.6	118	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:20	15:40	40.57120	-73.73878	40.58188	-73.73427	12	5	SSW	<2	B1	≥5000	Clear	Slight	2.9	16	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	15:40	16:00	40.58188	-73.73427	40.57825	-73.73682	6	5	SSW	<2	B1	≥5000	Clear	Slight	3.2	199	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:00	16:20	40.57825	-73.73682	40.57460	-73.73412	9	5	SSW	<2	B1	≥5000	Clear	Slight	2.9	15	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:20	16:40	40.57460	-73.73412	40.58287	-73.73332	11	5	SSW	<2	B1	≥5000	Clear	Slight	3.2	196	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	16:40	17:00	40.58287	-73.73332	40.57378	-73.73835	5	5	SSW	<2	B1	≥5000	Clear	Slight	3.4	199	Silent	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:00	17:20	40.57378	-73.73835	40.57525	-73.73620	9	5	SSW	<2	B1	≥5000	Clear	Slight	3.6	180	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:20	17:40	40.57525	-73.73620	40.58025	-73.74107	10	6	SSW	<2	B1	2000-4999	Clear	Slight	3	197	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:40	17:53	40.58025	-73.74107	40.58282	-73.73688	9	6	SSW	<2	B1	2000-4999	Clear	Slight	3.3	12	Full Power	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	17:53	18:11	40.58282	-73.73688	40.57210	-73.73355	9	8	SSW	<2	B1	200-499	Fog	Slight	4.2	90	Silent	Fog
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:11	18:40	40.57210	-73.73355	40.55890	-73.72043	10	8	SSW	<2	B1	2000-4999	Fog	Slight	4	117	Deploying/Retrieving	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Reid, Connor	RPS	18:40	19:00	40.55890	-73.72043	40.56403	-73.62807	10	8	SSW	<2	B1	2000-4999	Fog	Slight	5	123	Transit	N/A
2023-07-15	*Bella Marie*	*HRG*	Visual	Figueroa, Lorena	RPS	19:00	19:31	40.56403	-73.62807	40.62753	-73.57442	12	8	SSW	<2	B1	2000-4999	Fog	Slight	13.8	104	Transit	N/A

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)															
Lease OCS-A 0522																																		
V233	1	*GO Explorer*	HRG	John, Darnell	2022-07-27	Visual	04:38	41.11647	-71.01212	179	Common dolphin - *Delphinus delphis*	Definite	Robust body, falcate dorsal fin, hour glass variation on color on flanks.	Porpoising; Diving.	1	0	2	1	1	0	Vigorous	10	N/A, source not deployed	7	Standby	None	No	0	None	N/A	N/A	30	On Watch
V234	2	*GO Explorer*	HRG	Perez, Aaron	2022-07-27	Visual	11:17	40.65710	-71.11298	104	Minke whale - *Balaenoptera acutorostrata*	Definite	Small, sleek dark body, tall, sickle-shaped dorsal fin.	Blowing; Surfacing.	1	0	1	1	1	240	Moderate	800	600	600	Full Power	Sparker Only	No	0	None	N/A	N/A	67.2	On Watch
V235	3	*GO Explorer*	HRG	Mohandeo, Ravie	2022-07-27	Visual	13:22	40.62865	-70.92959	120	Common dolphin - *Delphinus delphis*	Definite	Medium sized, broad dark cape and yellowish buff.	Porpoising; Swimming at surface; Diving.	5	0	5	4	5	180	Moderate	475	575	475	Full Power	Sparker Only	No	0	None	N/A	N/A	69	On Watch
V236	4	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-07-27	Visual	15:01	40.63311	-70.96011	120	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust grey body, broad falcate dorsal fin, stubby beak.	Porpoising; Swimming at surface.	3	0	4	2	3	200	Sedate	200	150	150	Full Power	Sparker Only	No	0	None	N/A	N/A	69	On Watch
V237	5	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-07-27	Visual	19:52	40.68003	-71.03490	220	Common dolphin - *Delphinus delphis*	Definite	Tall triangular dorsal fin, hour glass variation in color on flanks.	Porpoising; Swimming at surface.	15	0	20	13	15	180	Vigorous	200	180	180	Full Power	Sparker Only	No	0	None	N/A	N/A	62	On Watch
V238 / A26	6	*GO Explorer*	HRG	Mohandeo, Ravie	2022-07-28	Both	08:01	40.68889	-71.09291	140	Common dolphin - *Delphinus delphis*	Definite	Medium size, dorsal fin tall and falcate, dark cape with hourglass pattern.	Porpoising; Bow riding; Diving, Vocalizing.	4	0	4	3	4	285	Vigorous	20	90	1	Silent	None	No	0	None	N/A	N/A	63	On Watch
V239	7	*GO Explorer*	HRG	Gutierrez, Daniela	2022-07-29	Visual	20:54	41.01128	-71.60375	54	Unidentified baleen whale - Cetacea spp.	Definite	Bushy blow.	Blowing.	1	0	2	1	1	0	Moderate	2500	1600	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	42.7	On Watch
V240	8	*GO Explorer*	HRG	Jaimes, Fernando	2022-07-29	Visual	22:28	40.97513	-71.61738	207	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern body sides, slender body.	Fast travel; Surfacing; Swimming at surface; Swimming below surface.	3	1	4	3	4	90	Vigorous	80	90	10	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43	On Watch
V242	9	*GO Explorer*	HRG	Mohandeo, Ravie	2022-07-30	Visual	03:31	40.70568	-71.15548	132	Common dolphin - *Delphinus delphis*	Definite	Medium size, dorsal fin tall and falcate, dark cape, hourglass pattern on sides.	Porpoising; Bow riding; Diving.	3	0	3	2	3	315	Vigorous	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	61	On Watch
V243	10	*GO Explorer*	HRG	Osuna, Yosiris	2022-07-30	Visual	10:07	40.63874	-70.93038	170	Bottlenose dolphin - *Tursiops truncatus*	Definite	High dorsal fin and falcate with pointed tip, most of the body dark.	Porpoising; Diving.	4	1	7	4	5	180	Moderate	800	500	500	Full Power	Sparker Only	No	0	None	N/A	N/A	68	On Watch
V244	11	*GO Explorer*	HRG	Gutierrez, Daniela	2022-07-30	Visual	20:55	40.98038	-71.40490	29	Fin whale - *Balaenoptera physalus*	Probable	Slim streamlined body with erect sickle shaped dorsal fin.	Blowing; Surfacing.	2	0	2	2	2	180	Moderate	2500	N/A, source not deployed	1000	Transit	None	No	0	None	N/A	N/A	42.3	On Watch
V245	12	*GO Explorer*	HRG	John, Darnell	2022-07-30	Visual	21:11	41.00752	-71.37094	29	Humpback whale - *Megaptera novaeangliae*	Definite	Large black body with irregular shaped dorsal fin, white coloration underneath flukes and fins.	Breaching / Jumping / Acrobatic behavior; Surfacing.	0	2	2	2	2	230	Moderate	1800	N/A, source not deployed	328	Transit	None	No	0	None	N/A	N/A	42.3	On Watch
V246	13	*GO Explorer*	HRG	John, Darnell	2022-07-30	Visual	21:24	41.06242	-71.34761	26	Humpback whale - *Megaptera novaeangliae*	Definite	Large black body with irregular shaped dorsal fin, white coloration underneath flukes and fins.	Breaching / Jumping / Acrobatic behavior; Blowing; Surfacing; Tail or pectoral fin slapping.	3	0	3	2	3	240	Stationary	3500	N/A, source not deployed	3500	Transit	None	No	0	None	N/A	N/A	42.3	On Watch
V247	14	*GO Explorer*	HRG	John, Darnell	2022-07-30	Visual	21:57	41.04203	-71.30280	32	Humpback whale - *Megaptera novaeangliae*	Definite	Large black body with irregular shaped dorsal fin, white coloration underneath flukes and fins.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping.	5	0	5	4	5	235	Stationary	5600	N/A, source not deployed	5600	Transit	None	No	0	None	N/A	N/A	49.5	On Watch
V248	15	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-01	Visual	03:13	40.99848	-71.41469	218	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass pattern on side.	Porpoising; Fast travel; Swimming at surface; Bow riding; Diving.	4	0	5	4	4	30	Vigorous	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	45.7	On Watch
V249 / A27	16	*GO Explorer*	HRG	Jaimes, Fernando; Osuna, Yosiris	2022-08-01	Both	07:25	40.98531	-71.56859	318	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass pattern on side; LF spectrogram ranging between 7 and 15 kHz with up sweep and convex contours.	Fast travel; Porpoising; Bow riding; Diving; Vocalizing.	5	0	5	3	5	40	Vigorous	40	70	1	Silent	None	No	0	Delay	N/A	N/A	46.0	On Watch

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V250 / A28	17	*GO Explorer*	HRG	Mohandeo, Ravie; Jaimes, Fernando	2022-08-01	Both	08:39	40.99650	-71.58402	136	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass pattern on sides; . 6 to 14 kHz with down sweep, 8 to 17 kHz with up sweep, and 7. 4 kHz to 12 kHz with sinusoidal multiple shapes	Porpoising; Swimming below surface; Bow riding; Diving; Vocalizing.	5	5	5	3	5	75	Moderate	5	75	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	50.0	On Watch
V251	18	*GO Explorer*	HRG	Perez, Aaron	2022-08-01	Visual	11:19	40.84904	-71.38324	136	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass pattern on side.	Porpoising; Swimming below surface; Bow riding.	7	0	9	4	7	210	Moderate	221	5	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	60.0	On Watch
V252	19	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-01	Visual	13:45	40.77714	-71.29136	312	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass pattern on side.	Swimming at surface; Porpoising; Diving.	4	0	9	3	4	180	Vigorous	100	100	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	61.0	On Watch
V253	20	*GO Explorer*	HRG	Perez, Aaron	2022-08-01	Visual	15:49	40.88610	-71.48152	316	Bottlenose dolphin - *Tursiops truncatus*	Definite	Medium size body, tall and falcate dorsal fin, dark gray at dorsal zone, light gray on the belly zone.	Fast travel; Porpoising; Bow riding; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	12	2	14	13	14	90	Vigorous	767	100	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	59.0	On Watch
V254	21	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-01	Visual	20:25	40.88760	-71.43587	125	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass pattern on side.	Fast travel; Porpoising; Bow riding; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	8	0	8	8	8	220	Vigorous	300	10	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	56.7	On Watch
V255 / A30	23	*GO Explorer*	HRG	Mohandeo, Ravie; Jaimes, Fernando	2022-08-02	Both	02:24	40.92324	-71.49572	321	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on side. Up-sweep, down-sweep and sinusoidal MF whistles ranging in frequencies from 4.1 kHz to 20.5 kHz with a maximum amplitude of 40 dB.	Porpoising; Spy hopping; Swimming below surface; Swimming at surface; Diving; Vocalizing.	N/A	N/A	12	11	12	170	Sedate	105	75	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	70.0	On Watch
V256	24	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-02	Visual	12:32	40.96306	-71.54975	318	Common dolphin - *Delphinus delphis*	Definite	Tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising; Bow riding; Diving; Swimming below surface.	10	5	16	13	15	120	Vigorous	200	10	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	54.2	On Watch
V257	25	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-02	Visual	13:18	41.01659	-71.58973	311	Humpback whale - *Megaptera novaeangliae*	Definite	Distinctive sloping back and stubby dorsal fin, long white flippers.	Blowing; Breaching / Jumping / Acrobatic behavior; Surfacing.	1	0	1	1	1	90	Vigorous	2000	1600	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	48.0	On Watch
V260	26	*GO Explorer*	HRG	Perez, Aaron	2022-08-02	Visual	19:57	40.85592	-71.39916	131	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad body, stubby beak, falcate dorsal fin.	Fast travel; Porpoising.	15	0	15	10	15	266	Vigorous	1000	950	1000	Full Power	Sparker Only	No	0	None	N/A	N/A	57.6	On Watch
V261	27	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-02	Visual	21:04	40.79756	-71.30301	148	Common dolphin - *Delphinus delphis*	Definite	Tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Swimming below surface; Surfacing.	2	1	3	3	3	90	Vigorous	200	70	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	60.0	On Watch
V262	28	*GO Explorer*	HRG	John, Darnell	2022-08-03	Visual	00:04	40.84041	-71.37513	310	Common dolphin - *Delphinus delphis*	Definite	Pattern on flanks.	Porpoising; Fast travel; Swimming below surface.	6	0	6	5	6	205	Vigorous	15	70	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	57.0	On Watch
V263	29	*GO Explorer*	HRG	John, Darnell	2022-08-03	Visual	01:56	40.93619	-71.51367	312	Common dolphin - *Delphinus delphis*	Definite	Pattern on flanks.	Porpoising; Fast travel; Swimming at surface.	3	0	3	2	3	135	Vigorous	5	60	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	55.0	On Watch
V264	30	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-03	Visual	05:16	40.96479	-71.54119	138	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Diving.	3	0	3	2	3	120	Vigorous	20	95	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	55.0	On Watch
V265 / A31	31	*GO Explorer*	HRG	John, Darnell; Osuna, Yosiris	2022-08-03	Both	06:01	40.85495	-71.38628	122	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides; LF spectrogram ranging between 5 and 17 kHz with up sweep and sinusoidal contours.	Porpoising; Swimming below surface; Diving; Vocalizing.	N/A	N/A	7	6	7	230	N/A	60	60	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	55.0	On Watch
V266 / A32	32	*GO Explorer*	HRG	Gutierrez, Daniela; Osuna, Yosiris	2022-08-03	Both	07:01	40.81514	-71.32482	106	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides; LF spectrogram ranging between 6 and 16 kHz with multiple sinusoidal contours.	Porpoising; Surfacing; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Diving; Vocalizing.	N/A	N/A	6	5	6	0	Moderate	100	70	5	Full Power	Sparker Only	Yes	6	None	N/A	N/A	46.0	On Watch
V267 / A33	33	*GO Explorer*	HRG	Gutierrez, Daniela; Osuna, Yosiris	2022-08-03	Both	07:41	40.78814	-71.28865	134	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides; LF spectrogram ranging between 6 and 22 kHz with up sweep and multiple sinusoidal contours.	Swimming below surface; Surfacing; Breaching / Jumping / Acrobatic behavior; Vocalizing.	N/A	N/A	5	5	5	190	Moderate	200	20	5	Full Power	Sparker Only	Yes	5	None	N/A	N/A	46.0	On Watch
V268	34	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-03	Visual	09:26	40.82163	-71.34522	312	Common dolphin - *Delphinus delphis*	Definite	Robust body, tall falcate dorsal fin, hourglass shape on sides.	Porpoising; Fast travel; Swimming below surface; Diving.	6	0	6	5	6	105	Vigorous	643	70	10	Full Power	Sparker Only	Yes	6	None	N/A	N/A	61.0	On Watch
V269	35	*GO Explorer*	HRG	John, Darnell	2022-08-03	Visual	18:43	40.80615	-71.32885	308	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Fast travel; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	70	0	70	60	70	255	Moderate	2245	10	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	60.0	On Watch

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V270	36	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-03	Visual	19:29	40.82546	-71.32795	308	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, long flippers with white undersides, small triangular knob dorsal fin.	Blowing; Surfacing.	1	0	1	1	1	180	Moderate	2223	2200	2200	Full Power	Sparker Only	No	0	None	N/A	N/A	60.0	On Watch
V271	37	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-03	Visual	20:03	40.86209	-71.37617	314	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising; Swimming at surface; Breaching / Jumping / Acrobatic behavior.	15	0	15	15	15	0	Vigorous	1700	1500	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	57.5	On Watch
V272	38	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-03	Visual	20:35	40.88383	-71.44525	315	Common dolphin - *Delphinus delphis*	Definite	Medium size, falcate dorsal fin, gray color.	Fast travel; Swimming at surface.	5	0	5	5	5	180	Moderate	700	800	700	Full Power	Sparker Only	No	0	None	N/A	N/A	57.5	On Watch
V273	39	*GO Explorer*	HRG	John, Darnell	2022-08-03	Visual	21:45	40.93123	-71.53085	321	Minke whale - *Balaenoptera acutorostrata*	Definite	Approximately 9 meters long, streamlined body, tall sickle shaped dorsal fin.	Breaching / Jumping / Acrobatic behavior; Blowing; Swimming at surface.	1	0	1	1	1	270	Vigorous	1270	1300	1200	Full Power	Sparker Only	No	0	None	N/A	N/A	58.8	On Watch
V274 / A34	40	*GO Explorer*	HRG	John, Darnell; Osuna, Yosiris	2022-08-04	Both	04:13	40.76241	-71.27401	277	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on sides; clicks detected.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Vocalizing.	N/A	N/A	3	2	3	220	Moderate	10	40	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	9.0	On Watch
V275	41	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-04	Visual	06:19	40.83822	-71.37246	308	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface.	7	1	8	4	8	225	Moderate	50	75	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	60.0	On Watch
V276 / A35	42	*GO Explorer*	HRG	Mohandeo, Ravie; Osuna, Yosiris	2022-08-04	Both	07:12	40.94292	-71.51433	128	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides; whistles ranging between 7 and 20 kHz with up sweep, down sweep, sinusoidal and multiple contours.	Porpoising; Swimming below surface; Bow riding; Vocalizing	N/A	N/A	8	7	8	330	Moderate	15	80	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	53.0	On Watch
V277	43	*GO Explorer*	HRG	Perez, Aaron	2022-08-04	Visual	10:10	40.84805	-71.36689	129	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	16	4	22	14	20	150	Moderate	50	97	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	56.0	On Watch
V278	44	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-04	Visual	12:01	40.83416	-71.36806	65	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	15	5	20	13	20	165	Vigorous	631	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	64.0	On Watch
V279	45	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-04	Visual	15:40	40.79872	-71.30499	153	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Breaching / Jumping / Acrobatic behavior; Feeding; Diving.	25	5	35	25	30	90	Vigorous	2210	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	51.0	On Watch
V280	46	*GO Explorer*	HRG	John, Darnell	2022-08-04	Visual	17:53	40.75151	-71.28230	40	Common dolphin - *Delphinus delphis*	Definite	Hourglass shape on sides.	Fast travel; Porpoising; Breaching / Jumping / Acrobatic behavior.	160	0	160	140	160	30	Vigorous	1700	40	1	Full Power	Sparker Only	Yes	45	Delay	N/A	N/A	55.0	On Watch
V281	47	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-04	Visual	19:19	40.77763	-71.28193	300	Minke whale - *Balaenoptera acutorostrata*	Probable	Small sleek dark body, tall sickle shaped dorsal fin.	Surfacing; Blowing.	1	0	1	1	1	330	Moderate	700	550	650	Full Power	Sparker Only	No	0	None	N/A	N/A	55.0	On Watch
V282	48	*GO Explorer*	HRG	Perez, Aaron	2022-08-04	Visual	19:23	40.80017	-71.30568	130	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising; Feeding.	40	0	60	30	40	180	Vigorous	609	550	600	Full Power	Sparker Only	No	0	None	N/A	N/A	55.0	On Watch
V283	49	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-04	Visual	20:08	40.79109	-71.29088	220	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Swimming below surface.	5	0	5	5	5	340	Vigorous	50	80	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	55.0	On Watch
V284 / A36	50	*GO Explorer*	HRG	John, Darnell; Gutierrez, Daniela	2022-08-05	Both	01:03	40.84505	-71.39154	137	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on sides; click detector ranging between 5. 2 kHz and 23. 5 kHz with down sweep, up sweep, sinusoidal, convex, and concave contours.	Porpoising; Swimming at surface; Bow riding; Swimming below surface; Vocalizing.	N/A	N/A	7	5	7	120	Moderate	30	40	1	Full Power	Sparker Only	Yes	7	Delay	N/A	N/A	50.0	On Watch
V285 / A37	51	*GO Explorer*	HRG	Mohandeo, Ravie; Jaimes, Fernando	2022-08-05	Both	02:41	40.87346	-71.36844	97	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on side; LF spectrogram ranging between 4. 7 kHz and 17. 9 kHz, with sinusoidal, up sweep and concave contours.	Porpoising; Swimming at surface; Bow riding; Swimming below surface; Diving; Vocalizing.	N/A	N/A	7	6	7	30	Moderate	10	70	1	Silent	None	No	0	Delay	N/A	N/A	62.0	On Watch
V286 / A38	52	*GO Explorer*	HRG	Mohandeo, Ravie; Osuna, Yosiris	2022-08-05	Both	04:46	40.87957	-71.46010	322	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides; multiple whistles ranging between 4 and 18 kHz, and 4 kHz to 12 kHz with sinusoidal multiple shape.	Porpoising; Bow riding; Swimming below surface; Feeding; Swimming at surface; Diving; Vocalizing.	N/A	N/A	30	20	25	0	Vigorous	20	5	1	Full Power	Sparker Only	Yes	25	None	N/A	N/A	60.0	On Watch
V287	53	*GO Explorer*	HRG	Perez, Aaron	2022-08-05	Visual	09:42	40.91679	-71.46017	167	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	7	3	10	7	10	75	Moderate	20	10	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	56.0	On Watch

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V288	54	*GO Explorer*	HRG	Perez, Aaron	2022-08-05	Visual	14:38	40.94412	-71.55850	320	Unidentified whale - Cetacea spp.	Definite	Wide and dark flukes. Deep notch on the tail.	Diving with flukes / Fluking.	1	0	1	1	1	180	Moderate	700	800	700	Full Power	Sparker Only	No	0	None	N/A	N/A	52.0	On Watch
V289	55	*GO Explorer*	HRG	John, Darnell	2022-08-05	Visual	18:13	40.99562	-71.65433	97	Humpback whale - *Megaptera novaeangliae*	Definite	Tall and bushy blow, very distinctive blow.	Blowing; Surfacing; Diving with flukes / Fluking.	4	0	4	3	4	0	Sedate	1484	650	700	Full Power	Sparker Only	No	0	None	N/A	N/A	52.0	On Watch
V290	56	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-05	Visual	20:16	40.99803	-71.59642	277	Unidentified whale - Cetacea spp.	Definite	Bushy blow, dark greyish body.	Blowing.	1	0	1	1	1	180	Moderate	700	540	580	Full Power	Sparker Only	No	0	None	N/A	N/A	47.0	On Watch
V291	57	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-05	Visual	20:49	40.99790	-71.67241	113	Humpback whale - *Megaptera novaeangliae*	Definite	Flukes have characteristic serrated trailing edge and unique pattern, varying from entirely black to all white, on underside; blow bushy but highly visible.	Blowing; Diving with flukes / Fluking.	2	0	2	2	2	180	Moderate	1500	840	740	Full Power	Sparker Only	No	0	None	N/A	N/A	47.0	On Watch
V292	58	*GO Explorer*	HRG	John, Darnell	2022-08-05	Visual	21:15	40.98971	-71.66214	85	Unidentified baleen whale - Cetacea spp.	Definite	Tall bushy blow.	Blowing.	1	0	1	1	1	175	Sedate	1500	1500	1500	Silent	None	No	0	None	N/A	N/A	42.0	On Watch
V293	59	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-05	Visual	21:56	40.97746	-71.58618	97	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising.	60	0	60	50	60	90	Vigorous	3500	450	400	Full Power	Sparker Only	No	0	None	N/A	N/A	41.0	On Watch
V294	60	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-05	Visual	22:49	40.95199	-71.52832	143	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Swimming at surface; Surfacing; Diving.	8	1	9	9	9	150	Vigorous	400	60	1	Full Power	Sparker Only	Yes	9	None	N/A	N/A	42.0	On Watch
V295	61	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-06	Visual	03:39	40.85920	-71.39265	134	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface; Diving.	4	0	4	3	4	105	Vigorous	20	60	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	60.0	On Watch
V296	62	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	04:17	40.86199	-71.40651	317	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface.	4	0	4	3	4	360	Vigorous	10	50	10	Full Power	Sparker Only	Yes	4	None	N/A	N/A	58.0	On Watch
V297	63	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	04:57	40.86433	-71.40727	137	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface.	3	0	3	2	3	0	Vigorous	5	70	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	58.0	On Watch
V298 / A39	64	*GO Explorer*	HRG	John, Darnell; Osuna, Yosiris	2022-08-06	Both	05:12	40.84260	-71.36954	121	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides; down sweep contours, up sweep, and sinusoidal contours, ranging between 5 and 17 kHz.	Porpoising; Feeding; Swimming at surface; Swimming below surface; Vocalizing.	N/A	N/A	3	2	3	180	Vigorous	5	60	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	60.0	On Watch
V299 / A40	65	*GO Explorer*	HRG	Gutierrez, Daniela; Osuna, Yosiris	2022-08-06	Both	05:49	40.80886	-71.32532	281	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides; down sweep contours, up sweep, and sinusoidal contours, ranging between 4 and 20 kHz.	Fast travel; Porpoising; Bow riding; Swimming at surface; Swimming below surface; Vocalizing.	N/A	N/A	3	2	3	35	Vigorous	70	60	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	61.0	On Watch
V300	66	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-06	Visual	07:20	40.85694	-71.40105	302	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Fast travel; Porpoising; Swimming below surface; Diving.	6	0	6	5	6	0	Vigorous	10	70	10	Full Power	Sparker Only	Yes	6	None	N/A	N/A	63.0	On Watch
V301	67	*GO Explorer*	HRG	Perez, Aaron	2022-08-06	Visual	10:41	41.04138	-71.67907	269	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Feeding; Diving.	3	1	5	4	4	330	Moderate	2000	2500	2000	Full Power	Sparker Only	No	0	None	N/A	N/A	40.0	On Watch
V302	68	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-06	Visual	11:05	40.99784	-71.67450	273	Fin whale - *Balaenoptera physalus*	Definite	Elongated streamlined body, dark grey color, low backswept dorsal fin.	Blowing; Swimming at surface; Diving.	1	1	3	2	2	270	Moderate	1000	60	70	Full Power	Sparker Only	Yes	2	Shutdown	11:20	11:20	42.0	On Watch
V303	69	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-06	Visual	11:13	40.98748	-71.70570	66	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Feeding.	23	2	25	21	25	225	Vigorous	100	60	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	42.0	On Watch
V304	70	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-06	Visual	12:26	41.00764	-71.69377	356	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Surfacing; Fast travel; Diving.	5	0	5	4	5	255	Vigorous	80	60	1	Soft Start	Sparker Only	Yes	5	None	N/A	N/A	40.0	On Watch
V305	71	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-06	Visual	13:18	41.02721	-71.69942	323	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Feeding; Diving with flukes / Fluking.	4	0	4	3	4	90	Moderate	2000	1600	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	43.0	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V306	72	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-06	Visual	13:33	41.00788	-71.65462	294	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Surfacing; Tail or pectoral fin slapping; Diving with flukes / Fluking.	3	1	4	3	3	270	Moderate	800	250	500	Full Power	Sparker Only	No	0	None	N/A	N/A	41.0	On Watch
V307	73	*GO Explorer*	HRG	Perez, Aaron	2022-08-06	Visual	15:50	40.99566	-71.66483	273	Fin whale - *Balaenoptera physalus*	Definite	Streamline body, sickle shaped dorsal fin.	Blowing; Surfacing.	2	0	2	1	1	60	Moderate	2000	600	600	Full Power	Sparker Only	No	0	None	N/A	N/A	45.0	On Watch
V308	74	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-06	Visual	16:19	41.00757	-71.65821	274	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white under sides.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping.	2	0	2	2	2	90	Moderate	2500	2400	2500	Full Power	Sparker Only	No	0	None	N/A	N/A	45.0	On Watch
V309	75	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-06	Visual	16:50	40.99594	-71.67413	95	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Swimming at surface; Fast travel.	13	0	13	13	13	90	Vigorous	400	20	1	Full Power	Sparker Only	Yes	13	None	N/A	N/A	45.0	On Watch
V310	76	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	18:47	40.95921	-71.66633	324	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Breaching / Jumping / Acrobatic behavior; Milling; Diving; Diving with flukes / Fluking.	6	0	6	5	6	300	Stationary	3700	750	800	Full Power	Sparker Only	No	0	None	N/A	N/A	51.0	On Watch
V311	77	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	18:52	41.00869	-71.66487	327	Fin whale - *Balaenoptera physalus*	Definite	Streamline body, sickle shaped dorsal fin.	Blowing; Swimming at surface; Diving; Surfacing.	2	0	2	2	2	250	Moderate	650	90	50	Full Power	Sparker Only	Yes	2	Shutdown	19:08	19:08	48.0	On Watch
V312	78	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-06	Visual	21:07	40.99178	-71.67808	320	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping; Swimming at surface; Diving; Diving with flukes / Fluking.	6	0	6	4	6	360	Sedate	4000	1800	1700	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V313	79	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	21:10	41.02339	-71.65942	145	Fin whale - *Balaenoptera physalus*	Definite	Streamline body, sickle shaped dorsal fin.	Blowing; Swimming at surface; Swimming below surface; Diving.	1	0	1	1	1	260	Moderate	2000	180	150	Full Power	Sparker Only	No	0	None	N/A	N/A	39.0	On Watch
V314	80	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	21:32	40.98914	-71.66564	232	Fin whale - *Balaenoptera physalus*	Definite	Streamline body, sickle shaped dorsal fin.	Blowing; Swimming at surface; Swimming below surface.	1	0	1	1	1	30	Moderate	1200	800	700	Full Power	Sparker Only	No	0	None	N/A	N/A	39.0	On Watch
V315	81	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-06	Visual	22:00	41.00798	-71.68750	324	Unidentified baleen whale - Cetacea spp.	Definite	Tall, bushy blow.	Blowing.	1	0	1	1	1	270	Moderate	2000	1100	1000	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V316	82	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-06	Visual	22:16	41.02394	-71.69058	325	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Fast travel; Swimming at surface; Swimming below surface; Surfacing; Diving.	12	0	12	11	12	180	Vigorous	500	500	400	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V317	83	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	23:19	41.01889	-71.69243	145	Unidentified baleen whale - Cetacea spp.	Definite	Tall bushy blow.	Blowing.	1	0	1	1	1	120	Moderate	800	700	700	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V318	84	*GO Explorer*	HRG	John, Darnell	2022-08-06	Visual	23:29	40.95051	-71.66060	320	Humpback whale - *Megaptera novaeangliae*	Definite	Broad body, triangular knob like dorsal fin, long pectoral fins with white undersides.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping; Surfacing; Swimming at surface.	5	0	5	4	5	270	Sedate	4500	1100	1000	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V319 / A41	85	*GO Explorer*	HRG	Mohandeo, Ravie; Jaimes, Fernando	2022-08-07	Both	02:11	40.97685	-71.69284	205	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides; LF spectrogram ranging between 5 and 20 kHz sinusoidal and multiple contours.	Porpoising; Swimming below surface; Feeding; Surfacing; Diving; Vocalizing.	3	1	4	3	4	120	Vigorous	5	95	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43.0	On Watch
V320	86	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-07	Visual	02:35	40.99060	-71.67883	210	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, two-tone coloration of fluke, deeply notched.	Blowing; Surfacing; Diving with flukes / Fluking.	4	0	4	3	4	180	Moderate	450	500	350	Silent	None	No	0	None	N/A	N/A	42.0	On Watch
V321	87	*GO Explorer*	HRG	John, Darnell	2022-08-07	Visual	03:34	41.03286	-71.67827	16	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Surfacing; Feeding; Swimming at surface.	14	1	15	13	15	180	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	46.0	On Watch
V322	88	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-07	Visual	03:48	41.00409	-71.67560	354	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, two-tone coloration of fluke (white underside), with barnacles.	Blowing; Surfacing; Diving with flukes / Fluking; Swimming below surface.	1	1	2	2	2	170	Moderate	300	N/A, source not deployed	200	Standby	None	No	0	None	N/A	N/A	42.0	On Watch
V323	89	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-07	Visual	20:14	41.07513	-71.65310	331	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface.	15	0	15	14	15	220	Vigorous	1000	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	37.4	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V324	90	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-07	Visual	22:45	41.19028	-71.93866	300	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, long flipper like fins with white coloration, distinctive humplike dorsal fin.	Breaching / Jumping / Acrobatic behavior; Blowing; Swimming below surface.	1	0	1	1	1	120	Moderate	1200	N/A, source not deployed	400	Transit	None	No	0	None	N/A	N/A	42.0	On Watch
V325	91	*GO Explorer*	HRG	Perez, Aaron	2022-08-08	Visual	18:31	41.16737	-71.90748	282	Humpback whale - *Megaptera novaeangliae*	Definite	Large black body, irregular shaped dorsal fin, white coloration on underside of flukes and pectoral fins.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping.	1	0	1	1	1	270	Moderate	3000	N/A, source not deployed	1700	Transit	None	No	0	None	N/A	N/A	45.2	On Watch
V326	92	*GO Explorer*	HRG	John, Darnell	2022-08-08	Visual	23:27	41.24736	-71.85568	82	Humpback whale - *Megaptera novaeangliae*	Definite	Large black body, irregular shaped dorsal fin, white coloration on underside of flukes and pectoral fins.	Blowing; Diving.	1	0	1	1	1	180	Moderate	2000	N/A, source not deployed	1300	Transit	None	No	0	None	N/A	N/A	40.0	On Watch
V327	93	*GO Explorer*	HRG	John, Darnell	2022-08-08	Visual	23:33	41.23873	-71.83317	82	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, pronounced melon, short beak, gray coloration, sickle shaped dorsal fin.	Porpoising; Breaching / Jumping / Acrobatic behavior.	11	1	12	11	12	30	Vigorous	80	N/A, source not deployed	50	Transit	None	No	0	None	N/A	N/A	40.0	On Watch
V328	94	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-08	Visual	23:34	41.22945	-71.83830	82	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy, tall blow.	Blowing; Swimming below surface.	1	0	1	1	1	180	Moderate	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	40.0	On Watch
V329	95	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-09	Visual	23:45	41.28478	-71.51411	235	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Diving.	4	1	5	3	5	330	Moderate	55	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	37.0	On Watch
V330	96	*GO Explorer*	HRG	John, Darnell	2022-08-10	Visual	04:16	40.93596	-71.68989	192	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Feeding.	12	0	12	10	12	270	Sedate	30	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	46.7	On Watch
V331	97	*GO Explorer*	HRG	John, Darnell	2022-08-10	Visual	04:21	40.99174	-71.67436	95	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, distinctive humped dorsal fin, large pectoral fins with white undersides.	Blowing; Swimming at surface.	5	0	5	4	5	270	Sedate	50	N/A, source not deployed	50	Standby	None	No	0	None	N/A	N/A	44.5	On Watch
V332	98	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-10	Visual	07:15	40.96226	-71.69269	6	Unidentified baleen whale - Cetacea spp.	Definite	Tall blow and dark shape body.	Swimming below surface; Blowing.	1	0	1	1	1	0	Vigorous	90	80	90	Silent	None	No	0	Delay	N/A	N/A	53.0	On Watch
V333	99	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-10	Visual	07:32	41.02198	-71.71465	342	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Diving.	11	0	12	10	11	0	Vigorous	5	50	1	Silent	None	No	0	Delay	N/A	N/A	43.0	On Watch
V334	100	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-10	Visual	14:56	41.06667	-71.69487	145	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, distinctive humped dorsal fin, large pectoral fins with white undersides.	Blowing; Surfacing.	2	2	7	4	4	30	Moderate	3000	1700	1800	Full Power	Sparker Only	No	0	None	N/A	N/A	29.0	On Watch
V335	101	*GO Explorer*	HRG	Perez, Aaron	2022-08-10	Visual	16:04	41.01891	-71.69378	8	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, distinctive humped dorsal fin, large pectoral fins with white undersides.	Blowing; Surfacing; Breaching / Jumping / Acrobatic behavior.	2	0	2	1	2	270	Moderate	800	700	800	Full Power	Sparker Only	No	0	None	N/A	N/A	26.5	On Watch
V336	102	*GO Explorer*	HRG	Perez, Aaron	2022-08-10	Visual	18:48	40.99618	-71.63038	274	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming below surface.	5	0	6	5	5	165	Moderate	300	90	1	Full Power	Sparker Only	No	0	Delay	N/A	N/A	47.0	On Watch
V337	103	*GO Explorer*	HRG	Gutierrez, Daniela	2022-08-10	Visual	20:44	41.04148	-71.72956	139	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, distinctive humped dorsal fin, large pectoral fins with white undersides.	Blowing; Diving with flukes / Fluking.	2	1	3	3	3	180	Moderate	2500	2600	2500	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V338	104	*GO Explorer*	HRG	John, Darnell	2022-08-10	Visual	21:26	41.03422	-71.70883	167	Humpback whale - *Megaptera novaeangliae*	Definite	Large dark body, distinctive humped dorsal fin, large pectoral fins with white undersides.	Blowing; Diving; Diving with flukes / Fluking; Swimming at surface; Swimming below surface.	6	0	6	5	6	180	Moderate	2500	2200	120	Silent	None	No	0	None	N/A	N/A	38.0	On Watch
V339	105	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-14	Visual	20:02	40.74825	-71.13391	126	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fins, hourglass shape on sides.	Fast travel; Porpoising; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Diving.	10	0	12	8	10	130	Vigorous	200	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	56.0	On Watch
V340	106	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-14	Visual	21:26	40.64019	-70.92624	131	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fins, hourglass shape on sides.	Porpoising; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Diving.	10	0	10	8	10	180	Vigorous	218	N/A, source not deployed	218	Transit	None	No	0	None	N/A	N/A	60.9	On Watch
V341	107	*GO Explorer*	HRG	Perez, Aaron	2022-08-15	Visual	02:07	40.82637	-70.19653	84	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fins, hourglass shape on sides.	Porpoising.	5	0	5	3	5	180	Moderate	20	N/A, source not deployed	20	Standby	None	No	0	None	N/A	N/A	39.3	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V342	108	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-15	Visual	03:40	40.81989	-70.24298	235	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal fin, dark body.	Surfacing; Swimming below surface; Diving.	1	0	1	1	1	180	Moderate	30	90	20	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	39.9	On Watch
V343	109	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-15	Visual	21:17	40.82432	-70.20927	93	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fins, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface; Diving.	12	0	12	10	12	165	Moderate	40	100	1	Full Power	Sparker Only	Yes	8	Delay	N/A	N/A	42.0	On Watch
V344	110	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-16	Visual	02:05	40.81726	-70.21395	91	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Fast travel; Swimming at surface; Swimming below surface; Feeding; Diving.	14	1	22	10	15	120	Moderate	10	5	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	42.0	On Watch
V345	111	*GO Explorer*	HRG	Perez, Aaron	2022-08-16	Visual	04:20	40.81193	-70.20825	267	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate, tall dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface.	10	0	12	10	10	160	Moderate	30	90	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	41.0	On Watch
V346	112	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-18	Visual	15:49	41.04554	-70.26697	155	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate, tall dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	4	2	11	6	6	0	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	31.8	On Watch
V347	113	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-18	Visual	20:42	41.11149	-70.31761	122	Common dolphin - *Delphinus delphis*	Definite	Medium sized body, with dorsal fin triangular and falcate with a white center, broad dark cape extends to rear side and yellowish side patterns.	Swimming below surface; Bow riding; Diving.	11	1	17	11	12	310	Moderate	15	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	39.0	On Watch
V348	114	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-18	Visual	22:36	41.08446	-70.30451	46	Common dolphin - *Delphinus delphis*	Definite	Medium sized, broad dark cape extends to rear side. Medium sized body, with dorsal fin triangular and falcate with a white center, broad dark cape extends to rear side and yellowish side patterns.	Swimming at surface; Swimming below surface; Porpoising; Diving.	2	0	3	2	2	45	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	35.2	On Watch
V349	115	*GO Explorer*	HRG	Perez, Aaron	2022-08-19	Visual	04:57	40.96849	-70.20419	127	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface.	7	0	8	5	7	0	Moderate	5	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	27.0	On Watch
V350	116	*GO Explorer*	HRG	Perez, Aaron	2022-08-19	Visual	07:00	40.99341	-70.25918	177	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Feeding; Diving.	25	2	33	22	27	0	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	34.2	On Watch
V351	117	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-19	Visual	12:03	40.78498	-70.29033	50	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad gray body, falcate dorsal fin, stubby beak.	Porpoising.	9	1	13	10	10	120	Moderate	250	90	10	Silent	None	No	0	Delay	N/A	N/A	44.0	On Watch
V352	118	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-19	Visual	16:36	40.81147	-70.23602	303	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Breaching / Jumping / Acrobatic behavior; Fast travel; Bow riding; Swimming below surface; Diving.	16	2	22	17	18	100	Vigorous	250	85	1	Full Power	Sparker Only	Yes	18	None	N/A	N/A	39.0	On Watch
V353	119	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-19	Visual	21:17	40.81815	-70.18955	87	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Swimming at surface; Swimming below surface; Diving.	5	0	5	4	5	255	Moderate	218	318	218	Full Power	Sparker Only	No	0	None	N/A	N/A	41.7	On Watch
V354	120	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-20	Visual	02:16	40.80908	-70.20095	269	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Feeding; Swimming below surface; Diving.	10	0	12	8	10	120	Moderate	20	60	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	43.0	On Watch
V355	121	*GO Explorer*	HRG	Perez, Aaron	2022-08-20	Visual	07:09	40.81492	-70.20068	88	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Diving.	5	0	7	3	5	135	Moderate	20	30	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	43.7	On Watch
V356	122	*GO Explorer*	HRG	Perez, Aaron	2022-08-20	Visual	07:47	40.80905	-70.19587	270	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming below surface; Diving.	7	0	9	5	7	120	Moderate	50	100	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	43.7	On Watch
V357	123	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-20	Visual	16:27	40.80571	-70.23541	244	Gray Seal - *Halichoerus grypus*	Definite	Gray color, no ears, long muzzle, sloping roman nose.	Resting at surface / Logging; Diving.	1	0	1	1	1	120	Moderate	80	60	80	Full Power	Sparker Only	Yes	1	None	N/A	N/A	42.0	On Watch
V358	124	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-20	Visual	17:17	40.80632	-70.18849	84	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Diving.	4	2	6	4	6	195	Moderate	218	15	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	43.0	On Watch
V359	125	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-20	Visual	20:46	40.80290	-70.18669	262	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Breaching / Jumping / Acrobatic behavior; Porpoising; Diving.	20	0	15	12	20	90	Vigorous	409	60	80	Full Power	Sparker Only	Yes	8	None	N/A	N/A	40.0	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V360	126	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-20	Visual	21:42	40.80572	-70.23379	273	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Bow riding; Swimming below surface; Feeding; Diving.	11	2	13	7	13	270	Moderate	420	1	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	44.0	On Watch
V361	127	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-20	Visual	22:50	40.79738	-70.21733	272	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Diving.	2	0	2	2	2	225	Vigorous	287	5	10	Full Power	Sparker Only	Yes	2	None	N/A	N/A	41.0	On Watch
V362	128	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-20	Visual	23:28	40.80215	-70.22737	89	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Diving.	12	0	12	10	12	180	Moderate	420	20	10	Full Power	Sparker Only	Yes	3	None	N/A	N/A	43.0	On Watch
V363	129	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-21	Visual	00:38	40.79943	-70.18538	268	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	5	0	5	5	5	300	Moderate	20	90	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	40.0	On Watch
V364	130	*GO Explorer*	HRG	Perez, Aaron	2022-08-21	Visual	04:15	40.80400	-70.21832	132	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Diving.	4	0	4	3	4	90	Moderate	50	50	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	42.0	On Watch
V365	131	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-21	Visual	05:10	40.80429	-70.18215	87	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Feeding; Breaching / Jumping / Acrobatic behavior.	4	0	4	3	4	270	Moderate	20	60	1	Silent	None	No	0	Delay	N/A	N/A	41.0	On Watch
V366	132	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-21	Visual	09:12	40.80518	-70.16085	158	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Porpoising; Surfacing; Swimming below surface; Swimming at surface; Diving.	5	0	5	4	5	180	Moderate	200	50	2	Soft Start	Sparker Only	Yes	5	None	N/A	N/A	40.2	On Watch
V367	133	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-21	Visual	09:38	40.79926	-70.18650	256	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Porpoising.	4	0	4	4	4	180	Sedate	80	90	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	40.2	On Watch
V368	134	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-21	Visual	15:22	40.80051	-70.23065	96	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Porpoising; Breaching / Jumping / Acrobatic behavior; Bow riding; Feeding; Swimming below surface; Fast travel.	36	0	40	30	38	90	Moderate	280	10	1	Full Power	Sparker Only	Yes	38	None	N/A	N/A	43.0	On Watch
V369	135	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-21	Visual	15:30	40.80059	-70.21726	92	Humpback whale - *Megaptera novaeangliae*	Definite	Pronounced dorsal hump and fin shape, dark large body.	Surfacing; Diving with flukes / Fluking.	1	0	1	1	1	90	Moderate	409	509	409	Full Power	Sparker Only	No	0	None	N/A	N/A	43.0	On Watch
V370	136	*GO Explorer*	HRG	Mohandeo, Ravie	8/21/2022	Visual	23:11	40.80212	-70.20527	79	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on body.	Porpoising; Swimming below surface; Diving.	6	0	6	5	6	270	Vigorous	20	75	1	Standby	None	No	0	None	N/A	N/A	42.0	On Watch
V371	137	*GO Explorer*	HRG	Perez, Aaron	2022-08-22	Visual	04:06	40.79991	-70.24060	272	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on body.	Porpoising; Swimming at surface; Swimming below surface; Diving.	7	0	7	6	7	90	Moderate	50	20	20	Silent	None	No	0	None	N/A	N/A	43.5	On Watch
V372	138	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-22	Visual	05:50	40.80252	-70.22014	261	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Swimming at surface; Swimming below surface; Feeding; Porpoising; Diving.	25	0	28	20	25	0	Moderate	10	60	1	Silent	None	No	0	Delay	N/A	N/A	44.2	On Watch
V373	139	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-22	Visual	10:05	40.79754	-70.18311	262	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming at surface; Swimming below surface.	7	0	7	7	7	275	Moderate	50	60	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	44.2	On Watch
V374	140	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-22	Visual	14:45	40.79644	-70.19885	88	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Bow riding; Swimming at surface; Swimming below surface.	7	0	7	6	7	90	Vigorous	80	5	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	44.0	On Watch
V375	141	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-22	Visual	21:35	40.79456	-70.22246	92	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming below surface; Diving.	6	0	6	4	6	0	Moderate	287	350	287	Full Power	Sparker Only	No	0	None	N/A	N/A	44.0	On Watch
V376	142	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-22	Visual	22:15	40.79183	-70.20494	268	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	6	0	6	5	6	0	Vigorous	20	5	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	42.0	On Watch
V377	143	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-22	Visual	23:22	40.79537	-70.23382	87	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	4	0	4	3	4	180	Vigorous	50	75	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	44.0	On Watch

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V378	144	*GO Explorer*	HRG	Perez, Aaron	2022-08-23	Visual	01:13	40.79457	-70.20734	87	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Swimming at surface; Swimming below surface; Diving.	6	0	8	3	6	90	Moderate	20	90	1	Silent	None	No	0	Delay	N/A	N/A	44.0	On Watch
V379	145	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-23	Visual	03:06	40.79025	-70.25964	276	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface; Diving.	5	0	5	4	5	0	Vigorous	5	80	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	44.0	On Watch
V380	146	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-23	Visual	04:33	40.78885	-70.21029	268	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Swimming below surface; Porpoising; Swimming at surface.	8	0	10	7	8	240	Moderate	5	50	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	44.6	On Watch
V381	147	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-23	Visual	11:47	40.79081	-70.18018	268	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface.	5	0	5	5	5	90	Moderate	250	50	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	44.0	On Watch
V382	148	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-23	Visual	15:09	40.79664	-70.21530	86	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Surfacing; Swimming at surface; Fast travel.	4	0	4	4	4	180	Moderate	332	50	40	Full Power	Sparker Only	Yes	4	None	N/A	N/A	42.1	On Watch
V383	149	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-23	Visual	17:00	40.78962	-70.21701	86	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Bow riding; Diving.	6	0	6	5	6	195	Moderate	341	20	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	42.1	On Watch
V384	150	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-24	Visual	02:20	40.79599	-70.21163	337	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Breaching / Jumping / Acrobatic behavior; Feeding; Swimming below surface; Diving.	5	0	8	6	5	180	Vigorous	5	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	44.0	On Watch
V385	151	*GO Explorer*	HRG	Perez, Aaron	2022-08-24	Visual	04:24	40.87067	-70.21666	340	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on body.	Fast travel; Swimming below surface; Diving.	5	0	6	5	5	225	Vigorous	20	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	43.0	On Watch
V386	152	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-24	Visual	05:35	40.85419	-70.27360	167	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on body.	Fast travel; Feeding; Porpoising; Swimming at surface; Swimming below surface; Diving.	50	10	85	45	60	0	Moderate	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	43.0	On Watch
V388	153	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-24	Visual	22:05	40.79346	-70.21496	92	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on body.	Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface; Diving.	6	2	8	6	8	180	Vigorous	248	15	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	43.0	On Watch
V389	154	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-25	Visual	00:57	40.79190	-70.22244	90	Common dolphin - *Delphinus delphis*	Definite	Medium size body, falcate dorsal fin, hourglass shape on body.	Porpoising; Swimming below surface; Swimming at surface; Feeding; Bow riding; Diving.	22	0	23	20	22	280	Vigorous	20	50	1	Full Power	Sparker Only	Yes	22	None	N/A	N/A	42.0	On Watch
V390	155	*GO Explorer*	HRG	Perez, Aaron	2022-08-25	Visual	02:05	40.78559	-70.20594	193	Common dolphin - *Delphinus delphis*	Definite	Medium to large size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface.	4	0	5	2	4	0	Vigorous	10	60	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	42.0	On Watch
V391	156	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-25	Visual	03:44	40.79253	-70.18845	88	Common dolphin - *Delphinus delphis*	Definite	Medium to large size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface; Feeding; Diving.	1	0	2	1	1	0	Vigorous	5	50	1	Full Power	Sparker Only	Yes	1	None	N/A	N/A	42.0	On Watch
V392	157	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-25	Visual	06:30	40.78397	-70.26739	270	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Surfacing; Swimming below surface; Swimming at surface; Feeding; Bow riding; Diving.	22	3	25	23	25	0	Vigorous	10	30	1	Full Power	Sparker Only	Yes	25	None	N/A	N/A	46.3	On Watch
V393	158	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-25	Visual	11:16	40.78404	-70.27707	94	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming at surface.	7	0	7	7	7	180	Sedate	200	90	90	Full Power	Sparker Only	Yes	7	None	N/A	N/A	45.0	On Watch
V394	159	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-25	Visual	12:26	40.77902	-70.18038	99	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Surfacing; Swimming at surface; Swimming below surface; Bow riding; Diving.	1	1	22	11	12	180	Vigorous	100	30	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	45.0	On Watch
V395	160	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-25	Visual	14:25	40.77292	-70.18697	99	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Surfacing; Swimming at surface; Bow riding; Swimming below surface; Diving.	11	0	11	10	11	150	Vigorous	800	10	1	Full Power	Sparker Only	Yes	11	None	N/A	N/A	43.0	On Watch
V396	161	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-25	Visual	15:06	40.77510	-70.24194	269	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Surfacing; Swimming at surface; Bow riding; Swimming below surface.	10	1	11	10	11	210	Vigorous	300	50	1	Full Power	Sparker Only	Yes	11	None	N/A	N/A	44.1	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V397	162	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-25	Visual	16:17	40.78898	-70.18980	89	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming at surface; Fast travel.	10	0	10	6	10	150	Moderate	100	90	100	Full Power	Sparker Only	Yes	10	None	N/A	N/A	42.0	On Watch
V398	163	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-25	Visual	17:00	40.77910	-70.23049	273	Common dolphin - *Delphinus delphis*	Definite	Tall falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming below surface; Swimming at surface; Bow riding; Breaching / Jumping / Acrobatic behavior; Diving.	21	4	30	25	25	180	Moderate	341	5	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	42.0	On Watch
V399	164	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-25	Visual	18:39	40.78053	-70.21479	92	Common dolphin - *Delphinus delphis*	Definite	Medium to large body size, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface; Diving.	7	0	7	5	7	120	Vigorous	546	237	287	Full Power	Sparker Only	No	0	None	N/A	N/A	44.0	On Watch
V400	165	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-25	Visual	19:47	40.78773	-70.19215	270	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Fast travel.	16	0	20	16	16	90	Vigorous	700	200	100	Full Power	Sparker Only	No	0	None	N/A	N/A	44.0	On Watch
V401	166	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-25	Visual	23:16	40.78799	-70.19785	89	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Diving.	4	0	4	3	4	165	Moderate	546	540	440	Full Power	Sparker Only	No	0	None	N/A	N/A	43.0	On Watch
V402	167	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-26	Visual	02:46	40.78271	-70.20363	86	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Swimming at surface; Bow riding; Diving.	6	0	6	4	6	200	Moderate	10	90	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	45.0	On Watch
V403	168	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-26	Visual	04:04	40.77702	-70.20851	274	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming at surface.	5	0	5	5	5	240	Sedate	10	90	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	41.0	On Watch
V404	169	*GO Explorer*	HRG	Perez, Aaron	2022-08-26	Visual	08:50	40.77592	-70.22166	280	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Fast travel; Swimming at surface; Swimming below surface; Porpoising; Bow riding; Diving.	6	0	7	5	6	300	Vigorous	50	80	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	42.0	On Watch
V405	170	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-26	Visual	10:25	40.77987	-70.21562	102	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Fast travel; Breaching / Jumping / Acrobatic behavior.	4	0	4	4	4	180	Vigorous	300	250	250	Full Power	Sparker Only	No	0	None	N/A	N/A	42.6	On Watch
V406	171	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-26	Visual	12:19	40.78062	-70.17711	167	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming below surface; Diving.	5	0	6	4	5	160	Moderate	80	60	5	Silent	None	No	0	None	N/A	N/A	43.0	On Watch
V407	172	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-26	Visual	13:36	40.77339	-70.26864	268	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Swimming at surface; Diving.	11	0	11	10	11	180	Vigorous	800	700	700	Full Power	Sparker Only	No	0	None	N/A	N/A	43.0	On Watch
V408	173	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-26	Visual	14:17	40.77238	-70.21099	90	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming below surface; Swimming at surface; Diving.	20	1	21	20	20	0	Vigorous	600	700	600	Full Power	Sparker Only	No	0	None	N/A	N/A	44.2	On Watch
V409	174	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-26	Visual	23:14	40.78079	-70.19597	82	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, hourglass pattern on side.	Porpoising; Swimming below surface; Diving.	3	0	3	2	3	120	Vigorous	5	75	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	43.0	On Watch
V410	175	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-27	Visual	00:02	40.77729	-70.28001	9	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Diving.	5	0	8	4	8	250	Moderate	20	90	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	43.0	On Watch
V411	176	*GO Explorer*	HRG	Perez, Aaron	2022-08-27	Visual	01:26	40.78468	-70.23460	273	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Feeding; Diving.	15	0	15	9	15	180	Moderate	10	10	3	Full Power	Sparker Only	Yes	15	None	N/A	N/A	43.0	On Watch
V412	177	*GO Explorer*	HRG	Perez, Aaron	2022-08-27	Visual	03:15	40.79174	-70.26246	88	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Feeding; Diving.	14	1	21	11	15	0	Moderate	25	40	1	Silent	None	No	0	None	N/A	N/A	43.0	On Watch
V413	178	*GO Explorer*	HRG	Perez, Aaron	2022-08-28	Visual	01:12	40.76756	-70.24952	265	Common dolphin - *Delphinus delphis*	Definite	Medium size, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Diving.	4	0	6	3	4	240	Moderate	20	80	3	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43.0	On Watch
V414	179	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-28	Visual	06:35	40.76740	-70.22382	271	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the side.	Porpoising; Swimming at surface.	10	0	12	8	10	0	Moderate	20	60	10	Full Power	Sparker Only	Yes	10	None	N/A	N/A	41.0	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V415	180	*GO Explorer*	HRG	Perez, Aaron	2022-08-28	Visual	08:43	40.77357	-70.20145	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the side.	Porpoising; Diving.	3	0	4	2	3	180	Moderate	15	100	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	44.3	On Watch
V416	181	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-28	Visual	14:17	40.76414	-70.20296	102	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy tall blow, dark color body.	Blowing; Swimming below surface.	1	0	1	1	1	180	Sedate	600	550	600	Full Power	Sparker Only	No	0	None	N/A	N/A	44.0	On Watch
V417	182	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-28	Visual	14:53	40.76755	-70.24592	260	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Fast travel; Breaching / Jumping / Acrobatic behavior; Swimming at surface; Diving.	30	0	30	29	30	180	Vigorous	1000	20	10	Full Power	Sparker Only	Yes	3	None	N/A	N/A	44.0	On Watch
V418	183	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-28	Visual	18:34	40.77127	-70.23055	92	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass pattern on sides.	Porpoising; Swimming below surface; Diving.	4	0	4	3	4	0	Vigorous	20	50	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	46.0	On Watch
V419	184	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-28	Visual	21:21	40.77790	-70.20106	89	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, grey body, small dorsal fin, white underside of fluke.	Blowing; Surfacing; Diving with flukes / Fluking.	2	0	2	1	2	0	Moderate	781	881	781	Full Power	Sparker Only	No	0	None	N/A	N/A	42.0	On Watch
V420	185	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-28	Visual	21:45	40.76952	-70.18971	271	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Diving.	6	0	6	4	6	135	Vigorous	546	574	474	Silent	None	No	0	None	N/A	N/A	43.0	On Watch
V421	186	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-28	Visual	23:00	40.77578	-70.29131	87	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Diving.	4	0	4	3	4	0	Vigorous	781	743	643	Full Power	Sparker Only	No	0	None	N/A	N/A	46.0	On Watch
V422	187	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-29	Visual	02:40	40.76553	-70.20784	220	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Fast travel; Swimming below surface; Swimming at surface; Diving.	22	0	24	18	22	30	Vigorous	10	80	1	Full Power	Sparker Only	Yes	22	None	N/A	N/A	43.0	On Watch
V423	188	*GO Explorer*	HRG	Perez, Aaron	2022-08-29	Visual	03:13	40.76538	-70.22507	267	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming below surface; Diving.	4	0	6	4	4	225	Moderate	30	95	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43.0	On Watch
V424	189	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-29	Visual	04:45	40.76374	-70.29104	267	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Feeding; Fast travel; Bow riding.	30	0	35	20	30	0	Moderate	10	60	1	Full Power	Sparker Only	Yes	30	None	N/A	N/A	44.5	On Watch
V425	190	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-29	Visual	09:30	40.77566	-70.19074	88	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Milling; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Bow riding.	23	2	26	20	25	165	Moderate	80	60	1	Full Power	Sparker Only	Yes	18	None	N/A	N/A	44.0	On Watch
V426	191	*GO Explorer*	HRG	Lai Tan, Lyndon	2022-08-29	Visual	11:33	40.76406	-70.28309	92	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Milling.	10	0	12	8	10	30	Moderate	500	186	286	Full Power	Sparker Only	No	0	None	N/A	N/A	44.0	On Watch
V427	192	*GO Explorer*	HRG	Jaimes, Fernando	2022-08-29	Visual	13:24	40.76983	-70.23622	270	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Fast travel; Diving.	22	0	22	21	22	180	Vigorous	700	500	500	Full Power	Sparker Only	No	0	None	N/A	N/A	43.8	On Watch
V428	193	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-29	Visual	18:07	40.76252	-70.22054	275	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Swimming below surface; Diving.	15	5	25	13	20	210	Vigorous	781	5	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	43.0	On Watch
V429	194	*GO Explorer*	HRG	Mohandeo, Ravie	2022-08-29	Visual	22:54	40.98293	-70.35704	295	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Fast travel; Breaching / Jumping / Acrobatic behavior; Swimming below surface; Diving.	20	0	20	15	20	180	Vigorous	781	N/A, source not deployed	546	Transit	None	No	0	None	N/A	N/A	33.5	On Watch
V430	195	*GO Explorer*	HRG	Osuna, Yosiris	2022-08-30	Visual	02:28	41.28946	-70.95659	321	Common dolphin - *Delphinus delphis*	Definite	Medium size body, tall, falcate dorsal fin, hourglass shape on sides.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Diving.	4	0	5	3	4	180	Moderate	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	42.0	On Watch
V431	196	*GO Explorer*	HRG	Azevedo, Camila	2022-09-02	Visual	07:36	40.99558	-70.53431	130	Common dolphin - *Delphinus delphis*	Definite	Slender, medium-sized body with a well-defined beak and a distinctive hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Swimming at surface; Fast travel; Swimming below surface; Diving.	2	0	2	2	2	0	Vigorous	10	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	46	On Watch
V433	197	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-02	Visual	14:21	40.77154	-70.18396	88	Common dolphin - *Delphinus delphis*	Definite	Slender, medium-sized body with a well-defined beak and a distinctive hourglass pattern on the sides.	Swimming below surface; Bow riding; Porpoising; Breaching / Jumping / Acrobatic behavior.	40	3	55	40	43	160	Moderate	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	42.7	On Watch

Vessel Sighting ID #	**General ID #**	**Vessel Name**	**Vessel Type** (HRG, Geotechnical, UXO, Environmental)	**Observer's Name** (Last, First)	**Date** (YYYY-MM-DD)	**Sighting Type** (Acoustic, Visual, Both)	**First Time of Sighting** (UTC; HH:MM)	**Sighting Location** (Decimal Degrees) **Latitude**	**Sighting Location** (Decimal Degrees) **Longitude**	**Vessel Heading** (Degrees)	**Species or Species Group** (Common - (Scientific))	**Species ID Certainty** (Possible, Probable, Definite)	**Animal Description** (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	**Animal Behavior** (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	**Group Composition** **# Adults** (Visual sightings only)	**Group Composition** **# Juveniles** (Visual sightings only)	**Estimated Total Number of Animals** **High**	**Estimated Total Number of Animals** **Low**	**Estimated Total Number of Animals** **Best** (Total # observed)	**Animal's Initial Direction of Travel** (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	**Animal Pace** (Stationary, Sedate, Moderate, Vigorous)	**Distance at Initial Sighting** (m)	**Closest Point of Approach to Source** (Reticle distance in m)	**Closest Point of Approach to Vessel** (Reticle distance in m)	**Vessel Activity at First Sighting** (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	**Equipment Operating During Sighting** (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	**Animal Within 141m of Active Survey Equipment (Yes/No)**	**Number of Animals Within 141m of Active Survey Equipment (Number)**	**Source Mitigation Action** (Delay, Shutdown, None)	**Time Shutdown Called For** (UTC; HH:MM)	**Time Equipment was Shutdown** (UTC; HH:MM)	**Water Depth (m)**	**Watch Status:** (On Watch, Off Watch=Incidental Sighting)
V434	198	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-03	Visual	00:01	40.77009	-70.24262	93	Common dolphin - *Delphinus delphis*	Definite	Slender, medium-sized body with a well-defined beak and a distinctive hourglass pattern on the sides.	Porpoising.	2	0	2	2	2	180	Vigorous	10	80	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	43	On Watch
V435	199	*GO Explorer*	HRG	Diaz, Paola	2022-09-03	Visual	03:13	40.94257	-70.40425	304	Common dolphin - *Delphinus delphis*	Definite	Sleek body with a long and slender beak. Pointy flippers. Dark cape with a V-shape under the dorsal fin, white undersides with yellow and white tail stock. Dark flukes on both sides, dorsal fin curved.	Swimming at surface; Milling.	3	0	4	3	3	2	Vigorous	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	41.1	On Watch
V437	200	*GO Explorer*	HRG	Diaz, Paola	9/16/2022	Visual	06:37	40.98834	-71.47096	103	Common dolphin - *Delphinus delphis*	Definite	Medium size body approximately two meters long. Back dark, white belly, hourglass pattern on each side colored light gray and yellow.	Fast travel; Milling.	2	0	2	2	2	90	Moderate	5	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	38.4	On Watch
V438	201	*GO Explorer*	HRG	Azevedo, Camila	2022-09-16	Visual	10:13	40.85521	-70.73721	100	Unidentified dolphin - Delphinidae spp.	Definite	Robust body of approximately 2.5 meters. Spotted light-colored body, spotted shoulder blaze, and belly, with a white-tipped beak.	Fast travel; Milling; Bow riding; Breaching / Jumping / Acrobatic behavior; Porpoising; Diving.	8	0	8	8	8	270	Vigorous	800	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	29	On Watch
V439	202	*GO Explorer*	HRG	Azevedo, Camila	2022-09-16	Visual	12:21	40.77531	-70.38328	95	Unidentified dolphin - Delphinidae spp.	Definite	Dark-grey, robust body with a falcate dorsal fin.	Fast travel; Milling; Feeding; Diving; Swimming at surface.	3	0	3	3	3	180	Vigorous	1500	N/A, source not deployed	1000	Transit	None	No	0	None	N/A	N/A	48.7	On Watch
V440	203	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-17	Visual	00:09	40.76092	-70.18042	88	Common dolphin - *Delphinus delphis*	Definite	Slender body, with white sides. Long and narrow beak.	Porpoising; Blowing; Swimming at surface.	4	0	6	4	4	360	Moderate	10	90	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43.2	On Watch
V441	204	*GO Explorer*	HRG	Azevedo, Camila	2022-09-17	Visual	02:14	40.75762	-70.22793	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout. Cape forms V-shape saddle with a light-colored forward patch.	Swimming at surface; Bow riding; Diving; Breaching / Jumping / Acrobatic behavior; Fast travel; Milling.	25	5	65	30	30	360	Vigorous	20	100	5	Full Power	Sparker Only	Yes	30	None	N/A	N/A	43	On Watch
V442	205	*GO Explorer*	HRG	Azevedo, Camila	2022-09-17	Visual	06:06	40.76286	-70.18798	170	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout. Cape forms V-shape saddle with a light-colored forward patch.	Fast travel; Breaching / Jumping / Acrobatic behavior; Diving; Surfacing; Milling; Mating.	30	5	45	35	35	360	Vigorous	10	50	5	Full Power	Sparker Only	Yes	35	None	N/A	N/A	44	On Watch
V443	206	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-17	Visual	22:22	40.75497	-70.22724	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with white sides and a long beak.	Fast travel; Breaching / Jumping / Acrobatic behavior.	20	2	27	12	22	90	Vigorous	751	3	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	47	On Watch
V444	207	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-18	Visual	00:17	40.76058	-70.22321	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with white sides and a long beak.	Swimming at surface; Swimming below surface.	6	0	6	6	6	360	Vigorous	5	50	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	47	On Watch
V445	208	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-18	Visual	00:55	40.75428	-70.23521	270	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Swimming at surface; Surfacing; Porpoising.	6	1	7	7	7	180	Sedate	30	70	2	Full Power	Sparker Only	Yes	7	None	N/A	N/A	42	On Watch
V446	209	*GO Explorer*	HRG	Azevedo, Camila	2022-09-18	Visual	02:16	40.76054	-70.18893	100	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Swimming below surface; Swimming at surface; Breaching / Jumping / Acrobatic behavior.	30	5	35	35	35	360	Vigorous	6	50	3	Full Power	Sparker Only	Yes	35	None	N/A	N/A	44.1	On Watch
V447	210	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-18	Visual	17:46	40.75362	-70.18670	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and a distinctive hourglass pattern on the sides.	Swimming at surface.	5	0	5	5	5	270	Vigorous	5	100	5	Full Power	Sparker Only	Yes	5	None	N/A	N/A	42.6	On Watch
V448	211	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-19	Visual	16:37	40.73487	-70.22937	92	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and a distinctive hourglass pattern on the sides.	Fast travel; Swimming at surface; Breaching / Jumping / Acrobatic behavior.	100	0	120	80	100	90	Vigorous	1328	625	525	Full Power	Sparker Only	No	0	None	N/A	N/A	49	On Watch
V449	212	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-20	Visual	00:17	40.75239	-70.27557	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout, a thoracic patch, and a hourglass shape on the sides.	Swimming at surface; Breaching / Jumping / Acrobatic behavior.	24	3	33	21	27	360	Vigorous	10	20	3	Full Power	Sparker Only	Yes	27	None	N/A	N/A	44.2	On Watch
V450	213	*GO Explorer*	HRG	Bravo, Esmeralda	2022-09-20	Visual	02:13	40.75308	-70.19351	264	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout, a thoracic patch, and with hourglass shape on the sides. Facial stripe and black patch on eyes.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Milling; Feeding.	50	10	70	60	60	360	Vigorous	10	50	2	Full Power	Sparker Only	Yes	60	None	N/A	N/A	42	On Watch
V451	214	*GO Explorer*	HRG	Azevedo, Camila	2022-09-20	Visual	05:57	40.75396	-70.07082	100	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout, a thoracic patch, and with hourglass shape on the sides. Facial stripe and black patch on eyes.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Feeding; Milling; Porpoising.	20	5	35	30	25	360	Vigorous	2	30	1	Full Power	Sparker Only	Yes	25	None	N/A	N/A	39	On Watch
V452	215	*GO Explorer*	HRG	Diaz, Paola	2022-09-20	Visual	13:47	40.75229	-70.14692	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with a short snout, a thoracic patch, and with hourglass shape on the sides. Facial stripe and black patch on eyes.	Swimming below surface.	1	1	2	2	2	360	Moderate	5	50	3	Full Power	Sparker Only	Yes	2	None	N/A	N/A	44	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V453	216	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-21	Visual	00:06	40.74614	-70.32041	77	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Porpoising; Swimming at surface.	20	2	28	22	22	190	Vigorous	20	40	1	Full Power	Sparker Only	Yes	22	None	N/A	N/A	44.2	On Watch
V454	217	*GO Explorer*	HRG	Runyan, Leanna	2022-09-21	Visual	02:04	40.74507	-70.28922	264	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Swimming at surface; Breaching / Jumping / Acrobatic behavior.	25	5	30	23	30	360	Vigorous	10	50	3	Full Power	Sparker Only	Yes	30	None	N/A	N/A	45	On Watch
V455	218	*GO Explorer*	HRG	Diaz, Paola	2022-09-21	Visual	08:39	40.75096	-70.23560	70	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Breaching / Jumping / Acrobatic behavior; Swimming below surface.	5	1	6	6	6	60	Vigorous	80	70	10	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48.1	On Watch
V456	219	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-21	Visual	19:17	40.75064	-70.09620	320	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Surfacing.	10	1	11	9	11	90	Sedate	990	N/A, source not deployed	830	Transit	None	No	0	None	N/A	N/A	37	On Watch
V457	220	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-21	Visual	20:14	40.86680	-70.21267	300	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black patch on eyes.	Surfacing; Porpoising; Breaching / Jumping / Acrobatic behavior.	80	0	100	80	80	120	Moderate	1400	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	33	On Watch
V458	221	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-27	Visual	21:03	40.91484	-70.63332	140	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, falcate dorsal fin, black cape, and hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Bow riding; Porpoising.	8	0	10	6	8	180	Moderate	100	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	48.1	On Watch
V459	222	*GO Explorer*	HRG	Weller, Robert	2022-09-27	Visual	23:32	40.83441	-70.33945	105	Common dolphin - *Delphinus delphis*	Definite	Slender dolphin, well-defined beak, falcate dorsal fin, black cape, hourglass pattern on the sides.	Swimming below surface.	1	0	1	1	1	360	Vigorous	10	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	51.3	On Watch
V460	223	*GO Explorer*	HRG	Runyan, Leanna	2022-09-28	Visual	00:44	40.74214	-70.33345	235	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Fast travel; Bow riding.	12	2	14	12	14	360	Vigorous	5	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	46	On Watch
V461	224	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-28	Visual	11:06	40.73901	-70.35918	45	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface.	2	0	3	2	2	20	Moderate	200	N/A, source not deployed	100	Standby	None	No	0	None	N/A	N/A	48	On Watch
V462	225	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-28	Visual	23:07	40.75063	-70.28971	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface.	4	0	5	3	4	230	Moderate	50	N/A, source not deployed	3	Standby	None	No	0	None	N/A	N/A	43	On Watch
V463	226	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-29	Visual	00:33	40.74877	-70.03924	233	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface; Bow riding; Porpoising.	85	15	100	85	100	360	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	39	On Watch
V464	227	*GO Explorer*	HRG	Dorado, Sam	2022-09-29	Visual	10:52	40.71245	-70.13284	290	Unidentified whale - Cetacea spp.	Definite	Bushy blow.	Blowing.	1	0	1	1	1	u	Sedate	1351	N/A, source not deployed	1351	Standby	None	No	0	None	N/A	N/A	42.2	On Watch
V465	228	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-30	Visual	00:48	40.80870	-70.28316	230	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Feeding; Swimming at surface.	35	5	40	28	40	270	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	45	On Watch
V466	229	*GO Explorer*	HRG	Dorado, Sam	2022-09-30	Visual	10:39	40.76674	-70.29890	60	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Fast travel; Swimming at surface.	12	3	20	12	15	150	Vigorous	50	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	46	On Watch
V467	230	*GO Explorer*	HRG	Dorado, Sam	2022-09-30	Visual	11:21	40.78112	-70.27331	60	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Fast travel; Swimming at surface.	35	5	50	33	40	90	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	45	On Watch
V468	231	*GO Explorer*	HRG	Dorado, Sam	2022-09-30	Visual	12:30	40.79446	-70.24896	70	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Fast travel; Swimming at surface.	4	1	7	4	5	60	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	44	On Watch
V469	232	*GO Explorer*	HRG	Ruiz, Arturo	2022-09-30	Visual	23:13	40.74901	-70.07906	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Fast travel; Feeding; Porpoising.	6	1	7	7	7	360	Vigorous	20	70	2	Full Power	Sparker Only	Yes	7	None	N/A	N/A	39	On Watch
V470	233	*GO Explorer*	HRG	Runyan, Leanna	2022-10-01	Visual	01:02	41.10867	-70.68680	290	Common dolphin - *Delphinus delphis*	Definite	Streamlined body with a slender beak, and an hourglass pattern on the side.	Swimming at surface; Breaching / Jumping / Acrobatic Behavior.	30	2	37	17	32	260	Vigorous	20	40	5	Full Power	Sparker Only	Yes	32	None	N/A	N/A	44	On Watch

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V471	234	*GO Explorer*	HRG	Weller, Robert	2022-10-06	Visual	07:33	41.04791	-70.60761	125	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Flippers broad and slightly pointed. Hourglass marking on the side.	Swimming at surface; Blowing; Porpoising.	10	1	11	11	11	360	Vigorous	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	40	On Watch
V472	235	*GO Explorer*	HRG	Ruiz, Arturo	2022-10-06	Visual	23:19	40.75044	-70.23248	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Flippers broad and slightly pointed. Hourglass marking on the side.	Swimming at surface; Porpoising.	2	0	2	2	2	340	Moderate	2	90	2	Full Power	Sparker Only	Yes	2	None	N/A	N/A	45.8	On Watch
V473	236	*GO Explorer*	HRG	Dorado, Sam	2022-10-07	Visual	04:48	40.74436	-70.29333	271	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Surfacing; Swimming at surface; Porpoising.	8	2	13	10	10	270	Moderate	10	90	10	Full Power	Sparker Only	Yes	10	None	N/A	N/A	42.8	On Watch
V474	237	*GO Explorer*	HRG	Runyan, Leanna	2022-10-07	Visual	06:14	40.75038	-70.19564	102	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Fast travel; Feeding.	8	0	8	6	8	10	Vigorous	20	70	15	Full Power	Sparker Only	Yes	8	None	N/A	N/A	45	On Watch
V475	238	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-07	Visual	19:06	40.74740	-70.08978	83	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Breaching / Jumping / Acrobatic behavior; Fast travel; Bow riding.	40	0	40	30	40	120	Vigorous	524	50	1	Full Power	Sparker Only	Yes	40	None	N/A	N/A	41.5	On Watch
V476	239	*GO Explorer*	HRG	Ruiz, Arturo	2022-10-07	Visual	21:14	40.74888	-70.16442	270	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Bow riding.	7	0	12	7	7	50	Moderate	200	70	2	Full Power	Sparker Only	Yes	2	None	N/A	N/A	42	On Watch
V477	240	*GO Explorer*	HRG	Weller, Robert	2022-10-08	Visual	06:10	40.74938	-70.22931	92	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak with flippers broad and slightly pointed.	Swimming below surface; Feeding; Swimming at surface.	3	0	3	3	3	360	Moderate	5	30	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	45	On Watch
V478	241	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-08	Visual	19:49	40.74535	-70.25115	269	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Swimming below surface.	6	1	7	7	7	150	Moderate	20	60	2	Full Power	Sparker Only	Yes	7	None	N/A	N/A	37.8	On Watch
V479	242	*GO Explorer*	HRG	Weller, Robert	2022-10-09	Visual	00:47	40.74534	-70.04289	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak with flippers broad and slightly pointed.	Fast travel; Swimming below surface.	3	0	3	3	3	360	Moderate	20	70	20	Full Power	Sparker Only	Yes	3	None	N/A	N/A	36.7	On Watch
V480	243	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-09	Visual	01:25	40.74449	-70.13727	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and hourglass pattern on the side.	Swimming at surface; Diving.	7	1	8	8	8	360	Moderate	10	60	3	Full Power	Sparker Only	Yes	8	None	N/A	N/A	37.7	On Watch
V481	244	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-09	Visual	22:01	40.73406	-70.20729	70	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and hourglass pattern on the side.	Swimming at surface; Swimming below surface.	11	0	11	9	11	180	Moderate	80	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	45.1	On Watch
V482	245	*GO Explorer*	HRG	Runyan, Leanna	2022-10-10	Visual	06:31	40.69453	-69.98584	240	Common dolphin - *Delphinus delphis*	Definite	Streamlined body with an hourglass pattern on the side.	Swimming at surface; Fast travel; Swimming below surface.	6	0	6	5	6	10	Moderate	40	N/A, source not deployed	25	Standby	None	No	0	None	N/A	N/A	42.7	On Watch
V483	246	*GO Explorer*	HRG	Ruiz, Arturo	2022-10-10	Visual	16:02	40.89817	-70.48107	315	Common dolphin - *Delphinus delphis*	Definite	Streamlined body with an hourglass pattern on the side.	Swimming at surface; Porpoising.	2	0	2	2	2	270	Moderate	30	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	51.2	On Watch
V484	247	*GO Explorer*	HRG	Weller, Robert	2022-10-11	Visual	07:57	40.82963	-70.42342	187	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Swimming below surface; Swimming at surface; Feeding.	8	1	9	9	9	360	Moderate	15	70	5	Transit	None	No	0	Delay	N/A	N/A	51.7	On Watch
V485	248	*GO Explorer*	HRG	Dorado, Sam	2022-10-11	Visual	12:18	40.75494	-70.13312	102	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Swimming at surface; Fast travel.	8	2	12	10	10	150	Vigorous	764	50	5	Full Power	Sparker Only	Yes	10	None	N/A	N/A	45	On Watch
V486	249	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-11	Visual	15:43	40.74787	-70.18121	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Fast travel.	8	0	8	8	8	360	Vigorous	524	10	3	Full Power	Sparker Only	Yes	3	None	N/A	N/A	38.7	On Watch
V487	250	*GO Explorer*	HRG	Ruiz, Arturo	2022-10-11	Visual	21:12	40.74982	-70.06994	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Porpoising; Bow riding; Feeding.	15	1	21	15	16	270	Vigorous	50	10	1	Full Power	Sparker Only	Yes	16	None	N/A	N/A	38.7	On Watch
V488	251	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-12	Visual	02:07	40.74782	-70.18957	92	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Swimming at surface; Swimming below surface; Diving.	3	0	3	3	3	360	Vigorous	10	80	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	46.2	On Watch

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V489	252	*GO Explorer*	HRG	Weller, Robert	2022-10-12	Visual	08:16	40.74727	-70.25364	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Feeding; Swimming at surface.	8	1	10	8	9	360	Vigorous	10	65	1	Full Power	Sparker Only	Yes	9	None	N/A	N/A	48	On Watch
V490	253	*GO Explorer*	HRG	Dorado, Sam	2022-10-12	Visual	13:49	40.73127	-70.25321	264	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak, and an hourglass pattern on the sides.	Fast travel; Swimming at surface; Feeding; Breaching / Jumping / Acrobatic behavior.	4	0	5	3	4	300	Vigorous	550	50	10	Full Power	Sparker Only	Yes	4	None	N/A	N/A	45.2	On Watch
V491	254	*GO Explorer*	HRG	Weller, Robert	2022-10-13	Visual	00:19	40.84831	-70.35640	330	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and an hourglass pattern on the sides.	Swimming at surface.	3	0	4	2	3	0	Moderate	15	75	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	49	On Watch
V492	255	*GO Explorer*	HRG	Bravo, Esmeralda	2022-10-13	Visual	02:29	40.98896	-70.37062	352	Common dolphin - *Delphinus delphis*	Definite	Slender body with a well-defined beak and an hourglass pattern on the sides.	Swimming at surface; Diving.	2	0	2	2	2	0	Moderate	5	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	49	On Watch
V493	256	*GO Explorer*	HRG	Penfield, Eren	2022-10-16	Visual	14:28	40.96673	-70.55673	132	Harbor Seal - Phoca *vitulina*	Probable	Dark-colored, small body with a medium-sized snout.	Resting at surface / Logging.	1	0	1	1	1	60	Sedate	130	N/A, source not deployed	130	Transit	None	No	0	None	N/A	N/A	42	On Watch
V494	257	*GO Explorer*	HRG	Penfield, Eren	2022-10-16	Visual	21:11	40.74270	-70.07107	83	Common dolphin - *Delphinus delphis*	Definite	Small to medium gray body with yellow sides coloration and a falcate dorsal fin.	Surfacing; Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	12	1	16	13	13	150	Moderate	20	65	3	Full Power	Sparker Only	Yes	13	None	N/A	N/A	48	On Watch
V495	258	*GO Explorer*	HRG	Roberts, Britney	2022-10-17	Visual	01:27	40.73182	-70.35979	266	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Feeding.	25	5	36	24	30	0	Moderate	1	80	1	Full Power	Sparker Only	Yes	30	None	N/A	N/A	44	On Watch
V496	259	*GO Explorer*	HRG	Estrada, Hector	2022-10-17	Visual	02:23	40.74015	-70.29058	93	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Swimming at surface; Feeding.	10	1	13	11	11	210	Moderate	10	70	1	Full Power	Sparker Only	Yes	11	None	N/A	N/A	48	On Watch
V497	260	*GO Explorer*	HRG	Estrada, Hector	2022-10-17	Visual	04:32	40.73658	-70.07330	263	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides	Breaching / Jumping / Acrobatic behavior; Feeding; Swimming at surface.	12	0	14	10	12	180	Moderate	15	70	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	47	On Watch
V498	261	*GO Explorer*	HRG	Lopez, Miguel	2022-10-17	Visual	12:06	40.74013	-70.13259	84	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Fast travel; Breaching / Jumping / Acrobatic behavior; Swimming at surface.	50	4	60	47	54	210	Vigorous	300	50	1	Full Power	Sparker Only	Yes	54	None	N/A	N/A	42	On Watch
V499	262	*GO Explorer*	HRG	Penfield, Eren	2022-10-17	Visual	17:00	40.74631	-70.21714	254	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides	Fast travel; Swimming below surface.	5	0	5	5	5	160	Vigorous	100	N/A, source not deployed	1	Silent	None	No	0	None	N/A	N/A	36.3	On Watch
V500	263	*GO Explorer*	HRG	Weller, Robert	2022-10-17	Visual	19:55	40.87589	-70.38401	351	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Breaching / Jumping / Acrobatic behavior; Fast travel; Swimming at surface; Swimming below surface; Tail or pectoral fin slapping.	10	1	13	9	11	135	Vigorous	150	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	49	On Watch
V501	264	*GO Explorer*	HRG	Lopez, Miguel	2022-10-18	Visual	12:36	41.47185	-70.95273	1	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Breaching / Jumping / Acrobatic behavior; Porpoising; Fast travel; Diving.	50	5	70	42	55	210	Vigorous	400	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	30	On Watch
V502	265	*GO Explorer*	HRG	Lopez, Miguel	2022-10-21	Visual	12:16	41.10608	-70.52200	138	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Swimming at surface; Bow riding; Breaching / Jumping / Acrobatic behavior; Diving.	35	3	45	31	38	210	Vigorous	250	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	40	On Watch
V503	266	*GO Explorer*	HRG	Weller, Robert	2022-10-21	Visual	15:58	40.73229	-70.00022	117	Common dolphin - *Delphinus delphis*	Definite	Slender body, hourglass pattern on the sides, well-defined beak.	Swimming at surface; Bow riding; Porpoising; Breaching / Jumping / Acrobatic behavior; Fast travel.	32	0	35	30	32	150	Vigorous	300	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	30	On Watch
V504	267	*GO Explorer*	HRG	Weller, Robert	2022-10-21	Visual	16:07	40.77168	-70.04704	117	Humpback whale - *Megaptera novaeangliae*	Possible	Tall and bushy blow.	Blowing.	2	0	2	2	2	90	Sedate	768	N/A, source not deployed	768	Transit	None	No	0	None	N/A	N/A	30	On Watch
V505	268	*GO Explorer*	HRG	Penfield, Eren	2022-10-22	Visual	00:29	40.73173	-70.35468	270	Common dolphin - *Delphinus delphis*	Definite	Small body with an hourglass pattern on the sides and a falcate tall dorsal fin.	Porpoising; Surfacing.	6	0	7	5	6	330	Moderate	70	70	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48	On Watch
V506	269	*GO Explorer*	HRG	Estrada, Hector	2022-10-22	Visual	03:10	40.73659	-70.05823	88	Common dolphin - *Delphinus delphis*	Definite	Small body with an hourglass pattern on the sides and a falcate tall dorsal fin.	Porpoising; Surfacing; Fast travel.	5	0	5	3	5	var	Vigorous	40	5	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	33	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V507	270	*GO Explorer*	HRG	Penfield, Eren	2022-10-22	Visual	14:20	40.73482	-70.10162	252	Common dolphin - *Delphinus delphis*	Definite	Small body with an hourglass pattern on the sides and a falcate tall dorsal fin.	Fast travel; Porpoising.	30	0	35	30	30	310	Vigorous	400	440	400	Full Power	Sparker Only	No	0	None	N/A	N/A	32	On Watch
V509	271	*GO Explorer*	HRG	Estrada, Hector	2022-10-22	Visual	23:20	40.73481	-70.14674	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with an hourglass pattern on the sides and a well-defined beak.	Surfacing.	4	0	4	3	4	var	Sedate	3	50	3	Full Power	Sparker Only	Yes	5	None	N/A	N/A	39	On Watch
V510	272	*GO Explorer*	HRG	Penfield, Eren	2022-10-23	Visual	00:47	40.73996	-70.11837	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with an hourglass pattern on the sides and a well-defined beak.	Swimming below surface; Surfacing; Feeding.	18	5	36	24	23	0	Moderate	3	20	1	Full Power	Sparker Only	Yes	23	None	N/A	N/A	44	On Watch
V511	273	*GO Explorer*	HRG	Penfield, Eren	2022-10-23	Visual	11:36	40.86867	-70.92623	296	Common dolphin - *Delphinus delphis*	Definite	Slender body with an hourglass pattern on the sides and a well-defined beak.	Breaching / Jumping / Acrobatic behavior; Fast travel; Bow riding.	20	0	25	15	20	175	Vigorous	300	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	54	On Watch
V512	274	*GO Explorer*	HRG	Lopez, Miguel	2022-10-29	Visual	11:07	41.15272	-71.97174	137	Humpback whale - *Megaptera novaeangliae*	Probable	Bushy and highly visible blow, relatively broad.	Blowing.	1	1	3	1	2	160	Moderate	2000	1590	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	26	On Watch
V513	275	*GO Explorer*	HRG	Weller, Robert	2022-10-30	Visual	19:25	41.19870	-72.04346	119	Humpback whale - *Megaptera novaeangliae*	Definite	Low, broad-based dorsal fin and scalloped leading edge with knobs.	Tail or pectoral fin slapping; Blowing; Diving with flukes / Fluking; Diving.	2	0	2	2	2	180	Sedate	1500	800	700	Full Power	Sparker Only	No	0	None	N/A	N/A	38	On Watch
V514	276	*GO Explorer*	HRG	Lopez, Miguel	2022-11-02	Visual	13:39	40.63746	-70.81221	19	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Bow riding; Porpoising; Swimming below surface.	45	5	67	44	50	300	Sedate	50	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	64	On Watch
V515	277	*GO Explorer*	HRG	Weller, Robert	2022-11-02	Visual	22:04	40.97696	-70.85031	2	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising; Feeding.	5	0	8	5	5	120	Vigorous	50	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	58	On Watch
V516	278	*GO Explorer*	HRG	Roberts, Britney	2022-11-04	Visual	05:30	41.00931	-70.85652	181	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Fast travel; Swimming at surface; Swimming below surface; Bow riding.	5	0	7	4	5	0	Vigorous	1	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	35	On Watch
V517	279	*GO Explorer*	HRG	Roberts, Britney	2022-11-05	Visual	00:59	40.59846	-70.82611	285	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising; Swimming at surface; Swimming below surface.	6	1	9	5	7	174	Moderate	1	80	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	67	On Watch
V518	280	*GO Explorer*	HRG	Lopez, Miguel	2022-11-05	Visual	05:12	40.60052	-70.87959	75	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising; Swimming below surface; Fast travel; Feeding.	10	0	12	9	10	0	Vigorous	1	90	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	68	On Watch
V519	281	*GO Explorer*	HRG	Lopez, Miguel	2022-11-05	Visual	12:40	40.60738	-70.92819	278	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Surfacing; Swimming below surface.	3	0	4	2	3	340	Sedate	5	90	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	68	On Watch
V520	282	*GO Explorer*	HRG	Penfield, Eren	2022-11-05	Visual	16:56	40.57974	-70.67438	178	Humpback whale - *Megaptera novaeangliae*	Definite	Two bushy blows.	Blowing.	1	0	1	1	1	225	Moderate	350	375	350	Full Power	Sparker Only	No	0	None	N/A	N/A	67	On Watch
V521	283	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-05	Visual	19:14	40.60454	-70.85735	306	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising, Bow riding.	7	3	10	1	10	137	Vigorous	150	2	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	67	On Watch
V522	284	*GO Explorer*	HRG	Penfield, Eren	2022-11-05	Visual	20:08	40.61101	-70.91327	114	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface; Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface, Bow riding.	35	5	45	30	40	210	Moderate	200	25	1	Full Power	Sparker Only	Yes	40	None	N/A	N/A	67	On Watch
V523	285	*GO Explorer*	HRG	Estrada, Hector	2022-11-05	Visual	23:05	40.59222	-70.78498	103	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Swimming at surface; Swimming below surface.	6	0	6	3	6	0	Moderate	2	10	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	68	On Watch
V524	286	*GO Explorer*	HRG	Lopez, Miguel	2022-11-06	Visual	12:40	40.74751	-70.06468	92	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Breaching / Jumping / Acrobatic behavior; Fast travel; Swimming below surface; Bow riding.	12	0	16	8	12	90	Vigorous	100	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	38	On Watch
V525	287	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-06	Visual	15:06	40.73777	-70.13805	284	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising; Fast travel; Swimming at surface; Swimming below surface; Bow riding; Diving.	16	4	26	13	20	120	Vigorous	200	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	38	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V526	288	*GO Explorer*	HRG	O'Sullivan, Sean, Lopez, Miguel	2022-11-06	Visual	19:51	40.74539	-70.05324	76	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides.	Porpoising; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	25	5	40	23	30	166	Moderate	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	39	On Watch
V527	289	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-09	Visual	16:06	41.63269	-70.91538	81	Gray Seal - *Halichoerus grypus*	Definite	Large black body. Horse like snout with large nostrils.	Milling; Resting at surface / Logging; Diving.	1	0	1	1	1	180	Stationary	150	N/A, source not deployed	150	Transit	None	No	0	None	N/A	N/A	3	On Watch
V528	290	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-09	Visual	19:17	41.23405	-70.72826	148	Common dolphin - *Delphinus delphis*	Definite	Slender body, well defined beak, hour-glass pattern on the sides.	Porpoising; Fast travel; Feeding; Swimming at surface.	15	5	30	10	20	240	Vigorous	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	10	On Watch
V529	291	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-09	Visual	19:58	41.11381	-70.58201	154	Common dolphin - *Delphinus delphis*	Definite	Slender body, well defined beak, hour-glass pattern on the sides.	Porpoising; Fast travel; Swimming at surface; Swimming below surface.	10	0	15	5	10	140	Vigorous	800	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44	On Watch
V530	292	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-09	Visual	22:43	40.83412	-70.28849	154	Common dolphin - *Delphinus delphis*	Definite	Slender body, well defined beak, hour-glass pattern on the sides.	Porpoising; Swimming at surface; Swimming below surface.	4	0	10	1	4	340	Vigorous	2	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44	On Watch
V531	293	*GO Explorer*	HRG	Roberts, Britney	2022-11-10	Visual	02:28	40.74695	-70.0706	85	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Swimming below surface.	8	0	10	6	8	180	Moderate	10	N/A, source not deployed	1	Silent	None	No	0	None	N/A	N/A	41	On Watch
V532	294	*GO Explorer*	HRG	Estrada, Hector	2022-11-10	Visual	09:25	40.74669	-70.10615	252	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming below surface; Swimming at surface.	3	0	4	2	3	0	Moderate	10	50	1	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	38	On Watch
V533	295	*GO Explorer*	HRG	Penfield, Eren	2022-11-10	Visual	20:51	40.74281	-70.30661	256	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface; Swimming below surface.	2	0	2	1	2	250	Vigorous	250	N/A, source not deployed	5	Silent	None	No	0	None	N/A	N/A	43	On Watch
V534	296	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-10	Visual	22:34	40.74331	-70.20716	86	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface; Swimming below surface.	10	2	20	6	12	180	Moderate	25	30	1	Silent	None	No	0	None	N/A	N/A	47	On Watch
V535	297	*GO Explorer*	HRG	Roberts, Britney	2022-11-11	Visual	07:48	40.74587	-70.03599	271	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface; Swimming below surface.	4	0	4	3	4	0	Moderate	1	90	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	35	On Watch
V536	298	*GO Explorer*	HRG	Lopez, Miguel	2022-11-11	Visual	10:28	40.75107	-70.07234	87	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming below the surface.	4	0	5	3	4	0	Moderate	1	90	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	39	On Watch
V537	299	*GO Explorer*	HRG	Penfield, Eren	2022-11-11	Visual	15:31	40.7354	-70.12984	268	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface.	5	1	9	6	6	140	Moderate	50	45	1	Deploying/Retrieving	None	No	0	None	N/A	N/A	41	On Watch
V538	300	*GO Explorer*	HRG	Penfield, Eren	2022-11-11	Visual	17:07	40.82418	-70.20798	317	Gray Seal - *Halichoerus grypus*	Definite	Medium size body, dark gray coloration.	Surfacing; Diving.	1	0	1	1	1	130	Sedate	200	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	39	On Watch
V539	301	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-11	Visual	19:11	41.11258	-70.56871	317	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface; Swimming below surface.	15	5	30	12	20	210	Moderate	150	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	43	On Watch
V540	302	*GO Explorer*	HRG	Estrada, Hector; O'Sullivan, Sean	2022-11-14	Visual	22:27	40.74267	-70.14169	88	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Porpoising, Swimming below surface; Feeding; Fast travel.	15	0	15	10	15	330	Vigorous	5	30	3	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	42	On Watch
V541	303	*GO Explorer*	HRG	Lopez, Miguel	2022-11-15	Visual	13:25	40.75895	-70.03645	274	North Atlantic right whale - *Eubalaena glacialis*	Definite	V-shaped blow, no dorsal fin	Blowing; Diving with flukes / Fluking.	1	1	3	1	2	180	Sedate	3218.5	3218.5	3218	Full Power	Sparker Only	No	0	None	N/A	N/A	32	On Watch
V542	304	*GO Explorer*	HRG	Penfield, Eren	2022-11-15	Visual	15:22	40.73287	-70.26167	275	Common dolphin - *Delphinus delphis*	Definite	Sleek body with hourglass pattern on side and falcate dorsal with beak.	Swimming at surface; Swimming below surface.	5	0	5	4	5	150	Moderate	40	60	5	Full Power	Sparker Only	Yes	5	None	N/A	N/A	40	On Watch
V543	305	*GO Explorer*	HRG	Penfield, Eren	2022-11-15	Visual	18:17	40.7468	-70.12232	89	North Atlantic right whale - *Eubalaena glacialis*	Definite	V-shaped/heart-shaped blow, notched fluke.	Blowing; Tail or pectoral fin slapping; Diving with flukes / Fluking.	1	0	1	1	1	300	Moderate	1609	1684	1609	Full Power	Sparker Only	No	0	None	N/A	N/A	46	On Watch

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V544	306	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-15	Visual	20:51	40.73402	-70.12976	264	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Porpoising; Swimming at surface; Swimming below surface.	10	0	15	5	10	180	Moderate	5	15	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	33	On Watch
V545	307	*GO Explorer*	HRG	Penfield, Eren	2022-11-15	Visual	21:30	40.73752	-70.17338	273	Unidentified whale - Cetacea spp.	Definite	Slightly forward bushy blow possibly due to wind, observed blowing twice.	Blowing.	1	0	1	1	1	170	Moderate	800	800	800	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V546	308	*GO Explorer*	HRG	Estrada, Hector; O'Sullivan, Sean	2022-11-15	Visual	22:30	40.74264	-70.31573	270	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Swimming below surface; Feeding.	10	0	12	8	10	350	Moderate	5	60	5	Full Power	Sparker Only	Yes	6	None	N/A	N/A	44	On Watch
V547	309	*GO Explorer*	HRG	Lopez, Miguel	2022-11-16	Visual	14:58	41.62179	-70.91383	168	Harbor seal - *Phoca vitulina*	Definite	Mottled dark colored body with gray and white splotches.	Surfacing; Resting at surface / Logging.	2	0	2	2	2	90	Sedate	20	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	14	On Watch
V548	310	*GO Explorer*	HRG	Fuller, Emily	2022-11-23	Visual	02:45	40.77499	-70.349	150	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern.	Swimming at surface; Swimming below surface.	4	0	8	2	4	270	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	47	On Watch
V549	311	*GO Explorer*	HRG	Cabello, Diana	2022-11-23	Visual	07:20	40.74645	-70.33483	170	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern.	Swimming at surface; Swimming below surface; Bow riding.	25	0	30	20	25	0	Vigorous	2	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	50	On Watch
V550	312	*GO Explorer*	HRG	Cabello, Diana	2022-11-23	Visual	08:35	40.7439	-70.37367	259	Unidentified dolphin - Delphinidae spp.	Definite	Slender body, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	30	Moderate	2	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	48	On Watch
V551	313	*GO Explorer*	HRG	Cabello, Diana	2022-11-23	Visual	10:15	40.74159	-70.26599	96	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern.	Swimming at surface; Swimming below surface; Porpoising.	8	0	10	7	8	0	Vigorous	5	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	47	On Watch
V552	314	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-23	Visual	19:46	40.73827	-70.21178	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern.	Porpoising; Swimming at surface; Swimming below surface.	15	3	25	12	18	180	Vigorous	25	50	1	Full Power	Sparker Only	Yes	18	None	N/A	N/A	46	On Watch
V553	315	*GO Explorer*	HRG	Cabello, Diana	2022-11-24	Visual	01:19	40.73089	-70.24279	262	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Fast travel; Feeding; Swimming below surface.	5	0	5	3	5	30	Vigorous	4	80	3	Full Power	Sparker Only	Yes	5	None	N/A	N/A	43	On Watch
V554	316	*GO Explorer*	HRG	Zavala, Andrea	2022-11-24	Visual	02:05	40.73029	-70.30936	90	Common dolphin - *Delphinus delphis*	Definite	Prominent dorsal fin, grey and yellow coloration on the side.	Swimming at surface; Swimming below surface; Feeding; Porpoising.	10	2	18	9	12	0	Vigorous	10	80	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	46.1	On Watch
V555	317	*GO Explorer*	HRG	Zavala, Andrea	2022-11-24	Visual	12:54	40.74583	-70.04574	268	Common dolphin - *Delphinus delphis*	Definite	Prominent dorsal fin, grey and yellow coloration on the side.	Fast travel; Swimming at surface.	4	0	5	3	4	270	Vigorous	200	150	150	Full Power	Sparker Only	No	0	None	N/A	N/A	37	On Watch
V556	318	*GO Explorer*	HRG	Fuller, Emily	2022-11-24	Visual	13:00	40.74934	-70.0886	268	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Swimming at surface; Breaching / Jumping / Acrobatic behavior; Porpoising.	2	0	2	2	2	180	Vigorous	20	90	20	Full Power	Sparker Only	Yes	2	None	N/A	N/A	38	On Watch
V557	319	*GO Explorer*	HRG	Fuller, Emily	2022-11-24	Visual	13:23	40.74633	-70.09156	268	Unidentified whale - Cetacea spp.	Definite	Large body, tall falcate dorsal fin.	Surfacing; Swimming at surface.	1	0	1	1	1	90	Moderate	600	700	600	Full Power	Sparker Only	No	0	None	N/A	N/A	38	On Watch
V558	320	*GO Explorer*	HRG	Serrano, Itzel	2022-11-24	Visual	15:35	40.74611	-70.31609	253	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Swimming at surface; Feeding; Porpoising; Swimming below surface.	22	0	25	20	22	270	Moderate	200	20	1	Full Power	Sparker Only	Yes	22	None	N/A	N/A	49	On Watch
V559	321	*GO Explorer*	HRG	Serrano, Itzel	2022-11-24	Visual	17:50	40.74911	-70.1058	96	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Swimming at surface; Porpoising; Swimming below surface.	5	0	7	3	5	180	Moderate	300	30	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	40	On Watch
V560	322	*GO Explorer*	HRG	O'Sullivan, Sean	2022-11-24	Visual	19:24	40.73375	-70.09671	264	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Porpoising; Swimming at surface; Swimming below surface.	20	5	35	17	25	150	Vigorous	50	10	1	Full Power	Sparker Only	Yes	25	None	N/A	N/A	41	On Watch
V561	323	*GO Explorer*	HRG	Fuller, Emily	2022-11-25	Visual	00:10	40.72998	-70.33569	270	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Swimming at surface; Swimming below surface; Porpoising.	8	0	8	6	8	0	Moderate	10	80	2	Full Power	Sparker Only	Yes	8	None	N/A	N/A	45	On Watch

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V562	324	*GO Explorer*	HRG	Cabello, Diana	2022-11-25	Visual	07:11	40.73321	-70.094	263	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Swimming at surface; Swimming below surface; Porpoising.	8	2	12	7	10	0	Moderate	5	85	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	33	On Watch
V563	325	*GO Explorer*	HRG	Serrano, Itzel	2022-11-29	Visual	15:58	40.73656	-70.1111	93	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Porpoising; Swimming at surface; Swimming below surface.	5	0	6	2	5	180	Moderate	100	50	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	41	On Watch
V564	326	*GO Explorer*	HRG	Fuller, Emily	2022-11-30	Visual	05:13	40.73595	-70.23627	95	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Blowing; Fast travel; Swimming below surface; Bow riding; Breaching / Jumping / Acrobatic behavior.	5	0	5	5	5	0	Vigorous	30	70	10	Full Power	Sparker Only	Yes	5	None	N/A	N/A	48	On Watch
V565	327	*GO Explorer*	HRG	Zavala, Andrea	2022-11-30	Visual	11:06	40.90053	-70.12483	331	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass coloration.	Bow riding; Fast travel; Swimming below surface.	3	0	4	3	3	0	Vigorous	3	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	26	On Watch
V566	328	*GO Explorer*	HRG	Cabello, Diana	2022-12-02	Visual	07:50	41.07851	-70.26399	151	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on side of body.	Swimming below surface	2	0	2	2	2	0	Vigorous	2	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	32	On Watch
V567	329	*GO Explorer*	HRG	Fuller, Emily	2022-12-02	Visual	11:49	40.75843	-70.18616	231	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on side of body.	Porpoising; Feeding; Swimming at surface.	9	3	13	10	12	0	Vigorous	10	70	5	Full Power	Sparker Only	Yes	12	None	N/A	N/A	38	On Watch
V568	330	*GO Explorer*	HRG	Serrano, Itzel	2022-12-02	Visual	17:25	40.73132	-70.04395	92	Unidentified whale - Cetacea spp.	Definite	Tall bushy blow.	Blowing; Diving.	2	0	2	2	2	180	Moderate	759	759	759	Full Power	Sparker Only	No	0	None	N/A	N/A	38	On Watch
V569	331	*GO Explorer*	HRG	Serrano, Itzel	2022-12-02	Visual	18:16	40.73934	-70.0653	258	North Atlantic right whale - *Eubalaena glacialis*	Definite	Tall bushy V-shaped blow.	Blowing; Diving.	1	0	1	1	1	90	Moderate	1000	1100	1000	Silent	None	No	0	None	N/A	N/A	40	On Watch
V570	332	*GO Explorer*	HRG	O'Sullivan, Sean	2022-12-02	Visual	20:56	40.73708	-70.30822	300	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on side of body.	Porpoising; Fast travel; Diving.	8	0	10	5	8	150	Vigorous	200	140	50	Silent	None	No	0	None	N/A	N/A	40	On Watch
V571	333	*GO Explorer*	HRG	O'Sullivan, Sean; Serrano, Itzel	2022-12-02	Visual	22:28	40.75401	-70.18095	94	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on side of body.	Swimming at surface; Swimming below surface; Feeding; Porpoising.	4	0	8	4	4	0	Moderate	20	70	1	Silent	None	No	0	None	N/A	N/A	46	On Watch
V572	334	*GO Explorer*	HRG	Cabello, Diana	2022-12-03	Visual	07:13	40.83563	-70.17032	320	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, white and yellow coloration on the side with hourglass pattern.	Swimming below surface; Swimming at surface; Porpoising.	4	1	7	4	5	0	Vigorous	10	N/A, source not deployed	2	Deploying/Retrieving	None	No	0	None	N/A	N/A	37	On Watch
V573	335	*GO Explorer*	HRG	Serrano, Itzel	2022-12-04	Visual	14:56	41.62653	-70.91477	353	Harbor seal - *Phoca vitulina*	Definite	Brown head with V shaped nostrils.	Surfacing; Diving.	1	1	0	0	1	300	Sedate	80	N/A, source not deployed	50	Transit	None	No	0	None	N/A	N/A	9	On Watch
V574	336	*GO Explorer*	HRG	Serrano, Itzel	2022-12-04	Visual	21:09	41.1549	-70.60317	132	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on body.	Fast travel; Swimming at surface.	8	1	9	5	9	150	Vigorous	330	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	33	On Watch
V575	337	*GO Explorer*	HRG	Cabello, Diana	2022-12-05	Visual	00:00	40.84786	-70.19313	139	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with hourglass shape on body.	Swimming at surface; Surfacing.	3	0	3	2	3	0	Vigorous	1	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	39	On Watch
V576	338	*GO Explorer*	HRG	Zavala, Andrea	2022-12-05	Visual	05:31	40.74398	-70.14463	87	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with hourglass shape on body.	Swimming at surface; Swimming below surface; Surfacing.	4	0	4	3	4	90	Moderate	50	70	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43	On Watch
V577	339	*GO Explorer*	HRG	Zavala, Andrea	2022-12-05	Visual	10:49	40.73216	-70.17439	264	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with hourglass shape on body.	Swimming at surface; Swimming below surface; Surfacing.	4	0	5	4	4	0	Vigorous	5	70	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	40	On Watch
V578	340	*GO Explorer*	HRG	Fuller, Emily	2022-12-05	Visual	11:59	40.73185	-70.28502	266	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with hourglass shape on body.	Swimming at surface; Bow riding; Swimming below surface.	4	0	4	4	4	165	Vigorous	10	90	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	46	On Watch
V579	341	*GO Explorer*	HRG	Serrano, Itzel	2022-12-05	Visual	17:26	40.73043	-70.09411	68	Gray seal - *Halichoerus grypus*	Definite	Dark gray fur with long nose.	Spy hopping; Stationary; Diving.	1	0	1	1	1	150	Sedate	330	380	330	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V580	342	*GO Explorer*	HRG	Cabello, Diana	2022-12-05	Visual	23:07	40.72058	-70.16388	225	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with hourglass shape on body.	Porpoising; Swimming at surface; Swimming below surface.	1	1	2	2	2	330	Moderate	6	80	6	Full Power	Sparker Only	Yes	2	None	N/A	N/A	43	On Watch
V581	343	*GO Explorer*	HRG	Cabello, Diana	2022-12-06	Visual	00:27	40.72477	-70.33154	258	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape on the body.	Swimming at surface; Swimming below surface.	5	1	6	6	6	0	Vigorous	1	70	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48	On Watch
V582	344	*GO Explorer*	HRG	Cabello, Diana	2022-12-06	Visual	07:31	40.71967	-70.28721	265	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape on the body.	Swimming below surface; Swimming at surface.	2	1	3	2	3	0	Vigorous	2	80	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	45	On Watch
V583	345	*GO Explorer*	HRG	Cabello, Diana	2022-12-06	Visual	09:44	40.72565	-70.26488	99	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape on the body.	Swimming below surface; Swimming at surface.	3	1	4	4	4	300	Vigorous	12	80	6	Full Power	Sparker Only	Yes	4	None	N/A	N/A	47	On Watch
V584	346	*GO Explorer*	HRG	Fuller, Emily	2022-12-06	Visual	13:22	40.72558	-70.06663	270	Humpback whale - *Megaptera novaeangliae*	Definite	Humped dorsal fin, short bushy blow.	Swimming at surface; Feeding; Diving.	1	0	1	1	1	180	Moderate	1340	900	800	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V585	347	*GO Explorer*	HRG	Fuller, Emily	2022-12-06	Visual	14:00	40.72194	-70.1139	270	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape on the body.	Porpoising; Swimming at surface; Swimming below surface	10	2	12	10	12	230	Vigorous	20	80	5	Full Power	Sparker Only	Yes	12	None	N/A	N/A	41	On Watch
V586	348	*GO Explorer*	HRG	Serrano, Itzel	2022-12-06	Visual	21:43	40.74361	-70.09922	99	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape on the body.	Porpoising; Swimming at surface.	8	0	10	5	8	180	Vigorous	50	N/A, source not deployed	3	Transit	None	No	0	None	N/A	N/A	41	On Watch
V587	349	*GO Explorer*	HRG	Cabello, Diana	2022-12-07	Visual	04:39	40.73713	-70.25832	96	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape.	Swimming at surface.	1	1	2	2	2	60	Vigorous	4	N/A, source not deployed	4	Standby	None	No	0	None	N/A	N/A	47	On Watch
V588	350	*GO Explorer*	HRG	Cabello, Diana	2022-12-07	Visual	08:13	40.73514	-70.29658	99	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape.	Swimming below surface; Surfacing.	2	0	2	2	2	0	Vigorous	8	N/A, source not deployed	8	Standby	None	No	0	None	N/A	N/A	48	On Watch
V589	351	*GO Explorer*	HRG	Zavala, Andrea	2022-12-07	Visual	10:14	40.73524	-70.19632	96	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with an hourglass shape.	Swimming below surface; Surfacing; Porpoising.	4	1	6	5	5	0	Vigorous	20	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	45	On Watch
V590	352	*GO Explorer*	HRG	Fuller, Emily	2022-12-09	Visual	15:08	41.14328	-71.82015	156	Fin whale - *Balaenoptera physalus*	Definite	Tall slim blow.	Blowing; Diving; Swimming at surface.	1	1	2	2	2	90	Moderate	970	N/A, source not deployed	970	Standby	None	No	0	None	N/A	N/A	29	On Watch
V591	353	*GO Explorer*	HRG	Serrano, Itzel	2022-12-09	Visual	17:58	41.16086	-71.98637	290	Humpback whale - *Megaptera novaeangliae*	Definite	Gray to white, long flippers, white underbelly.	Blowing; Diving with flukes / Fluking.	1	0	1	1	1	90	Moderate	600	N/A, source not deployed	600	Standby	None	No	0	None	N/A	N/A	28	On Watch
V592	354	*GO Explorer*	HRG	Serrano, Itzel	2022-12-09	Visual	18:36	41.18913	-72.01707	300	Gray seal - *Halichoerus grypus*	Definite	Streamlined body, round middle, gray in color.	Swimming at surface; Fast travel.	1	0	1	1	1	90	Vigorous	300	N/A, source not deployed	70	Standby	None	No	0	None	N/A	N/A	24	On Watch
V593	355	*GO Explorer*	HRG	Zavala, Andrea	2022-12-13	Visual	12:06	41.1403	-71.86718	125	Gray seal - *Halichoerus grypus*	Probable	Dark gray coloration.	Spy hopping.	1	0	1	1	1	90	Moderate	30	N/A, source not deployed	30	Standby	None	No	0	None	N/A	N/A	35	On Watch
V594	356	*GO Explorer*	HRG	Zavala, Andrea	2022-12-15	Visual	12:09	41.10742	-71.7527	53	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal fin, gray coloration.	Swimming below surface.	1	0	1	1	1	0	Vigorous	5	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	18	On Watch
V595	357	*GO Explorer*	HRG	Serrano, Itzel	2022-12-15	Visual	15:11	41.01397	-71.63759	276	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, hourglass shape on side of body.	Porpoising; Swimming at surface; Bow riding; Swimming below surface.	12	2	15	10	14	150	Vigorous	30	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V596	358	*GO Explorer*	HRG	Ortega, Jimena	2022-12-18	Visual	12:32	41.26513	-71.61313	240	Common dolphin - *Delphinus delphis*	Definite	Slender and gray dark body, falcate dorsal fin, hourglass pattern on the sides of the belly.	Fast travel; Surfacing.	4	1	8	4	5	100	Vigorous	241	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44	On Watch
V597	359	*GO Explorer*	HRG	Ortega, Jimena	2022-12-20	Visual	12:06	40.89578	-71.38931	130	Common dolphin - *Delphinus delphis*	Definite	Slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming below surface; Surfacing; Breaching / Jumping / Acrobatic behavior.	2	1	4	3	3	0	Vigorous	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	58	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V598	360	*GO Explorer*	HRG	Serrano, Itzel	2022-12-20	Visual	21:33	40.5814	-70.73383	284	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Swimming below surface; Bow riding.	4	0	5	3	4	0	Vigorous	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	66	On Watch
V599	361	*GO Explorer*	HRG	Alvarado, Edgar	2022-12-20	Visual	22:50	40.62636	-70.88232	228	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well-defined beak, hourglass pattern on the sides, black tear on eyes.	Swimming at surface; Swimming below surface; Feeding; Diving.	17	1	21	16	18	60	Vigorous	20	45	1	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	68	On Watch
V600	362	*GO Explorer*	HRG	Zavala, Andrea	2022-12-21	Visual	00:10	40.60613	-70.89402	98	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well defined beak, hourglass shape on body sides.	Swimming at surface; Swimming below surface; Feeding; Diving; Fast travel; Surfacing.	16	2	22	16	18	300	Vigorous	4	70	1	Full Power	Sparker Only	Yes	18	None	N/A	N/A	67	On Watch
V601	363	*GO Explorer*	HRG	Ortega, Jimena	2022-12-21	Visual	13:33	40.57304	-70.68442	285	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well defined beak, hourglass shape on body sides.	Swimming at surface; Porpoising; Fast travel.	4	1	8	4	5	240	Vigorous	212	60	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	68	On Watch
V602	364	*GO Explorer*	HRG	Serrano, Itzel	2022-12-21	Visual	15:43	40.61066	-70.89542	112	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well defined beak, hourglass shape on body sides.	Swimming at surface; Swimming below surface; Fast travel; Surfacing; Diving.	5	1	8	5	6	150	Vigorous	530	50	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	67	On Watch
V603	365	*GO Explorer*	HRG	Alvarado, Edgar	2022-12-21	Visual	20:30	40.57986	-70.70897	334	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well defined beak, hourglass shape on body sides.	Swimming at surface; Swimming below surface; Fast travel; Surfacing; Bow riding; Diving.	23	2	27	21	25	150	Vigorous	80	10	1	Full Power	Sparker Only	Yes	25	None	N/A	N/A	67	On Watch
V604	366	*GO Explorer*	HRG	Zavala, Andrea	2022-12-22	Visual	05:22	41.05143	-70.80423	346	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, slender body, well defined beak, hourglass shape on body sides.	Swimming at surface; Swimming below surface; Surfacing; Fast travel; Diving.	2	0	2	2	2	0	Vigorous	15	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	50	On Watch
V605	367	*GO Explorer*	HRG	Ortega, Jimena	2022-12-28	Visual	00:49	40.59426	-70.78808	285	Common dolphin - *Delphinus delphis*	Definite	Slender body with a distinctive black back and cape that form a V-shaped saddle, tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Feeding.	25	5	35	25	30	0	Vigorous	50	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	67	On Watch
V606	368	*GO Explorer*	HRG	Cabello, Diana	2022-12-28	Visual	07:22	40.62365	-70.94884	102	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under fin, dark line from flipper to beak, prominent fin and beak.	Porpoising; Swimming below surface; Milling; Bow riding.	14	1	21	10	15	240	Vigorous	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	70	On Watch
V607	369	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-28	Visual	10:53	40.65691	-71.02618	310	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under fin, dark line from flipper to beak, prominent fin and beak.	Swimming below surface; Swimming at surface; Surfacing.	4	0	6	3	4	180	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	65	On Watch
V608	370	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-28	Visual	12:16	40.66287	-70.87159	80	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under fin, dark line from flipper to beak, prominent fin and beak.	Swimming below surface; Swimming at surface; Surfacing; Bow riding; Diving.	28	2	30	21	30	120	Vigorous	120	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	67	On Watch
V609	371	*GO Explorer*	HRG	Alvarado, Edgar	2022-12-29	Visual	12:35	40.7206	-70.10164	90	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on sides with dark cape with "V" under fin, prominent dorsal fin and beak.	Fast travel; Surfacing.	8	0	9	7	8	120	Vigorous	250	30	5	Full Power	Sparker Only	Yes	8	None	N/A	N/A	42	On Watch
V610	372	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-29	Visual	13:05	40.72914	-70.05048	90	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on sides with dark cape with "V" under fin, prominent dorsal fin and beak.	Swimming below surface; Surfacing.	2	0	4	2	2	0	Moderate	2	45	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	40	On Watch
V611	373	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-29	Visual	14:56	40.72409	-70.11014	267	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on sides with dark cape with "V" under fin, prominent dorsal fin and beak.	Porpoising; Fast travel; Swimming at surface.	7	0	10	5	7	150	Vigorous	120	140	120	Full Power	Sparker Only	Yes	7	None	N/A	N/A	41	On Watch
V612	374	*GO Explorer*	HRG	Ortega, Jimena	2022-12-29	Visual	19:35	40.73986	-70.16965	86	North Atlantic right whale - *Eubalaena glacialis*	Definite	V- shaped and bushy blow, dark body, no dorsal fin with large black flukes, broad and spatulate flippers.	Blowing; Diving with flukes / Fluking; Tail or pectoral fin slapping.	3	0	4	2	3	150	Moderate	2535	1900	1900	Full Power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V613	375	*GO Explorer*	HRG	Ortega, Jimena	2022-12-30	Visual	05:40	40.72481	-70.00993	96	Common dolphin - *Delphinus delphis*	Definite	Slender body with a distinctive hourglass pattern on sides.	Swimming below surface; Bow riding.	4	0	5	2	4	0	Vigorous	5	60	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	41	On Watch
V614	376	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-30	Visual	07:55	40.72246	-70.17576	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with hourglass pattern on sides; black, long pointed beak and tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Surfacing.	6	0	8	4	6	270	Vigorous	5	82	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	43	On Watch
V615	377	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-31	Visual	04:24	40.73045	-70.05462	100	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long pointed beak; distinctive black back and cape that form a V-shaped saddle; hourglass patterns on sides with a tan patch forward and gray patch aft; tall, falcate dorsal fin.	Porpoising; Swimming below surface; Milling.	4	0	5	2	4	150	Vigorous	7	90	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	41	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V616	378	*GO Explorer*	HRG	Minguer, Alejandra	2022-12-31	Visual	10:15	40.72953	-70.16719	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long pointed beak; distinctive black back and cape that form a V-shaped saddle, hourglass patterns on sides with a tan patch forward and gray patch aft; tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Feeding.	7	0	7	7	7	0	Vigorous	10	20	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	46	On Watch
V617	379	*GO Explorer*	HRG	Klein, Michelle	2023-01-02	Visual	10:02	40.91267	-70.35055	170	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Hourglass patterns on sides with tan patch forward and gray patch aft. Tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface.	3	0	3	3	3	60	Vigorous	40	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	43	On Watch
V618	380	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-02	Visual	10:23	40.77132	-70.3699	188	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Hourglass patterns on sides with tan patch forward and gray patch aft. Tall, falcate dorsal fin.	Swimming below surface; Swimming at surface; Bow riding.	2	0	2	2	2	0	Vigorous	10	N/A, source not deployed	3	Transit	None	No	0	None	N/A	N/A	47	On Watch
V619	381	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-02	Visual	14:20	40.72968	-70.19139	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Hourglass patterns on sides with tan patch forward and gray patch aft. Tall, falcate dorsal fin.	Swimming below surface; Swimming at surface.	1	0	1	1	1	0	Vigorous	5	85	2	Full Power	Sparker Only	Yes	1	None	N/A	N/A	45	On Watch
V620	382	*GO Explorer*	HRG	Alvarado, Edgar	2023-01-02	Visual	16:56	40.71241	-70.07492	273	North Atlantic right whale - *Eubalaena glacialis*	Definite	V- shaped and bushy blow. Dark body, no dorsal fin with large black flukes.	Blowing; Surfacing; Diving with flukes / Fluking.	1	0	1	1	1	240	Sedate	1576	1630	1576	Full Power	Sparker Only	No	0	None	N/A	N/A	36	On Watch
V621	383	*GO Explorer*	HRG	Ortega, Jimena	2023-01-03	Visual	06:11	40.73146	-70.06035	99	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Tall, falcate dorsal fin.	Swimming at surface; Swimming below surface.	4	0	6	2	4	90	Vigorous	5	80	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	40	On Watch
V622	384	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-03	Visual	08:40	40.7248	-70.20532	264	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Swimming below surface; Milling.	5	1	8	5	6	0	Moderate	5	80	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	41	On Watch
V623	385	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-03	Visual	10:37	40.72907	-70.31975	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Swimming below surface; Swimming at surface.	3	0	6	2	3	0	Moderate	5	20	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48	On Watch
V624	386	*GO Explorer*	HRG	Alvarado, Edgar	2023-01-03	Visual	11:56	40.73052	-70.18715	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Surfacing; Swimming at surface; Swimming below surface.	2	0	3	2	2	90	Moderate	80	70	20	Full Power	Sparker Only	Yes	2	None	N/A	N/A	43	On Watch
V625	387	*GO Explorer*	HRG	Alvarado, Edgar	2023-01-03	Visual	15:32	40.72512	-70.20877	260	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Surfacing; Swimming at surface; Swimming below surface; Bow riding.	5	0	6	4	5	90	Moderate	15	80	2	Full Power	Sparker Only	Yes	5	None	N/A	N/A	41	On Watch
V626	388	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-03	Visual	16:27	40.72624	-70.27033	268	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Fast travel; Porpoising.	4	1	8	3	5	150	Vigorous	50	10	10	Full Power	Sparker Only	Yes	5	None	N/A	N/A	45	On Watch
V627	389	*GO Explorer*	HRG	Ortega, Jimena	2023-01-03	Visual	18:48	40.81025	-70.41961	320	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Fast travel; Swimming below surface.	3	0	6	2	3	90	Vigorous	100	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	50	On Watch
V628	390	*GO Explorer*	HRG	Ortega, Jimena	2023-01-03	Visual	19:23	40.87345	-70.49395	319	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Tall, falcate dorsal fin.	Fast travel; Porpoising; Bow riding; Swimming below surface.	8	0	10	5	8	240	Vigorous	250	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	52	On Watch
V629	391	*GO Explorer*	HRG	Weller, Robert	2023-01-07	Visual	03:34	40.79064	-70.77854	156	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak. Slender body with pale slender tail stock. Distinctive black back and cape form V-shape saddle that dips below the dorsal fin.	Swimming at surface; Fast travel.	2	0	2	2	2	0	Vigorous	10	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	53	On Watch
V630	392	*GO Explorer*	HRG	Weller, Robert	2023-01-07	Visual	07:17	40.57422	-70.62612	85	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak. Slender body with pale slender tail stock. Distinctive black back and cape form V-shape saddle that dips below the dorsal fin.	Swimming below surface; Fast travel.	3	0	3	3	3	0	Vigorous	15	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	67	On Watch
V631	393	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-07	Visual	19:43	40.72545	-70.20707	273	Common dolphin - *Delphinus delphis*	Definite	Gray black with V-shape under dorsal fin. Hourglass pattern on sides with yellowish patch. Prominent fin and beak.	Porpoising; Milling; Swimming below surface.	1	1	2	2	2	90	Vigorous	30	75	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	40	On Watch
V632	394	*GO Explorer*	HRG	Estrada, Hector	2023-01-08	Visual	13:08	40.72531	-70.34374	275	Humpback whale - *Megaptera novaeangliae*	Definite	Black or dark gray upper side, stubby fin with hump, large stocky body.	Blowing; Fast travel; Diving with flukes / Fluking.	1	0	1	1	1	60	Vigorous	800	880	800	Full Power	Sparker Only	No	0	None	N/A	N/A	47	On Watch
V633	395	*GO Explorer*	HRG	Klein, Michelle	2023-01-08	Visual	15:22	40.76546	-70.22463	274	Common dolphin - *Delphinus delphis*	Definite	Black back and cape that form a V-shaped saddle, tall falcate dorsal fin.	Swimming at surface; Swimming below surface.	1	0	1	1	1	180	Moderate	50	120	40	Full Power	Sparker Only	Yes	1	None	N/A	N/A	43	On Watch

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								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
V634	396	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-09	Visual	01:10	40.73899	-70.12758	100	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back with long pointed beak.	Swimming below surface; Swimming at surface; Milling.	4	0	5	4	4	150	Moderate	50	70	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	42	On Watch
V635	397	*GO Explorer*	HRG	Weller, Robert	2023-01-09	Visual	10:36	40.73095	-70.06765	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back with long pointed beak.	Swimming below surface; Fast travel.	2	0	2	2	2	0	Vigorous	10	60	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	41	On Watch
V636	398	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-11	Visual	05:10	40.72987	-70.32191	271	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back and cape form a V-shaped saddle with long pointed beak.	Swimming below surface; Milling.	1	0	1	1	1	240	Moderate	30	90	5	Full Power	Sparker Only	Yes	1	None	N/A	N/A	47	On Watch
V637	399	*GO Explorer*	HRG	Olivares, Elsy	2023-01-11	Visual	05:38	40.71892	-70.35095	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back and cape form a V-shaped saddle with long pointed beak.	Swimming below surface.	4	0	4	4	4	360	Vigorous	5	70	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	47	On Watch
V638	400	*GO Explorer*	HRG	Estrada, Hector	2023-01-11	Visual	16:40	40.73122	-70.14487	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back and cape form a V-shaped saddle with long pointed beak.	Swimming at surface; Fast travel.	2	0	2	2	2	180	Vigorous	10	80	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	48	On Watch
V639	401	*GO Explorer*	HRG	Klein, Michelle	2023-01-11	Visual	20:35	40.72563	-70.16751	269	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back and cape form a V-shaped saddle with long pointed beak.	Porpoising; Fast travel.	3	0	3	3	3	90	Vigorous	133	90	10	Full Power	Sparker Only	Yes	3	None	N/A	N/A	44	On Watch
V640	402	*GO Explorer*	HRG	Klein, Michelle	2023-01-11	Visual	22:55	40.7258	-70.02576	85	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Distinctive black back and cape form a V-shaped saddle with long pointed beak.	Swimming below surface; Porpoising; Milling.	5	0	6	4	5	150	Vigorous	30	60	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	37	On Watch
V641	403	*GO Explorer*	HRG	Olivares, Elsy	2023-01-12	Visual	05:40	40.70631	-70.42271	198	Common dolphin - *Delphinus delphis*	Definite	Slender body, long beak, hourglass pattern with yellow patches on sides.	Swimming below surface; Milling; Swimming at surface.	3	2	7	5	5	180	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	52	On Watch
V642	404	*GO Explorer*	HRG	Weller, Robert	2023-01-12	Visual	09:54	40.61761	-70.62004	279	Common dolphin - *Delphinus delphis*	Definite	Slender body, long beak, hourglass pattern with yellow patches on sides.	Swimming below surface.	1	0	1	1	1	0	Moderate	5	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	64	On Watch
V643	405	*GO Explorer*	HRG	Estrada, Hector	2023-01-12	Visual	14:38	40.59471	-70.79764	272	Common dolphin - *Delphinus delphis*	Definite	Slender body, long beak, hourglass pattern with yellow patches on sides.	Fast travel; Swimming below surface.	6	2	8	6	8	270	Vigorous	200	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	66	On Watch
V644	406	*GO Explorer*	HRG	Weller, Robert	2023-01-22	Visual	02:49	40.70482	-70.06965	270	Common dolphin - *Delphinus delphis*	Definite	Dark V shape saddle and hour glass pattern on body.	Swimming at surface.	2	0	2	2	2	0	Vigorous	10	90	8	Silent	None	No	0	None	N/A	N/A	42	On Watch
V645	407	*GO Explorer*	HRG	Weller, Robert	2023-01-22	Visual	09:49	40.70064	-70.20156	207	Common dolphin - *Delphinus delphis*	Definite	Dark V shape saddle and hour glass pattern on body.	Milling; Swimming at surface.	1	1	2	2	2	300	Moderate	20	N/A, source not deployed	5	Deploying/Retrieving	None	No	0	None	N/A	N/A	45	On Watch
V646	408	*GO Explorer*	HRG	Klein, Michelle	2023-01-22	Visual	15:05	40.63015	-70.92552	26	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive black back and cape that form a V-shaped saddle, hourglass pattern on sides with a tan patch forward and gray patch aft.	Swimming at surface; Swimming below surface.	3	0	3	3	3	120	Moderate	50	85	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	70	On Watch
V647	409	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-23	Visual	05:15	40.57532	-71.98072	266	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under dorsal fin. Hourglass pattern on sides. Prominent dorsal fin and beak.	Swimming below surface; Swimming at surface; Feeding.	4	0	5	3	4	210	Moderate	10	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	57	On Watch
V648	410	*GO Explorer*	HRG	Estrada, Hector	2023-01-23	Visual	14:02	41.18699	-72.30198	249	Gray seal - *Halichoerus grypus*	Definite	Dark gray body with few spots, big nostrils.	Swimming at surface.	1	0	1	1	1	210	Sedate	200	N/A, source not deployed	80	Standby	None	No	0	None	N/A	N/A	43	On Watch
V649	411	*GO Explorer*	HRG	Olivares, Elsy	2023-01-23	Visual	21:55	41.02361	-72.69978	30	Gray seal - *Halichoerus grypus*	Definite	Dark gray body with spots.	Diving.	1	0	1	1	1	120	Moderate	150	N/A, source not deployed	150	Standby	None	No	0	None	N/A	N/A	37	On Watch
V650	412	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-25	Visual	05:12	40.69501	-71.00655	119	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under dorsal fin. Hourglass pattern on sides. Prominent dorsal fin and beak.	Swimming below surface; Swimming at surface; Feeding.	6	0	7	5	6	0	Moderate	15	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	62	On Watch
V651	413	*GO Explorer*	HRG	Estrada, Hector	2023-01-25	Visual	16:40	40.6547	-70.99495	181	Common dolphin - *Delphinus delphis*	Definite	Dark cape with "V" under dorsal fin. Hourglass pattern on sides. Prominent dorsal fin and beak.	Swimming at surface; Swimming below surface.	6	1	7	5	7	210	Sedate	300	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	67	On Watch

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								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
V652	414	*GO Explorer*	HRG	Minguer, Alejandra	2023-01-25	Visual	19:00	40.69654	-70.99128	331	Common dolphin - *Delphinus delphis*	Probable	Dark cape with "V" under dorsal fin. Hourglass pattern on sides. Prominent dorsal fin and beak.	Porpoising; Swimming below surface.	4	0	4	4	4	180	Vigorous	50	N/A, source not deployed	20	Transit	None	No	0	None	N/A	N/A	60	On Watch
V653	415	*GO Explorer*	HRG	Weller, Robert	2023-01-28	Visual	09:14	40.58881	-72.58209	41	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Black back and cape form V-shaped saddle.	Swimming below surface; Fast travel.	3	1	5	4	4	0	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	38	On Watch
V654	416	*GO Explorer*	HRG	Estrada, Hector	2023-01-30	Visual	07:20	40.57777	-72.19163	80	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Long pointed beak with black back cape form V-shaped saddle.	Milling; Feeding; Swimming below surface.	5	0	6	4	5	0	Vigorous	5	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	48	On Watch
V655	417	*GO Explorer*	HRG	Estrada, Hector	2023-01-30	Visual	13:10	40.68825	-71.34152	82	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail stock. Long pointed beak with black back cape form V-shaped saddle.	Porpoising; Swimming at surface; Swimming below surface.	4	0	4	4	4	180	Vigorous	400	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	59	On Watch
V656	418	*GO Explorer*	HRG	Klein, Michelle	2023-01-30	Visual	19:14	40.70287	-70.24105	92	Humpback whale - *Megaptera novaeangliae*	Definite	Stout, dark body, small dorsal fin with a broad base. Bushy blow.	Blowing; Swimming at surface; Diving.	1	0	1	1	1	0	Sedate	600	N/A, source not deployed	600	Transit	None	No	0	None	N/A	N/A	48	On Watch
V315	419	*GO Discovery*	HRG	Methany, Nicholas	2022-07-27	Visual	09:56	40.90003	-70.49903	140	Common dolphin - *Delphinus delphis*	Probable	Medium size dolphin, with longish beak.	Swimming at surface; Swimming below surface.	7	0	9	6	7	60	Moderate	250	N/A, source not deployed	220	Transit	None	No	0	None	N/A	N/A	52	On Watch
V316	420	*GO Discovery*	HRG	Ramsarran, Celine	2022-07-27	Visual	12:12	40.75928	-70.17709	112	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Tall and falcate dorsal fin located mid back.	Porpoising; Bow riding; Fast travel; Swimming below surface; Swimming at surface.	5	0	5	4	5	270	Vigorous	30	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	46	On Watch
V317	421	*GO Discovery*	HRG	Ashcraft, Caylin	2022-07-27	Visual	19:22	40.70827	-70.31139	70	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark gray bodies.	Porpoising; Swimming at surface; Fast travel.	10	0	10	10	10	230	Vigorous	1424	224	224	Full Power	Sparker Only	No	0	None	N/A	N/A	50.2	On Watch
V319	422	*GO Discovery*	HRG	Ashcraft, Caylin	2022-07-27	Visual	23:43	40.72226	-69.93629	69	Unidentified dolphin - Delphinidae spp.	Definite	Small cetacean, falcate dorsal fin.	Porpoising; Swimming at surface; Diving.	5	0	5	5	5	180	Vigorous	807	807	807	Full Power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V320	423	*GO Discovery*	HRG	Fisher, John	2022-07-28	Visual	06:47	40.90362	-70.40436	309	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, hourglass pattern on side with V-shaped saddle on back.	Surfacing; Swimming at surface; Feeding.	2	0	2	2	2	309	Moderate	10	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	52.7	On Watch
V321	424	*GO Discovery*	HRG	Twohy, Chelsea	2022-07-28	Visual	07:17	40.96351	-70.48865	316	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal fin, gray dorsal and white ventral side.	Surfacing; Swimming at surface; Swimming below surface.	2	0	3	2	2	180	Vigorous	70	N/A, source not deployed	15	Transit	None	No	0	None	N/A	N/A	44.5	On Watch
V322	425	*GO Discovery*	HRG	Harris, Matthew	2022-07-29	Visual	23:40	41.02988	-70.47150	128	Bottlenose dolphin - *Tursiops truncatus*	Definite	Falcate dorsal, pronounced melon, dark gray backs to light gray sides with white belly.	Surfacing; Breaching / Jumping / Acrobatic behavior; Fast travel; Porpoising; Swimming at surface; Diving.	10	0	12	8	10	308	Vigorous	500	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	39.3	On Watch
V323	426	*GO Discovery*	HRG	Fisher, John	2022-07-30	Visual	02:21	40.72596	-70.06762	125	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides and V-shaped saddle on back.	Bow riding; Feeding; Blowing; Swimming at surface.	10	0	11	9	10	125	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	37.7	On Watch
V324	427	*GO Discovery*	HRG	Twohy, Chelsea	2022-07-30	Visual	04:05	40.72129	-70.06203	132	Unidentified dolphin - Delphinidae spp.	Definite	Long slender beak, tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Feeding.	2	0	2	2	2	270	Vigorous	30	N/A, source not deployed	20	Deploying/Retrieving	None	No	0	None	N/A	N/A	39	On Watch
V325	428	*GO Discovery*	HRG	Methany, Nicholas	2022-07-30	Visual	10:43	40.72266	-70.36951	285	Fin whale - *Balaenoptera physalus*	Probable	Tall columnar blow, with definitively sloping dorsal, and high arch when diving.	Blowing; Surfacing; Swimming below surface.	2	0	2	2	2	355	Moderate	1430	1530	1430	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V326	429	*GO Discovery*	HRG	Ashcraft, Caylin	2022-07-30	Visual	19:10	40.71193	-70.36112	282	Common dolphin - *Delphinus delphis*	Definite	Slender body, light colored sides and under belly with yellow spot on side.	Porpoising; Bow riding; Fast travel.	3	2	5	3	5	103	Moderate	300	100	5	Full Power	Sparker Only	Yes	5	None	N/A	N/A	49.5	On Watch
V327	430	*GO Discovery*	HRG	Twohy, Chelsea	2022-07-31	Visual	06:58	40.71421	-70.34139	98	Common dolphin - *Delphinus delphis*	Definite	Small, slender body. Falcate dorsal fin, hour glass pattern on body.	Porpoising; Swimming at surface; Swimming below surface; Bow riding.	3	0	3	2	3	235	Moderate	70	95	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48	On Watch
V328	431	*GO Discovery*	HRG	Methany, Nicholas	2022-07-31	Visual	09:08	40.71720	-70.13895	93	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long rostrum, and cream-colored flanks.	Swimming at surface; Bow riding; Milling.	15	0	20	10	15	267	Sedate	300	3	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	47.8	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V329	432	*GO Discovery*	HRG	Ramsarran, Celine	2022-07-31	Visual	13:29	40.70339	-70.27201	270	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, falcate dorsal fin, short stubby beak, gray coloration.	Feeding; Swimming at surface; Swimming below surface.	10	0	10	5	10	250	Moderate	345	390	345	Full Power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V330	433	*GO Discovery*	HRG	Harris, Matthew	2022-07-31	Visual	14:24	40.70870	-70.35326	300	Common dolphin - *Delphinus delphis*	Definite	Small, slender bodies; hourglass pattern.	Swimming at surface; Swimming below surface; Porpoising.	8	0	10	8	8	75	Moderate	500	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V331	434	*GO Discovery*	HRG	Methany, Nicholas	2022-07-31	Visual	14:44	40.71560	-70.33696	91	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, robust, dolphin with a short rostrum, and black-gray in color.	Swimming at surface.	8	0	9	5	8	200	Sedate	1430	230	200	Full Power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V332	435	*GO Discovery*	HRG	Twohy, Chelsea	2022-08-01	Visual	06:45	40.68066	-70.20469	270	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Blowing; Swimming at surface; Bow riding	6	0	7	5	6	120	Vigorous	130	50	3	Full power	Sparker Only	Yes	6	None	N/A	N/A	45	On Watch
V333	436	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-01	Visual	08:11	40.67765	-70.37142	270	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long slender beak, and cream-colored flanks.	Surfacing; Swimming at surface; Bow riding	6	0	6	6	6	270	Moderate	100	75	5	Full power	Sparker Only	Yes	6	None	N/A	N/A	46	On Watch
V334	437	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-01	Visual	09:24	40.68648	-70.35485	92	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Surfacing; Swimming at surface; Porpoising	7	0	7	7	7	180	Moderate	300	430	300	Full power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V335	438	*GO Discovery*	HRG	Fisher, John	2022-08-01	Visual	11:50	40.69027	-70.13506	89	Unidentified dolphin - Delphinidae spp.	Definite	Slender body profile. dark coloration, defined beak.	Porpoising	8	0	10	5	8	230	Vigorous	1689	1750	1689	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V336	439	*GO Discovery*	HRG	Ramsarran, Celine	2022-08-01	Visual	12:05	40.67556	-70.12175	88	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Surfacing; Swimming at surface; Swimming below surface	4	0	4	4	4	240	Moderate	426	90	50	Full power	Sparker Only	Yes	4	None	N/A	N/A	45	On Watch
V337	440	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-01	Visual	14:28	40.66976	-70.13548	270	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, robust dolphin, with short rostrum.	Surfacing; Swimming at surface; Porpoising	10	1	12	10	11	290	Vigorous	700	200	300	Full power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V338	441	*GO Discovery*	HRG	Fuhr Ely, Gabi	2022-08-01	Visual	22:31	40.69679	-70.36088	265	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Porpoising; Breaching / Jumping / Acrobatic behavior; Bow riding	8	0	10	6	8	var	Vigorous	1411	107	2	Full power	Sparker Only	Yes	8	None	N/A	N/A	45	On Watch
V339	442	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-01	Visual	23:23	40.70204	-70.36268	178	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal, dark bodies.	Porpoising; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior	5	0	5	5	5	178	Vigorous	1425	557	557	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V340	443	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-01	Visual	23:41	40.69771	-70.3596	178	Common dolphin - *Delphinus delphis*	Definite	Slender body with hourglass pattern.	Porpoising; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior	8	0	8	8	8	178	Vigorous	5	95	5	Full power	Sparker Only	Yes	8	None	N/A	N/A	45	On Watch
V341	444	*GO Discovery*	HRG	Fisher, John	2022-08-02	Visual	03:31	40.70185	-70.15096	260	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides.	Surfacing; Bow riding; Swimming at surface; Swimming below surface	2	0	2	2	2	260	Moderate	105	80	1	Full power	Sparker Only	Yes	2	None	N/A	N/A	45	On Watch
V342	445	*GO Discovery*	HRG	Fisher, John	2022-08-02	Visual	11:28	40.71147	-70.26783	91	Bottlenose dolphin - *Tursiops truncatus*	Definite	Heavy bodied dolphin with falcate dorsal fin. dark-gray color. short thick beak.	Porpoising; Surfacing; Milling; Swimming at surface	6	1	7	7	7	270	Vigorous	1200	310	300	Full power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V343	446	*GO Discovery*	HRG	Twohy, Chelsea	2022-08-02	Visual	20:47	40.71138	-70.17306	255	Unidentified whale - Cetacea spp.	Definite	Large robust dark body, round head.	Breaching / Jumping / Acrobatic behavior	1	0	1	1	1	60	Moderate	120	130	120	Full power	Sparker Only	Yes	1	Shutdown	20:48	20:48	45	On Watch
V344	447	*GO Discovery*	HRG	Fisher, John	2022-08-03	Visual	02:09	40.71469	-70.27527	94	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall and falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Surfacing; Swimming at surface; Swimming below surface; Bow riding	4	0	4	4	4	220	Moderate	20	40	1	Full power	Sparker Only	Yes	4	None	N/A	N/A	49	On Watch
V345	448	*GO Discovery*	HRG	Fisher, John	2022-08-03	Visual	05:10	40.7164	-70.07193	275	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall and falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Surfacing; Bow riding; Feeding; Swimming at surface; Swimming below surface	3	0	3	3	3	275	Vigorous	20	50	2	Full power	Sparker Only	Yes	3	None	N/A	N/A	43	On Watch
V346	449	*GO Discovery*	HRG	Fisher, John	2022-08-03	Visual	06:36	40.71374	-70.20863	267	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal fin, unable to see any markings or beaks.	Porpoising; Fast travel	4	0	5	3	4	135	Vigorous	120	140	120	Full power	Sparker Only	Yes	4	None	N/A	N/A	44	On Watch

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V347	450	*GO Discovery*	HRG	Fisher, John	2022-08-03	Visual	08:05	40.70051	-70.36171	255	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall and falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Bow riding; Feeding; Swimming at surface; Swimming below surface	1	0	2	1	1	255	Moderate	3	50	3	Full power	Sparker Only	Yes	1	None	N/A	N/A	50	On Watch
V348	451	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-03	Visual	09:22	40.70016	-70.2656	193	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall and falcate dorsal fin, cream-colored flanks.	Porpoising; Bow riding; Surfacing	8	0	10	7	8	213	Vigorous	300	40	2	Full power	Sparker Only	Yes	3	None	N/A	N/A	46	On Watch
V349	452	*GO Discovery*	HRG	Fisher, John	2022-08-03	Visual	12:04	40.69609	-70.33959	86	Unidentified dolphin - Delphinidae spp.	Definite	Falcate dorsal fin, dark coloration.	Porpoising; Fast travel	4	0	5	3	4	0	Vigorous	800	820	800	Full power	Sparker Only	No	0	None	N/A	N/A	47	On Watch
V350	453	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-03	Visual	14:23	40.69825	-70.13816	90	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long rostrum, and cream-colored flanks.	Surfacing; Swimming at surface; Porpoising	14	0	16	11	14	270	Moderate	600	100	2	Full power	Sparker Only	Yes	2	None	N/A	N/A	45	On Watch
V351	454	*GO Discovery*	HRG	Harris, Matthew	2022-08-03	Visual	14:36	40.69234	-70.13792	90	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray backs, falcate dorsal.	Porpoising; Swimming at surface	6	0	6	6	6	225	Moderate	500	250	200	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V352	455	*GO Discovery*	HRG	Ramsarran, Celine	2022-08-03	Visual	16:35	40.68668	-70.07182	270	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall and falcate dorsal fin, cream-colored flanks.	Swimming at surface; Swimming below surface	4	0	4	4	4	320	Sedate	345	95	1	Full power	Sparker Only	Yes	4	None	N/A	N/A	45	On Watch
V353	456	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-03	Visual	17:50	40.69658	-70.1948	269	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long rostrum, and cream-colored flanks.	Swimming at surface; Surfacing	8	0	10	6	8	74	Moderate	650	450	450	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V354	457	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-03	Visual	18:25	40.69374	-70.23801	270	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark gray bodies.	Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming at surface	5	0	5	3	5	80	Vigorous	800	808	800	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V355	458	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-03	Visual	18:35	40.68555	-70.25062	269	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark gray bodies.	Swimming at surface; Surfacing	2	0	2	2	2	19	Moderate	300	250	150	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V356	459	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-03	Visual	18:47	40.68276	-70.26614	260	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark gray bodies.	Swimming at surface; Surfacing; Swimming below surface	2	0	2	2	2	65	Moderate	500	320	300	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V357	460	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-03	Visual	18:55	40.69321	-70.28312	261	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark gray bodies.	Porpoising; Swimming at surface	2	0	2	2	2	261	Vigorous	150	150	150	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V358	461	*GO Discovery*	HRG	Harris, Matthew	2022-08-03	Visual	19:41	40.68468	-70.36187	261	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray backs to medium gray sides, falcate dorsal, stout trunk.	Porpoising; Swimming at surface; Swimming below surface	6	0	7	5	6	80	Moderate	400	400	300	Full power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V359	462	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-04	Visual	00:42	41.00969	-70.70233	328	Bottlenose dolphin - *Tursiops truncatus*	Definite	Broad, dark colored bodies.	Swimming at surface; Surfacing	5	0	5	4	5	142	Moderate	100	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	49	On Watch
V360	463	*GO Discovery*	HRG	Twohy, Chelsea	2022-08-04	Visual	01:02	41.03413	-70.73353	321	Unidentified dolphin - Delphinidae spp.	Definite	Delphinid silhouette body, falcate dorsal fin.	Swimming at surface; Surfacing; Swimming below surface	1	0	1	1	1	130	Vigorous	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	46	On Watch
V361	464	*GO Discovery*	HRG	Twohy, Chelsea	2022-08-04	Visual	01:11	41.07169	-70.7749	331	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin, grey and white with yellow pattern.	Porpoising; Swimming at surface	9	0	9	7	9	210	Moderate	30	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	46	On Watch
V362	465	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-04	Visual	02:24	41.14442	-70.85145	354	Humpback whale - *Megaptera novaeangliae*	Definite	Dark gray bodies. Small dorsal with notches down its tail. White on underside of flukes.	Porpoising; Swimming at surface; Swimming below surface	3	0	3	3	3	180	Moderate	180	N/A, source not deployed	180	Transit	None	No	0	None	N/A	N/A	36	On Watch
V192	466	*GO Pursuit*	HRG	Santiago, Sancy	2022-07-27	Visual	11:25	41.00227	-70.57233	126	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray color, falcated dorsal fin, rounded head and short beak.	Swimming at surface; Blowing; Fast travel; Breaching / Jumping / Acrobatic behavior	10	0	15	5	10	225	Vigorous	400	N/A, source not deployed	350	Transit	None	No	0	None	N/A	N/A	48	On Watch
V193	467	*GO Pursuit*	HRG	Abeytia, Flavio	2022-07-27	Visual	13:51	40.79559	-70.25401	132	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray color, falcated dorsal fin, rounded head and short beak.	Swimming at surface; Porpoising; Fast travel	4	2	10	5	6	160	Vigorous	50	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	48	On Watch

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V194	468	*GO Pursuit*	HRG	Garcia, Marah	2022-07-27	Visual	17:44	40.63489	-70.03341	47	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray cape with light gray underside. Tall and falcate dorsal fin with robust body and thick tail stock, rounded forehead.	Surfacing; Blowing; Breaching / Jumping / Acrobatic behavior; Swimming at surface; Swimming below surface; Porpoising	12	1	16	9	13	270	Moderate	574	15	30	Silent	None	No	0	Delay	N/A	N/A	52	On Watch
V196	469	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-27	Visual	20:18	40.64606	-70.01806	287	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray color, falcated dorsal fin, rounded head and short beak.	Swimming below surface; Breaching / Jumping / Acrobatic behavior	6	2	14	7	8	130	Moderate	500	80	2	Full Power	Sparker Only	Yes	8	None	N/A	N/A	53	On Watch
V197/A17	470	*GO Pursuit*	HRG	Garcia, Marah; Alaman, Ricardo	2022-07-28	Both	01:30	40.64352	-70.29163	83	Common dolphin - *Delphinus delphis*	Definite	Slender body. Tall and falcated dorsal fin. Dark cape in color, yellowish hourglass pattern on the sides. Sinusoidal and Concave whistles with frequencies from 8 to 18 kHz, and amplitudes up to 70 dB. HF clicks with amplitudes up to 160 dB.	Fast travel; Surfacing; Swimming below surface; Feeding	7	1	8	8	8	143	Vigorous	300	5	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	54	On Watch
V198	471	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-28	Visual	15:58	40.64736	-70.12645	260	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall falcate dorsal fin, robust body, grey coloring, short robust beak	Swimming at surface; Diving	8	0	10	6	8	270	Moderate	1200	300	300	Full Power	Sparker Only	No	0	None	N/A	N/A	50	On Watch
V200 / A18	472	*GO Pursuit*	HRG	Abeytia, Flavio; Garcia, Marah	2022-07-29	Both	05:41	40.62871	-70.45425	76	Common dolphin - *Delphinus delphis*	Definite	Slender body and hourglass pattern on sides: tan and gray patches and tall falcate dorsal fin. HF click trains wih peak amplite of 150 dB.	Fast travel; Swimming at surface; Swimming below surface; Bow riding, Vocalizing.	N/A	N/A	4	2	2	345	Moderate	10	45	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	62	On Watch
V201 / A19	473	*GO Pursuit*	HRG	Danos, Laura; Toxtle, Miguel	2022-07-29	Both	06:52	40.63139	-70.26181	78	Common dolphin - *Delphinus delphis*	Definite	Slender body and hourglass pattern on sides: tan and gray patches and tall falcate dorsal fin. Whistles displayed Sine, constant, concave,convex, up and down sweeps shapes, with frequencies from 62 to 125 kHz.	Swimming below surface; Porpoising; Porpoising, vocalizing	5	1	7	5	6	350	Moderate	2	45	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	56	On Watch
V202	474	*GO Pursuit*	HRG	Abeytia, Flavio	2022-07-29	Visual	09:26	40.63145	-70.10330	87	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body and head with a well-defined beak. Tall, falcate dorsal fin.	Swimming at surface; Blowing; Swimming below surface	5	0	8	3	5	90	Vigorous	300	50	5	Full Power	Sparker Only	Yes	5	None	N/A	N/A	51	On Watch
V203	475	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-29	Visual	16:12	40.63524	-70.41799	88	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body and head with a well-defined beak. Tall, falcate dorsal fin.	Fast travel; Porpoising	10	0	12	8	10	210	Moderate	400	80	2	Silent	None	No	0	None	N/A	N/A	59	On Watch
V204	476	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-29	Visual	16:39	40.63425	-70.36559	84	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body and head with a well-defined beak. Tall, falcate dorsal fin.	Porpoising; Fast travel	3	0	4	3	3	180	Vigorous	446	277	277	Silent	None	No	0	None	N/A	N/A	58	On Watch
V205	477	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-29	Visual	19:53	40.62868	-70.03558	84	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body and head with a well-defined beak. Tall, falcate dorsal fin.	Swimming at surface; Breaching / Jumping / Acrobatic behavior	9	0	11	7	9	180	Moderate	526	60	2	Soft Start	Sparker Only	Yes	9	None	N/A	N/A	52	On Watch
V207	478	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-29	Visual	23:13	40.63195	-70.29854	263	Common dolphin - *Delphinus delphis*	Definite	Slender body and hourglass pattern on sides: tan and gray patches and tall falcate dorsal fin.	Surfacing; Swimming at surface; Swimming below surface; Fast travel	15	0	20	15	15	210	Vigorous	400	40	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	54	On Watch
V208	479	*GO Pursuit*	HRG	Santiago, Sancy	2022-07-30	Visual	11:52	40.64505	-70.09713	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass pattern on sides. Tall, falcate dorsal fin.	Swimming below surface; Surfacing; Fast travel	3	1	7	2	4	260	Vigorous	25	65	3	Silent	None	No	0	None	N/A	N/A	49	On Watch
V209	480	*GO Pursuit*	HRG	Abeytia, Flavio	2022-07-30	Visual	12:55	40.63447	-70.03034	178	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass pattern on sides. Tall, falcate dorsal fin.	Fast travel; Porpoising; Bow riding; Breaching / Jumping / Acrobatic behavior; Surfacing	40	10	65	25	40	160	Vigorous	300	2	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	54	On Watch
V210	481	*GO Pursuit*	HRG	Alaman, Ricardo	2022-07-30	Visual	14:39	40.64347	-70.09849	252	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass pattern on sides. Tall, falcate dorsal fin.	Porpoising; Swimming below surface	4	0	5	3	4	270	Moderate	300	80	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	50	On Watch
V211	482	*GO Pursuit*	HRG	Toxtle, Miguel	2022-07-30	Visual	21:39	40.64034	-70.45185	76	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass pattern on sides. Tall, falcate dorsal fin.	Surfacing; Fast travel; Swimming below surface; Swimming below surface	11	1	16	12	12	230	Vigorous	276	70	2	Full Power	Sparker Only	Yes	12	None	N/A	N/A	73	On Watch
V212	483	*GO Pursuit*	HRG	Abeytia, Flavio	2022-07-31	Visual	10:35	40.63764	-70.27175	258	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass pattern on sides. Tall, falcate dorsal fin	Surfacing; Swimming at surface; Blowing; Swimming below surface	17	0	25	10	17	200	Vigorous	180	8	10	Full Power	Sparker Only	Yes	17	None	N/A	N/A	53	On Watch
V213	484	*GO Pursuit*	HRG	Danos, Laura	2022-07-31	Visual	13:44	40.65031	-70.05798	88	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust gray body with a short, thick, well-defined beak, Tall-falcate dorsal fin	Surfacing; Swimming at surface; Swimming below surface; Porpoising.	7	1	10	6	8	30	Moderate	600	230	150	Full Power	Sparker Only	No	0	None	N/A	N/A	50	On Watch
V214	485	*GO Pursuit*	HRG	Danos, Laura	2022-08-01	Visual	06:51	40.63107	-70.44380	266	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides: Tan and gray patches.	Swimming at surface; Bow riding; Fast travel.	3	1	6	3	4	150	Vigorous	10	5	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	58.5	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V215 / A20	486	*GO Pursuit*	HRG	Abeytia, Flavio; Bonfil, Neftali	2022-08-01	Both	08:22	40.63852	-70.38501	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides: tan and gray patches. Echolocation clicks ranging in frequency from 19 to 240 kHz and in amplitudes from 135 to 160 dB and sinusoidal whistles ranging from 96 and 180 kHz in frequency.	Swimming at surface; Swimming below surface; Bow riding; Porpoising, Vocalizing.	3	1	4	2	4	100	Vigorous	20	30	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	58.6	On Watch
V216	487	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-01	Visual	09:54	40.63523	-70.23726	85	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body with a short, thick, well-defined beak. Tall, falcate dorsal fin.	Surfacing; Bow riding; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	48	2	67	36	50	170	Vigorous	333	45	1	Silent	None	No	0	Delay	N/A	N/A	53	On Watch
V217	488	*GO Pursuit*	HRG	Danos, Laura	2022-08-01	Visual	12:49	40.63863	-70.21489	95	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides: tan and gray patches.	Fast travel; Porpoising; Bow riding; Swimming at surface; Swimming below surface.	20	7	35	15	27	180	Vigorous	300	5	1	Full Power	Sparker Only	Yes	27	None	N/A	N/A	52.1	On Watch
V218	489	*GO Pursuit*	HRG	Danos, Laura	2022-08-01	Visual	16:30	40.63635	-70.07799	250	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body with a short, thick, well-defined beak. Tall, falcate dorsal fin.	Swimming at surface; Bow riding; Fast travel.	2	1	3	3	3	150	Vigorous	5	80	5	Silent	None	No	0	None	N/A	N/A	50	On Watch
V219	490	*GO Pursuit*	HRG	Garcia, Marah	2022-08-01	Visual	17:54	40.63874	-70.18332	266	Common dolphin - *Delphinus delphis*	Definite	Triangular dorsal fin with pale gray and dark border, yellowish hourglass pattern, slender body, pale gray tail stock. Black beak and dark circle around the eye.	Swimming below surface; Swimming at surface; Bow riding; Blowing.	12	0	18	8	12	90	Moderate	40	55	1	Silent	None	No	0	None	N/A	N/A	50.2	On Watch
V220 / A21	491	*GO Pursuit*	HRG	Toxtle, Miguel; Bonfil, Neftali	2022-08-02	Both	00:11	40.63400	-70.24822	86	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, gray dark color with light gray sides. Tall and falcated dorsal fin. Melon headed forehead. Echolocation clicks ranging in frequency from 9 to 240 kHz and in amplitudes from 115 to 165 dB and up sweep, down sweep and sinusoidal whistles ranging from 7 to 21 kHz in frequency.	Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior, Vocalizing.	5	1	6	6	6	180	Moderate	150	50	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	51.8	On Watch
V221 /A22	492	*GO Pursuit*	HRG	Danos, Laura; Garcia, Marah	2022-08-02	Both	04:58	40.63707	-70.11277	257	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, V-shaped saddle with hourglass pattern on sides. Tan and gray patches. Convex, concave, upsweep and down sweep whistle contours between 9 and 20 kilohertz. Click rains with amplitudes ranging from 135 to 155 dB., and a peak amplitude of 165 dB.	Bow riding; Swimming below surface, Vocalizing.	3	1	4	3	4	0	Vigorous	1	50	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	68	On Watch
V222	493	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-02	Visual	09:57	40.65614	-70.36648	74	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, V-shaped saddle with hourglass pattern on sides. Tan and gray patches.	Surfacing; Swimming at surface; Swimming below surface; Fast travel.	11	0	18	6	11	220	Vigorous	320	220	200	Full Power	Sparker Only	No	0	None	N/A	N/A	53	On Watch
V223	494	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-02	Visual	11:03	40.64900	-70.25666	82	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, V-shaped saddle with hourglass pattern on sides. Tan and gray patches.	Surfacing; Breaching / Jumping / Acrobatic behavior; Swimming at surface; Swimming below surface; Porpoising.	45	0	60	30	45	160	Vigorous	200	50	1	Full Power	Sparker Only	Yes	45	None	N/A	N/A	52.1	On Watch
V224	495	*GO Pursuit*	HRG	Danos, Laura	2022-08-02	Visual	12:46	40.66187	-70.08535	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, V-shaped saddle with hourglass pattern on sides. Tan and gray patches.	Porpoising; Swimming at surface; Fast travel.	20	0	30	15	20	270	Vigorous	300	10	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	48.4	On Watch
V225	496	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-03	Visual	03:40	40.64722	-70.41196	264	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust gray body with a well-defined beak. Tall, falcate dorsal fin with broad base.	Swimming at surface; Swimming below surface.	15	0	15	15	15	180	Vigorous	50	60	2	Full Power	Sparker Only	Yes	15	None	N/A	N/A	56.1	On Watch
V226 / A23	497	*GO Pursuit*	HRG	Abeytia, Flavio; Garcia, Marah	2022-08-03	Both	04:05	40.65302	-70.35174	79	Common dolphin - *Delphinus delphis*	Definite	Slender body, black cape with hourglass-pattern on sides. Tall, falcate dorsal fin. Tonal sounds had up sweep, down sweep, sinusoidal and concave contours ranging in frequency from 6 to 23 kHz. Echolocation clicks ranging in frequency from 62 to 130 kHz with a highest amplitude of 165 dB.	Swimming below surface; Bow riding; Blowing; Swimming at surface, Vocalizing.	3	2	6	4	5	20	Moderate	5	60	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	57.2	On Watch
V227	498	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-03	Visual	12:12	40.64832	-70.34896	262	Common dolphin - *Delphinus delphis*	Definite	Slender body, black cape with hourglass-pattern on sides. Tall, falcate dorsal fin.	Swimming at surface; Surfacing; Swimming below surface.	4	0	5	3	4	100	Moderate	600	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	53.9	On Watch
V228	499	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-03	Visual	15:14	40.65395	-70.24498	95	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust gray body with a well-defined beak. Tall, falcate dorsal fin with broad base.	Swimming at surface; Bow riding.	3	0	3	3	3	220	Vigorous	5	80	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	53.2	On Watch
V229	500	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-03	Visual	15:37	40.65008	-70.20721	96	Common dolphin - *Delphinus delphis*	Definite	Slender body, yellowish patch on both sides, dark circle around eyes and prominent beak. Tall dorsal fin with pointed tip.	Surfacing; Swimming at surface; Swimming below surface; Fast travel; Diving with flukes / Fluking; Porpoising.	48	2	62	32	50	170	Vigorous	230	2	5	Full Power	Sparker Only	Yes	50	None	N/A	N/A	54	On Watch
V230	501	*GO Pursuit*	HRG	Garcia, Marah	2022-08-03	Visual	17:13	40.65354	-70.04208	76	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall and falcated dorsal fin, dark gray color. Mellon forehead and short beak.	Swimming at surface; Swimming below surface.	2	1	3	3	3	100	Moderate	200	80	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	47.5	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V232	502	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-03	Visual	22:54	40.65579	-70.37497	77	Common dolphin - *Delphinus delphis*	Definite	Dark circle around eyes and prominent beak. Tall dorsal fin with pointed tip.	Porpoising; Breaching / Jumping / Acrobatic behavior.	4	0	5	3	4	110	Moderate	700	50	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	55.5	On Watch
V233	503	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-04	Visual	02:44	40.65075	-70.03168	261	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides.	Surfacing; Swimming below surface.	3	0	3	2	3	150	Moderate	5	60	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	50.5	On Watch
V234	504	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-04	Visual	04:35	40.64861	-70.21757	258	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Swimming below surface; Diving.	15	0	15	15	15	160	Vigorous	100	80	2	Full Power	Sparker Only	No	15	None	N/A	N/A	48.7	On Watch
V235 / A24	505	*GO Pursuit*	HRG	Danos, Laura; Garcia, Marah	2022-08-04	Both	05:31	40.64700	-70.37302	267	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides. Click trains amplitudes between 115 and 165 dB, with a frequency range of 55 to 135 kHz. Tonal sounds up sweep, down sweep and sinusoidal contours ranging in frequency from 7 to 15 kHz.	Swimming at surface; Swimming below surface; Bow riding; Feeding, Vocalizing.	6	4	13	8	10	50	Moderate	15	30	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	57.7	On Watch
V236 / A25	506	*GO Pursuit*	HRG	Abeytia, Flavio; Bonfil, Neftali	2022-08-04	Both	08:16	40.65276	-70.30504	94	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides. Echolocation clicks ranging in frequency from 21 to 240 kHz and in amplitudes from 115 to 160 dB and up sweep, down sweep and sinusoidal whistles ranging from 6 to 24 kHz in frequency.	Swimming at surface; Swimming below surface; Bow riding, Vocalizing.	4	2	9	6	6	90	Moderate	5	30	1	Silent	None	No	0	None	N/A	N/A	55.6	On Watch
V237	507	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-04	Visual	14:42	40.63371	-70.34493	260	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides.	Porpoising; Swimming below surface; Swimming at surface.	100	0	120	80	100	330	Vigorous	800	25	1	Full Power	Sparker Only	Yes	100	None	N/A	N/A	54	On Watch
V238	508	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-04	Visual	18:13	40.65549	-70.20071	84	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Surfacing; Swimming at surface.	12	0	20	8	12	270	Moderate	350	80	60	Full Power	Sparker Only	Yes	12	None	N/A	N/A	50.2	On Watch
V239	509	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-04	Visual	19:35	40.65247	-70.04514	91	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin, light gray color.	Surfacing; Swimming at surface; Swimming below surface.	4	0	4	4	4	190	Moderate	450	110	120	Full Power	Sparker Only	Yes	4	None	N/A	N/A	49	On Watch
V240	510	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-04	Visual	20:19	40.64292	-70.03065	260	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin, light gray color.	Bow riding; Swimming below surface; Swimming at surface.	4	0	6	4	4	240	Moderate	600	30	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	49	On Watch
V241	511	*GO Pursuit*	HRG	Garcia, Marah	2022-08-04	Visual	21:35	40.64711	-70.15792	264	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides.	Fast travel; Surfacing; Swimming below surface.	7	0	7	7	7	200	Vigorous	340	50	5	Full Power	Sparker Only	Yes	7	None	N/A	N/A	48	On Watch
V242	512	*GO Pursuit*	HRG	Garcia, Marah	2022-08-04	Visual	21:48	40.64625	-70.18311	271	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, dark gray in color with light gray on the sides. Tall and falcated dorsal fin.	Fast travel; Surfacing.	3	0	3	3	3	250	Vigorous	345	150	80	Full Power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V243	513	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-04	Visual	22:25	40.64763	-70.32123	257	Common dolphin - *Delphinus delphis*	Definite	Tall and falcated dorsa fin. Slender body with hourglass pattern on the sides.	Surfacing; Milling; Porpoising.	22	0	25	20	22	200	Moderate	250	20	1	Full Power	Sparker Only	Yes	14	None	N/A	N/A	53	On Watch
V244 / A26	514	*GO Pursuit*	HRG	Toxtle, Miguel; Garcia, Marah	2022-08-05	Both	04:15	40.65467	-70.07120	90	Bottlenose dolphin - *Tursiops truncatus*	Definite	Slender body, slightly falcate dorsal fin. Tonal sounds down sweep contours ranging in frequency from 9 to 17 kHz. Echolocation clicks ranging in frequency from 60 to 170 kHz.	Surfacing; Swimming below surface; Diving, Vocalizing.	2	0	2	2	2	180	Vigorous	20	85	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	47	On Watch
V245	515	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-05	Visual	06:16	40.64825	-70.15697	271	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak. hourglass pattern on the sides with tan and grey patches.	Swimming at surface; Swimming below surface.	5	1	6	6	6	120	Vigorous	15	40	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	53	On Watch
V246	516	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-05	Visual	08:19	40.64611	-70.36365	274	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak. hourglass pattern on the sides with tan and grey patches.	Swimming at surface; Bow riding; Fast travel.	4	4	4	4	4	140	Vigorous	10	60	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	57.3	On Watch
V247	517	*GO Pursuit*	HRG	Danos, Laura	2022-08-05	Visual	13:22	40.65207	-70.21792	81	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak. hourglass pattern on the sides with tan and grey patches.	Fast travel; Surfacing; Swimming below surface.	8	0	10	8	8	30	Vigorous	400	280	200	Full Power	Sparker Only	No	0	None	N/A	N/A	56.2	On Watch
V248	518	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-05	Visual	15:03	40.65768	-70.06258	91	Bottlenose dolphin - *Tursiops truncatus*	Definite	Short, thick well defined beak. tall, falcate dorsal fin with broad base.	Breaching / Jumping / Acrobatic behavior; Surfacing; Swimming below surface.	3	1	4	4	4	220	Vigorous	250	120	125	Full Power	Sparker Only	Yes	4	None	N/A	N/A	50	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V249 / A27	519	*GO Pursuit*	HRG	Garcia, Marah; Bonfil, Neftali	2022-08-06	Both	00:22	40.65471	-70.05889	74	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark gray cape with hourglass patterns on the sides. Tall and falcated dorsal fin. Echolocation clicks ranging in frequency from 4 to 64 kHz and in amplitudes from 115 to 165 dB and up sweep and sinusoidal whistles ranging from 5 to 22 kHz in frequency.	Swimming at surface; Bow riding; Breaching / Jumping / Acrobatic behavior, Vocalizing.	15	0	15	12	15	20	Moderate	100	50	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	48	On Watch
V250 / A28	520	*GO Pursuit*	HRG	Danos, Laura; Toxtle, Miguel	2022-08-06	Both	06:34	40.65174	-70.28467	92	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark gray cape with hourglass patterns on the sides. Tall and falcated dorsal fin. Down sweeps and constants whistles contours between 4.40 and 23.74 kilohertz, clicks amplitudes ranged from 115 to 160 dB.	Swimming below surface; Bow riding; Fast travel, Vocalizing.	8	0	8	8	8	60	Vigorous	10	80	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	52.3	On Watch
V251	521	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-06	Visual	09:25	40.65419	-70.04033	90	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body with a thick, well-defined beak. tall, falcate dorsal fin with broad base.	Surfacing; Swimming at surface; Swimming below surface.	3	1	4	4	4	90	Vigorous	55	25	55	Full Power	Sparker Only	Yes	4	None	N/A	N/A	49	On Watch
V252	522	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-06	Visual	11:24	40.64581	-70.16502	263	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark gray cape with hourglass patterns on the sides. Tall and falcated dorsal fin.	Surfacing; Swimming below surface; Fast travel.	8	2	12	10	12	160	Vigorous	2	55	2	Full Power	Sparker Only	Yes	12	None	N/A	N/A	52.2	On Watch
V253	523	*GO Pursuit*	HRG	Santiago, Sancy	2022-08-06	Visual	15:21	40.65253	-70.32527	86	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body with a thick, well-defined beak. tall, falcate dorsal fin with broad base.	Surfacing; Swimming at surface; Swimming below surface; Fast travel.	6	0	10	4	6	100	Vigorous	400	45	25	Full Power	Sparker Only	Yes	6	None	N/A	N/A	55.7	On Watch
V254	524	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-06	Visual	20:11	40.63871	-70.15076	263	Bottlenose dolphin - *Tursiops truncatus*	Definite	Gray robust body with a thick, well-defined.	Swimming at surface; Breaching / Jumping / Acrobatic behavior.	4	0	5	3	4	240	Moderate	447	440	446	Full Power	Sparker Only	No	0	None	N/A	N/A	48.7	On Watch
V255	525	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-06	Visual	20:45	40.64598	-70.20658	266	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark gray cape with hourglass patterns on the sides. Tall and falcated dorsal fin.	Swimming below surface; Surfacing; Fast travel.	15	0	15	15	15	210	Vigorous	232	40	2	Full Power	Sparker Only	Yes	15	None	N/A	N/A	49.1	On Watch
V256	526	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-06	Visual	23:54	40.64953	-70.43325	79	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark gray cape with hourglass patterns on the sides. Tall and falcated dorsal fin.	Swimming below surface; Swimming at surface; Diving.	14	1	21	14	15	180	Moderate	100	40	1	Silent	None	No	0	Delay	N/A	N/A	58.2	On Watch
V257	527	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-07	Visual	05:07	40.64722	-70.12558	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Tall, falcate dorsal fin with thin, pointy beak.	Swimming at surface; Fast travel.	2	1	3	3	3	60	Vigorous	15	65	10	Full Power	Sparker Only	Yes	3	None	N/A	N/A	52.2	On Watch
V258	528	*GO Pursuit*	HRG	Alaman, Ricardo	2022-08-07	Visual	22:22	40.99651	-70.66692	342	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Tall, falcate dorsal fin with thin, pointy beak.	Swimming below surface; Swimming at surface; Fast travel; Breaching / Jumping / Acrobatic behavior.	30	0	40	25	30	130	Vigorous	100	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	52.1	On Watch
V259	529	*GO Pursuit*	HRG	Huizar, Heber	2022-08-10	Visual	16:00	40.67717	-70.21144	261	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, short beak, gray with lighter belly, tall and falcate dorsal fin.	Breaching / Jumping / Acrobatic behavior; Porpoising; Fast travel.	5	0	6	5	5	220	Vigorous	800	N/A, source not deployed	100	Transit	None	No	0	None	N/A	N/A	45.7	On Watch
V260	530	*GO Pursuit*	HRG	Huizar, Heber	2022-08-10	Visual	22:44	40.65117	-70.24223	86	Common dolphin - *Delphinus delphis*	Definite	Medium sized body, short beak, distinctive hour-glass coloration on sides, tall and falcate dorsal fin.	Porpoising; Swimming below surface; Bow riding; Fast travel.	4	1	6	5	5	90	Vigorous	100	100	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	52.4	On Watch
V261	531	*GO Pursuit*	HRG	Huizar, Heber	2022-08-10	Visual	23:29	40.64963	-70.15688	86	Common dolphin - *Delphinus delphis*	Definite	Medium sized body, short beak, distinctive hour-glass coloration on sides, tall and falcate dorsal fin.	Porpoising; Swimming below surface.	6	1	8	7	7	90	Moderate	200	40	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	49.6	On Watch
V262	532	*GO Pursuit*	HRG	Danos, Laura	2022-08-11	Visual	01:38	40.64776	-70.06326	266	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail, long pointed beak. Hourglass pattern on the side with tan and gray patches.	Surfacing; Porpoising; Fast travel.	6	0	7	4	6	145	Vigorous	50	80	5	Full Power	Sparker Only	Yes	6	None	N/A	N/A	51.7	On Watch
V263	533	*GO Pursuit*	HRG	Danos, Laura	2022-08-11	Visual	08:45	40.65194	-70.14998	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail, long pointed beak. Hourglass pattern on the side with tan and gray patches.	Swimming at surface; Fast travel; Swimming below surface.	2	1	3	3	3	40	Moderate	30	20	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	50.9	On Watch
V264	534	*GO Pursuit*	HRG	Danos, Laura	2022-08-11	Visual	09:24	40.65568	-70.10575	92	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and head, short, thick, well defined beak and dorsal fin falcate.	Fast travel; Diving.	10	0	10	10	10	250	Vigorous	340	40	5	Full Power	Sparker Only	Yes	6	None	N/A	N/A	50.9	On Watch
V265	535	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-11	Visual	11:27	40.64709	-70.09804	251	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and head, short, thick, well defined beak and dorsal fin falcate.	Breaching / Jumping / Acrobatic behavior; Swimming below surface.	8	1	9	9	9	190	Stationary	717	40	3	Full Power	Sparker Only	Yes	9	None	N/A	N/A	48	On Watch

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V266	536	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-11	Visual	17:41	40.65178	-70.15855	75	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, short, thick well defined beak, tall and falcate dorsal fin.	Surfacing; Porpoising; Milling; Diving.	8	1	9	9	9	180	Moderate	30	80	2	Full Power	Sparker Only	Yes	9	None	N/A	N/A	48.5	On Watch
V267	537	*GO Pursuit*	HRG	Huizar, Heber	2022-08-11	Visual	21:17	40.64570	-70.21764	258	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, short, thick well defined beak, tall and falcate dorsal fin.	Surfacing; Porpoising; Bow riding; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	4	0	5	4	4	90	Moderate	150	70	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	52.1	On Watch
V268	538	*GO Pursuit*	HRG	Huizar, Heber	2022-08-11	Visual	22:37	40.64581	-70.35730	262	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale slender tail, long pointed beak. Hourglass pattern on the side with tan and gray patches.	Surfacing; Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	2	1	3	3	3	225	Moderate	50	60	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	58.5	On Watch
V269	539	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-12	Visual	05:40	40.64470	-70.29031	276	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Swimming below surface; Swimming at surface; Bow riding; Diving.	1	1	2	2	2	260	Moderate	3	40	3	Full Power	Sparker Only	Yes	2	None	N/A	N/A	51.5	On Watch
V270	540	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-12	Visual	07:25	40.64373	-70.40469	275	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Porpoising; Fast travel; Swimming at surface; Swimming below surface.	6	0	6	6	6	190	Moderate	20	20	2	Full Power	Sparker Only	Yes	6	None	N/A	N/A	54.6	On Watch
V271	541	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-12	Visual	09:20	40.64953	-70.34399	85	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Swimming below surface; Surfacing.	5	0	5	5	5	90	Moderate	100	40	3	Full Power	Sparker Only	Yes	5	None	N/A	N/A	55	On Watch
V272	542	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-12	Visual	11:30	40.65232	-70.14134	96	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Bow riding; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Diving.	5	1	6	6	6	180	Vigorous	637	40	3	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48	On Watch
V273	543	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-12	Visual	13:33	40.65053	-70.04892	254	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Surfacing; Swimming below surface; Swimming at surface; Blowing.	5	2	9	6	7	170	Moderate	200	20	2	Full Power	Sparker Only	Yes	7	None	N/A	N/A	51.5	On Watch
V274	544	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-12	Visual	14:01	40.64469	-70.09253	257	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body and falcate dorsal fin.	Fast travel; Porpoising; Swimming at surface; Swimming below surface.	8	4	16	9	12	210	Vigorous	300	180	180	Full Power	Sparker Only	No	0	None	N/A	N/A	50.2	On Watch
V275	545	*GO Pursuit*	HRG	Huizar, Heber	2022-08-12	Visual	22:18	40.65663	-70.16056	91	Unidentified whale - Cetacea spp.	Definite	Tall bushy blow.	Blowing.	1	0	1	1	1	u	Sedate	642	643	642	Full Power	Sparker Only	No	0	None	N/A	N/A	50.2	On Watch
V276	546	*GO Pursuit*	HRG	Huizar, Heber	2022-08-12	Visual	22:28	40.65103	-70.14343	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Porpoising; Fast travel; Swimming below surface.	4	0	4	4	4	130	Vigorous	234	65	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	50.2	On Watch
V277	547	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-13	Visual	01:22	40.64517	-70.18504	263	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, slender body, tall and falcate dorsal fin and hourglass pattern on sides.	Porpoising; Swimming below surface.	6	0	8	5	6	90	Vigorous	20	60	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	50.9	On Watch
V278	548	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-13	Visual	06:16	40.65056	-70.17421	73	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, slender body, tall and falcate dorsal fin and hourglass pattern on sides.	Bow riding; Blowing; Diving.	4	1	5	5	5	0	Vigorous	3	40	3	Full Power	Sparker Only	Yes	5	None	N/A	N/A	49	On Watch
V279	549	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-13	Visual	09:19	40.65465	-69.99698	75	Bottlenose dolphin - *Tursiops truncatus*	Definite	Short, thick, well-defined beak. Robust body and head. Pointed flipper and flukes deeply notched.	Feeding; Blowing; Fast travel.	3	1	4	4	4	310	Vigorous	1	40	1	Silent	None	No	0	Delay	N/A	N/A	50.6	On Watch
V281	550	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-13	Visual	18:28	40.65402	-70.09891	72	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, thick and stubby beak, tall and falcate dorsal fin.	Surfacing; Porpoising; Swimming below surface.	9	3	14	11	12	150	Vigorous	100	60	1	Silent	None	No	0	None	N/A	N/A	48.6	On Watch
V282	551	*GO Pursuit*	HRG	Danos, Laura	2022-08-14	Visual	02:06	40.65216	-70.19235	90	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, tall and falcate dorsal fin, short and stubby beak.	Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming below surface; Porpoising.	6	2	10	6	8	360	Vigorous	5	80	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	49.1	On Watch
V283	552	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-14	Visual	13:52	40.65002	-70.10173	90	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, tall and falcate dorsal fin, short and stubby beak.	Swimming below surface; Swimming at surface.	6	2	11	7	8	60	Moderate	200	10	2	Silent	None	No	0	None	N/A	N/A	49	On Watch
V284	553	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-14	Visual	14:29	40.65331	-70.04378	92	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, tall and falcate dorsal fin, short and stubby beak.	Fast travel; Swimming at surface; Swimming below surface.	6	3	13	7	9	150	Vigorous	250	5	2	Silent	None	No	0	None	N/A	N/A	49.3	On Watch

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								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
V285	554	*GO Pursuit*	HRG	Huizar, Heber	2022-08-14	Visual	21:20	40.64982	-70.34518	83	Unidentified whale - Cetacea spp.	Definite	Robust body, long pectoral fins.	Breaching / Jumping / Acrobatic behavior.	1	0	1	1	1	u	Vigorous	700	665	700	Silent	None	No	0	None	N/A	N/A	55.1	On Watch
V286	555	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-15	Visual	06:00	40.65182	-70.03658	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with long, pointed beak. Dark cape with hourglass-pattern on sides.	Fast travel; Diving.	0	2	2	2	2	280	Vigorous	30	80	1	Silent	None	No	0	None	N/A	N/A	48	On Watch
V287	556	*GO Pursuit*	HRG	Danos, Laura	2022-08-15	Visual	07:23	40.65105	-70.18042	275	Common dolphin - *Delphinus delphis*	Definite	Slender body with long, pointed beak. Dark cape with hourglass-pattern on sides.	Fast travel; Diving; Swimming at surface; Swimming below surface.	2	1	3	3	3	150	Vigorous	25	10	2	Silent	None	No	0	None	N/A	N/A	48.7	On Watch
V288	557	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-15	Visual	13:00	40.65917	-70.22796	92	Common dolphin - *Delphinus delphis*	Definite	Slender body with long, pointed beak. Dark cape with hourglass-pattern on sides.	Fast travel; Porpoising; Swimming at surface; Swimming below surface.	8	4	15	9	12	210	Vigorous	250	10	2	Full Power	Sparker Only	Yes	12	None	N/A	N/A	50.2	On Watch
V289	558	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-15	Visual	13:55	40.65358	-70.12239	95	Common dolphin - *Delphinus delphis*	Definite	Slender body with long, pointed beak. Dark cape with hourglass-pattern on sides.	Swimming at surface; Swimming below surface; Blowing.	2	4	5	4	4	90	Moderate	180	5	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	48.7	On Watch
V290	559	*GO Pursuit*	HRG	Huizar, Heber	2022-08-15	Visual	15:55	40.64590	-70.05923	251	Common dolphin - *Delphinus delphis*	Definite	Slender body with long, pointed beak. Dark cape with hourglass-pattern on sides.	Fast travel; Porpoising; Swimming at surface; Swimming below surface.	5	0	7	4	5	240	Vigorous	234	30	2	Full Power	Sparker Only	Yes	5	None	N/A	N/A	52.1	On Watch
V291	560	*GO Pursuit*	HRG	Huizar, Heber	2022-08-18	Visual	23:18	41.43058	-70.78465	51	Gray Seal - *Halichoerus grypus*	Definite	Horse-like head with arching snout.	Spy hopping; Diving.	1	0	1	1	1	180	Moderate	200	N/A, source not deployed	150	Standby	None	No	0	None	N/A	N/A	21.8	On Watch
V292	561	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-19	Visual	10:36	40.98866	-70.73769	180	Common dolphin - *Delphinus delphis*	Definite	Dorsal fin tall, triangular, falcate and pointed, body medium sized.	Bow riding; Diving.	8	0	8	8	8	230	Vigorous	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	52.4	On Watch
V293	562	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-19	Visual	12:14	40.92163	-70.49759	102	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, dorsal fin high and stubby beak.	Bow riding; Diving.	3	1	4	4	4	330	Vigorous	50	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	48.1	On Watch
V295	563	*GO Pursuit*	HRG	Huizar, Heber	2022-08-19	Visual	16:08	41.00270	-70.57934	303	Common dolphin - *Delphinus delphis*	Definite	Slender medium size body, black back cape, hourglass pattern on sides.	Breaching / Jumping / Acrobatic behavior; Porpoising; Fast travel; Swimming below surface; Bow riding.	10	2	18	10	12	270	Vigorous	642	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	43.5	On Watch
V296	564	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-19	Visual	17:09	41.11904	-70.68203	331	Common dolphin - *Delphinus delphis*	Definite	Slender medium size body, black back cape, hourglass pattern on sides.	Porpoising; Bow riding; Fast travel; Swimming below surface.	9	3	19	10	12	240	Vigorous	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44.8	On Watch
V297	565	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-20	Visual	06:19	41.06208	-70.48973	128	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Porpoising; Bow riding; Surfacing; Swimming below surface.	5	1	6	6	6	160	Moderate	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44.8	On Watch
V298	566	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-20	Visual	10:20	40.85809	-70.19248	180	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Bow riding; Fast travel.	300	10	310	310	310	360	Vigorous	1800	30	1	Full Power	Sparker Only	Yes	310	None	N/A	N/A	35	On Watch
V299	567	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-20	Visual	12:55	40.66827	-70.21284	174	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust gray body with a stubby, well-defined beak. Tall, falcate dorsal fin with a broad base.	Porpoising; Swimming below surface; Surfacing; Breaching / Jumping / Acrobatic behavior.	3	0	3	2	3	170	Moderate	180	10	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48.7	On Watch
V300	568	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-20	Visual	13:52	40.61418	-70.22945	294	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust gray body with a stubby, well-defined beak. Tall, falcate dorsal fin with a broad base.	Surfacing; Swimming below surface; Bow riding.	5	1	8	6	6	210	Moderate	300	5	2	Full Power	Sparker Only	Yes	6	None	N/A	N/A	53	On Watch
V301	569	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-20	Visual	17:17	40.62377	-70.47449	192	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Tall, falcate dorsal fin.	Surfacing; Swimming below surface.	3	1	6	3	4	270	Moderate	50	80	1	Silent	None	No	0	Delay	N/A	N/A	60.6	On Watch
V302	570	*GO Pursuit*	HRG	Huizar, Heber	2022-08-20	Visual	21:05	40.68748	-70.38587	280	Humpback whale - *Megaptera novaeangliae*	Definite	Black, stout body, small fin with broad base and distinctive hump.	Blowing; Surfacing; Diving.	1	0	1	1	1	90	Moderate	822	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	52.2	On Watch
V303	571	*GO Pursuit*	HRG	Huizar, Heber	2022-08-20	Visual	21:31	40.66871	-70.43765	222	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, black cape on back, hourglass pattern on sides.	Porpoising; Fast travel; Swimming below surface.	50	0	60	40	50	140	Vigorous	642	60	1	Silent	None	No	0	None	N/A	N/A	55.1	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V304	572	*GO Pursuit*	HRG	Huizar, Heber	2022-08-21	Visual	00:55	40.65126	-70.13346	73	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass-pattern on sides. slim, long beak, and a tall, falcate dorsal fin.	Surfacing; Porpoising; Bow riding.	7	0	8	6	7	180	Moderate	20	50	1	Silent	None	No	0	None	N/A	N/A	48.7	On Watch
V305	573	*GO Pursuit*	HRG	Danos, Laura	2022-08-21	Visual	01:15	40.65195	-70.06137	74	Bottlenose dolphin - *Tursiops truncatus*	Definite	Short, thick, well-defined beak. Robust body and head. Flippers pointed, flukes deeply notched.	Swimming at surface; Bow riding; Swimming below surface.	3	1	4	4	4	360	Moderate	5	40	1	Silent	None	No	0	None	N/A	N/A	48.5	On Watch
V306	574	*GO Pursuit*	HRG	Danos, Laura	2022-08-21	Visual	07:36	40.65895	-70.04447	87	Common dolphin - *Delphinus delphis*	Definite	Slender body with a black cape and hourglass-pattern on sides. slim, long beak, and a tall, falcate dorsal fin.	Surfacing; Porpoising; Bow riding; Swimming below surface.	3	1	4	4	4	180	Moderate	10	10	1	Silent	None	No	0	Delay	N/A	N/A	49	On Watch
V307	575	*GO Pursuit*	HRG	Danos, Laura	2022-08-22	Visual	03:09	40.67199	-70.35763	266	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Long pointed beak.	Feeding; Diving.	3	0	3	3	3	270	Moderate	5	40	1	Full Power	Sparker Only	Yes	3	Delay	N/A	N/A	66	On Watch
V308	576	*GO Pursuit*	HRG	Danos, Laura	2022-08-22	Visual	06:33	40.67449	-70.12643	92	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Long pointed beak.	Surfacing; Swimming below surface; Feeding.	3	2	5	5	5	210	Moderate	5	40	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	45.7	On Watch
V309	577	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-22	Visual	09:45	40.66806	-70.06149	254	Humpback whale - *Megaptera novaeangliae*	Definite	Small dorsal fin with a broad base and knuckles behind.	Diving.	1	0	1	1	1	210	Moderate	30	40	30	Full Power	Sparker Only	Yes	1	Shutdown	09:45	09:45	47	On Watch
V310	578	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-22	Visual	12:12	40.66476	-70.31970	264	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Long pointed beak.	Porpoising; Swimming below surface; Surfacing.	4	2	9	5	6	150	Moderate	150	10	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	50.9	On Watch
V311	579	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-22	Visual	20:53	40.66187	-70.36927	261	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Long pointed beak.	Porpoising; Surfacing; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	13	1	17	13	14	270	Vigorous	100	30	1	Full Power	Sparker Only	Yes	14	None	N/A	N/A	51.5	On Watch
V312	580	*GO Pursuit*	HRG	Huizar, Heber	2022-08-22	Visual	23:59	40.67445	-70.14511	84	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass-pattern on sides. Long pointed beak.	Porpoising; Swimming below surface.	3	0	3	3	3	90	Vigorous	30	60	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	46.9	On Watch
V313	581	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-23	Visual	03:18	40.66717	-70.22986	275	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and dorsal fin falcate.	Porpoising; Diving.	2	0	2	2	2	360	Vigorous	20	40	20	Full Power	Sparker Only	Yes	2	None	N/A	N/A	48.4	On Watch
V314	582	*GO Pursuit*	HRG	Danos, Laura	2022-08-23	Visual	03:59	40.66566	-70.38475	272	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and dorsal fin falcate.	Swimming at surface; Feeding.	5	1	6	6	6	360	Moderate	10	40	10	Full Power	Sparker Only	Yes	6	None	N/A	N/A	54.1	On Watch
V315	583	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-23	Visual	06:33	40.67079	-70.28441	82	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and dorsal fin falcate.	Porpoising; Swimming below surface; Feeding.	3	0	3	3	3	250	Vigorous	10	50	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	61.2	On Watch
V316	584	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-23	Visual	11:38	40.66589	-70.16992	255	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and dorsal fin falcate.	Porpoising; Fast travel.	10	0	10	10	10	190	Vigorous	600	680	600	Full Power	Sparker Only	No	0	None	N/A	N/A	46	On Watch
V317	585	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-23	Visual	13:46	40.66215	-70.41345	260	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and dorsal fin falcate.	Surfacing; Swimming below surface; Diving.	5	1	8	6	6	220	Moderate	70	10	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	53.8	On Watch
V318	586	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-23	Visual	17:37	40.67365	-70.01988	81	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, tall falcate dorsal fin, broad and pointed flippers and hourglass pattern on the sides.	Surfacing; Porpoising; Swimming below surface.	42	8	60	46	50	270	Moderate	100	5	1	Full Power	Sparker Only	Yes	50	None	N/A	N/A	46.6	On Watch
V319	587	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-23	Visual	18:40	40.66944	-70.06798	261	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, tall falcate dorsal fin, broad and pointed flippers and hourglass pattern on the sides.	Porpoising; Swimming below surface.	8	1	12	7	9	90	Moderate	10	70	1	Full Power	Sparker Only	Yes	9	None	N/A	N/A	45.8	On Watch
V320	588	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-24	Visual	03:09	40.66905	-70.14185	5	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Feeding; Diving.	2	1	4	3	3	320	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	46.3	On Watch
V321	589	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-24	Visual	05:23	40.76853	-70.14081	182	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Feeding; Breaching / Jumping / Acrobatic behavior; Diving.	3	0	3	3	3	220	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	62	On Watch

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V322	590	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-24	Visual	06:26	40.72767	-70.16677	181	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Surfacing; Swimming below surface; Feeding; Diving.	4	2	8	5	6	330	Moderate	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	43.8	On Watch
V323	591	*GO Pursuit*	HRG	Danos, Laura	2022-08-24	Visual	09:00	40.70230	-70.18880	182	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Surfacing; Swimming below surface.	3	0	3	3	3	360	Moderate	10	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	52	On Watch
V324	592	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-24	Visual	10:00	40.69433	-70.20001	188	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Porpoising; Swimming below surface.	9	0	9	9	9	360	Vigorous	5	10	1	Deploying/Retrieving	None	No	0	None	N/A	N/A	44.7	On Watch
V325	593	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-24	Visual	11:43	40.66606	-70.14675	255	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Bow riding; Porpoising.	7	2	9	9	9	190	Vigorous	1800	5	1	Full Power	Sparker Only	Yes	9	None	N/A	N/A	44.6	On Watch
V326	594	*GO Pursuit*	HRG	Abeytia, Flavio	2022-08-24	Visual	13:56	40.66541	-70.34199	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Porpoising; Bow riding; Swimming below surface; Diving.	4	2	8	6	6	200	Vigorous	100	10	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	52.1	On Watch
V327	595	*GO Pursuit*	HRG	Huizar, Heber	2022-08-24	Visual	21:30	40.66567	-70.27372	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak, hourglass pattern with tan and gray patches on the side.	Porpoising; Fast travel.	3	0	3	3	3	180	Vigorous	250	250	250	Full Power	Sparker Only	No	0	None	N/A	N/A	50.9	On Watch
V328	596	*GO Pursuit*	HRG	Bonfil, Neftali	2022-08-25	Visual	01:49	40.67527	-70.12608	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Hourglass pattern on side with tan and grey patches on side.	Surfacing; Swimming below surface.	3	0	3	3	3	300	Vigorous	1	75	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	44.8	On Watch
V329	597	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-25	Visual	03:00	40.72280	-70.08169	293	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Hourglass pattern on side with tan and grey patches on side.	Feeding; Fast travel; Blowing; Porpoising.	5	1	6	6	6	360	Moderate	5	40	5	Deploying/Retrieving	None	No	0	None	N/A	N/A	43.2	On Watch
V330	598	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-25	Visual	05:22	40.79810	-70.30140	319	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Hourglass pattern on side with tan and grey patches on side.	Porpoising; Feeding; Swimming below surface.	3	2	5	5	5	270	Vigorous	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	45.4	On Watch
V331	599	*GO Pursuit*	HRG	Toxtle, Miguel	2022-08-25	Visual	08:51	40.97311	-70.46516	319	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Hourglass pattern on side with tan and grey patches on side.	Surfacing; Swimming below surface; Porpoising.	2	0	2	2	2	180	Vigorous	20	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	44.8	On Watch
V332	600	*GO Pursuit*	HRG	Danos, Laura	2022-09-06	Visual	01:21	40.83961	-70.37077	124	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Fast travel; Swimming at surface.	3	1	4	4	4	90	Vigorous	2	N/A, source not deployed	2	Deploying/Retrieving	None	No	0	None	N/A	N/A	49	On Watch
V333	601	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-06	Visual	05:24	40.65372	-70.39359	303	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Surfacing; Feeding; Swimming below surface.	5	0	5	5	5	360	Moderate	10	50	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	57	On Watch
V334	602	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-06	Visual	07:00	40.67604	-70.29408	97	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Surfacing; Blowing; Swimming below surface; Feeding; Bow riding.	4	1	5	5	5	360	Moderate	5	50	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	52	On Watch
V335	603	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-06	Visual	09:57	40.67791	-70.07827	92	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Surfacing; Swimming at surface; Swimming below surface; Fast travel; Porpoising.	9	1	10	7	10	90	Moderate	10	60	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	44	On Watch
V336	604	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-06	Visual	13:09	40.66299	-70.23865	267	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Fast travel; Porpoising.	20	0	20	20	20	180	Vigorous	200	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	46	On Watch
V337	605	*GO Pursuit*	HRG	Danos, Laura	2022-09-06	Visual	18:49	40.67550	-70.04187	97	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with pale, slender body. V-shaped saddle, hourglass pattern with a tan and gray patch.	Porpoising; Fast travel; Bow riding.	10	2	20	12	12	360	Vigorous	200	80	2	Full Power	Sparker Only	Yes	12	None	N/A	N/A	43	On Watch
V339	606	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-12	Visual	00:58	40.75769	-70.15456	126	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Distinctive black back and cape form a V-shaped saddle.	Fast travel; Bow riding; Feeding	8	0	8	8	8	360	Vigorous	5	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	42	On Watch
V340	607	*GO Pursuit*	HRG	Huizar, Heber	2022-09-12	Visual	21:18	40.85242	-70.55361	336	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, short and thick beak, tall falcate dorsal fin, dark to light gray from dorsal to the ventral body, and pink belly.	Breaching / Jumping / Acrobatic behavior; Swimming below surface; Bow riding.	4	0	4	3	4	120	Vigorous	50	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	53	On Watch

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V341	608	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-14	Visual	14:56	40.67614	-70.08923	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides, tall falcate dorsal fin, and long pointed beak.	Fast travel; Swimming below surface; Surfacing; Diving.	4	0	4	4	4	90	Vigorous	100	2	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	46	On Watch
V342	609	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-15	Visual	07:04	40.67579	-70.19723	78	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides, tall falcate dorsal fin, and long pointed beak.	Swimming below surface; Surfacing.	2	1	3	3	3	360	Moderate	10	40	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	46	On Watch
V343	610	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-15	Visual	08:00	40.67751	-70.00844	82	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides, tall falcate dorsal fin, and long pointed beak.	Surfacing; Swimming below surface; Bow riding.	3	1	4	4	4	160	Moderate	20	50	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	45	On Watch
V344	611	*GO Pursuit*	HRG	Huizar, Heber	2022-09-15	Visual	15:08	40.65322	-70.38422	329	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, thick, well-defined beak, tall falcate dorsal fin, dark gray on back, lighter gray on sides of the body, and white belly.	Porpoising; Breaching / Jumping / Acrobatic behavior; Swimming below surface; Bow riding.	14	1	16	11	15	210	Moderate	100	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	57	On Watch
V345	612	*GO Pursuit*	HRG	Huizar, Heber	2022-09-15	Visual	22:11	40.68268	-70.32330	78	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides, tall falcate dorsal fin, and long pointed beak.	Porpoising; Fast travel; Swimming below surface; Bow riding.	10	1	11	9	11	270	Vigorous	250	30	1	Full Power	Sparker Only	Yes	11	None	N/A	N/A	52	On Watch
V346	613	*GO Pursuit*	HRG	Danos, Laura	2022-09-16	Visual	00:26	40.67489	-70.00227	271	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with slender body, hourglass pattern on sides with tan and gray patches.	Fast travel; Swimming at surface; Feeding; Bow riding.	3	1	4	4	4	310	Vigorous	20	60	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	46	On Watch
V347	614	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-16	Visual	08:51	40.67759	-70.12113	72	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with slender body, hourglass pattern on sides with tan and gray patches.	Swimming below surface; Surfacing; Bow riding.	4	2	6	6	6	90	Moderate	20	50	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48	On Watch
V348	615	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-16	Visual	12:40	40.66858	-70.25812	270	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with slender body, hourglass pattern on sides with tan and gray patches.	Fast travel; Porpoising; Swimming at surface; Breaching / Jumping / Acrobatic behavior.	4	1	6	5	5	210	Vigorous	180	15	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	46	On Watch
V349	616	*GO Pursuit*	HRG	Huizar, Heber	2022-09-16	Visual	15:24	40.67411	-70.35780	88	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with slender body, hourglass pattern on sides with tan and gray patches.	Fast travel; Porpoising; Swimming below surface.	10	0	15	8	10	250	Vigorous	300	10	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	54	On Watch
V350	617	*GO Pursuit*	HRG	Huizar, Heber	2022-09-16	Visual	21:28	40.65849	-70.25591	273	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak with slender body, hourglass pattern on sides with tan and gray patches.	Porpoising; Swimming below surface.	13	2	20	10	15	270	Vigorous	447.20	20	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	45	On Watch
V351	618	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-17	Visual	00:00	40.66824	-70.36265	267	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides. Tall, falcate dorsal fin. Long pointed beak.	Porpoising; Swimming below surface; Bow riding; Feeding.	6	1	10	8	7	0	Vigorous	20	30	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	53	On Watch
V352	619	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-17	Visual	10:15	40.66783	-70.11192	80	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides. Tall, falcate dorsal fin. Long pointed beak.	Fast travel; Swimming at surface; Swimming below surface; Bow riding.	35	5	45	32	40	0	Vigorous	50	15	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	51	On Watch
V353	620	*GO Pursuit*	HRG	Danos, Laura	2022-09-17	Visual	19:59	40.66276	-70.12072	78	Common dolphin - *Delphinus delphis*	Definite	Slender body with black cape and hourglass pattern on sides. Tall, falcate dorsal fin. Long pointed beak.	Swimming at surface; Porpoising; Fast travel.	10	5	15	15	15	300	Vigorous	30	40	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	44	On Watch
V354	621	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-18	Visual	00:22	40.66216	-70.01281	260	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the sides.	Porpoising; Swimming below surface; Surfacing; Feeding.	10	2	17	10	12	30	Moderate	100	20	1	Full Power	Sparker Only	Yes	12	None	N/A	N/A	47	On Watch
V355	622	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-18	Visual	07:37	40.66079	-70.14623	260	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the sides.	Swimming below surface; Bow riding; Surfacing.	3	1	4	4	4	90	Moderate	10	50	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	48	On Watch
V356	623	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-18	Visual	12:51	40.66286	-70.31699	83	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the sides.	Porpoising; Swimming below surface; Fast travel.	4	0	4	4	4	150	Vigorous	50	30	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	55	On Watch
V357	624	*GO Pursuit*	HRG	Abeytia, Flavio	2022-09-18	Visual	14:22	40.66575	-70.13492	81	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the sides.	Fast travel; Swimming below surface; Porpoising.	4	1	5	5	5	210	Vigorous	200	2	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	47	On Watch
V358	625	*GO Pursuit*	HRG	Huizar, Heber	2022-09-19	Visual	00:27	40.65919	-70.06391	98	Common dolphin - *Delphinus delphis*	Definite	Slender body, tall falcate dorsal fin, hourglass pattern on the sides.	Surfacing; Swimming below surface; Porpoising; Feeding.	8	2	10	10	10	0	Moderate	50	50	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	45	On Watch

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V359	626	*GO Pursuit*	HRG	Klein, Michelle	2022-09-27	Visual	22:09	40.71017	-70.15273	121	Common dolphin - *Delphinus delphis*	Definite	Distinctive black back and cape with a V-shaped saddle.	Breaching / Jumping / Acrobatic behavior; Porpoising; Swimming at surface; Bow riding; Swimming below surface.	10	0	12	8	10	250	Moderate	443.60	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	46	On Watch
V360	627	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-28	Visual	01:34	40.67253	-70.20116	46	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, distinctive black back and cape form, white belly, and gray patch.	Swimming below surface; Swimming at surface.	7	0	7	7	7	360	Moderate	5	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	47	On Watch
V361	628	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-28	Visual	09:08	40.68281	-70.17541	250	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, thick, well-defined beak, tall falcate dorsal fin, dark gray on back, lighter gray on sides of the body, and white belly.	Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	180	Moderate	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	45	On Watch
V362	629	*GO Pursuit*	HRG	Dalton, Tavis	2022-09-28	Visual	11:20	40.64467	-70.26919	61	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, distinctive black back and cape form, white belly, and gray patch.	Bow riding; Swimming below surface; Porpoising; Fast travel.	80	0	100	60	80	90	Moderate	30	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	53	On Watch
V363	630	*GO Pursuit*	HRG	Dalton, Tavis	2022-09-28	Visual	14:14	40.66419	-69.98391	93	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, distinctive black back and cape form, white belly and gray patch.	Bow riding; Swimming below surface; Swimming at surface.	15	1	19	13	16	180	Moderate	100	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	49	On Watch
V364	631	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-29	Visual	00:02	40.66337	-70.02127	217	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface; Feeding.	11	4	17	13	15	360	Vigorous	1	40	1	Silent	None	No	0	Delay	N/A	N/A	46	On Watch
V365	632	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-29	Visual	02:40	40.65839	-70.33932	267	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface; Feeding.	12	3	19	12	15	360	Vigorous	5	30	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	50	On Watch
V366	633	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-29	Visual	06:54	40.61861	-70.43272	189	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming below surface; Swimming at surface; Feeding.	20	0	25	15	20	90	Moderate	20	35	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	61	On Watch
V367	634	*GO Pursuit*	HRG	Ramsarran, Celine	2022-09-29	Visual	19:54	40.72221	-70.48676	169	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface.	6	2	8	8	8	180	Vigorous	5	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	54	On Watch
V368	635	*GO Pursuit*	HRG	Breton, Elizabeth	2022-09-30	Visual	03:08	40.66700	-70.45068	63	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive hourglass pattern on sides, long pointed beak, tall falcate dorsal fin located mid-back.	Swimming at surface; Swimming below surface; Bow riding; Feeding.	7	0	10	5	7	30	Moderate	40	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	55	On Watch
V369	636	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-09-30	Visual	08:30	40.61637	-70.54995	226	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive hourglass pattern on sides, long pointed beak, tall falcate dorsal fin located mid-back.	Swimming at surface; Swimming below surface; Feeding.	7	0	10	5	7	360	Moderate	10	N/A, source not deployed	3	Standby	None	No	0	None	N/A	N/A	59	On Watch
V370	637	*GO Pursuit*	HRG	Breton, Elizabeth	2022-10-01	Visual	02:00	41.21098	-70.75776	356	Common dolphin - *Delphinus delphis*	Definite	Rounded head, crisscross coloration forming hourglass pattern.	Swimming at surface; Feeding; Breaching / Jumping / Acrobatic behavior.	5	2	12	6	7	0	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	33	On Watch
V371	638	*GO Pursuit*	HRG	Klein, Michelle	2022-10-05	Visual	21:29	41.59061	-70.88485	156	Gray Seal - *Halichoerus grypus*	Definite	Horse-like head with a long, broad snout. Dark color with irregular patches.	Swimming at surface; Swimming below surface.	2	0	2	2	2	180	Sedate	60	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	7	On Watch
V372	639	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-10-06	Visual	05:49	40.67240	-70.51419	153	Common dolphin - *Delphinus delphis*	Definite	Long rostrum, hourglass pattern with yellow patch towards the front and light gray patch at the back.	Feeding; Swimming at surface; Swimming below surface.	5	0	5	5	5	0	Moderate	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	58	On Watch
V373	640	*GO Pursuit*	HRG	Klein, Michelle	2022-10-06	Visual	23:29	40.61200	-70.34912	272	Common dolphin - *Delphinus delphis*	Definite	Long rostrum, hourglass pattern with yellow patch towards the front and light gray patch at the back.	Swimming at surface; Swimming below surface.	1	1	2	2	2	0	Moderate	5	70	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	57	On Watch
V374	641	*GO Pursuit*	HRG	Breton, Elizabeth	2022-10-07	Visual	02:15	40.61757	-70.40834	81	Common dolphin - *Delphinus delphis*	Definite	Slender body, rounded head, crisscross coloration.	Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	6	1	8	5	7	0	Moderate	5	20	5	Full Power	Sparker Only	Yes	7	None	N/A	N/A	57	On Watch
V375	642	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-10-07	Visual	07:32	40.61825	-70.33070	90	Common dolphin - *Delphinus delphis*	Definite	Slender body, rounded head, crisscross coloration.	Swimming at surface; Swimming below surface; Feeding.	4	0	4	4	4	30	Moderate	5	60	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	57	On Watch
V376	643	*GO Pursuit*	HRG	Fuhr Ely, Gabriele	2022-10-07	Visual	08:58	40.61101	-70.38040	258	Common dolphin - *Delphinus delphis*	Definite	Slender body, rounded head, crisscross coloration.	Swimming at surface; Swimming below surface; Feeding.	7	0	7	7	7	30	Moderate	15	60	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	56	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V377	644	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-07	Visual	11:55	40.60270	-70.36100	89	Common dolphin - *Delphinus delphis*	Definite	Slender body, rounded head, crisscross coloration.	Swimming at surface; Swimming below surface; Feeding; Fast travel.	50	0	50	50	50	100	Vigorous	150	60	3	Full Power	Sparker Only	Yes	7	None	N/A	N/A	58	On Watch
V378	645	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-08	Visual	05:05	40.61530	-70.45786	79	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, black back, falcate fin, the hourglass pattern on the side of the body.	Swimming at surface; Swimming below surface; Bow riding.	5	0	5	5	5	100	Moderate	30	70	3	Full Power	Sparker Only	Yes	5	None	N/A	N/A	62	On Watch
V379	646	*GO Pursuit*	HRG	Breton, Elizabeth	2022-10-08	Visual	10:30	40.61614	-70.29809	196	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, black back, falcate fin, the hourglass pattern on the side of the body.	Swimming at surface; Swimming below surface; Fast travel.	15	3	22	16	18	240	Vigorous	50	10	3	Full Power	Sparker Only	Yes	18	None	N/A	N/A	56	On Watch
V380	647	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-08	Visual	20:05	41.26818	-70.78437	313	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, black back, falcate fin, the hourglass pattern on the side of the body.	Swimming at surface; Swimming below surface; Fast travel.	4	0	4	4	4	180	Vigorous	271	N/A, source not deployed	271	Transit	None	No	0	None	N/A	N/A	20	On Watch
V381	648	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-09	Visual	11:11	40.82961	-70.54148	159	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, black back ad cape, Hourglass pattern on sides, tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	5	0	5	5	5	200	Vigorous	60	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	55	On Watch
V382	649	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-10	Visual	07:52	40.61501	-70.45056	83	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, black back and cape, distinctive hourglass pattern on sides, tall, falcate dorsal find.	Swimming below surface; Swimming at surface; Feeding.	5	0	5	5	5	0	Moderate	15	40	4	Full Power	Sparker Only	Yes	5	None	N/A	N/A	61	On Watch
V383	650	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-10	Visual	12:32	40.62603	-70.41493	89	Unidentified whale - Cetacea spp.	Definite	Tall, large, blow.	Blowing.	1	0	1	1	1	u	Sedate	2886	2950	2886	Full Power	Sparker Only	No	0	None	N/A	N/A	60	On Watch
V384	651	*GO Pursuit*	HRG	Klein, Michelle	2022-10-10	Visual	16:07	40.61138	-70.49580	265	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive black back and cape with a v-shaped saddle, hourglass pattern on sides with a tan patch forward and a gray patch towards the back.	Breaching / Jumping / Acrobatic behavior; Swimming at surface; Swimming below surface; Bow riding.	90	3	103	83	93	300	Moderate	340	15	1	Full Power	Sparker Only	Yes	35	None	N/A	N/A	92	On Watch
V385	652	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-10	Visual	20:18	40.59463	-70.44654	264	Unidentified whale - Cetacea spp.	Definite	Dark grey body with tall bushy blow.	Blowing.	1	0	1	1	1	0	Sedate	803	880	803	Full Power	Sparker Only	No	0	None	N/A	N/A	58	On Watch
V386	653	*GO Pursuit*	HRG	Klein, Michelle	2022-10-10	Visual	21:30	40.58181	-70.44358	97	Unidentified whale - Cetacea spp.	Definite	Lage, bushy blow.	Blowing.	1	0	1	1	1	u	Sedate	1885	1955	1885	Full Power	Sparker Only	No	0	None	N/A	N/A	63	On Watch
V387	654	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-12	Visual	12:21	41.09358	-70.59368	133	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive hourglass pattern on sides, distinctive black cape, tall falcate dorsal fin.	Porpoising; Swimming at surface; Breaching / Jumping / Acrobatic behavior.	20	0	30	15	20	135	Vigorous	1360	N/A, source not deployed	1360	Transit	None	No	0	None	N/A	N/A	53	On Watch
V388	655	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-12	Visual	13:22	41.02106	-70.45546	133	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive hourglass pattern on sides, distinctive black cape, tall falcate dorsal fin.	Swimming at surface; Breaching / Jumping / Acrobatic behavior.	12	0	15	10	12	200	Vigorous	591	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	46	On Watch
V389	656	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-12	Visual	13:48	40.96966	-70.38294	133	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive hourglass pattern on sides, distinctive black cape, tall falcate dorsal fin.	Breaching / Jumping / Acrobatic behavior; Porpoising; Bow riding.	20	0	20	10	20	225	Vigorous	250	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	46	On Watch
V390	657	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-12	Visual	18:13	40.65288	-69.96580	306	Humpback whale - *Megaptera novaeangliae*	Probable	Tall bushy blow with dark grey body.	Blowing; Diving.	1	0	1	1	1	0	Sedate	560	600	560	Silent	None	No	0	None	N/A	N/A	51	On Watch
V391	658	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-12	Visual	20:10	40.67052	-70.16153	272	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on the sides, a distinctive black cape, and a tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior; Bow riding.	40	0	40	40	40	145	Vigorous	228	70	1	Silent	None	No	0	None	N/A	N/A	45	On Watch
V392	659	*GO Pursuit*	HRG	Klein, Michelle	2022-10-12	Visual	21:12	40.67869	-70.25181	75	Humpback whale - *Megaptera novaeangliae*	Definite	Large bushy blow, dark body, low dorsal fin with a hump in front and bumps behind.	Blowing; Swimming at surface; Diving.	1	0	1	1	1	180	Sedate	385	425	385	Silent	None	No	0	None	N/A	N/A	50	On Watch
V393	660	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-13	Visual	00:02	40.62109	-70.48972	196	Common dolphin - *Delphinus delphis*	Probable	Slender body with pale, slender tail stock, long pointed beak.	Bow riding; Feeding; Diving.	13	0	15	12	13	0	Moderate	1	70	1	Silent	None	No	0	None	N/A	N/A	60	On Watch
V394	661	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-13	Visual	03:32	40.61057	-70.40566	256	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Bow riding; Swimming at surface.	2	0	3	2	2	160	Moderate	15	70	2	Silent	None	No	0	None	N/A	N/A	58	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V395	662	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-13	Visual	05:55	40.67305	-70.41389	345	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on the sides, a distinctive black cape, and a tall falcate dorsal fin.	Swimming at surface; Feeding.	12	0	12	12	12	180	Moderate	7	N/A, source not deployed	3	Deploying/Retrieving	None	No	0	None	N/A	N/A	59	On Watch
V396	663	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-15	Visual	13:02	41.39312	-70.82632	45	Gray Seal - *Halichoerus grypus*	Definite	Dark overall body color with irregular light patches, horse-like head with a broad arching snout.	Swimming at surface; Diving.	1	0	1	1	1	180	Sedate	150	N/A, source not deployed	90	Standby	None	No	0	None	N/A	N/A	26	On Watch
V397	664	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-15	Visual	14:54	41.41759	-70.81948	55	Gray Seal - *Halichoerus grypus*	Definite	Dark overall body color with irregular light patches, horse-like head with broad arching snout.	Swimming at surface; Diving.	1	0	1	1	1	270	Sedate	388	N/A, source not deployed	388	Standby	None	No	0	None	N/A	N/A	26	On Watch
V398	665	*GO Pursuit*	HRG	Klein, Michelle	2022-10-15	Visual	16:03	41.44489	-70.75524	231	Common dolphin - *Delphinus delphis*	Definite	Black back and cape that form a v-shaped saddle with hourglass pattern on the side. Dark, pointed rostrum.	Swimming at surface; Swimming below surface.	25	0	30	20	25	0	Sedate	637	N/A, source not deployed	637	Standby	None	No	0	None	N/A	N/A	23	On Watch
V399	666	*GO Pursuit*	HRG	Klein, Michelle	2022-10-15	Visual	19:50	40.89482	-70.53217	170	Common dolphin - *Delphinus delphis*	Definite	Black back and cape that form a v-shaped saddle with hourglass pattern on the side. Dark, pointed rostrum.	Breaching / Jumping / Acrobatic behavior; Swimming at surface; Swimming below surface; Fast travel; Bow riding.	25	0	30	20	25	130	Vigorous	271	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	48	On Watch
V400	667	*GO Pursuit*	HRG	Mike, Romario	2022-10-16	Visual	00:09	40.63026	-70.49061	85	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Feeding; Swimming at surface; Breaching / Jumping / Acrobatic behavior; Bow riding.	7	0	7	6	7	85	Vigorous	15	70	1	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	27	On Watch
V401	668	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-16	Visual	02:56	40.61517	-70.47750	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Blowing; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	7	1	8	8	8	220	Vigorous	150	73	3	Full Power	Sparker Only	Yes	8	None	N/A	N/A	61	On Watch
V402	669	*GO Pursuit*	HRG	Mike, Romario	2022-10-16	Visual	05:58	40.62338	-70.00076	91	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface; Swimming below surface; Bow riding; Feeding.	6	1	7	7	7	330	Moderate	30	20	2	Silent	None	No	0	None	N/A	N/A	54	On Watch
V403	670	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-16	Visual	11:50	40.65600	-70.15894	267	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface; Bow riding.	4	0	4	4	4	267	Vigorous	626	50	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48	On Watch
V404	671	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-16	Visual	14:20	40.64895	-70.39786	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface; Swimming below surface.	20	0	30	15	20	230	Moderate	770	550	528	Full Power	Sparker Only	No	0	None	N/A	N/A	54	On Watch
V405	672	*GO Pursuit*	HRG	Klein, Michelle	2022-10-16	Visual	16:43	40.66676	-70.16229	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Breaching / Jumping / Acrobatic behavior; Porpoising; Fast travel.	20	0	20	19	20	180	Vigorous	803	246	176	Full Power	Sparker Only	No	0	None	N/A	N/A	52	On Watch
V406	673	*GO Pursuit*	HRG	Klein, Michelle	2022-10-16	Visual	17:46	40.65734	-70.09887	91	Common dolphin - *Delphinus delphis*	Definite	Black back and cape and a v-shaped saddle.	Swimming at surface; Swimming below surface; Fast travel.	7	0	8	6	7	10	Vigorous	1136	1206	1136	Full Power	Sparker Only	No	0	None	N/A	N/A	52	On Watch
V407	674	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-17	Visual	02:45	40.66189	-70.17588	89	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface.	1	0	1	1	1	0	Sedate	6	76	6	Full Power	Sparker Only	Yes	1	None	N/A	N/A	47	On Watch
V408	675	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-17	Visual	04:13	40.65648	-70.23342	259	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface; Feeding; Bow riding.	7	0	7	7	7	0	Moderate	10	50	2	Full Power	Sparker Only	Yes	7	None	N/A	N/A	50	On Watch
V409	676	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-17	Visual	10:06	40.66240	-70.15327	84	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface; Bow riding.	200	3	203	203	203	0	Moderate	10	3	1	Full Power	Sparker Only	Yes	203	None	N/A	N/A	49	On Watch
V410	677	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-17	Visual	14:39	40.69361	-70.03255	330	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Swimming at surface.	1	0	1	1	1	110	Vigorous	15	N/A, source not deployed	15	Transit	None	No	0	None	N/A	N/A	49	On Watch
V411	678	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-21	Visual	13:01	41.08089	-70.57136	127	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides, black back, and cape with a tall, falcate dorsal fin.	Porpoising; Bow riding.	3	0	3	3	3	130	Vigorous	20	N/A, source not deployed	4	Transit	None	No	0	None	N/A	N/A	44	On Watch
V412	679	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-21	Visual	13:29	41.00291	-70.45342	127	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides, black back, and cape with a tall, falcate dorsal fin.	Porpoising; Bow riding.	10	1	16	8	11	200	Vigorous	823	N/A, source not deployed	3	Transit	None	No	0	None	N/A	N/A	44	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V413	680	*GO Pursuit*	HRG	Klein, Michelle	2022-10-21	Visual	17:16	40.67146	-70.00934	129	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides, black back, and cape with a tall, falcate dorsal fin.	Fast travel.	4	0	4	4	4	90	Vigorous	232	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	45	On Watch
V414	681	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-22	Visual	01:20	40.66562	-70.07953	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Swimming at surface; Swimming below surface; Fast travel.	6	0	6	6	6	0	Vigorous	1	35	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	47	On Watch
V415	682	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-22	Visual	05:47	40.66202	-70.37596	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	60	Moderate	60	50	2	Full Power	Sparker Only	Yes	4	None	N/A	N/A	55	On Watch
V416	683	*GO Pursuit*	HRG	Mike, Romario	2022-10-22	Visual	09:39	40.66472	-70.13891	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Fast travel; Swimming at surface; Swimming below surface; Bow riding.	2	0	2	2	2	60	Vigorous	15	40	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	48	On Watch
V417	684	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-22	Visual	13:49	40.65922	-70.20881	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Bow riding; Fast travel.	20	0	25	15	20	150	Vigorous	823	25	2	Full Power	Sparker Only	Yes	20	None	N/A	N/A	47	On Watch
V418	685	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-22	Visual	15:04	40.65477	-70.32795	266	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Swimming at surface.	15	0	20	10	15	180	Moderate	823	400	400	Full Power	Sparker Only	No	0	None	N/A	N/A	52	On Watch
V419	686	*GO Pursuit*	HRG	Klein, Michelle	2022-10-22	Visual	16:27	40.65885	-70.40561	84	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Fast travel.	10	0	12	8	10	180	Vigorous	443	473	443	Full Power	Sparker Only	No	0	None	N/A	N/A	55	On Watch
V420	687	*GO Pursuit*	HRG	Klein, Michelle	2022-10-22	Visual	21:31	40.65985	-70.12286	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock, long pointed beak.	Porpoising; Fast travel; Swimming below surface.	3	0	3	3	3	270	Vigorous	232	70	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48	On Watch
V421	688	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-23	Visual	03:24	40.66526	-70.05869	81	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Dark back with a black cape. Distinctive hourglass pattern on sides. Tall, falcate dorsal fin.	Swimming at surface; Bow riding; Porpoising.	4	2	6	6	6	10	Vigorous	25	45	4	Full Power	Sparker Only	Yes	6	None	N/A	N/A	47	On Watch
V422	689	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-23	Visual	05:31	40.66036	-70.04902	268	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Dark back with a black cape. Distinctive hourglass pattern on sides. Tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	2	0	2	2	2	0	Moderate	20	55	3	Full Power	Sparker Only	Yes	2	None	N/A	N/A	49	On Watch
V423	690	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-23	Visual	06:37	40.65716	-70.34520	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Dark back with a black cape. Distinctive hourglass pattern on sides. Tall, falcate dorsal fin.	Swimming at surface; Bow riding.	6	0	6	6	6	0	Moderate	7	55	2	Full Power	Sparker Only	Yes	6	None	N/A	N/A	52	On Watch
V424	691	*GO Pursuit*	HRG	Klein, Michelle	2022-10-23	Visual	17:38	40.65258	-70.35157	261	Common dolphin - *Delphinus delphis*	Definite	Black back with a cape that forms a v-shaped saddle. Hourglass pattern on sides with tan patch forward and gray patch aft. Long pointed beak.	Porpoising; Swimming at surface; Swimming below surface.	12	0	15	10	12	180	Vigorous	70	N/A, source not deployed	15	Standby	None	No	0	None	N/A	N/A	52	On Watch
V425	692	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-24	Visual	04:25	40.66384	-70.33386	101	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, long pointed beak.	Porpoising; Swimming at surface; Swimming below surface.	40	0	40	40	40	0	Vigorous	15	N/A, source not deployed	10	Standby	None	No	0	None	N/A	N/A	51	On Watch
V426	693	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-24	Visual	09:24	40.66509	-70.18563	90	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, long pointed beak. Distinctive hourglass pattern on the side. Dark back with a black cape. Tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	10	0	10	10	10	0	Moderate	25	65	4	Deploying/Retrieving	None	No	0	Delay	N/A	N/A	48	On Watch
V427	694	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-24	Visual	11:14	40.65798	-70.26979	260	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, long pointed beak. Distinctive hourglass pattern on the side. Dark back with a black cape. Tall, falcate dorsal fin.	Porpoising; Swimming at surface.	6	0	6	6	6	180	Moderate	271	60	5	Full Power	Sparker Only	Yes	6	None	N/A	N/A	50	On Watch
V428	695	*GO Pursuit*	HRG	Klein, Michelle	2022-10-24	Visual	21:33	40.65950	-70.07155	259	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, long pointed beak. Distinctive hourglass pattern on the side. Dark back with a black cape. Tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	6	0	6	6	6	90	Moderate	1136	65	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	48	On Watch
V429	696	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-25	Visual	00:19	40.65680	-70.31021	258	Common dolphin - *Delphinus delphis*	Definite	Slender Body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface.	3	0	3	3	3	0	Sedate	5	60	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	51	On Watch
V430	697	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-25	Visual	01:17	40.66321	-70.17230	90	Common dolphin - *Delphinus delphis*	Definite	Slender Body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface; Porpoising; Fast travel; Feeding.	6	0	6	6	6	0	Vigorous	5	50	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	49	On Watch

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V431	698	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-25	Visual	06:28	40.65971	-70.03992	275	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	0	Vigorous	30	65	3	Full Power	Sparker Only	Yes	4	None	N/A	N/A	48	On Watch
V432	699	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-25	Visual	07:38	40.66594	-70.05378	81	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Bow riding; Swimming below surface.	3	0	3	3	3	0	Moderate	5	60	3	Silent	None	No	0	None	N/A	N/A	47	On Watch
V433	700	*GO Pursuit*	HRG	Mike, Romario	2022-10-25	Visual	08:43	40.66613	-70.01145	267	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface.	2	0	2	2	2	250	Moderate	40	75	3	Silent	None	No	0	None	N/A	N/A	50	On Watch
V434	701	*GO Pursuit*	HRG	Klein, Michelle	2022-10-25	Visual	16:38	40.65468	-70.24425	278	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface.	4	0	4	4	4	90	Moderate	340	410	340	Soft Start	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V435	702	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-25	Visual	19:05	40.66034	-70.36691	85	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Fast travel.	16	4	20	20	20	230	Vigorous	50	40	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	56	On Watch
V436	703	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-25	Visual	19:48	40.66171	-70.27339	85	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Porpoising; Swimming at surface; Swimming below surface; Fast travel; Bow riding.	10	5	15	15	15	320	Vigorous	30	5	1	Full Power	Sparker Only	Yes	15	None	N/A	N/A	56	On Watch
V437	704	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-26	Visual	00:10	40.65601	-70.40219	288	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding; Feeding.	35	0	35	35	35	0	Sedate	6	60	1	Full Power	Sparker Only	Yes	35	None	N/A	N/A	55	On Watch
V438	705	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-26	Visual	10:54	40.66286	-70.33476	91	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding.	8	0	8	8	8	180	Moderate	20	50	1	Silent	None	No	0	None	N/A	N/A	54	On Watch
V440	706	*GO Pursuit*	HRG	Mike, Romario	2022-10-26	Visual	21:21	40.67047	-70.41194	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on the side.	Swimming at surface; Swimming below surface; Bow riding.	7	0	7	7	7	110	Vigorous	40	70	1	Silent	None	No	0	None	N/A	N/A	50	On Watch
V441	707	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-27	Visual	00:54	40.67007	-70.04949	260	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and pointed beak. Distinctive hour glass pattern on side.	Feeding; Swimming below surface; Swimming at surface.	5	0	5	5	5	0	Vigorous	15	45	5	Silent	None	No	0	None	N/A	N/A	48	On Watch
V442	708	*GO Pursuit*	HRG	Mike, Romario	2022-10-27	Visual	04:30	40.67157	-70.13626	252	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and pointed beak. Distinctive hour glass pattern on side.	Swimming at surface; Bow riding; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	24	0	30	15	24	0	Sedate	5	40	1	Silent	None	No	0	None	N/A	N/A	46	On Watch
V443	709	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-27	Visual	08:31	40.66051	-70.41907	10	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and pointed beak. Distinctive hourglass pattern on the side.	Swimming at surface; Swimming below surface; Bow riding.	35	4	39	32	39	60	Moderate	45	45	1	Silent	None	No	0	Delay	N/A	N/A	57	On Watch
V444	710	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-27	Visual	14:29	40.66642	-70.19144	80	Common dolphin - *Delphinus delphis*	Definite	Slender tail stock and pointed beak. Distinctive hourglass pattern on the side.	Swimming at surface; Swimming below surface; Bow riding.	3	0	3	3	3	0	Moderate	5	65	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	49	On Watch
V445	711	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-27	Visual	20:19	40.81346	-70.40832	315	Humpback whale - *Megaptera novaeangliae*	Definite	Dark grey body, with tall bushy blow.	Blowing; Surfacing.	2	0	2	2	2	180	Moderate	627	N/A, source not deployed	627	Transit	None	No	0	None	N/A	N/A	47	On Watch
V446	712	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-27	Visual	20:19	40.84317	-70.45153	315	Fin whale - *Balaenoptera physalus*	Definite	Long sleek body, falcate dorsal fin located two-thirds back on the body.	Blowing; Surfacing.	1	0	1	1	1	180	Moderate	627	N/A, source not deployed	627	Transit	None	No	0	None	N/A	N/A	47	On Watch
V447	713	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-27	Visual	20:54	40.86203	-70.46491	315	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and pointed beak. Distinctive hourglass pattern on sides.	Porpoising; Fast travel; Swimming below surface; Bow riding.	50	5	55	45	55	330	Vigorous	50	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	47	On Watch
V448	714	*GO Pursuit*	HRG	Klein, Michelle	2022-10-29	Visual	16:44	40.94478	-70.41046	101	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, distinctive black back and cape that form a v-shaped saddle, black beak and eye ring, tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface; Bow riding.	35	10	52	38	45	240	Moderate	157	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	46	On Watch
V449	715	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-30	Visual	02:07	40.68773	-70.36399	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding.	14	0	20	10	14	60	Moderate	15	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	51	On Watch

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V450	716	*GO Pursuit*	HRG	Dalton, Tavis	2022-10-30	Visual	14:43	40.65466	-70.43290	262	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface.	3	0	3	3	3	270	Moderate	20	95	20	Full Power	Sparker Only	Yes	3	None	N/A	N/A	59	On Watch
V451	717	*GO Pursuit*	HRG	Klein, Michelle	2022-10-30	Visual	15:14	40.66226	-70.19880	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding.	8	0	10	6	8	330	Moderate	50	50	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	48	On Watch
V452	718	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-30	Visual	20:52	40.65763	-70.20026	276	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Fast travel; Porpoising; Swimming at surface; Swimming below surface; Bow riding.	50	0	50	50	50	180	Vigorous	627	30	1	Full Power	Sparker Only	Yes	50	None	N/A	N/A	48	On Watch
V453	719	*GO Pursuit*	HRG	Ramsarran, Celine	2022-10-30	Visual	23:17	40.65533	-70.40229	268	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Porpoising; Swimming at surface; Swimming below surface; Bow riding.	3	0	3	3	3	135	Vigorous	50	70	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	51	On Watch
V454	720	*GO Pursuit*	HRG	Mike, Romario	2022-10-31	Visual	00:22	40.66294	-70.03697	266	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Fast travel; Swimming at surface; Swimming below surface; Bow riding; Feeding.	20	0	25	17	20	0	Vigorous	15	40	1	Full Power	Sparker Only	Yes	20	None	N/A	N/A	48	On Watch
V455	721	*GO Pursuit*	HRG	Uribe, Amaranta	2022-10-31	Visual	10:44	40.67124	-70.13958	268	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Swimming at surface; Swimming below surface.	6	1	7	7	7	180	Moderate	20	15	1	Soft Start	Sparker Only	Yes	7	None	N/A	N/A	45	On Watch
V456	722	*GO Pursuit*	HRG	Klein, Michelle	2022-10-31	Visual	22:40	40.66035	-70.17444	270	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak.	Porpoising; Swimming at surface; Swimming below surface.	2	0	2	2	2	330	Vigorous	40	60	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	47	On Watch
V457	723	*GO Pursuit*	HRG	Mike, Romario	2022-11-02	Visual	10:05	40.60033	-70.30795	8	Common dolphin - *Delphinus delphis*	Definite	Slender Body with pale, slender tail stock. Long Pointed beak.	Fast travel; Swimming at surface; Swimming below surface; Bow riding.	20	0	25	15	20	0	Vigorous	30	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	60	On Watch
V458	724	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-02	Visual	13:21	40.67660	-70.29001	5	Common dolphin - *Delphinus delphis*	Definite	Slender Body with pale, slender tail stock. Long Pointed beak.	Swimming at surface; Swimming below surface.	3	0	3	3	3	160	Moderate	100	N/A, source not deployed	30	Standby	None	No	0	None	N/A	N/A	52	On Watch
V459	725	*GO Pursuit*	HRG	Klein, Michelle; Ramsarran, Celine	2022-11-02	Visual	16:44	40.67669	-70.28755	31	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface; Breaching / Jumping / Acrobatic behavior.	15	0	15	10	12	90	Vigorous	174	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	57	On Watch
V460	726	*GO Pursuit*	HRG	Klein, Michelle	2022-11-02	Visual	20:15	40.67862	-70.23684	34	Common dolphin - *Delphinus delphis*	Definite	Slender body with distinctive black back and cape that form a V-shaped saddle. Tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface; Bow riding; Mating.	70	5	75	75	75	335	Vigorous	50	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	50	On Watch
V461	727	*GO Pursuit*	HRG	Mike, Romario	2022-11-03	Visual	00:45	40.65942	-70.28746	35	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding.	10	0	12	9	10	0	Moderate	5	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	56	On Watch
V462	728	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-03	Visual	03:06	40.65875	-70.08398	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface; Bow riding; Feeding.	15	2	15	19	17	0	Moderate	20	50	1	Standby	None	No	0	None	N/A	N/A	48	On Watch
V463	729	*GO Pursuit*	HRG	Klein, Michelle	2022-11-03	Visual	16:25	40.69537	-70.07987	81	Humpback whale - *Megaptera novaeangliae*	Probable	Broad and bushy blows.	Blowing; Swimming at surface; Swimming below surface.	3	0	3	3	3	180	Sedate	3215	3285	3215	Full Power	Sparker Only	No	0	None	N/A	N/A	46	On Watch
V464	730	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-04	Visual	03:25	40.65707	-70.11189	267	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides, dark cape.	Swimming below surface; Swimming at surface; Bow riding.	2	0	2	2	2	0	Moderate	4	75	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	47	On Watch
V465	731	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-04	Visual	04:48	40.66463	-70.02802	265	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides, dark cape .	Swimming at surface; Bow riding; Diving; Swimming below surface.	3	0	3	3	3	180	Moderate	20	40	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	48	On Watch
V466	732	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-04	Visual	06:23	40.66517	-70.21975	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides, dark cape.	Swimming at surface; Swimming below surface; Bow riding.	3	0	3	3	3	270	Moderate	30	65	2	Full Power	Sparker Only	Yes	3	None	N/A	N/A	50	On Watch
V467	733	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-04	Visual	10:53	40.66398	-70.41655	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides, dark cape.	Swimming at surface; Swimming below surface; Bow riding; Breaching / Jumping / Acrobatic behavior.	35	2	42	32	37	270	Moderate	15	2	1	Full Power	Sparker Only	Yes	37	None	N/A	N/A	55	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V468	734	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-04	Visual	13:02	40.65833	-70.25774	85	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides, dark cape.	Swimming at surface; Swimming below surface; Bow riding; Porpoising.	30	0	40	25	30	40	Moderate	568	40	1	Full Power	Sparker Only	Yes	30	None	N/A	N/A	50	On Watch
V469	735	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-04	Visual	19:35	40.67599	-70.26234	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak.	Swimming below surface; Swimming at surface; Bow riding.	10	0	10	10	10	310	Vigorous	10	70	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	50	On Watch
V470	736	GO Pursuit	HRG	Klein, Michelle	2022-11-04	Visual	21:17	40.65174	-70.07303	93	Unidentified whale - Cetacea spp.	definite	Large bushy blow.	Blowing; Swimming at surface; Swimming below surface.	1	0	1	1	1	0	Sedate	3215	3285	3215	Full Power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V471	737	*GO Pursuit*	HRG	Klein, Michelle	2022-11-04	Visual	23:01	40.66190	-70.10018	251	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak.	Swimming at surface; Swimming below surface; Porpoising.	6	0	6	6	6	330	Vigorous	10	70	1	Full Power	Sparker Only	Yes	6	None	N/A	N/A	47	On Watch
V472	738	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-05	Visual	03:09	40.65705	-70.33132	268	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	90	Moderate	7	30	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	52	On Watch
V473	739	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-05	Visual	05:15	40.63914	-70.28289	231	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Bow riding.	3	0	3	3	3	200	Moderate	20	70	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	52	On Watch
V474	740	*GO Pursuit*	HRG	Mike, Romario	2022-11-05	Visual	07:31	40.60543	-70.30402	233	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Fast travel; Bow riding.	4	0	4	4	4	240	Moderate	10	85	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	58	On Watch
V475	741	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-05	Visual	09:34	40.60034	-70.46762	261	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Bow riding.	7	1	8	8	8	240	Moderate	15	50	1	Full Power	Sparker Only	Yes	8	None	N/A	N/A	63	On Watch
V476	742	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-05	Visual	12:09	40.60035	-70.43926	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Bow riding.	5	0	5	5	5	0	Moderate	10	50	2	Full Power	Sparker Only	Yes	5	None	N/A	N/A	61	On Watch
V477	743	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-05	Visual	18:24	40.59894	-70.49296	264	Common dolphin - *Delphinus delphis*	Definite	Slender body with a long, pointed beak. Tall, falcate dorsal fin. Distinctive hourglass pattern on sides. Dark cape.	Swimming at surface; Swimming below surface; Porpoising; Bow riding.	10	0	10	10	10	0	Vigorous	5	30	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	61	On Watch
V478	744	*GO Pursuit*	HRG	Dalton, Tavis	2022-11-06	Visual	02:26	40.63253	-70.48300	239	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	2	0	2	2	2	0	Moderate	8	80	2	Full Power	Sparker Only	Yes	2	None	N/A	N/A	62	On Watch
V479	745	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-06	Visual	06:22	40.59987	-70.44330	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Swimming at surface; Swimming below surface.	2	0	2	2	2	150	Moderate	5	65	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	61	On Watch
V480	746	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-06	Visual	07:19	40.59958	-70.39804	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	5	0	5	5	5	110	Vigorous	60	50	1	Full Power	Sparker Only	Yes	5	None	N/A	N/A	62	On Watch
V481	747	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-06	Visual	11:02	40.61886	-70.29297	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface.	10	0	10	10	10	210	Vigorous	40	15	1	Full Power	Sparker Only	Yes	10	None	N/A	N/A	62	On Watch
V482	748	*GO Pursuit*	HRG	Klein, Michelle	2022-11-06	Visual	17:10	40.60959	-70.47555	266	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Porpoising; Swimming at surface; Swimming below surface.	4	0	4	4	4	240	Vigorous	75	70	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	59	On Watch
V483	749	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-06	Visual	22:28	40.59813	-70.47942	260	Common dolphin - *Delphinus delphis*	Definite	Slender body with long pointed beak. Distinctive hourglass pattern on sides. Dark cape with a tall, falcate dorsal fin.	Swimming at surface; Swimming below surface.	3	0	3	3	3	270	Moderate	75	70	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	62	On Watch
V484	750	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-07	Visual	04:17	40.61526	-70.29017	84	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hour glass pattern on sides.	Swimming below surface; Swimming at surface.	3	0	3	3	3	0	Moderate	6	60	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	56	On Watch
V485	751	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-14	Visual	23:25	40.9842	-70.4635	135	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hour glass pattern on sides.	Swimming at surface; Swimming below surface.	6	0	6	6	6	0	Moderate	6	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	41.4	On Watch

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V486	752	*GO Pursuit*	HRG	Toxtle, Miguel	2022-11-15	Visual	01:22	40.61134	-70.48136	310	Common dolphin - *Delphinus delphis*	Definite	Dorsal fin tall, triangular, falcate and pointed. Shorter beak and black eye patch separated.	Swimming at surface; Swimming below surface; Diving; Bow riding.	4	2	6	6	6	0	Vigorous	10	50	1	Transit	None	No	0	Delay	N/A	N/A	60	On Watch
V487	753	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-15	Visual	20:47	40.61616	-70.31961	79	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hour glass pattern on sides.	Swimming at surface; Swimming below surface.	6	1	7	7	7	180	Vigorous	10	50	1	Full Power	Sparker Only	Yes	7	None	N/A	N/A	57.7	On Watch
V488	754	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-15	Visual	23:15	40.60813	-70.28925	18	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak. Distinctive hour glass pattern on sides.	Breaching / Jumping / Acrobatic behavior; Swimming at surface; Swimming below surface; Fast travel.	10	0	10	10	10	0	Vigorous	5	50	1	Deploying/Retrieving	None	No	0	None	N/A	N/A	56.9	On Watch
V489	755	*GO Pursuit*	HRG	Uribe, Amaranta	2022-11-16	Visual	00:00	40.65043	-70.30385	333	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock and long pointed beak; distinctive hourglass pattern on sides.	Swimming at surface; Swimming below surface.	3	0	3	3	3	0	Moderate	7	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	26	On Watch
V490	756	*GO Pursuit*	HRG	Danielski, Monica	2022-11-22	Visual	19:00	41.63087	-70.91553	20	Unidentified seal - Phocidae spp.	Definite	Distinctive horse-like head with broad arching snout; eyes set closer to ears than nose.	Swimming at surface.	1	0	1	1	1	180	Moderate	70	N/A, source not deployed	70	Transit	None	No	0	None	N/A	N/A	10	On Watch
V491	757	*GO Pursuit*	HRG	Hernandez, Valeria	2022-11-23	Visual	09:21	40.64684	-70.21533	90	Common dolphin - *Delphinus delphis*	Definite	Tan patch on both sides, hourglass pattern on sides, flukes with pointed tips, prominent beak.	Swimming at surface; Milling; Feeding; Fast travel; Diving.	8	0	12	4	8	88	Vigorous	30	N/A, source not deployed	10	Standby	None	No	0	None	N/A	N/A	52	On Watch
V492	758	*GO Pursuit*	HRG	Danielski, Monica	2022-11-23	Visual	20:08	40.63058	-70.39136	88	Common dolphin - *Delphinus delphis*	Definite	Tan patch on both sides, hourglass pattern on sides, flukes with pointed tips, prominent beak.	Swimming at surface; Bow riding; Fast travel; Breaching / Jumping / Acrobatic behavior; Porpoising; Diving.	65	3	70	52	70	240	Vigorous	334	5	1	Deploying/Retrieving	None	No	0	None	N/A	N/A	58	On Watch
V493	759	*GO Pursuit*	HRG	Hernandez, Valeria	2022-11-24	Visual	00:27	40.63020	-70.44042	88	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak.	Porpoising; Swimming at surface; Swimming below surface; Feeding; Bow riding; Milling.	37	3	40	21	40	0	Vigorous	50	10	1	Full Power	Sparker Only	Yes	40	None	N/A	N/A	62	On Watch
V494	760	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-24	Visual	14:40	40.63476	-70.13187	81	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak.	Porpoising; Swimming at surface; Swimming below surface.	10	2	12	12	12	90	Vigorous	2	10	2	Full Power	Sparker Only	Yes	12	None	N/A	N/A	55	On Watch
V495	761	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-24	Visual	17:15	40.62738	-70.03680	274	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak.	Swimming at surface; Swimming below surface.	10	0	10	10	10	180	Vigorous	50	50	20	Full Power	Sparker Only	Yes	10	None	N/A	N/A	53	On Watch
V496	762	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-24	Visual	21:03	40.62731	-70.11771	244	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak.	Porpoising; Swimming at surface; Swimming below surface.	4	0	4	4	4	180	Vigorous	50	40	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	51	On Watch
V497	763	*GO Pursuit*	HRG	Danielski, Monica	2022-11-24	Visual	22:30	40.62317	-70.19904	91	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak.	Fast travel; Swimming at surface; Swimming below surface; Feeding.	4	0	4	4	4	300	Vigorous	50	5	1	Full Power	Sparker Only	Yes	14	None	N/A	N/A	52	On Watch
V498	764	*GO Pursuit*	HRG	Cardenas, Ana	2022-11-29	Visual	10:35	40.64254	-70.47170	175	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, slender body, darker dorsal side.	Swimming below surface; Fast travel; Swimming below surface.	2	0	4	1	2	0	Moderate	10	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	57	On Watch
V499	765	*GO Pursuit*	HRG	Ramsarran, Celine	2022-11-29	Visual	23:30	40.62382	-70.28602	269	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, slender body, darker dorsal side.	Swimming at surface; Swimming below surface.	3	0	3	3	3	0	Vigorous	1	40	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	54	On Watch
V500	766	*GO Pursuit*	HRG	Hernandez, Valeria	2022-11-30	Visual	09:03	40.62947	-70.13659	277	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, slender body, darker dorsal side.	Breaching / Jumping / Acrobatic behaviour; Fast travel; Swimming at surface; Feeding.	14	0	20	10	14	90	Vigorous	100	50	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	51.6	On Watch
V501	767	*GO Pursuit*	HRG	Ramsaran, Keishan	2022-12-02	Visual	17:23	40.61042	-70.3119	75	Common dolphin - *Delphinus delphis*	Definite	Greater than two meters in length, dark cape with V under fin, hourglass pattern, white underside, yellowish patch on sides.	Porpoising; Swimming below surface; Fast travel.	3	0	3	2	3	75	Vigorous	280	65	5	Full Power	Sparker Only	Yes	3	None	N/A	N/A	60	On Watch
V502	768	*GO Pursuit*	HRG	Cardenas, Ana	2022-12-03	Visual	01:46	40.62988	-70.25307	85	Common dolphin - *Delphinus delphis*	Definite	Dark dorsal side, hourglass pattern on both sides.	Swimming below surface; Fast travel; Diving.	7	0	7	1	7	345	Moderate	10	N/A, source not deployed	10	Silent	None	No	0	None	N/A	N/A	55	On Watch
V503	769	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-03	Visual	03:33	40.63023	-70.16479	257	Common dolphin - *Delphinus delphis*	Definite	Dark dorsal side, hourglass pattern on both sides.	Fast travel; Swimming below surface; Diving.	2	0	4	1	2	120	Vigorous	30	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	52	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V504	770	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-03	Visual	11:28	41.11576	-70.60797	315	Common dolphin - *Delphinus delphis*	Definite	Dark dorsal side, hourglass pattern on both sides.	Fast travel; Bow riding; Swimming below surface.	4	0	6	2	4	135	Vigorous	50	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	45	On Watch
V505	771	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-03	Visual	14:30	41.3846	-70.85079	36	Gray seal - *Halichoerus grypus*	Definite	Long convex muzzle and robust body.	Diving.	1	0	1	1	1	270	Moderate	100	N/A, source not deployed	100	Transit	None	No	0	None	N/A	N/A	28	On Watch
V506	772	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-04	Visual	14:14	41.48121	-70.5369	100	Gray seal - *Halichoerus grypus*	Definite	Short flippers and dark grey color with dark spots.	Diving.	1	0	1	1	1	0	Moderate	100	N/A, source not deployed	100	Standby	None	No	0	None	N/A	N/A	23	On Watch
V507	773	*GO Pursuit*	HRG	Ramsaran, Keishan	2022-12-04	Visual	21:05	41.02042	-70.50279	140	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Fast travel; Milling; Bow riding; Swimming at surface.	6	0	6	5	6	120	Vigorous	300	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	42	On Watch
V508	774	*GO Pursuit*	HRG	Danielski, Monica	2022-12-05	Visual	00:47	40.6427	-70.25007	177	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Swimming at surface; Diving.	6	0	6	6	6	330	Moderate	20	N/A, source not deployed	20	Transit	None	No	0	None	N/A	N/A	52	On Watch
V509	775	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-05	Visual	02:11	40.62763	-70.27469	268	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Fast travel; Bow riding; Diving.	5	0	6	3	5	240	Vigorous	200	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	54	On Watch
V510	776	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-05	Visual	05:42	40.62288	-70.4149	300	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Fast travel; Diving; Bow riding; Swimming below surface.	3	0	3	2	3	0	Vigorous	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	59	On Watch
V511	777	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-05	Visual	09:37	40.631	-70.32498	79	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Swimming at surface; Swimming below surface; Bow riding.	5	0	7	1	5	0	Vigorous	3	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	55	On Watch
V512	778	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-05	Visual	11:46	40.62818	-70.06298	86	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Fast travel; Diving.	4	0	4	2	4	120	Vigorous	200	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	53	On Watch
V513	779	*GO Pursuit*	HRG	Danielski, Monica	2022-12-05	Visual	18:30	40.6338	-70.07816	82	Common dolphin - *Delphinus delphis*	Definite	Slender body, dark dorsal side, hourglass pattern on both sides.	Bow riding; Fast travel.	3	1	4	4	4	195	Vigorous	90	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	52	On Watch
V514	780	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-06	Visual	04:33	40.62983	-70.27147	87	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern, dorsal fin gray and narrow and complex facial pattern.	Fast travel; Diving.	2	0	2	2	2	345	Vigorous	5	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	52	On Watch
V515	781	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-06	Visual	06:21	40.62683	-70.23888	86	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, dark dorsal, long beak, slender body.	Fast travel; Bow riding; Diving.	3	0	6	1	3	150	Vigorous	150	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	54	On Watch
V516	782	*GO Pursuit*	HRG	Cardenas, Ana	2022-12-06	Visual	08:06	40.62993	-70.20528	92	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, dark dorsal, long beak, slender body.	Breaching / Jumping / Acrobatic behavior; Fast travel; Swimming below surface.	2	0	2	1	2	60	Vigorous	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	54	On Watch
V517	783	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-06	Visual	13:44	40.63334	-70.09065	85	Gray seal - *Halichoerus grypus*	Definite	Dark gray and brown body with a long hook nose.	Spy hopping; Diving.	1	0	1	1	1	270	Moderate	20	N/A, source not deployed	20	Standby	None	No	0	None	N/A	N/A	52	On Watch
V518	784	*GO Pursuit*	HRG	Ramsaran, Keishan	2022-12-06	Visual	15:47	40.63856	-70.05177	79	Gray seal - *Halichoerus grypus*	Definite	Dark gray and brown body with a long hook nose.	Feeding; Diving.	1	0	1	1	1	215	Sedate	180	N/A, source not deployed	150	Standby	None	No	0	None	N/A	N/A	54	On Watch
V519	785	*GO Pursuit*	HRG	Danielski, Monica	2022-12-06	Visual	18:20	40.6244	-70.47607	103	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on both sides, dark dorsal, long beak, slender body.	Breaching / Jumping / Acrobatic behavior; Fast travel; Swimming below surface.	8	2	10	10	10	195	Vigorous	228	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	60	On Watch
V520	786	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-07	Visual	12:23	40.62604	-70.40377	10	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern and tan, yellowish patch on each side; pale gray triangular dorsal fin.	Bow riding; Diving with flukes / Fluking.	20	0	20	20	20	0	Vigorous	1	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	60	On Watch
V521	787	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-20	Visual	19:01	40.78317	-70.27383	175	Gray seal - *Halichoerus grypus*	Definite	Horse-like face and short flippers.	Diving.	1	0	1	1	1	270	Moderate	40	N/A, source not deployed	40	Standby	None	No	0	None	N/A	N/A	46	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V522	788	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-20	Visual	20:32	40.81521	-70.26471	160	Unidentified whale - Cetacea spp.	Definite	Blow.	Diving.	1	0	1	1	1	u	Moderate	816	N/A, source not deployed	816	Standby	None	No	0	None	N/A	N/A	50	On Watch
V523	789	*GO Pursuit*	HRG	Dyachkov, Sergey	2022-12-21	Visual	01:23	40.61906	-70.16972	273	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak; dorsal fin located midback, about 2-2.6 meters long.	Swimming at surface; Swimming below surface; Fast travel	5	0	5	2	5	180	Vigorous	30	60	20	Full Power	Sparker Only	Yes	5	None	N/A	N/A	56	On Watch
V524	790	*GO Pursuit*	HRG	Cardenas, Ana	2022-12-21	Visual	06:54	40.68013	-70.12502	167	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak; dorsal fin located midback, about 2-2.6 meters long.	Swimming below surface; Surfacing; Feeding.	4	0	4	3	4	0	Moderate	20	50	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43	On Watch
V525	791	*GO Pursuit*	HRG	Ruz, Daniel	2022-12-21	Visual	08:08	40.61414	-70.07464	165	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak; dorsal fin located midback, about 2-2.6 meters long.	Swimming at surface; Blowing; Feeding.	3	0	3	3	3	165	Vigorous	40	40	40	Full Power	Sparker Only	Yes	3	None	N/A	N/A	55	On Watch
V526	792	*GO Pursuit*	HRG	Dyachkov, Sergey	2022-12-21	Visual	12:46	40.66852	-70.03331	263	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock; long pointed beak; dorsal fin located midback, about 2-2.6 meters long.	Swimming below surface.	2	0	2	2	2	80	Vigorous	10	75	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	49	On Watch
V527	793	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-21	Visual	17:31	40.67055	-70.37481	85	Humpback whale - *Megaptera novaeangliae*	Definite	Low dorsal fin with hump in front of fin, notch in the middle of flukes, tall and bushy blow.	Swimming at surface; Diving.	2	1	5	1	3	15	Sedate	1853	330	250	Full Power	Sparker Only	No	0	None	N/A	N/A	52	On Watch
V528	794	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-21	Visual	17:58	40.66488	-70.32599	269	Common dolphin - *Delphinus delphis*	Definite	Tall dorsal fin with pointed tip, hourglass pattern on sides.	Fast travel; Porpoising.	30	0	50	20	30	180	Vigorous	1116	280	233	Full Power	Sparker Only	No	0	None	N/A	N/A	50	On Watch
V529	795	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-21	Visual	20:58	40.61794	-70.4499	186	Common dolphin - *Delphinus delphis*	Definite	Tall dorsal fin with pointed tip, hourglass pattern on sides.	Swimming below surface; Diving.	5	0	5	2	5	270	Vigorous	30	10	30	Silent	None	No	0	None	N/A	N/A	56	On Watch
V530	796	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-21	Visual	22:02	40.62336	-70.3097	78	Common dolphin - *Delphinus delphis*	Definite	Tall dorsal fin, dark dorsal body, hourglass pattern on sides.	Swimming below surface; Bow riding; Feeding; Diving.	3	0	5	2	3	270	Vigorous	100	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	57	On Watch
V531	797	*GO Pursuit*	HRG	Dyachkov, Sergey	2022-12-22	Visual	00:18	40.62828	-70.12271	87	Common dolphin - *Delphinus delphis*	Definite	Tall dorsal fin, hourglass pattern on sides.	Swimming below surface; Swimming at surface; Bow riding; Feeding; Breaching / Jumping / Acrobatic behavior.	5	2	8	7	7	90	Moderate	150	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	53	On Watch
V532	798	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-22	Visual	18:51	41.02841	-70.59728	334	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides, dark dorsal body.	Breaching / Jumping / Acrobatic behavior; Bow riding; Diving.	4	0	4	4	4	0	Vigorous	50	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	51	On Watch
V533	799	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-22	Visual	20:22	41.22776	-70.73829	332	Gray seal - *Halichoerus grypus*	Definite	Short flippers and hooked nose.	Diving	1	0	1	1	1	180	Sedate	40	N/A, source not deployed	40	Transit	None	No	0	None	N/A	N/A	32	On Watch
V534	800	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-27	Visual	17:03	41.46248	-70.84929	182	Gray seal - *Halichoerus grypus*	Definite	Long snout, round head.	Surfacing; Spy hopping; Resting at surface / Logging; Diving.	2	0	2	2	2	90	Moderate	200	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	26	On Watch
V535	801	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-27	Visual	17:58	41.33781	-70.85779	148	Gray seal - *Halichoerus grypus*	Definite	Long snout, round head.	Surfacing; Spy hopping; Diving.	1	0	1	1	1	u	Moderate	334	N/A, source not deployed	334	Transit	None	No	0	None	N/A	N/A	26	On Watch
V536	802	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-29	Visual	18:19	40.71892	-70.15285	260	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides.	Swimming at surface; Breaching / Jumping / Acrobatic behavior.	8	2	15	6	10	90	Moderate	435	110	147	Full Power	Sparker Only	Yes	5	None	N/A	N/A	43	On Watch
V537	803	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-29	Visual	18:47	40.71628	-70.20081	260	Humpback whale - *Megaptera novaeangliae*	Definite	Tall and bushy blow, distinctive hump and flukes.	Blowing; Diving with flukes / Fluking; Surfacing.	1	0	1	1	1	u	Moderate	1116	262	270	Full Power	Sparker Only	No	0	None	N/A	N/A	43	On Watch
V538	804	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-29	Visual	18:48	40.71434	-70.19726	260	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides.	Swimming at surface; Swimming below surface.	4	0	4	4	4	270	Vigorous	334	70	1	Full Power	Sparker Only	Yes	4	None	N/A	N/A	43	On Watch
V539	805	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-30	Visual	15:56	40.71518	-70.04025	250	Common dolphin - *Delphinus delphis*	Definite	Long beak, tall and pointy dorsal fin, hourglass pattern on sides.	Fast travel; Swimming below surface.	2	1	3	3	3	270	Vigorous	513	40	1	Full Power	Sparker Only	Yes	3	None	N/A	N/A	43	On Watch

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								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
V540	806	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-31	Visual	02:54	40.71696	-70.32729	90	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, black back and cape form V-shaped saddle that dips below dorsal fin, black beak and line from jaw to flipper, size around 2 meters.	Surfacing; Swimming at surface.	2	0	2	2	2	180	Vigorous	30	100	30	Full Power	Sparker Only	Yes	2	None	N/A	N/A	48	On Watch
V541	807	*GO Pursuit*	HRG	Cardenas, Ana	2022-12-31	Visual	11:36	40.71745	-70.2486	83	Common dolphin - *Delphinus delphis*	Definite	Long pointed beak, black back and cape form V-shaped saddle that dips below dorsal fin, black beak and line from jaw to flipper, size around 2 meters.	Surfacing; Fast travel.	4	0	4	4	4	90	Vigorous	5	75	5	Full Power	Sparker Only	Yes	4	None	N/A	N/A	48	On Watch
V542	808	*GO Pursuit*	HRG	Toxtle, Miguel	2022-12-31	Visual	16:33	40.87754	-70.21434	306	Gray seal - *Halichoerus grypus*	Definite	Hooked nosed and brown head color.	Spy hopping; Diving.	1	0	1	1	1	90	Moderate	100	N/A, source not deployed	100	Transit	None	No	0	None	N/A	N/A	36	On Watch
V543	809	*GO Pursuit*	HRG	Hernandez, Valeria	2022-12-31	Visual	17:01	40.92443	-70.28625	303	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass patterns on sides.	Fast travel; Swimming at surface; Swimming below surface.	5	0	5	5	5	120	Vigorous	50	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	34	On Watch
V544	810	*GO Pursuit*	HRG	Hernandez, Valeria	2023-01-02	Visual	15:19	40.68714	-70.0707	40	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides	Swimming at surface.	4	0	2	4	2	230	Vigorous	870	170	200	Soft Start	Sparker Only	No	0	None	N/A	N/A	42.8	On Watch
V545	811	*GO Pursuit*	HRG	Hernandez, Valeria	2023-01-02	Visual	15:51	40.71886	-70.06731	269	North Atlantic right whale - *Eubalaena glacialis*	Definite	Wide blow V-shaped; visible flukes with smooth edges and notch in the middle; absence of dorsal fin; presence of callosities on tip of rostrum.	Swimming at surface; Blowing; Diving.	1	0	1	1	1	270	Moderate	1166	500	400	Full Power	Sparker Only	No	0	Shutdown	17:03	17:03	44.8	On Watch
V546	812	*GO Pursuit*	HRG	Toxtle, Miguel	2023-01-02	Visual	17:12	40.71366	-70.08521	265	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin and hourglass pattern on sides	Fast travel; Diving.	2	0	2	2	2	0	Vigorous	2	60	2	Silent	None	No	0	Delay	N/A	N/A	44.8	On Watch
V547	813	*GO Pursuit*	HRG	Hernandez, Valeria	2023-01-03	Visual	00:34	40.7132	-70.10568	259	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides.	Fast travel; Swimming at surface; Swimming below surface.	2	0	2	2	2	135	Vigorous	200	70	1	Full Power	Sparker Only	Yes	2	None	N/A	N/A	41.8	On Watch
V548	814	*GO Pursuit*	HRG	Cardenas, Ana	2023-01-03	Visual	03:05	40.71492	-70.4112	82	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Distinctive black back. Around 2.5 meters long.	Swimming below surface; Fast travel; Diving.	2	0	2	2	2	0	Vigorous	10	81	10	Silent	None	No	0	Delay	N/A	N/A	46.6	On Watch
V549	815	*GO Pursuit*	HRG	Dyachkov, Sergey	2023-01-03	Visual	05:00	40.71614	-70.32036	83	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Distinctive black back. Around 2.5 meters long.	Swimming below surface; Fast travel.	2	0	2	2	2	0	Vigorous	5	75	5	Full Power	Sparker Only	Yes	2	None	N/A	N/A	50.2	On Watch
V550	816	*GO Pursuit*	HRG	Cardenas, Ana	2023-01-03	Visual	10:36	40.71102	-70.26805	258	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, slender tail stock. Long pointed beak. Distinctive black back. Around 2.5 meters long..	Swimming below surface; Fast travel.	2	1	3	3	3	180	Vigorous	5	40	7	Full Power	Sparker Only	Yes	3	None	N/A	N/A	44.1	On Watch
V551	817	*GO Pursuit*	HRG	Hernandez, Valeria	2023-01-03	Visual	15:46	40.71558	-69.98514	300	North Atlantic right whale - *Eubalaena glacialis*	Definite	V-shaped blow, flukes with soft edges.	Blowing; Diving.	1	0	1	1	1	180	Moderate	1463	1534	1463	Silent	None	No	0	None	N/A	N/A	42.3	On Watch
V552	818	*GO Pursuit*	HRG	Hernandez, Valeria	2023-01-03	Visual	17:43	40.8604	-70.20154	313	Common dolphin - *Delphinus delphis*	Definite	Tall and pointy dorsal fin, hourglass pattern on sides, dark torso.	Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming at surface.	10	0	15	8	10	120	Vigorous	150	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	37.7	On Watch
V553	819	*GO Pursuit*	HRG	Toxtle, Miguel	2023-01-03	Visual	19:13	41.01187	-70.39965	308	Gray seal - *Halichoerus grypus*	Definite	Hooked nose	Surfacing; Diving.	1	0	1	1	1	180	Vigorous	50	N/A, source not deployed	50	Transit	None	No	0	None	N/A	N/A	39.9	On Watch
V554	820	*GO Pursuit*	HRG	Toxtle, Miguel	2023-01-03	Visual	20:56	41.19642	-70.67172	303	Gray seal - *Halichoerus grypus*	Definite	Hooked nose	Swimming at surface; Spy hopping; Diving.	2	0	2	2	2	180	Vigorous	50	N/A, source not deployed	50	Transit	None	No	0	None	N/A	N/A	44.5	On Watch
V555	821	*GO Pursuit*	HRG	O'Sullivan, Sean	2023-01-07	Visual	11:52	40.70985	-70.2559	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with hour-glass pattern on sides, falcate dorsal fin	Porpoising; Swimming at surface; Swimming below surface.	2	1	5	2	3	270	Vigorous	5	N/A, source not deployed	2	Silent	None	No	0	None	N/A	N/A	46.3	On Watch
V556	822	*GO Pursuit*	HRG	Dyachkov, Sergey	2023-01-07	Visual	14:06	40.72095	-70.09617	86	Common dolphin - *Delphinus delphis*	Definite	Slender body with hour-glass pattern on sides, falcate dorsal fin	Porpoising; Fast travel; Swimming at surface; Swimming below surface.	4	0	4	4	4	90	Vigorous	5	N/A, source not deployed	5	Silent	None	No	0	None	N/A	N/A	46.2	On Watch
V557	823	*GO Pursuit*	HRG	O'Sullivan, Sean	2023-01-09	Visual	01:44	40.71761	-70.06665	94	Common dolphin - *Delphinus delphis*	Definite	Slender body with hour-glass pattern on sides, falcate dorsal fin	Porpoising; Swimming at surface; Swimming below surface.	4	0	5	2	4	0	Vigorous	8	80	8	Full Power	Sparker Only	Yes	4	None	N/A	N/A	44	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V558	824	*GO Pursuit*	HRG	Mike, Romario	2023-01-11	Visual	02:25	40.64032	-70.17156	260	Common dolphin - *Delphinus delphis*	Definite	Long and slender beak with unique hour glass or crisscross pattern with yellow /beige patch at back.	Swimming at surface; Fast travel.	4	0	6	2	4	0	Vigorous	10	80	10	Silent	None	No	0	None	N/A	N/A	45.7	On Watch
V559	825	*GO Pursuit*	HRG	Ramsarran, Celine	2023-01-11	Visual	21:26	40.68547	-70.38962	77	Humpback whale - *Megaptera novaeangliae*	Probable	Tall busy blow with dark grey body	Blowing; Diving.	1	0	1	1	1	0	Sedate	300	380	300	Full Power	Sparker Only	No	0	None	N/A	N/A	52.7	On Watch
V1	826	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-05	Visual	07:25	41.38567	-71.43098	217	Common dolphin - *Delphinus delphis*	Definite	Slender body, hour-glass patterns on sides, falcated dorsal fin.	Fast travel; Swimming below surface; Diving.	3	0	3	3	3	80	Vigorous	100	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	26	On Watch
V2	827	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-05	Visual	09:15	41.27768	-71.70925	253	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcated dorsal fin.	Surfacing; Fast travel; Swimming below surface; Diving.	3	0	5	3	3	260	Vigorous	15	N/A, source not deployed	15	Transit	None	No	0	None	N/A	N/A	32	On Watch
V3	828	*Brooks McCall*	HRG	DeLeon, Grace	2022-11-07	Visual	17:58	41.65450	-71.24257	51	Gray seal - *Halichoerus grypus*	Definite	Gray chubby body, black spots, short hind flipper	Surfacing; Diving.	1	0	1	1	1	220	Moderate	80	N/A, source not deployed	70	Transit	None	No	0	None	N/A	N/A	27	On Watch
V4	829	*Brooks McCall*	HRG	Pena, Valeria	2022-11-09	Visual	14:44	41.21652	-72.00520	98	Humpback whale - *Megaptera novaeangliae*	Definite	Large body 15 meters in length . Large sickle-like dorsal fin situated 2/3 along the back. Remarkable hump before the dorsal fin. Prominent splashguards. Fluke with a serrated trailing edges. Underside of the fluke has mostly white patterns. Bushy blow, 2-3 meters	Resting at surface / Logging; Blowing; Surfacing; Other(Describe in Detection Description).	1	0	1	1	1	90	Sedate	200	N/A, source not deployed	150	Standby	None	No	0	None	N/A	N/A	37	On Watch
V5	830	*Brooks McCall*	HRG	Pena, Valeria	2022-11-10	Visual	16:20	41.24211	-72.01035	125	Fin whale - *Balaenoptera physalus*	Definite	Elongated body about 25 meters length. Low backswept dorsal fin on posterior 1/3 of back, appeared after the head and blow disappeared. Faint pale chevrons marking on left side of the back. Tall, narrow, upright blow 4-6 meters high.	Blowing; Surfacing; Resting at surface / Logging.	1	0	1	1	1	180	Moderate	1000	1000	950	Testing	Sparker Only	No	0	None	N/A	N/A	73	On Watch
V6	831	*Brooks McCall*	HRG	Pena, Valeria	2022-11-11	Visual	14:00	41.42442	-71.42523	34	Unidentified dolphin - Delphinidae spp.	Definite	Small and slender body about 2 meters length, falcate dorsal fin located mid-back.	Breaching / Jumping / Acrobatic behavior; Fast travel; Porpoising.	5	0	5	3	5	0	Vigorous	2500	N/A, source not deployed	2500	Transit	None	No	0	None	N/A	N/A	28	On Watch
V7	832	*Brooks McCall*	HRG	Pena, Valeria	2022-11-11	Visual	14:10	41.43728	-71.39015	34	Common dolphin - *Delphinus delphis*	Definite	Torpedo shaped body, 2 meter length. Tall, triangular falcate dorsal fin located mid-back. Broad dark cape, V-shaped that dips from side of cape below dorsal fin and hourglass pattern with grey wash to tailstock. Short beak.	Breaching / Jumping / Acrobatic behavior; Porpoising; Feeding.	12	1	14	11	13	180	Moderate	200	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	28	On Watch
V8	833	*Brooks McCall*	HRG	DeLeon, Grace	2022-11-11	Visual	15:09	41.39274	-71.38047	34	Common dolphin - *Delphinus delphis*	Definite	Torpedo shaped body, 2 meter length. Tall, triangular falcate dorsal fin located mid-back. Broad dark cape, V-shaped that dips from side of cape below dorsal fin and hourglass pattern with grey wash to tailstock. Black eye patch. Pale short beak.	Fast travel; Porpoising.	15	0	20	12	15	260	Vigorous	300	N/A, source not deployed	100	Transit	None	No	0	None	N/A	N/A	30	On Watch
V9	834	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-13	Visual	20:25	41.35067	-71.42127	219	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, hourglass pattern on sides, slender body.	Fast travel; Surfacing; Diving.	20	0	25	20	20	150	Vigorous	150	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	30	On Watch
V10	835	*Brooks McCall*	HRG	Coronel, Cesar	2022-11-13	Visual	21:26	41.27554	-71.58207	257	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, hourglass pattern on sides, slender body.	Fast travel; Surfacing; Diving.	2	0	3	2	2	10	Vigorous	40	N/A, source not deployed	20	Transit	None	No	0	None	N/A	N/A	28	On Watch
V11	836	*Brooks McCall*	HRG	Alvarado, Edgar	2022-11-13	Visual	21:45	41.27176	-71.64729	266	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, hourglass pattern on sides, slender body.	Fast travel; Surfacing; Diving.	8	0	10	7	8	10	Vigorous	60	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	28	On Watch
V12	837	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-19	Visual	12:43	41.48433	-71.34319	200	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, hourglass pattern on sides, slim body.	Feeding; Porpoising; Diving; Surfacing.	50	0	60	40	50	180	Stationary	500	N/A, source not deployed	20	Transit	None	No	0	None	N/A	N/A	30	On Watch
V13	838	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-21	Visual	12:45	41.41308	-71.23633	100	Fin whale - *Balaenoptera physalus*	Possible	Dark body, falcated dorsal fin, big.	Surfacing; Diving.	1	0	1	1	1	130	Moderate	30	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	25	On Watch
V14	839	*Brooks McCall*	HRG	Simancas, Jorge	2022-11-30	Visual	12:13	41.18027	-72.03104	300	Harbor seal - *Phoca vitulina*	Definite	Spotted, medium sized and chunky body.	Resting at surface / Logging; Diving.	1	0	1	1	1	180	Stationary	150	N/A, source not deployed	150	Deploying/Retrieving	None	No	0	None	N/A	N/A	46	On Watch
V15	840	*Brooks McCall*	HRG	Pena, Valeria	2022-11-30	Visual	16:38	41.60655	-71.29703	35	Harbor seal - *Phoca vitulina*	Definite	Spotted seal, medium sized and chunky body, around 1.5 meters body length; upper body fur medium silver-gray color and creamy areas closer to the tail; chunky and short neck with rounded head and wide muzzle with slightly upturned nose; pale colored short whiskers; Nostrils small and V form; large	Surfacing; Swimming at surface; Diving.	1	0	1	1	1	150	Sedate	80	N/A, source not deployed	80	Transit	None	No	0	None	N/A	N/A	30	On Watch
V16	841	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-02	Visual	15:49	41.20106	-72.04027	256	Unidentified seal - Phocidae spp.	Definite	Gray round head.	Surfacing; Diving.	1	0	1	0	1	180	Sedate	300	340	300	Silent	None	No	0	None	N/A	N/A	31	On Watch

Vessel Sighting ID #	**General ID #**	**Vessel Name**	**Vessel Type** (HRG, Geotechnical, UXO, Environmental)	**Observer's Name** (Last, First)	**Date** (YYYY-MM-DD)	**Sighting Type** (Acoustic, Visual, Both)	**First Time of Sighting** (UTC; HH:MM)	**Sighting Location** (Decimal Degrees)		**Vessel Heading** (Degrees)	**Species or Species Group** (Common - (Scientific))	**Species ID Certainty** (Possible, Probable, Definite)	**Animal Description** (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	**Animal Behavior** (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	**Group Composition**		**Estimated Total Number of Animals**			**Animal's Initial Direction of Travel** (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	**Animal Pace** (Stationary, Sedate, Moderate, Vigorous)	**Distance at Initial Sighting** (m)	**Closest Point of Approach to Source** (Reticle distance in m)	**Closest Point of Approach to Vessel** (Reticle distance in m)	**Vessel Activity at First Sighting** (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	**Equipment Operating During Sighting** (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	**Animal Within 141m of Active Survey Equipment (Yes/No)**	**Number of Animals Within 141m of Active Survey Equipment (Number)**	**Source Mitigation Action** (Delay, Shutdown, None)	**Time Shutdown Called For** (UTC; HH:MM)	**Time Equipment was Shutdown** (UTC; HH:MM)	**Water Depth (m)**	**Watch Status:** (On Watch, Off Watch=Incidental Sighting)
								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
V17	842	*Brooks McCall*	HRG	Parnell, Pamela	2022-12-04	Visual	12:12	41.40918	-72.095	193	Harbor seal - *Phoca vitulina*	Definite	Short muzzle and small head, and a gray body.	Swimming at surface; Diving.	1	0	1	1	1	180	Sedate	100	N/A, source not deployed	50	Transit	None	No	0	None	N/A	N/A	7	On Watch
V18	843	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-11	Visual	20:09	41.26248	-72.09705	1	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides.	Porpoising; Swimming at surface; Milling; Diving.	30	0	30	30	30	270	Moderate	900	900	900	Full Power	Sparker Only	No	0	None	N/A	N/A	85	On Watch
V19	844	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-11	Visual	20:10	41.24627	-72.09443	204	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides.	Breaching / Jumping / Acrobatic behavior; Diving; Porpoising; Swimming below surface; Bow riding.	8	0	8	8	8	15	Vigorous	100	10	1	Full Power	Sparker Only	Yes	0	None	N/A	N/A	85	On Watch
V20	845	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-11	Visual	20:58	41.23953	-72.09075	9	Common dolphin - *Delphinus delphis*	Definite	Slender body, long pointed beak, hourglass pattern on sides.	Porpoising; Diving.	23	0	25	20	23	180	Vigorous	500	60	50	Full Power	Sparker Only	Yes	0	None	N/A	N/A	67	On Watch
V21	846	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-20	Visual	20:38	41.25337	-72.07399	242	Common dolphin - *Delphinus delphis*	Definite	Slender body, grayish on the back, hourglass pattern on sides.	Feeding; Milling; Breaching / Jumping / Acrobatic behavior; Diving; Porpoising.	45	5	65	44	50	150	Vigorous	1530	10	10	Full Power	Sparker Only	Yes	0	None	N/A	N/A	84	On Watch
V22	847	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-20	Visual	20:45	41.25067	-72.07585	242	Minke whale - *Balaenoptera acutorostrata*	Definite	Small whale, falcated dorsal fin two thirds back on body, dorsal body dark steel gray, did not show flukes.	Blowing; Surfacing; Diving.	1	0	1	1	1	220	Sedate	1422	165	150	Full Power	Sparker Only	No	0	None	N/A	N/A	84	On Watch
V23	848	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-21	Visual	15:38	41.25236	-72.07011	43	Harbor seal - *Phoca vitulina*	Definite	Gray color, rounded head with short dog-like snout.	Resting at surface / Logging.	1	0	1	1	1	0	Stationary	382	382	382	Full Power	Sparker Only	No	0	None	N/A	N/A	77	On Watch
V24	849	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-21	Visual	17:30	41.25548	-72.06807	42	Unidentified seal - Phocidae spp.	Definite	Gray color, small.	Swimming at surface.	1	0	1	1	1	0	Sedate	421	421	421	Full Power	Sparker Only	No	8	None	N/A	N/A	65	On Watch
V25	850	*Brooks McCall*	HRG	Miranda, Sergio	2022-12-22	Visual	07:12	41.22875	-72.14675	260	Unidentified dolphin - Delphinidae spp.	Definite	Truncate dorsal fin, dark grey body.	Fast travel; Breaching / Jumping / Acrobatic behavior; Porpoising; Diving.	5	0	5	3	5	0	Vigorous	150	160	150	Full Power	Sparker Only	No	23	None	N/A	N/A	82	On Watch
V26	851	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-28	Visual	12:17	41.22357	-72.08986	335	Harbor seal - *Phoca vitulina*	Definite	Gray color, rounded head with short dog-like snout.	Resting at surface / Logging; Diving.	1	0	1	1	1	180	Stationary	70	130	60	Silent	None	No	0	None	N/A	N/A	86	On Watch
V27	852	*Brooks McCall*	HRG	Simancas, Jorge	2022-12-30	Visual	12:18	41.40432	-72.09642	4	Harbor seal - *Phoca vitulina*	Definite	Gray color, rounded head with short dog-like snout.	Swimming at surface; Diving.	1	0	1	1	1	180	Moderate	60	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	11	On Watch
V28	853	*Brooks McCall*	HRG	Mohammed, Kristal	2023-01-03	Visual	13:09	41.23025	-72.13877	339	Unidentified seal - Phocidae spp.	Definite	Arching snout, long dark grey body.	Spy hopping; Diving.	1	0	1	1	1	180	Stationary	120	N/A, source not deployed	120	Standby	None	No	0	None	N/A	N/A	75	On Watch
V29	854	*Brooks McCall*	HRG	Simancas, Jorge	2023-01-05	Visual	11:52	41.22368	-72.18186	45	Unidentified dolphin - Delphinidae spp.	Definite	Falcated dorsal fin, gray body.	Porpoising; Feeding; Diving.	13	0	15	10	13	160	Moderate	1200	1000	1000	Full power	Sparker Only	No	0	None	N/A	N/A	48	On Watch
V30	855	*Brooks McCall*	HRG	Simancas, Jorge	2023-01-06	Visual	20:48	41.24907	-72.06989	60	Harbor seal - *Phoca vitulina*	Definite	Dark gray body, dog like snout.	Spy hopping; Swimming at surface; Diving.	1	0	1	1	1	0	Stationary	322	322	322	Full power	Sparker Only	No	0	None	N/A	N/A	12	On Watch
V31	856	*Brooks McCall*	HRG	Simancas, Jorge	2023-01-08	Visual	17:59	41.25372	-72.0728	54	Harbor seal - *Phoca vitulina*	Definite	Dark gray body and dog like snout.	Resting at surface / Logging; Diving.	1	0	1	1	1	180	Stationary	250	250	250	Full power	Sparker Only	No	0	None	N/A	N/A	39	On Watch
V32	857	*Brooks McCall*	HRG	Simancas, Jorge	2023-01-09	Visual	12:34	41.22531	-72.0816	72	Harbor seal - *Phoca vitulina*	Definite	Dog-like snout, silver tan with spot in the body.	Swimming at surface; Diving.	1	0	1	1	1	180	Moderate	100	110	100	Full power	Sparker Only	Yes	1	None	N/A	N/A	84	On Watch
V33	858	*Brooks McCall*	HRG	Bravo, Esmeralda	2023-01-15	Visual	12:45	41.25142	-72.06295	42	Gray seal - *Halichoerus grypus*	Definite	Irregularly shaped spots on the body. 1.3 meters long. Oval face with flat nose.	Swimming at surface; Diving.	1	0	1	1	1	210	Moderate	120	N/A, source not deployed	120	Standby	None	No	0	None	N/A	N/A	31	On Watch
V34	859	*Brooks McCall*	HRG	Mohammed, Kristal	2023-01-18	Visual	14:29	41.24061	-72.17616	334	Gray seal - *Halichoerus grypus*	Definite	Scattered dark spots, large and curve nose.	Swimming at surface; Diving.	1	0	1	1	1	180	Moderate	150	110	150	Full power	Sparker Only	Yes	1	None	N/A	N/A	48	On Watch

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								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
Lease OCS-A -0544																																	
V1	860	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-05	Visual	09:04	40.81979	-71.76119	222	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large robust dolphin, with short rostrum.	Bow riding; Porpoising	1	0	1	1	1	222	Moderate	2	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	45	On Watch
V2	861	*GO Discovery*	HRG	Fisher, John	2022-08-05	Visual	11:30	40.60852	-72.03599	215	Unidentified baleen whale - Cetacea spp.	Definite	Falcate dorsal fin. Tall columnar blow.	Blowing; Swimming at surface	1	0	1	1	1	35	Sedate	800	N/A, source not deployed	800	Transit	None	No	0	None	N/A	N/A	48	On Watch
V3	862	*GO Discovery*	HRG	Fisher, John	2022-08-05	Visual	11:37	40.58316	-72.06102	220	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, v-shaped saddle on back.	Porpoising; Swimming at surface; Fast travel; Bow riding	130	0	150	110	130	80	Vigorous	900	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	48	On Watch
V4	863	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-05	Visual	13:39	40.40532	-72.31858	244	Unidentified baleen whale - Cetacea spp.	Definite	Large high blow.	Blowing	1	0	2	1	1	244	Moderate	1800	N/A, source not deployed	1000	Transit	None	No	0	None	N/A	N/A	58	On Watch
V5	864	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-05	Visual	13:58	40.38456	-72.32197	244	Fin whale - *Balaenoptera physalus*	Definite	Distinct ridge on back from dorsal fin to fluke. Dorsal met back smoothly at gentle angle.	Surfacing; Blowing	1	0	1	1	1	60	Moderate	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	58	On Watch
V7	865	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-06	Visual	15:22	40.32750	-73.00997	181	Common dolphin - *Delphinus delphis*	Definite	Black cape with hourglass side with tan patch forward. Dorsal fin dark with lighter center.	Milling; Feeding	30	0	50	20	30	u	Moderate	500	300	200	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V9	866	*GO Discovery*	HRG	Simancas, Jorge	2022-08-06	Visual	23:00	40.29951	-73.04969	357	Unidentified baleen whale - Cetacea spp.	Definite	Tall blow.	Blowing	1	0	1	1	1	180	Sedate	700	700	700	Full Power	Sparker Only	No	0	None	N/A	N/A	45	On Watch
V11	867	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-08	Visual	12:32	40.09771	-73.97441	178	Minke whale - *Balaenoptera acutorostrata*	Definite	Small sleek body. Black with prominent and falcate dorsal fin.	Blowing; Swimming below surface	1	0	1	1	1	180	Sedate	600	N/A, source not deployed	450	Standby	None	No	0	None	N/A	N/A	18	On Watch
V12	868	*GO Discovery*	HRG	Fisher, John	2022-08-12	Visual	05:42	40.25522	-73.11527	359	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass pattern on sides, v-shaped saddle on back.	Porpoising; Surfacing; Swimming at surface; Swimming below surface; Bow riding	6	0	8	5	6	90	Vigorous	250	50	3	Full Power	Sparker Only	Y	6	None	N/A	N/A	42	On Watch
V13	869	*GO Discovery*	HRG	Simancas, Jorge	2022-08-14	Visual	16:56	40.27460	-73.06617	0	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, short thick beak, lighter sides, falcated dorsal fin.	Porpoising; Breaching / Jumping / Acrobatic behavior; Feeding; Swimming below surface; Bow riding; Diving	20	5	32	20	25	75	Sedate	2319	5	1	Full Power	Sparker Only	Y	25	None	N/A	N/A	41	On Watch
V14	870	*GO Discovery*	HRG	Simancas, Jorge	2022-08-14	Visual	16:56	40.27460	-73.06617	0	Atlantic Spotted dolphin - *Stenella frontalis*	Definite	Robust body, short thick beak, lighter sides, falcated dorsal fin.	Porpoising; Breaching / Jumping / Acrobatic behavior; Feeding; Swimming below surface; Bow riding; Diving	20	5	32	20	25	75	Sedate	2319	5	1	Full Power	Sparker Only	Y	25	None	N/A	N/A	41	On Watch
V15	871	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-15	Visual	02:55	40.18385	-73.11531	5	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large robust dolphin.	Surfacing; Swimming below surface	1	0	1	1	1	305	Sedate	20	120	20	Full Power	Sparker Only	Y	1	None	N/A	N/A	45	On Watch
V16	872	*GO Discovery*	HRG	Simancas, Jorge	2022-08-15	Visual	16:15	40.22305	-73.02573	168	Minke whale - *Balaenoptera acutorostrata*	Definite	Small blow, about 9 meters length, small falcated dorsal fin, dark gray dorsal body.	Blowing; Surfacing; Diving	1	0	1	1	1	260	Sedate	184	280	150	Full Power	Sparker Only	No	0	Shutdown	N/A	16:16	44	On Watch
V17	873	*GO Discovery*	HRG	Simancas, Jorge	2022-08-15	Visual	22:30	40.24119	-73.01759	170	Minke whale - *Balaenoptera acutorostrata*	Definite	Low and bushy blow.	Blowing	2	0	2	2	2	u	Stationary	1418	1420	1418	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V18	874	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-16	Visual	00:56	40.32421	-72.99830	305	Common dolphin - *Delphinus delphis*	Definite	Small, slender body with yellow spots on sides.	Porpoising; Swimming at surface; Diving	1	0	1	1	1	140	Moderate	7	N/A, source not deployed	7	Standby	None	No	0	None	N/A	N/A	40	On Watch
V19	875	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-16	Visual	01:28	40.32298	-73.02901	175	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphins with cream-colored sides.	Surfacing; Swimming at surface; Bow riding	2	0	2	2	2	355	Sedate	3	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	40	On Watch
V20	876	*GO Discovery*	HRG	Fisher, John	2022-08-18	Visual	10:30	40.32558	-73.03188	178	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass shape on sides, v-shaped saddle on back.	Fast travel; Surfacing; Swimming at surface; Bow riding	15	0	18	12	15	0	Vigorous	75	50	2	Full Power	Sparker Only	Y	15	None	N/A	N/A	44	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V22	877	*GO Discovery*	HRG	Simancas, Jorge	2022-08-19	Visual	16:43	40.24783	-73.05062	176	Minke whale - *Balaenoptera acutorostrata*	Definite	Falcated dorsal fin, dark gray body on the back, around 9 meters length.	Surfacing; Diving; Milling; Feeding	1	0	1	1	1	90	Vigorous	388	338	351	Full Power	Sparker Only	No	0	None	N/A	N/A	39	On Watch
V23	878	*GO Discovery*	HRG	Simancas, Jorge	2022-08-19	Visual	23:54	40.26954	-73.04601	193	Minke whale - *Balaenoptera acutorostrata*	Definite	Small and bushy blow.	Blowing; Surfacing; Diving	1	0	1	1	1	60	Moderate	250	330	250	Silent	None	No	0	None	N/A	N/A	43	On Watch
V25	879	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-20	Visual	20:03	40.23187	-73.04883	191	Bottlenose dolphin - *Tursiops truncatus*	Definite	Dark gray, broad bodies. Falcate dorsal fin.	Porpoising; Bow riding	3	0	3	3	3	9	Moderate	20	65	1	Full Power	Sparker Only	Y	3	None	N/A	N/A	43	On Watch
V26	880	*GO Discovery*	HRG	Simancas, Jorge	2022-08-21	Visual	15:37	40.20390	-73.03044	2	Fin whale - *Balaenoptera physalus*	Definite	Tall blow, Long sleek body. Dorsal fin falcate with leading edge meets smoothly at gentle angle appearing shortly after blow.	Blowing; Surfacing; Swimming below surface; Diving	5	0	5	5	5	20	Moderate	1000	738	400	Standby	None	No	0	None	N/A	N/A	44	On Watch
V27	881	*GO Discovery*	HRG	Simancas, Jorge	2022-08-21	Visual	15:40	40.18684	-73.03766	167	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern with tan patch forward and gray patch aft.	Fast travel; Breaching / Jumping / Acrobatic behavior; Porpoising; Swimming below surface; Feeding; Diving	8	2	10	7	10	45	Vigorous	800	5	2	Standby	None	No	0	Delay	N/A	N/A	44	On Watch
V28	882	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-21	Visual	19:59	40.28437	-73.02773	182	Common dolphin - *Delphinus delphis*	Definite	Slender, dark gray bodies with yellow markings on sides and bellies.	Porpoising; Swimming at surface; Swimming below surface	8	0	8	8	8	10	Vigorous	453	70	2	Full Power	Sparker Only	Y	8	None	N/A	N/A	43	On Watch
V29	883	*GO Discovery*	HRG	Simancas, Jorge	2022-08-21	Visual	22:48	40.30683	-73.02682	178	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, yellow sides.	Fast travel; Diving	5	1	6	5	6	90	Vigorous	100	60	5	Full Power	Sparker Only	Y	6	None	N/A	N/A	42	On Watch
V30	884	*GO Discovery*	HRG	Simancas, Jorge	2022-08-22	Visual	00:08	40.21735	-73.03688	181	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, yellow sides.	Fast travel; Diving; Porpoising; Swimming below surface	15	0	20	10	15	90	Vigorous	20	60	2	Full Power	Sparker Only	Y	15	None	N/A	N/A	44	On Watch
V31	885	*GO Discovery*	HRG	Simancas, Jorge	2022-08-22	Visual	00:54	40.22016	-73.03675	357	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, yellow sides.	Porpoising; Diving; Fast travel	12	0	15	8	12	220	Vigorous	2	90	2	Silent	None	No	0	Shutdown	00:54	00:54	43	On Watch
V32	886	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-22	Visual	01:32	40.20607	-73.02920	167	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin with yellow on sides.	Porpoising; Fast travel; Swimming at surface	2	0	2	2	2	167	Vigorous	20	70	10	Soft Start	Sparker Only	Y	2	None	N/A	N/A	44	On Watch
V33	887	*GO Discovery*	HRG	Ashcraft, Caylin	2022-08-22	Visual	18:59	40.28120	-73.02319	171	Common dolphin - *Delphinus delphis*	Definite	Slender body, falcate dorsal fin with yellow on sides.	Porpoising; Bow riding; Swimming at surface	10	0	10	10	10	90	Moderate	100	95	1	Full Power	Sparker Only	Y	10	None	N/A	N/A	43	On Watch
V34	888	*GO Discovery*	HRG	Simancas, Jorge	2022-08-22	Visual	22:32	40.24185	-73.01775	352	Fin whale - *Balaenoptera physalus*	Probable	Twelve meters length, dark dorsal body, dorsal fin towards the two thirds back on body, tall blow.	Blowing; Surfacing; Diving	0	2	2	2	2	100	Sedate	1000	70	60	Full Power	Sparker Only	Y	2	Shutdown	22:48	22:48	42	On Watch
V35	889	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-23	Visual	06:22	40.28383	-73.03103	4	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass pattern on sides.	Surfacing; Swimming at surface; Feeding; Bow riding	3	0	3	3	3	90	Vigorous	40	60	5	Full Power	Sparker Only	Y	3	None	N/A	N/A	43	On Watch
V36	890	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-23	Visual	08:02	40.30672	-73.02341	176	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass pattern on sides.	Swimming at surface; Bow riding	4	0	4	4	4	176	Vigorous	2	95	2	Full Power	Sparker Only	Y	4	None	N/A	N/A	40	On Watch
V37	891	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-23	Visual	08:47	40.22077	-73.02572	176	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass pattern on sides.	Swimming below surface; Swimming at surface; Feeding; Bow riding	1	0	4	1	1	250	Vigorous	20	80	2	Full Power	Sparker Only	Y	1	None	N/A	N/A	40	On Watch
V38	892	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-23	Visual	12:20	40.31208	-73.01997	180	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle.	Blowing; Surfacing	1	0	1	1	1	70	Moderate	807	900	807	Full Power	Sparker Only	No	0	None	N/A	N/A	40	On Watch
V39	893	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-23	Visual	13:29	40.26725	-73.01515	0	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle.	Blowing; Surfacing	3	0	5	2	3	0	Moderate	1000	1000	900	Full Power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V40	894	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-23	Visual	15:31	40.28238	-73.00484	180	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle.	Blowing; Surfacing	2	0	2	1	2	20	Moderate	300	400	300	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V41	895	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-23	Visual	15:55	40.24006	-73.00498	180	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle	Blowing; Surfacing	2	0	2	2	2	90	Sedate	1000	600	500	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V42	896	*GO Discovery*	HRG	Simancas, Jorge	2022-08-23	Visual	16:41	40.24652	-73.01512	0	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle.	Blowing; Surfacing; Diving	5	0	5	4	5	100	Sedate	450	500	450	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V43	897	*GO Discovery*	HRG	Simancas, Jorge	2022-08-23	Visual	17:22	40.29726	-73.01630	0	Fin whale - *Balaenoptera physalus*	Definite	Tall blow. Dorsal fin tall, falcate, two-thirds back on body. Meets back smoothly at gentle angle.	Blowing; Diving	2	0	2	2	2	90	Sedate	1418	750	662	Full Power	Sparker Only	No	0	None	N/A	N/A	43	On Watch
V44	898	*GO Discovery*	HRG	Simancas, Jorge	2022-08-23	Visual	23:04	40.31512	-73.01055	230	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass pattern on sides.	Fast travel; Breaching / Jumping / Acrobatic behavior; Diving	10	0	15	10	10	90	Vigorous	2319	90	50	Full Power	Sparker Only	Y	2	None	N/A	N/A	40	On Watch
V45	899	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-24	Visual	03:12	40.25189	-73.02323	179	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphins with cream-colored sides.	Swimming at surface; Bow riding	3	0	3	3	3	150	Moderate	100	5	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	42	On Watch
V46	900	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-24	Visual	06:37	40.22433	-73.02387	1	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphins with cream-colored sides.	Surfacing; Swimming below surface; Bow riding	1	0	2	1	1	1	Vigorous	20	85	2	Full Power	Sparker Only	Y	1	None	N/A	N/A	41	On Watch
V47	901	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-24	Visual	09:58	40.25676	-72.99493	0	Fin whale - *Balaenoptera physalus*	Definite	Tall columnar blow.	Surfacing; Blowing	1	0	1	1	1	180	Sedate	1424	1424	1424	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V48	902	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-24	Visual	13:41	40.24851	-73.00177	184	Fin whale - *Balaenoptera physalus*	Definite	Tall columnar blow.	Blowing; Surfacing	3	0	5	2	3	180	Moderate	2000	1100	1000	Full Power	Sparker Only	No	0	None	N/A	N/A	40	On Watch
V50	903	*GO Discovery*	HRG	Simancas, Jorge	2022-08-24	Visual	22:37	40.23594	-73.02271	165	Common dolphin - *Delphinus delphis*	Definite	Short thick snout, gray, yellow sides.	Breaching / Jumping / Acrobatic behavior; Porpoising; Diving	5	0	5	5	5	180	Vigorous	805	805	805	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V51	904	*GO Discovery*	HRG	Fisher, John	2022-08-26	Visual	04:01	40.25352	-73.17479	107	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphins with cream colored flanks, hourglass pattern on sides	Fast travel; Swimming at surface; Surfacing	5	0	6	4	5	225	Vigorous	60	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	24	On Watch
V52	905	*GO Discovery*	HRG	Simancas, Jorge	2022-08-26	Visual	22:22	40.17133	-72.95678	20	Humpback whale - *Megaptera novaeangliae*	Definite	White belly, long flippers, gray dorsal body.	Breaching / Jumping / Acrobatic behavior; Diving	1	0	1	1	1	20	Stationary	1027	N/A, source not deployed	1026	Standby	None	No	0	None	N/A	N/A	45	On Watch
V53	906	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-27	Visual	03:34	40.16451	-72.98368	212	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored sides.	Swimming at surface; Porpoising	1	0	1	1	1	0	Vigorous	10	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	48	On Watch
V54	907	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-27	Visual	07:55	40.14325	-72.99473	207	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored sides.	Porpoising; Swimming at surface; Swimming below surface; Feeding; Breaching / Jumping / Acrobatic behavior	4	0	5	4	4	0	Vigorous	30	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	46	On Watch
V55	908	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-28	Visual	03:33	40.26813	-72.97982	356	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored sides.	Swimming at surface; Swimming below surface	1	0	1	1	1	0	Moderate	10	95	3	Full Power	Sparker Only	Y	1	None	N/A	N/A	43	On Watch
V56	909	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-28	Visual	04:30	40.27385	-72.97185	182	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored sides.	Swimming at surface; Swimming below surface; Bow riding	5	0	5	5	5	0	Moderate	20	65	2	Full Power	Sparker Only	Y	5	None	N/A	N/A	42	On Watch
V57	910	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-28	Visual	06:50	40.32792	-72.96993	2	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored and hourglass pattern on sides.	Swimming at surface; Porpoising; Bow riding	3	0	3	2	3	225	Vigorous	50	90	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	40	On Watch
V58	911	*GO Discovery*	HRG	Fisher, John	2022-08-28	Visual	09:25	40.30546	-72.96999	170	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored and hourglass pattern on sides.	Swimming at surface; Porpoising; Swimming below surface; Bow riding	10	0	12	8	10	0	Moderate	5	80	2	Full Power	Sparker Only	Y	10	None	N/A	N/A	44	On Watch
V59	912	*GO Discovery*	HRG	Sandoval, Maria	2022-08-28	Visual	21:05	40.27135	-72.94640	335	Common dolphin - *Delphinus delphis*	Definite	Dark and slender body, hourglass patterns on both sides, long pointed beak, tall and falcate dorsal fin.	Swimming at surface; Swimming below surface; Porpoising	9	1	16	7	10	180	Sedate	50	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	44	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V60	913	*GO Discovery*	HRG	Metheny, Nicholas	2022-08-29	Visual	02:56	40.32016	-72.97680	1	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin with cream-colored and hourglass pattern on sides.	Porpoising; Bow riding	1	0	1	1	1	0	Moderate	20	90	2	Full Power	Sparker Only	Y	1	None	N/A	N/A	44	On Watch
V61	914	*GO Discovery*	HRG	Fisher, John	2022-08-29	Visual	04:04	40.26215	-72.97067	180	Common dolphin - *Delphinus delphis*	Definite	Long falcate beak, tall falcate dorsal fin, hourglass pattern on sides, v-shaped pattern on back.	Swimming at surface; Bow riding	2	0	2	2	2	0	Moderate	5	60	2	Full Power	Sparker Only	Y	2	None	N/A	N/A	43	On Watch
V62	915	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-29	Visual	06:50	40.28025	-72.97721	3	Common dolphin - *Delphinus delphis*	Definite	Long falcate beak, tall falcate dorsal fin, hourglass pattern on sides, v-shaped pattern on back.	Swimming at surface; Bow riding	1	0	1	1	1	0	Moderate	3	80	3	Full Power	Sparker Only	Y	1	None	N/A	N/A	44	On Watch
V63	916	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-29	Visual	15:49	40.26866	-72.96206	186	Common dolphin - *Delphinus delphis*	Definite	Long falcate beak, tall falcate dorsal fin, hourglass pattern on sides, v-shaped pattern on back.	Surfacing; Milling	7	0	10	4	7	0	Moderate	300	210	200	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V66	917	*GO Discovery*	HRG	Fisher, John	2022-08-30	Visual	03:00	40.32830	-72.98080	120	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass shape on sides, v-shaped saddle on back.	Swimming at surface; Bow riding	3	0	3	2	3	0	Moderate	5	60	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	42	On Watch
V67	918	*GO Discovery*	HRG	Cowan, Malcolm	2022-08-30	Visual	08:30	40.30541	-72.98962	357	Common dolphin - *Delphinus delphis*	Definite	Long slender beaks, tall falcate dorsal fin, hourglass shape on sides, v-shaped saddle on back.	Swimming below surface; Swimming at surface; Feeding; Bow riding	7	0	10	6	7	0	Vigorous	20	50	2	Full Power	Sparker Only	Y	7	None	N/A	N/A	44	On Watch
V69	919	*GO Discovery*	HRG	Fisher, John	2022-08-31	Visual	06:15	40.33282	-72.98555	180	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, long slender beak, tall falcate dorsal fin, hourglass pattern on sides, v-shaped saddle on back.	Porpoising; Swimming at surface; Fast travel	8	0	10	7	8	225	Vigorous	50	40	5	Full Power	Sparker Only	Y	8	None	N/A	N/A	40	On Watch
V71	920	*GO Discovery*	HRG	Fisher, John	2022-09-01	Visual	04:54	40.26712	-72.98718	185	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hour glass pattern on sides with tan patch forward and gray patch aft. Tall falcate dorsal fin.	Swimming at surface; Swimming below surface; Feeding; Bow riding.	3	0	5	2	3	120	Moderate	10	85	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	42	On Watch
V72	921	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-01	Visual	07:26	40.25101	-72.98830	182	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hour glass pattern on sides with tan patch forward and gray patch aft. Tall falcate dorsal fin.	Feeding; Swimming at surface; Swimming below surface; Bow riding; Breaching / Jumping / Acrobatic behavior.	4	1	6	5	5	0	Moderate	5	75	2	Full Power	Sparker Only	Y	5	None	N/A	N/A	44	On Watch
V74	922	*GO Discovery*	HRG	Sandoval, Maria	2022-09-02	Visual	01:05	40.30502	-72.99656	181	Unidentified dolphin - Delphinidae spp.	Definite	Dark body, tall falcate dorsal fin, medium sized.	Fast travel.	2	0	3	1	2	180	Vigorous	10	90	5	Full Power	Sparker Only	Y	2	None	N/A	N/A	42	On Watch
V75	923	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-02	Visual	04:04	40.28421	-72.99757	182	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long rostrum, and cream-colored sides.	Swimming at surface.	1	0	1	1	1	0	Moderate	5	60	5	Full Power	Sparker Only	Y	1	None	N/A	N/A	44	On Watch
V76	924	*GO Discovery*	HRG	Simancas, Jorge	2022-09-02	Visual	22:55	40.35095	-72.93950	74	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Porpoising; Fast travel; Stationary; Diving; Bow riding; Swimming below surface.	47	3	60	50	50	85	Vigorous	1418	60	1	Standby	None	No	0	None	N/A	N/A	41	On Watch
V77	925	*GO Discovery*	HRG	Fisher, John	2022-09-03	Visual	04:12	40.33681	-73.00182	4	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Swimming at surface; Porpoising; Bow riding.	3	0	3	3	3	270	Vigorous	20	90	3	Full Power	Sparker Only	Y	3	None	N/A	N/A	44	On Watch
V78	926	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-03	Visual	04:28	40.32131	-73.00384	4	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Swimming at surface; Porpoising; Bow riding.	2	0	2	2	2	0	Vigorous	20	60	3	Silent	None	No	0	Delay	N/A	N/A	44	On Watch
V79	927	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-03	Visual	06:41	40.24469	-73.00056	180	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Swimming at surface; Porpoising; Feeding; Bow riding.	8	0	10	7	8	100	Vigorous	50	75	2	Full Power	Sparker Only	Y	8	None	N/A	N/A	43	On Watch
V80	928	*GO Discovery*	HRG	Fisher, John	2022-09-03	Visual	09:39	40.24010	-73.00094	179	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides, V-shaped saddle on back.	Swimming at surface; Bow riding.	3	0	3	3	3	0	Vigorous	5	70	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	42	On Watch
V81	929	*GO Discovery*	HRG	Fisher, John	2022-09-04	Visual	03:39	40.29672	-73.00032	180	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides.	Swimming at surface; Feeding; Bow riding.	6	0	7	5	6	270	Vigorous	20	40	2	Full Power	Sparker Only	Y	6	None	N/A	N/A	43	On Watch
V82	930	*GO Discovery*	HRG	Fisher, John	2022-09-04	Visual	05:49	40.25297	-73.00765	359	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides.	Swimming at surface; Feeding; Bow riding.	4	0	4	4	4	0	Vigorous	10	50	2	Full Power	Sparker Only	Y	4	None	N/A	N/A	44	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V83	931	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-04	Visual	07:49	40.28532	-73.00554	359	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides.	Swimming at surface; Feeding; Bow riding; Breaching / Jumping / Acrobatic behavior; Mating.	9	2	11	11	11	150	Vigorous	20	20	2	Full Power	Sparker Only	Y	11	None	N/A	N/A	43	On Watch
V84	932	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-04	Visual	14:36	40.32790	-72.98957	179	Common dolphin - *Delphinus delphis*	Definite	Long slender beak, tall falcate dorsal fin, hourglass pattern on sides.	Swimming at surface; Swimming below surface; Feeding; Breaching / Jumping / Acrobatic behavior; Mating.	6	0	6	5	6	270	Vigorous	30	5	2	Full Power	Sparker Only	Y	6	None	N/A	N/A	43	On Watch
V86	933	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-05	Visual	04:04	40.31777	-73.01880	4	Common dolphin - *Delphinus delphis*	Definite	Medium sized dolphin, with long rostrum, and cream-colored sides.	Swimming at surface; Swimming below surface; Bow riding.	2	0	2	2	2	0	Moderate	5	95	2	Full Power	Sparker Only	Y	2	None	N/A	N/A	44	On Watch
V87	934	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-05	Visual	05:05	40.24922	-73.01384	183	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Tall dark falcate dorsal fin.	Swimming below surface; Feeding; Bow riding.	3	0	4	2	3	180	Moderate	5	80	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	43	On Watch
V88	935	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-05	Visual	07:14	40.28749	-73.01235	184	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Tall dark falcate dorsal fin.	Swimming at surface; Swimming below surface; Bow riding.	4	0	4	4	4	0	Moderate	20	75	2	Full Power	Sparker Only	Y	4	None	N/A	N/A	40	On Watch
V89	936	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-05	Visual	08:39	40.25517	-73.02098	359	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Tall dark falcate dorsal fin.	Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming below surface.	1	0	1	1	1	150	Vigorous	40	75	2	Full Power	Sparker Only	Y	1	None	N/A	N/A	45	On Watch
V91	937	*GO Discovery*	HRG	Sandoval, Maria	2022-09-06	Visual	01:09	40.27833	-73.01822	0	Common dolphin - *Delphinus delphis*	Definite	Dark and grey body with hourglass patterns on sides, tall and falcate dorsal fin.	Breaching / Jumping / Acrobatic behavior; Porpoising; Swimming below surface; Bow riding.	10	1	18	10	11	200	Vigorous	10	50	3	Full Power	Sparker Only	Y	11	None	N/A	N/A	43	On Watch
V92	938	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-06	Visual	07:16	40.24020	-73.03936	359	Common dolphin - *Delphinus delphis*	Definite	Dark and grey body with hourglass patterns on sides, tall and falcate dorsal fin.	Blowing; Swimming below surface; Feeding.	2	0	3	2	2	0	Vigorous	20	80	5	Full Power	Sparker Only	Y	2	None	N/A	N/A	44	On Watch
V93	939	*GO Discovery*	HRG	Simancas, Jorge	2022-09-07	Visual	16:58	40.49912	-74.11924	293	Bottlenose dolphin - *Tursiops truncatus*	Definite	Falcated dorsal fin, robust body and head, short, thick beak.	Surfacing; Porpoising; Swimming below surface; Diving.	15	0	20	12	15	90	Sedate	500	N/A, source not deployed	200	Standby	None	No	0	None	N/A	N/A	5	On Watch
V97	940	*GO Discovery*	HRG	Sandoval, Maria	2022-09-11	Visual	18:40	40.28125	-73.01924	270	Unidentified dolphin - Delphinidae spp.	Definite	Dark and grey body.	Porpoising; Diving.	15	0	15	10	15	0	Moderate	1821	1821	1821	Soft Start	Sparker Only	No	0	None	N/A	N/A	43	On Watch
V99	941	*GO Discovery*	HRG	Sandoval, Maria	2022-09-11	Visual	20:40	40.32869	-73.01345	92	Common dolphin - *Delphinus delphis*	Definite	Dark body with tall and falcate dorsal fin.	Feeding; Porpoising.	10	2	14	10	12	180	Moderate	1012	1011	1011	Full Power	Sparker Only	No	0	None	N/A	N/A	43	On Watch
V100	942	*GO Discovery*	HRG	Sandoval, Maria	2022-09-11	Visual	20:48	40.32356	-73.01629	170	Common dolphin - *Delphinus delphis*	Definite	Slender and dark body, hourglass patterns on sides, white chest and belly, long pointed beak.	Feeding; Porpoising; Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming below surface.	35	5	45	33	40	70	Moderate	482	20	1	Full Power	Sparker Only	Y	40	None	N/A	N/A	43	On Watch
V103	943	*GO Discovery*	HRG	Metheny, Nicholas	2022-09-14	Visual	02:09	40.23188	-73.05279	354	Common dolphin - *Delphinus delphis*	Definite	Medium-sized dolphin, with long rostrum and cream-colored sides.	Porpoising; Bow riding.	2	0	2	2	2	0	Moderate	3	100	3	Full Power	Sparker Only	Y	2	None	N/A	N/A	45	On Watch
V105	944	*GO Discovery*	HRG	Rangel, Zuemy	2022-09-17	Visual	08:18	40.21394	-73.05369	177	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Tall falcate dark dorsal with lighter center.	Fast travel; Swimming below surface.	3	0	3	2	3	50	Vigorous	20	70	2	Full Power	Sparker Only	Y	3	None	N/A	N/A	43	On Watch
V106	945	*GO Discovery*	HRG	Jackson, Alicia	2022-09-17	Visual	10:56	40.28732	-73.04632	172	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Tall falcate dark dorsal with lighter center.	Fast travel; Porpoising.	15	0	20	15	15	280	Vigorous	1406	200	250	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V109	946	*GO Discovery*	HRG	Sandoval, Maria	2022-09-18	Visual	21:42	40.33464	-72.97508	40	Humpback whale - *Megaptera novaeangliae*	Definite	Stout, black with white body with flat, broad head. Variable amount of white on underside of flukes and both sides of flippers.	Blowing; Breaching / Jumping / Acrobatic behavior; Tail or pectoral fin slapping; Surfacing; Diving.	3	1	4	3	4	0	Vigorous	2289	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V110	947	*GO Discovery*	HRG	Rangel, Zuemy	2022-09-19	Visual	03:22	40.32451	-72.98656	38	Common dolphin - *Delphinus delphis*	Definite	Slender body with pale, long pointed beak. flippers broad and slightly pointed.	Fast travel; Swimming below surface; Bow riding.	2	0	2	1	2	270	Vigorous	10	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	45	On Watch
V111	948	*GO Discovery*	HRG	Simancas, Jorge	2022-09-19	Visual	18:40	40.31503	-73.04195	345	Humpback whale - *Megaptera novaeangliae*	Definite	Stout body, broad head, long flippers, white underside.	Breaching / Jumping / Acrobatic behavior; Blowing; Diving.	2	0	2	2	2	210	Stationary	563	N/A, source not deployed	563	Standby	None	No	0	None	N/A	N/A	46	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V112	949	*GO Discovery*	HRG	Simancas, Jorge	2022-09-19	Visual	22:07	40.32765	-73.00309	20	Common dolphin - *Delphinus delphis*	Definite	Falcated dorsal fin, hourglass pattern on sides.	Swimming below surface; Surfacing; Diving.	10	0	10	10	10	5	Moderate	5	N/A, source not deployed	3	Standby	None	No	0	None	N/A	N/A	43	On Watch
V113	950	*GO Discovery*	HRG	Simancas, Jorge	2022-09-19	Visual	22:09	40.32414	-72.99674	9	Humpback whale - *Megaptera novaeangliae*	Definite	Stout body, broad head, long flippers, white underside.	Breaching / Jumping / Acrobatic behavior; Blowing; Diving.	1	0	1	1	1	50	Stationary	800	N/A, source not deployed	800	Standby	None	No	0	None	N/A	N/A	43	On Watch
V114	951	*GO Discovery*	HRG	Jackson, Alicia	2022-09-20	Visual	11:52	40.30772	-73.04138	1	Common dolphin - *Delphinus delphis*	Definite	Black back and cape, hourglass pattern on sides, tan patch forward, gray patch aft.	Porpoising; Feeding; Swimming below surface.	12	0	15	10	12	260	Vigorous	300	N/A, source not deployed	10	Standby	None	No	0	None	N/A	N/A	44	On Watch
V116	952	*GO Discovery*	HRG	Sandoval, Maria	2022-09-20	Visual	21:15	40.26997	-73.06319	179	Humpback whale - *Megaptera novaeangliae*	Definite	Broad and high blow, long flippers and big and black body.	Blowing.	1	0	1	1	1	90	Moderate	1399	1493	1398	Full Power	Sparker Only	No	0	None	N/A	N/A	42	On Watch
V117	953	*GO Discovery*	HRG	Sandoval, Maria	2022-09-21	Visual	18:15	40.30667	-73.07633	7	Common dolphin - *Delphinus delphis*	Definite	Slender and black body with pale, slender tail, long pointed beak, tall and falcate dorsal fin.	Porpoising; Diving.	10	0	10	10	10	180	Vigorous	1012	1011	1011	Full Power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V118	954	*GO Discovery*	HRG	Sandoval, Maria	2022-09-21	Visual	18:45	40.27017	-73.08650	177	Common dolphin - *Delphinus delphis*	Definite	Slender and black body with pale, slender tail, long pointed beak, tall and falcate dorsal fin.	Porpoising; Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming below surface; Diving.	27	3	40	25	30	0	Vigorous	911	20	2	Full Power	Sparker Only	Y	30	None	N/A	N/A	43	On Watch
V119	955	*GO Discovery*	HRG	Simancas, Jorge	2022-09-21	Visual	22:31	40.28267	-73.06720	185	Common dolphin - *Delphinus delphis*	Definite	Hourglass pattern on the sides, falcated dorsal fin, slim body.	Surfacing; Swimming below surface; Bow riding; Diving.	6	0	6	4	6	0	Vigorous	2	80	1	Full Power	Sparker Only	Y	6	None	N/A	N/A	42	On Watch
V120	956	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-25	Visual	08:20	40.27626	-73.05419	189	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Dorsal fin dark with lighter center.	Swimming below surface; Fast travel; Porpoising.	3	0	5	3	3	30	Vigorous	30	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	42	On Watch
V121	957	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-26	Visual	14:43	40.50074	-74.08094	350	Unidentified dolphin - Delphinidae spp.	Definite	Dark body with dark falcate dorsal fin.	Surfacing.	1	0	1	1	1	320	Sedate	200	N/A, source not deployed	200	Standby	None	No	0	None	N/A	N/A	8	On Watch
V122	958	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-27	Visual	08:43	40.22748	-73.06010	355	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Dorsal fin tall falcate usually dark with lighter center.	Diving; Fast travel; Porpoising.	3	0	3	2	3	270	Vigorous	5	N/A, source not deployed	5	Standby	None	No	0	None	N/A	N/A	43	On Watch
V123	959	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-27	Visual	12:56	40.25459	-73.01638	29	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern on sides with tan patch forward and gray patch aft. Dorsal fin tall falcate usually dark with lighter center.	Fast travel; Porpoising; Swimming below surface; Feeding.	5	0	7	5	5	90	Vigorous	40	N/A, source not deployed	3	Standby	None	No	0	None	N/A	N/A	46	On Watch
V124	960	*GO Discovery*	HRG	Cowan, Malcolm	2022-09-28	Visual	13:47	40.19102	-73.03835	290	Common dolphin - *Delphinus delphis*	Definite	Black back and cape. Hourglass pattern with tan patch forward and gray patch aft. Tall dark falcate dorsal with lighter center.	Fast travel; Porpoising; Milling.	20	0	25	15	20	210	Vigorous	150	N/A, source not deployed	2	Standby	None	No	0	None	N/A	N/A	43	On Watch
V125	961	*GO Discovery*	HRG	Sandoval, Maria	2022-09-29	Visual	18:35	40.28575	-73.09040	48	Common dolphin - *Delphinus delphis*	Definite	Slender and black body with hourglass pattern on sides, long pointed beak, tall and falcate dorsal fin.	Breaching / Jumping / Acrobatic behavior; Porpoising; Diving.	10	0	20	8	10	120	Moderate	100	N/A, source not deployed	10	Standby	None	No	0	None	N/A	N/A	40	On Watch
V126	962	*GO Discovery*	HRG	Jackson, Alicia	2022-09-30	Visual	11:07	40.30322	-73.3658	291	Common dolphin - Delphinus delphis	Definite	Black back and cape. Hourglass pattern with tan patch forward and gray patch aft. Dorsal tall, dark, and falcate with lighter center.	Porpoising; Bow riding; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	17	0	25	7	17	220	Vigorous	200	N/A, source not deployed	2	Transit	None	No	0	None	N/A	N/A	38	On Watch
V127	963	*GO Discovery*	HRG	Simancas, Jorge	2022-09-30	Visual	16:18	40.50933	-73.96425	306	Humpback whale - *Megaptera novaeangliae*	Definite	Long dorsal fins, white under body, grayish, broad head, broad and bushy blow.	Breaching / Jumping / Acrobatic behavior; Blowing; Surfacing.	1	0	1	1	1	0	Stationary	3000	N/A, source not deployed	3000	Transit	None	No	0	None	N/A	N/A	20	On Watch
V128	964	*GO Discovery*	HRG	Simancas, Jorge	2022-09-30	Visual	16:27	40.4711	-73.97263	306	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, falcated dorsal fin, lighter side, short thick beak.	Surfacing; Feeding; Diving.	8	0	8	5	8	180	Sedate	300	N/A, source not deployed	300	Transit	None	No	0	None	N/A	N/A	20	On Watch
V129	965	*GO Discovery*	HRG	Simancas, Jorge	2022-09-30	Visual	16:42	40.48249	-74.00136	306	Bottlenose dolphin - Tursiops truncatus	Definite	Robust body, falcated dorsal fin, lighter side, short thick beak.	Surfacing; Feeding.	5	0	5	5	5	180	Sedate	200	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	20	On Watch
V130	966	*GO Discovery*	HRG	Garcia, Marah	2022-10-10	Visual	20:32	40.19042	-73.15305	111	Humpback whale - *Megaptera novaeangliae*	Definite	Broad, dark gray flukes with white patches on the undersides. Long and white flippers. Tall and bushy blow.	Tail or pectoral fin slapping; Breaching / Jumping / Acrobatic behavior; Blowing.	1	0	2	1	1	0	Vigorous	3000	N/A, source not deployed	3000	Standby	None	No	0	None	N/A	N/A	40	On Watch

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V132	967	*GO Discovery*	HRG	Lewis, Henry	2022-10-17	Visual	19:28	40.18696	-73.14253	20	Common dolphin - *Delphinus delphis*	Definite	Slender body with a falcate dorsal fin and a distinctive hourglass pattern on the sides. Tan forward patch, light underbelly, and dark cape.	Porpoising; Swimming below surface.	30	0	35	25	30	135	Moderate	60	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V133	968	*GO Discovery*	HRG	Sandoval, Maria	2022-10-29	Visual	11:40	40.49807	-74.06524	79	Common dolphin - *Delphinus delphis*	Definite	Dark body, falcate dorsal fin.	Feeding; Swimming at surface.	10	0	10	5	10	90	Moderate	652	N/A, source not deployed	650	Standby	None	No	0	None	N/A	N/A	7	On Watch
V134	969	*GO Discovery*	HRG	Garcia, Marah	2022-10-30	Visual	16:55	40.34888	-73.48358	110	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy and tall blow. Dark grey body. Black flukes with patches on the underside.	Blowing; Surfacing; Diving with flukes / Fluking.	1	0	1	1	1	270	Moderate	1379	N/A, source not deployed	1379	Transit	None	No	0	None	N/A	N/A	31	On Watch
V135	970	*GO Discovery*	HRG	Garcia, Marah	2022-11-08	Visual	17:01	40.59977	-73.07381	161	Humpback whale - *Megaptera novaeangliae*	Definite	Tall and bushy blow, dark gray body, low dorsal fin with hump and broad base.	Blowing; Surfacing; Diving.	1	0	1	1	1	330	Moderate	749	N/A, source not deployed	749	Standby	None	No	0	None	N/A	N/A	17	On Watch
V136	971	*GO Discovery*	HRG	Lewis, Henry	2022-11-08	Visual	19:00	40.59288	-73.12776	25	Humpback whale - *Megaptera novaeangliae*	Definite	Big bushy blow, dark gray body with small dorsal fin, knobs between dorsal fin and tail.	Blowing; Surfacing; Diving.	1	0	1	1	1	270	Moderate	1500	N/A, source not deployed	1000	Standby	None	No	0	None	N/A	N/A	23	On Watch
V137	972	*GO Discovery*	HRG	Garcia, Marah	2022-11-10	Visual	20:20	40.20908	-73.13795	3	Fin whale - *Balaenoptera physalus*	Definite	Dark gray body, small falcated dorsal fin with pointed tip.	Surfacing; Blowing.	1	0	1	1	1	0	Moderate	1495	1494	1494	Full Power	Sparker Only	No	0	None	N/A	N/A	44	On Watch
V138	973	*GO Discovery*	HRG	Sandoval, Maria	2022-11-14	Visual	13:32	40.32708	-73.34271	110	Humpback whale - *Megaptera novaeangliae*	Definite	Dark gray body, long and white flippers.	Blowing; Swimming at surface.	3	1	4	2	4	180	Moderate	2288	N/A, source not deployed	1000	Transit	None	No	0	None	N/A	N/A	28	On Watch
V139	974	*GO Discovery*	HRG	Garcia, Marah	2022-11-15	Visual	21:44	40.30120	-73.30143	289	Common dolphin - *Delphinus delphis*	Definite	Black cape on top, yellowish hour glass patterns on the sides, tall and falcated dorsal fin.	Swimming at surface; Swimming below surface.	3	0	3	3	3	90	Vigorous	10	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	36	On Watch
V140	975	*GO Discovery*	HRG	Patterson, Tania	2022-11-25	Visual	20:55	39.98350	-74.04610	7	Humpback whale - *Megaptera novaeangliae*	Definite	Small raised hump on dorsal, bushy blow, white underside on fluke.	Blowing; Diving; Diving with flukes/Fluking.	0	1	1	1	1	277	Moderate	300	N/A, source not deployed	300	Standby	None	No	0	None	N/A	N/A	18	On Watch
V141	976	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-11-29	Visual	03:30	40.24184	-73.37294	118	Common dolphin - *Delphinus delphis*	Definite	Small, delphinid shaped body with hourglass figure on sides.	Swimming at surface; Fast travel; Swimming below surface.	3	0	3	3	3	90	Vigorous	20	N/A, source not deployed	20	Transit	None	No	0	None	N/A	N/A	36	On Watch
V142	977	*GO Discovery*	HRG	Sandoval, Mily	2022-11-30	Visual	13:35	40.27055	-73.39793	292	Common dolphin - *Delphinus delphis*	Definite	Slender, small and grey body with white hourglass patterns.	Bow riding; Breaching; Jumping; Acrobatic behavior; Porpoising.	15	5	22	17	20	0	Vigorous	5	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	35	On Watch
V143	978	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-03	Visual	02:09	40.22443	-73.1554	184	Common dolphin - *Delphinus delphis*	Definite	Small, delphinid body shape with hourglass pattern on sides.	Fast travel; Swimming below surface.	2	0	2	2	2	180	Vigorous	5	81	5	Full Power	Sparker Only	Y	2	None	N/A	N/A	41	On Watch
V144	979	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-03	Visual	03:48	40.18771	-73.16146	191	Common dolphin - *Delphinus delphis*	Definite	Small, delphinid body shape with hourglass pattern on sides.	Swimming at surface; Milling; Porpoising.	5	0	5	5	5	270	Moderate	10	N/A, source not deployed	5	Deploying/Retrieving	None	No	0	None	N/A	N/A	43	On Watch
V145	980	*GO Discovery*	HRG	Fuhr Ely, Gabriele	2022-12-03	Visual	04:00	40.20878	-73.18872	307	Common dolphin - *Delphinus delphis*	Definite	Small, delphinid body shape with hourglass pattern on sides.	Swimming at surface; Milling; Porpoising; Breaching / Jumping / Acrobatic behavior.	5	0	8	5	5	0	Vigorous	10	N/A, source not deployed	3	Deploying/Retrieving	None	No	0	None	N/A	N/A	41	On Watch
V146	981	*GO Discovery*	HRG	Sandoval, Maria	2022-12-04	Visual	13:41	40.41277	-73.70535	101	Common dolphin - *Delphinus delphis*	Definite	Slender and small dark body, with hourglass white patterns.	Feeding; Breaching / Jumping / Acrobatic behavior; Porpoising; Bow riding; Swimming below surface.	40	10	60	40	50	30	Vigorous	50	N/A, source not deployed	3	Transit	None	No	0	None	N/A	N/A	22	On Watch
V147	982	*GO Discovery*	HRG	Sandoval, Maria	2022-12-04	Visual	13:46	40.40544	-73.72418	96	Humpback whale - *Megaptera novaeangliae*	Definite	Dark grey body, white pectoral fins, tail and belly.	Blowing; Tail or pectoral fin slapping.	2	1	3	2	3	0	Moderate	1398	N/A, source not deployed	1398	Transit	None	No	0	None	N/A	N/A	22	On Watch
V148	983	*GO Discovery*	HRG	Patterson, Tania	2022-12-04	Visual	15:16	40.36605	-73.44331	110	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, dark body, raised hump on dorsal, white underside on flukes.	Blowing; Swimming at surface; Diving with flukes / Fluking.	2	0	2	1	2	40	Moderate	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	26	On Watch
V149	984	*GO Discovery*	HRG	Patterson, Tania	2022-12-04	Visual	15:40	40.31304	-73.28804	110	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, dark gray body, raised hump on dorsal, white underside on flukes.	Blowing; Milling.	2	0	2	1	2	170	Moderate	3000	N/A, source not deployed	1000	Transit	None	No	0	None	N/A	N/A	32	On Watch

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V150	985	*GO Discovery*	HRG	Patterson, Tania	2022-12-04	Visual	16:29	40.32042	-73.28072	111	Common dolphin - *Delphinus delphis*	Definite	Slender and small dark body, with hourglass white patterns.	Breaching / Jumping / Acrobatic behavior; Fast travel; Porpoising.	15	0	15	10	15	51	Vigorous	50	N/A, source not deployed	5	Transit	None	No	0	None	N/A	N/A	32	On Watch
V151	986	*GO Discovery*	HRG	Patterson, Tania	2022-12-04	Visual	17:10	40.28703	-73.18608	244	Humpback whale - *Megaptera novaeangliae*	Definite	Bushy blow, dark body, raised hump on dorsal, white underside on flukes.	Blowing; Milling; Porpoising.	1	0	1	1	1	15	Moderate	700	500	500	Deploying/Retrieving	None	No	0	None	N/A	N/A	39	On Watch
V152	987	*GO Discovery*	HRG	Ley, Rafael	2022-12-05	Visual	04:47	40.25742	-73.16172	46	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass pattern on sides.	Bow riding.	3	0	5	3	3	0	Moderate	3	84	1	Full Power	Sparker Only	Y	3	None	N/A	N/A	42	On Watch
V153	988	*GO Discovery*	HRG	Sandoval, Maria	2022-12-05	Visual	07:48	40.21558	-73.15666	180	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Swimming below surface; Bow riding; Milling; Porpoising.	8	0	8	5	8	180	Moderate	50	5	1	Full Power	Sparker Only	Y	8	None	N/A	N/A	41	On Watch
V154	989	*GO Discovery*	HRG	Fuhr Ely, Gabriele	2022-12-05	Visual	10:17	40.19437	-73.15742	183	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Surfacing; Swimming below surface; Bow riding.	4	0	6	4	4	0	Moderate	8	30	1	Full Power	Sparker Only	Y	4	None	N/A	N/A	42	On Watch
V155	990	*GO Discovery*	HRG	Fuhr Ely, Gabriele	2022-12-05	Visual	12:20	40.20487	-73.17634	356	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall, falcate dorsal fin, located at the mid-back.	Feeding; Swimming below surface; Swimming at surface.	6	0	8	4	6	180	Moderate	349	433	433	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V156	991	*GO Discovery*	HRG	Ley, Rafael	2022-12-05	Visual	23:39	40.25023	-73.16907	6	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Fast travel; Porpoising; Milling; Swimming below surface; Bow riding; Breaching / Jumping / Acrobatic behavior.	4	1	5	3	5	210	Vigorous	50	5	1	Full Power	Sparker Only	Y	5	None	N/A	N/A	42	On Watch
V157	992	*GO Discovery*	HRG	Fuhr Ely, Gabriele	2022-12-06	Visual	01:54	40.19522	-73.1733	358	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Bow riding.	2	0	4	2	2	359	Vigorous	1	90	1	Full Power	Sparker Only	Y	2	None	N/A	N/A	42	On Watch
V158	993	*GO Discovery*	HRG	Sandoval, Maria	2022-12-06	Visual	02:42	40.20492	-73.15896	179	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Porpoising; Milling.	4	1	6	5	5	0	Vigorous	1	50	1	Full Power	Sparker Only	Y	5	None	N/A	N/A	41	On Watch
V159	994	*GO Discovery*	HRG	Sandoval, Maria	2022-12-06	Visual	07:23	40.20636	-73.17351	7	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Porpoising; Bow riding; Swimming below surface; Milling.	5	0	5	5	5	180	Moderate	20	60	1	Full Power	Sparker Only	Y	5	None	N/A	N/A	42	On Watch
V160	995	*GO Discovery*	HRG	Ley, Rafael	2022-12-06	Visual	08:41	40.18836	-73.17459	6	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Fast travel; Milling; Porpoising; Swimming below surface; Surfacing.	3	1	7	4	4	210	Vigorous	30	6	1	Full Power	Sparker Only	Y	4	None	N/A	N/A	42	On Watch
V161	996	*GO Discovery*	HRG	Sandoval, Maria	2022-12-06	Visual	11:00	40.25098	-73.15999	173	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Fast travel.	10	0	10	6	10	0	Vigorous	50	80	50	Silent	None	No	0	None	N/A	N/A	40	On Watch
V162	997	*GO Discovery*	HRG	Fuhr Ely, Gabriele	2022-12-06	Visual	11:20	40.22532	-73.15989	176	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Milling; Swimming at surface; Swimming below surface; Porpoising.	10	0	10	6	10	30	Moderate	20	80	3	Full Power	Sparker Only	Y	10	None	N/A	N/A	40	On Watch
V163	998	*GO Discovery*	HRG	Sandoval, Maria	2022-12-06	Visual	13:35	40.21943	-73.15865	178	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Breaching / Jumping / Acrobatic behavior; Milling; Porpoising; Surfacing; Swimming below surface; Bow riding.	15	5	20	15	20	120	Vigorous	100	30	1	Full Power	Sparker Only	Y	20	None	N/A	N/A	41	On Watch
V164	999	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-06	Visual	18:09	40.22832	-73.17982	312	Common dolphin - *Delphinus delphis*	Definite	Slender and small grey body with hourglass white/yellowish patterns.	Swimming at surface; Fast travel; Milling; Porpoising.	50	10	60	25	60	127	Vigorous	30	N/A, source not deployed	2	Deploying/Retrieving	None	No	0	None	N/A	N/A	41	On Watch
V165	1000	*GO Discovery*	HRG	Ley, Rafael	2022-12-07	Visual	20:18	40.20494	-73.29664	44	Common dolphin - *Delphinus delphis*	Definite	Slender grey body with a white/yellowish hourglass shape on the side.	Fast travel; Bow riding; Milling; Porpoising; Surfacing; Swimming below surface.	12	6	18	15	18	240	Vigorous	80	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V166	1001	*GO Discovery*	HRG	Ley, Rafael	2022-12-07	Visual	21:22	40.22959	-73.23079	78	Common dolphin - *Delphinus delphis*	Definite	Slender grey body with a white/yellowish hourglass shape on the side.	Fast travel; Bow riding; Milling; Porpoising; Surfacing; Swimming below surface.	12	0	12	8	12	60	Vigorous	400	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V167	1002	*GO Discovery*	HRG	Sandoval, Maria	2022-12-08	Visual	13:41	40.31541	-73.09333	19	Common dolphin - *Delphinus delphis*	Definite	Small and slender body with hourglass with white and yellowish patterns.	Porpoising; Bow riding; Breaching / Jumping / Acrobatic behavior; Swimming below surface.	7	3	10	7	10	60	Vigorous	150	85	1	Deploying/Retrieving	None	No	0	None	N/A	N/A	41	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V168	1003	*GO Discovery*	HRG	Triana, Felipe	2022-12-13	Visual	13:51	40.25006	-73.28209	131	Common dolphin - *Delphinus delphis*	Definite	Distinguishable hourglass pattern, falcate dorsal fin, approx. 1.5 meters in length.	Swimming at surface; Bow riding; Swimming below surface.	13	1	16	10	14	346	Moderate	200	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	33	On Watch
V169	1004	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-13	Visual	16:58	40.15768	-73.14061	332	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, delphinid body shape with tan hourglass pattern on sides.	Fast travel; Swimming at surface.	4	0	4	3	4	182	Vigorous	10	N/A, source not deployed	10	Standby	None	No	0	None	N/A	N/A	41	On Watch
V170	1005	*GO Discovery*	HRG	Balderas, Yesenia	2022-12-14	Visual	03:03	40.23167	-73.16099	187	Common dolphin - *Delphinus delphis*	Definite	Torpedo shape, falcate midback dorsal fin, well defined patterns on the sides.	Swimming below surface; Bow riding.	4	0	4	4	4	170	Vigorous	15	70	1	Full Power	Sparker Only	Y	4	None	N/A	N/A	42	On Watch
V171	1006	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-14	Visual	03:36	40.20144	-73.17595	182	Common dolphin - *Delphinus delphis*	Definite	Torpedo shape, falcate midback dorsal fin, well defined patterns on the sides.	Swimming below surface; Diving; Breaching / Jumping / Acrobatic behavior; Milling; Fast travel.	5	0	5	4	5	180	Moderate	2	53	1	Full Power	Sparker Only	Y	4	None	N/A	N/A	43	On Watch
V172	1007	*GO Discovery*	HRG	Triana, Felipe	2022-12-14	Visual	06:49	40.21765	-73.13864	308	Common dolphin - *Delphinus delphis*	Definite	Torpedo shape, falcate midback dorsal fin, well defined patterns on the sides.	Swimming below surface; Diving.	2	0	3	1	2	122	Moderate	20	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	42	On Watch
V173	1008	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-15	Visual	01:42	40.25244	-73.19107	146	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, delphinid body with tan, hourglass pattern on sides.	Swimming below surface; Milling; Breaching / Jumping / Acrobatic behavior; Diving.	2	0	3	1	2	146	Moderate	15	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	38	On Watch
V174	1009	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-15	Visual	10:51	40.23553	-73.1638	165	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, delphinid body with tan, hourglass pattern on sides.	Swimming below surface; Milling; Diving.	2	0	3	1	2	146	Moderate	15	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	40	On Watch
V175	1010	*GO Discovery*	HRG	Triana, Felipe	2022-12-15	Visual	12:00	40.24471	-73.26588	306	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, delphinid body with tan, hourglass pattern on sides..	Swimming at surface; Milling; Breaching / Jumping / Acrobatic behavior; Bow riding; Swimming below surface.	7	0	8	6	7	90	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	41	On Watch
V176	1011	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-18	Visual	02:45	40.3073	-73.26858	107	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, well defined yellowish patterns on sides.	Breaching / Jumping / Acrobatic behavior; Swimming below surface; Swimming at surface.	4	1	5	4	5	107	Vigorous	15	N/A, source not deployed	1	Transit	None	No	0	None	N/A	N/A	32	On Watch
V177	1012	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-18	Visual	06:18	40.29412	-73.20256	304	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, well defined yellowish patterns on sides.	Swimming at surface; Diving.	3	0	4	3	3	304	Vigorous	15	50	15	Full Power	Sparker Only	Y	3	None	N/A	N/A	37	On Watch
V178	1013	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-20	Visual	09:09	40.25052	-73.23615	313	Common dolphin - *Delphinus delphis*	Definite	Deep gray back with yellowish sides and white underbelly contrasting into gray flanks.	Diving; Swimming at surface; Milling; Feeding; Breaching / Jumping / Acrobatic behavior.	5	1	8	4	6	350	Vigorous	10	N/A, source not deployed	1	Standby	None	No	0	None	N/A	N/A	39	On Watch
V179	1014	*GO Discovery*	HRG	Triana, Felipe; Rangel Zuemy; Balderas, Yesenia; Dorantes, Lluvia	2022-12-21	Visual	00:27	40.18464	-73.20055	359	Common dolphin - *Delphinus delphis*	Definite	Deep gray back with yellowish sides and white underbelly contrasting into gray flanks.	Breaching / Jumping / Acrobatic behavior; Feeding; Milling; Swimming below surface; Diving	12	0	15	9	12	187	Vigorous	20	50	1	Full Power	Sparker Only	Y	12	None	N/A	N/A	42	On Watch
V180	1015	*GO Discovery*	HRG	Triana, Felipe	2022-12-21	Visual	13:49	40.19028	-73.18851	269	Common dolphin - *Delphinus delphis*	Definite	Falcate fin, delphinid body shape with tan hourglass pattern on sides.	Swimming at surface; Bow riding; Swimming below surface; Diving; Breaching / Jumping / Acrobatic behavior.	4	0	6	3	4	89	Moderate	50	50	1	Full Power	Sparker Only	Y	4	None	N/A	N/A	40	On Watch
V181	1016	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-21	Visual	14:51	40.17906	-73.18811	178	Common dolphin - *Delphinus delphis*	Definite	Falcate fin, delphinid body shape with tan hourglass pattern on sides.	Porpoising; Swimming at surface; Bow riding; Fast travel.	3	0	3	3	3	93	Moderate	100	70	1	Full Power	Sparker Only	Y	3	None	N/A	N/A	40	On Watch
V182	1017	*GO Discovery*	HRG	Rangel, Zuemy	2022-12-21	Visual	22:56	40.19869	-73.19082	271	Common dolphin - *Delphinus delphis*	Definite	Falcate fin, delphinid body shape with tan hourglass pattern on sides.	Diving; Swimming below surface; Fast travel.	5	1	6	6	6	0	Moderate	5	60	1	Full Power	Sparker Only	Y	6	None	N/A	N/A	43	On Watch
V183	1018	*GO Discovery*	HRG	Balderas, Yesenia	2022-12-22	Visual	00:22	40.2155	-73.19067	124	Common dolphin - *Delphinus delphis*	Definite	Yellow thoracic patch, falcate dorsal fin, approximately 1.5 meters in length.	Swimming at surface; Bow riding; Breaching / Jumping / Acrobatic behavior.	6	0	8	4	6	101	Sedate	50	60	1	Full Power	Sparker Only	Y	6	None	N/A	N/A	41	On Watch
V184	1019	*GO Discovery*	HRG	Triana, Felipe	2022-12-22	Visual	03:51	40.22045	-73.19221	182	Common dolphin - *Delphinus delphis*	Definite	Yellow thoracic patch, falcate dorsal fin, approximately 1.5 meters in length.	Porpoising; Bow riding; Diving.	3	0	3	3	3	272	Sedate	30	60	1	Full Power	Sparker Only	Y	3	None	N/A	N/A	40	On Watch
V185	1020	*GO Discovery*	HRG	Triana, Felipe	2022-12-22	Visual	12:55	40.19078	-73.20242	191	Common dolphin - *Delphinus delphis*	Definite	Yellow thoracic patch, falcate dorsal fin, approximately 1.5 meters in length.	Bow riding; Diving; Porpoising.	6	0	7	6	6	281	Moderate	5	60	1	Standby	None	No	0	Delay	N/A	N/A	41	On Watch

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								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
V186	1021	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-22	Visual	15:48	40.22012	-73.3037	306	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin with delphinid body shape, tan hourglass pattern on sides.	Porpoising; Fast travel; Swimming at surface.	5	1	7	6	6	6	Vigorous	110	N/A, source not deployed	100	Transit	None	No	0	None	N/A	N/A	38	On Watch
V187	1022	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-27	Visual	16:40	40.57855	-74.0366	173	Harbor seal - *Phoca vitulina*	Definite	Pinniped body shape, with small head and light to dark grey spotted color.	Swimming at surface; Diving.	1	0	1	1	1	23	Sedate	75	N/A, source not deployed	75	Transit	None	No	0	None	N/A	N/A	18	On Watch
V188	1023	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-27	Visual	19:47	40.36192	-73.53543	95	Humpback whale - *Megaptera novaeangliae*	Definite	Large, baleen whale body shape with small triangular knobbed dorsal fin and dark coloration; flukes dark in color, serrated and uplifted on ends.	Blowing; Swimming at surface; Diving with flukes / Fluking.	2	0	2	1	2	35	Moderate	1000	N/A, source not deployed	600	Transit	None	No	0	None	N/A	N/A	27	On Watch
V189	1024	*GO Discovery*	HRG	Rangel, Zuemy	2022-12-28	Visual	08:27	40.20902	-73.18344	172	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with delphinid body shape and tan hourglass pattern on sides	Surfacing; Milling.	3	0	4	3	3	352	Moderate	1	75	1	Full Power	Sparker Only	Y	3	None	N/A	N/A	45	On Watch
V190	1025	*GO Discovery*	HRG	Rangel, Zuemy	2022-12-28	Visual	09:45	40.22686	-73.18529	90	Common dolphin - *Delphinus delphis*	Definite	Falcate dorsal fin, with delphinid body shape and tan hourglass pattern on sides	Swimming below surface; Milling.	1	1	4	2	2	0	Sedate	50	60	1	Full Power	Sparker Only	Y	2	None	N/A	N/A	41	On Watch
V191	1026	*GO Discovery*	HRG	Muehlenweg, Ashley	2022-12-28	Visual	19:45	40.18818	-73.18855	190	North Atlantic right whale - *Eubalaena glacialis*	Definite	V-shaped blow, large dark body, wide fluke with deep notch in center.	Blowing; Diving with flukes / Fluking.	1	0	1	1	1	250	Sedate	2000	2095	2000	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
V192	1027	*GO Discovery*	HRG	Dorantes, Lluvia	2022-12-29	Visual	12:11	40.26483	-73.1758	104	Humpback whale - *Megaptera novaeangliae*	Definite	Broad and bushy blow; small raised hump dorsal fin; black body color.	Blowing; Diving with flukes / Fluking.	3	0	4	2	3	265	Sedate	2276	595	500	Full Power	Sparker Only	No	0	None	N/A	N/A	41	On Watch
1	1028	*Brooks McCall*	HRG	Ruiz Villanueva, Arturo	2023-04-20	Visual	21:06	40.29822	-73.06028	270	Common dolphin - *Delphinus delphis*	Definite	Prominent, falcate dorsal fin. Black dorsal, yellow sides	Porpoising	10	0	12	8	10	180	Vigorous	1500	N/A, source not deployed	1000	Standby	None	No	0	None	N/A, source not deployed	N/A, source not deployed	40	On Watch
2	1029	*Brooks McCall*	HRG	Peña Mendoza, Valeria	2023-04-21	Visual	04:26	40.28592	-73.09592	284	Common dolphin - *Delphinus delphis*	Definite	Tall and falcate dorsal fin located mid-back. Hourglass pattern forms on sides, V-shape dips from side of cape below dorsal fin	Swimming below the surface, Diving	2	0	2	2	2	20	Moderate	50	N/A, source not deployed	2	Standby	None	No	0	None	N/A, source not deployed	N/A, source not deployed	40	On Watch
3	1030	*Brooks McCall*	HRG	De La Rosa, Leonardo Mario	2023-04-25	Visual	22:26	40.51078	-73.97192	165	Humpback whale - *Megaptera novaeangliae*	Definite	Dark grey, robust body with lighter coloration beneath the pectoral fins. Characteristic triangular dorsal fin placed over a hump.	Swimming at the surface, Diving	1	0	1	1	1	340	Moderate	300	N/A, source not deployed	300	Transit	None	No	0	None	N/A, source not deployed	N/A, source not deployed	14	On Watch
4	1031	*Brooks MCCall*	*HRG*	Salomón Hernández, Ana Betsabé	2023-05-07	Visual	11:37	40.32012	-73.10140	215	Humpback whale - *Megaptera novaeangliae*	Definite	Broad and bushy blow. Small dorsal fin with a broad base, raised hump. Black in color. Fluke broad.	Blowing, Diving, Diving with flukes	1	0	1	1	1	180	Moderate	1200	850	822	Full Power	Sparker Only	No	0	None	N/A	N/A	38	On Watch
5	1032	*Brooks McCall*	*HRG*	Peña Mendoza, Valeria	2023-05-10	Visual	15:10	40.57785	-73.52440	175	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large and robust body. Dark grey body color. Highly erect and falcate dorsal fin located mid-back with broad-based. Robust head and stubby beak notable separated.	Porpoising, Diving	2	0	2	2	2	90	Moderate	510	590	500	Standby	None	No	0	None	N/A	N/A	6	On Watch
6	1033	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-10	Visual	16:04	40.56827	-73.55347	264	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large and robust body. Dark grey body color. Highly erect and falcate dorsal fin located mid-back with broad-based. Robust head and stubby beak notable separated.	Surfacing	1	0	1	1	1	180	Moderate	300	300	300	Standby	None	No	0	None	N/A	N/A	10	On Watch
7	1034	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-10	Visual	16:35	40.55592	-73.59628	260	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large and robust body. Dark grey body color. Highly erect and falcate dorsal fin located mid-back with broad-based. Robust head and stubby beak notable separated.	Surfacing, Swimming at the surface, Milling	4	0	6	4	4	180	Moderate	500	500	500	Standby	None	No	0	None	N/A	N/A	10	On Watch
8	1035	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-10	Visual	17:23	40.55685	-73.66157	291	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large and robust body. Dark grey body color. Highly erect and falcate dorsal fin located mid-back with broad-based. Robust head and stubby beak notable separated.	Resting at the surface, Porpoising	3	0	5	3	3	130	Moderate	107	100	107	Standby	None	No	0	None	N/A	N/A	10	On Watch
9	1036	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-12	Visual	16:29	40.57657	-73.76997	150	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large and robust body. Dark grey body color. Highly erect and falcate dorsal fin located mid-back with broad-based. Robust head and stubby beak notable separated.	Surfacing, Porpoising	4	0	4	4	4	100	Moderate	700	N/A, source not deployed	563	Standby	None	No	0	None	N/A	N/A	8	On Watch
10	1037	*Brooks McCall*	*HRG*	Dalton, Tavis	2023-05-13	Visual	15:46	40.53225	-73.69767	275	Humpback whale - *Megaptera novaeangliae*	Definite	Robust whale with large pectoral fins. Dark overall coloration, mixed white and dark coloration underneath caudal and pectoral fins. Modified dorsal fin placed over a hump.	Spyhopping (Cetacean), Breaching / Jumping / Acrobatic behavior, Surfacing	1	0	2	1	1	270	Moderate	3000	270	250	Full Power	Sparker Only	No	0	None	N/A	N/A	16	On Watch
11	1038	*Brooks McCall*	*HRG*	Dalton, Tavis	2023-05-13	Visual	20:22	40.48968	-73.45690	148	Humpback whale - *Megaptera novaeangliae*	Definite	Robust whale with large pectoral fins. Dark overall coloration, mixed white and dark coloration underneath caudal and pectoral fins. Modified dorsal fin placed over a hump.	Breaching / Jumping / Acrobatic behavior	1	0	1	1	1	60	Moderate	3500	3500	3500	Full Power	Sparker Only	No	0	None	N/A	N/A	18	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	**Vessel Type** (HRG, Geotechnical, UXO, Environmental)	**Observer's Name** (Last, First)	**Date** (YYYY-MM-DD)	**Sighting Type** (Acoustic, Visual, Both)	**First Time of Sighting** (UTC; HH:MM)	**Sighting Location** (Decimal Degrees)		**Vessel Heading** (Degrees)	**Species or Species Group** (Common - (Scientific))	**Species ID Certainty** (Possible, Probable, Definite)	**Animal Description** (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	**Animal Behavior** (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	**Group Composition**		**Estimated Total Number of Animals**			**Animal's Initial Direction of Travel** (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	**Animal Pace** (Stationary, Sedate, Moderate, Vigorous)	**Distance at Initial Sighting** (m)	**Closest Point of Approach to Source** (Reticle distance in m)	**Closest Point of Approach to Vessel** (Reticle distance in m)	**Vessel Activity at First Sighting** (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	**Equipment Operating During Sighting** (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	**Animal Within 141m of Active Survey Equipment (Yes/No)**	**Number of Animals Within 141m of Active Survey Equipment (Number)**	**Source Mitigation Action** (Delay, Shutdown, None)	**Time Shutdown Called For** (UTC; HH:MM)	**Time Equipment was Shutdown** (UTC; HH:MM)	**Water Depth (m)**	**Watch Status:** (On Watch, Off Watch=Incidental Sighting)
								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
12	1039	*Brooks McCall*	*HRG*	De La Rosa, Leonardo Mario	2023-05-13	Visual	22:35	40.45978	-73.41997	330	Humpback whale - *Megaptera novaeangliae*	Definite	Robust whale with large pectoral fins. Dark overall coloration, mixed white and dark coloration underneath caudal and pectoral fins. Modified dorsal fin placed over a hump.	Diving, Diving with flukes, Surfacing	1	0	1	1	1	160	Moderate	500	250	350	Full Power	Sparker Only	No	0	None	N/A	N/A	25	On Watch
13	1040	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-14	Visual	16:49	40.29838	-73.01310	341	Bottlenose dolphin - *Tursiops truncatus*	Definite	Slender dolphin with a dark cape and an hourglass pattern on the sides, with yellow and gray.	Porpoising	1	0	2	1	1	180	Moderate	400	260	250	Full Power	Sparker Only	No	0	None	N/A	N/A	40	On Watch
14	1041	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-17	Visual	17:38	40.55302	-73.76283	100	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins, with darker cape and falcate dorsal fin; well-defined beak and prominent melon	Swimming at the surface, Porpoising	3	0	3	3	3	150	Moderate	250	N/A, source not deployed	150	Transit	None	No	0	None	N/A	N/A	13	On Watch
15	1042	*Brooks MCCall*	*HRG*	Dalton, Tavis	2023-05-18	Visual	15:35	40.57900	-73.78285	264	Unidentified whale - Cetacea spp.	Definite	Single spout blow.	Surfacing, Blowing	1	0	1	1	1	u	Sedate	4000	4000	4000	Silent	Sparker Only	No	0	None	N/A	N/A	9	On Watch
16	1043	*Brooks MCCall*	*HRG*	Dalton, Tavis	2023-05-18	Visual	18:06	40.57108	-73.78170	21	Humpback whale - *Megaptera novaeangliae*	Definite	Large overall body size, extremely long pectoral fins with white coloration, overall black in color with white on the belly, distinctive hump leading up to small dorsal fin.	Surfacing, Blowing	1	0	1	1	1	180	Moderate	400	400	400	Full Power	Sparker Only	No	0	None	N/A	N/A	9	On Watch
17	1044	*Brooks MCCall*	*HRG*	De La Rosa, Leonardo Mario; Peña Mendoza, Valeria	2023-05-22	Visual	09:05	40.54522	-73.75675	1	Unidentified dolphin - Delphinidae spp.	Definite	Medium-sized dolphin, stubby beak and dorsal fin placed towards the middle of its body. Grey coloration with lighter sections on the sides.	Diving, Surfacing, Fast travel, Blowing	6	2	10	8	8	100	Moderate	90	N/A, source not deployed	70	Deploying/Retrieving	None	No	0	None	N/A	N/A	18	On Watch
18	1045	*Brooks MCCall*	*HRG*	Peña Mendoza, Valeria; De La Rosa, Leonardo Mario	2023-05-22	Visual	09:23	40.55608	-73.75688	1	Unidentified dolphin - Delphinidae spp.	Definite	Medium-sized dolphin. Robust body. Tall and falcate dorsal fin located mid-back, broad based. Dark grey coloration.	Porpoising, Diving	3	0	3	3	3	30	Moderate	250	N/A, source not deployed	40	Deploying/Retrieving	None	No	0	None	N/A	N/A	17	On Watch
19	1046	*Brooks MCCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-22	Visual	16:52	40.55975	-73.79073	1	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow, showing notched, wide flukes when diving.	Blowing, Logging, Diving with flukes	0	1	1	1	1	i	Stationary	300	300	300	Full Power	Sparker Only	No	0	None	N/A	N/A	7	On Watch
20	1047	*Brooks MCCall*	*HRG*	Ruiz Villanueva, Arturo; Peña Mendoza, Valeria	2023-05-22	Visual	17:40	40.56167	-73.78547	65	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow, showing notched, wide flukes when diving; white, long pectoral fins.	Blowing, Surfacing, Diving with flukes	0	1	1	1	1	0	Moderate	200	100	100	Full Power	Sparker Only	No	0	Shutdown	17:40	17:40	8	On Watch
21	1048	*Brooks MCCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-23	Visual	16:58	40.57423	-73.79040	204	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow; white, long pectoral fins.	Blowing, Diving, Breaching/Jumping/Acrobatic behavior	0	1	1	1	1	u	Vigorous	200	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	10	On Watch
22	1049	*Brooks MCCall*	*HRG*	Dalton, Tavis	2023-05-23	Visual	20:43	40.56453	-73.78698	142	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow; white, long pectoral fins.	Blowing, Breaching/Jumping/Acrobatic behavior, Fin or tail slapping	1	0	1	1	1	u	Sedate	1500	450	500	Full Power	Sparker Only	No	0	None	N/A	N/A	10	On Watch
23	1050	*Brooks MCCall*	*HRG*	Dalton, Tavis	2023-05-23	Visual	20:50	40.56885	-73.78267	22	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large dolphin, sides pale gray, dark gray cape around the falcate dorsal fin; prominent, well-defined melon, short beak.	Fast travel	4	0	6	3	4	90	Vigorous	300	400	300	Silent	None	No	0	None	N/A	N/A	10	On Watch
24	1051	*Brooks MCCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-24	Visual	16:43	40.57685	-73.77765	355	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large dolphin, sides pale gray, dark gray cape around the falcate dorsal fin; prominent, well-defined melon, short beak.	Surfacing	1	0	1	1	1	80	Sedate	100	100	100	Full Power	Sparker Only	Yes	1	None	N/A	N/A	8	On Watch
25	1052	*Brooks MCCall*	*HRG*	Salomón Hernández, Ana Betsabé	2023-05-25	Visual	12:52	40.56762	-73.74280	199	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body dark gray in coloration, well-defined melon, falcate dorsal fin.	Surfacing, Porpoising	7	1	10	8	8	220	Vigorous	500	450	500	Full Power	Sparker Only	No	0	None	N/A	N/A	11	On Watch
26	1053	*Brooks McCall*	*HRG*	Peña Mendoza, Valeria	2023-05-25	Visual	14:35	40.57912	-73.73655	260	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large dolphin, robust and chunky body. Dark grey color. Robust head and a moderate-length stubby beak, separated by a crease. High and falcate dorsal fin located mid-back and broad-based.	Porpoising, Fin or tail slapping, Feeding, Fast travel	10	2	14	12	12	200	Moderate	300	130	60	Full Power	Sparker Only	Yes	3	None	N/A	N/A	9	On Watch
27	1054	*Brooks McCall*	*HRG*	Dalton, Tavis	2023-05-25	Visual	15:23	40.57598	-73.73593	20	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large dolphin, robust and chunky body. Dark grey color. Robust head and a moderate-length stubby beak, separated by a crease. High and falcate dorsal fin located mid-back and broad-based.	Swimming at the surface	7	1	10	7	8	90	Moderate	500	350	350	Full Power	Sparker Only	No	0	None	N/A	N/A	8	On Watch
28	1055	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-25	Visual	16:29	40.56562	-73.73713	13	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow; white, long pectoral fins.	Blowing, Diving with flukes	1	0	1	1	1	180	Moderate	400	400	400	Full Power	Sparker Only	No	0	None	N/A	N/A	13	On Watch
29	1056	*Brooks McCall*	*HRG*	Dalton, Tavis	2023-05-25	Visual	20:25	40.55627	-73.73207	154	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow; white, long pectoral fins.	Diving with flukes, Surfacing	1	0	1	1	1	0	Sedate	220	280	220	Full Power	Sparker Only	No	0	None	N/A	N/A	12	On Watch

Vessel Sighting ID #	**General ID #**	**Vessel Name**	**Vessel Type** (HRG, Geotechnical, UXO, Environmental)	**Observer's Name** (Last, First)	**Date** (YYYY-MM-DD)	**Sighting Type** (Acoustic, Visual, Both)	**First Time of Sighting** (UTC; HH:MM)	**Sighting Location** (Decimal Degrees)		**Vessel Heading** (Degrees)	**Species or Species Group** (Common - (Scientific))	**Species ID Certainty** (Possible, Probable, Definite)	**Animal Description** (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	**Animal Behavior** (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	**Group Composition**		**Estimated Total Number of Animals**			**Animal's Initial Direction of Travel** (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	**Animal Pace** (Stationary, Sedate, Moderate, Vigorous)	**Distance at Initial Sighting** (m)	**Closest Point of Approach to Source** (Reticle distance in m)	**Closest Point of Approach to Vessel** (Reticle distance in m)	**Vessel Activity at First Sighting** (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	**Equipment Operating During Sighting** (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	**Animal Within 141m of Active Survey Equipment (Yes/No)**	**Number of Animals Within 141m of Active Survey Equipment (Number)**	**Source Mitigation Action** (Delay, Shutdown, None)	**Time Shutdown Called For** (UTC; HH:MM)	**Time Equipment was Shutdown** (UTC; HH:MM)	**Water Depth (m)**	**Watch Status:** (On Watch, Off Watch=Incidental Sighting)
								Latitude	**Longitude**						**# Adults** (Visual sightings only)	**# Juveniles** (Visual sightings only)	**High**	**Low**	**Best** (Total # observed)														
30	1057	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo; De La Rosa, Leonardo Mario	2023-05-25	Visual	21:28	40.56008	-73.74190	228	Humpback whale - *Megaptera novaeangliae*	Definite	Medium-sized black whale, with dorsal fin pointing backwards, bushy blow; white, long pectoral fins.	Blowing, Fin or tail slapping	1	0	1	1	1	i	Stationary	1000	840	840	Full Power	Sparker Only	No	0	None	N/A	N/A	12	On Watch
31	1058	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-26	Visual	16:07	40.41357	-73.36798	149	Common dolphin - *Delphinus delphis*	Definite	Medium-sized dolphins with hourglass pattern on the sides	Breaching/Jumping/Acrobatic behavior	3	0	3	3	3	90	Vigorous	30	80	30	Full Power	Sparker Only	Yes	3	None	N/A	N/A	25	On Watch
32	1059	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-26	Visual	17:31	40.34893	-73.28990	148	Common dolphin - *Delphinus delphis*	Definite	Large, black whale without dorsal fin. Promienent bump around the nostrils and bushy blow	Breaching/Jumping/Acrobatic behavior	1	0	1	1	1	90	Vigorous	50	70	50	Full Power	Sparker Only	Yes	1	None	N/A	N/A	32	On Watch
33	1060	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-28	Visual	21:22	40.40110	-73.35013	151	North Atlantic right whale - *Eubalaena glacialis*	Probable	Large, black whale without dorsal fin. Prominent bump around the nostrils and bushy blow.	Blowing, Surfacing	1	0	1	1	1	110	Sedate	1500	1500	1500	Full Power	Sparker Only	No	0	None	N/A	N/A	29	On Watch
34	1061	*Brooks McCall*	*HRG*	Salomón Hernández, Ana Betsabé	2023-05-29	Visual	12:00	40.32980	-73.23145	113	Fin whale - *Balaenoptera physalus*	Definite	Tall and narrow blow. Black to dark gray body with tall and falcate dorsal fin.	Blowing, Surfacing	1	0	1	1	1	40	Moderate	800	890	800	Full Power	Sparker Only	No	0	None	N/A	N/A	35	On Watch
35	1062	*Brooks McCall*	*HRG*	Dalton, Tavis	2023-05-29	Visual	20:09	40.53437	-73.44255	4	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with prominent melon and short, well-defined beak; dorsal cape noticeably darker than the sides.	Porpoising, Swimming at the surface	20	0	25	15	20	0	Moderate	150	150	80	Standby	None	No	0	None	N/A	N/A	17	On Watch
36	1063	*Brooks McCall*	*HRG*	Ruiz Villanueva, Arturo	2023-05-29	Visual	23:43	40.55205	-73.60455	283	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with prominent melon and short, well-defined beak; dorsal cape noticeably darker than the sides.	Porpoising, Swimming at the surface	4	1	6	5	5	180	Vigorous	300	N/A, source not deployed	200	Standby	None	No	0	None	N/A	N/A	12	On Watch
37	1064	*Brooks McCall*	*HRG*	Salomón Hernández, Ana Betsabé	2023-05-30	Visual	11:43	40.52800	-73.79075	269	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with prominent melon and short, well-defined beak; dorsal cape noticeably darker than the sides.	Breaching/Jumping/Acrobatic behavior	1	0	1	1	1	270	Vigorous	150	N/A, source not deployed	150	Transit	None	No	0	None	N/A	N/A	13	On Watch
38	1065	*Brooks McCall*	HRG	eva, Arturo; Salomón Hernández, /	2023-06-02	Visual	13:24	40.57105	-73.72715	332	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with falcate dorsal fin; darker cape than sides; well-defined, short beak; prominent melon	Resting at the surface, Porpoising, Fin or tail slapping, Blowing	45	0	55	40	40	i	Sedate	500	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	15	On Watch
39	1066	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-02	Visual	19:31	40.55705	-73.74225	335	Unidentified whale - Cetacea spp.	Definite	Large singular blow	Blowing	1	0	1	1	1	u	Sedate	3500	3500	3500	Full Power	Sparker Only	No	0	None	N/A	N/A	14	On Watch
40	1067	*Brooks McCall*	HRG	alton, Tavis; Ruiz Villanueva, Artur	2023-06-02	Visual	20:27	40.56442	-73.74212	17	Humpback whale - *Megaptera novaeangliae*	Definite	Black back body. Dorsal hump followed by a small and triangular dorsal fin. Blow bushy and highly visible. Flukes curved and ragged trailing edges with black upper side color and white patterns underside with black.	Blowing	2	0	2	2	2	180	Moderate	450	150	80	Silent	Sparker Only	No	0	None	N/A	N/A	13	On Watch
41	1068	*Brooks McCall*	HRG	eña Mendoza, Valeria; Dalton, Tav	2023-06-03	Visual	14:47	40.50405	-73.95175	295	Humpback whale - *Megaptera novaeangliae*	Definite	Black back body. Dorsal hump followed by a small and triangular dorsal fin. Blow bushy and highly visible. Flukes curved and ragged trailing edges with black upper side color and white patterns underside with black.	Fin or tail slapping, Blowing, Surfacing, Diving with flukes	1	0	1	1	1	i	Stationary	980	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	16	On Watch
42	1069	*Brooks McCall*	HRG	alton, Tavis; Ruiz Villanueva, Artur	2023-06-04	Visual	16:06	40.53882	-73.80012	82	Humpback whale - *Megaptera novaeangliae*	Definite	Large, dark whale with dorsal fin pointing backwards and knuckles on the tail stock; flukes seen when diving; bushy blow	Blowing, Surfacing, Diving with flukes	1	0	1	1	1	90	Moderate	400	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	12	On Watch
43	1070	*Brooks McCall*	HRG	alton, Tavis; Ruiz Villanueva, Artur	2023-06-04	Visual	16:08	40.53882	-73.80012	82	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with falcate dorsal fin; darker cape than sides; well-defined, short beak; prominent melon	Porpoising	5	0	10	3	5	var	Vigorous	400	N/A, source not deployed	300	Transit	None	No	0	None	N/A	N/A	12	On Watch
44	1071	*Brooks McCall*	HRG	Mendoza, Valeria; Ruiz Villanueva,	2023-06-04	Visual	16:16	40.53882	-73.80012	82	Humpback whale - *Megaptera novaeangliae*	Definite	Large, dark whale with dorsal fin pointing backwards and knuckles on the tail stock; flukes seen when diving; bushy blow	Blowing, Surfacing, Diving with flukes	1	0	1	1	1	180	Moderate	300	N/A, source not deployed	300	Transit	None	No	0	None	N/A	N/A	12	On Watch
45	1072	*Brooks McCall*	HRG	illanueva, Arturo; Peña Mendoza, \	2023-06-04	Visual	16:25	40.53882	-73.80012	82	Humpback whale - *Megaptera novaeangliae*	Definite	Large, dark whale with dorsal fin pointing backwards and knuckles on the tail stock; flukes seen when diving; bushy blow	Blowing, Surfacing, Diving with flukes	1	0	1	1	1	270	Moderate	500	N/A, source not deployed	250	Transit	None	No	0	None	N/A	N/A	12	On Watch
46	1073	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-04	Visual	19:10	40.55645	-73.68207	196	Humpback whale - *Megaptera novaeangliae*	Definite	Large, dark whale with dorsal fin pointing backwards and located on small hump	Blowing	2	0	2	2	2	200	Moderate	1200	300	250	Full Power	Sparker Only	No	0	None	N/A	N/A	13	On Watch
47	1074	*Brooks McCall*	HRG	De la Rosa, Leo	2023-06-04	Visual	22:03	40.54942	-73.68008	15	Humpback whale - *Megaptera novaeangliae*	Definite	Robust body, dark coloration with white ventral side. Characteristic triangle-shaped dorsal fin.	Surfacing, Diving	1	0	1	1	1	90	Moderate	500	300	250	Full Power	Sparker Only	No	0	None	N/A	N/A	15	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees) Latitude	Longitude	Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition # Adults (Visual sightings only)	# Juveniles (Visual sightings only)	Estimated Total Number of Animals High	Low	Best (Total # observed)	Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
48	1075	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-05	Visual	18:08	40.57028	-73.69103	182	Humpback whale - *Megaptera novaeangliae*	Definite	Large whale, with large bushy blow. Dark overall color with distinct hump leading to small dorsal fin located 2/3 down the back of the animal.	Blowing, Diving	1	0	1	1	1	160	Moderate	1000	600	500	Full Power	Sparker Only	No	0	None	N/A	N/A	8	On Watch
49	1076	*Brooks McCall*	HRG	Ruiz Villanueva, Arturo	2023-06-05	Visual	20:52	40.55127	-73.68380	12	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with a darker dorsal cape and falcate dorsal fin; well-defined beak and prominent melon	Resting at the surface, Fin or tail slapping, Porpoising, Feeding, Blowing	15	5	30	18	20	0	Moderate	300	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	8	On Watch
50	1077	*Brooks McCall*	HRG	Ruiz Villanueva, Arturo	2023-06-05	Visual	21:53	40.57140	-73.67528	189	Bottlenose dolphin - *Tursiops truncatus*	Definite	Large, gray dolphins with a darker dorsal cape and falcate dorsal fin; well-defined beak and prominent melon	Porpoising, Blowing, Breaching/Jumping/Acrobatic behavior	11	4	30	15	15	140	Moderate	500	200	200	Full Power	Sparker Only	No	0	None	N/A	N/A	11	On Watch
51	1078	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-06	Visual	19:38	40.55630	-73.67132	197	Bottlenose dolphin - *Tursiops truncatus*	Definite	Medium sized dolphin with overall grey uniform coloration. Tall, falcate dorsal fin located midback of animal.	Swimming at the surface	4	0	5	4	4	100	Moderate	100	170	100	Full Power	Sparker Only	No	0	None	N/A	N/A	14	On Watch
52	1079	*Brooks McCall*	HRG	Salomón Hernández, Ana Betsabé	2023-06-07	Visual	12:26	40.54390	-73.65143	99	Humpback whale - *Megaptera novaeangliae*	Definite	Grey to black back body. Dorsal hump followed by a small and triangular dorsal fin. Blow bushy and slightly visible.	Blowing, Surfacing	1	0	1	1	1	100	Moderate	150	90	90	Silent	Sparker Only	No	0	Delay	N/A	N/A	12	On Watch
53	1080	*Brooks McCall*	HRG	Ruiz Villanueva, Arturo	2023-06-09	Visual	17:07	40.53923	-73.63898	183	Humpback whale - *Megaptera novaeangliae*	Definite	Long, white pectoral fins; bushy blow	Blowing, Breaching/Jumping/Acrobatic behavior, Fin or tail slapping	1	0	1	1	1	i	Stationary	2500	1700	1700	Full Power	Sparker Only	No	0	None	N/A	N/A	12	On Watch
54	1081	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-09	Visual	18:33	40.55247	-73.56755	276	Bottlenose dolphin - *Tursiops truncatus*	Definite	Medium sized dolphin with overall grey uniform coloration. Tall, falcate dorsal fin located midback of animal.	Porpoising, Fast travel	38	12	60	40	50	20	Vigorous	100	100	40	Full Power	Sparker Only	Yes	50	None	N/A	N/A	12	On Watch
55	1082	*Brooks McCall*	HRG	Peña Mendoza, Valeria	2023-06-11	Visual	09:59	40.55128	-73.71135	159	Humpback whale - *Megaptera novaeangliae*	Definite	Large and mainly black color on the back and slightly white underbody. Dorsal hump followed by a small dorsal fin situated 2/3 along the back. Long arm-like flippers mostly white with hair-follicle knobs visible. Fluke with curve edges and black to white underside patterns. Blow bushy and highly	Breaching/Jumping/Acrobatic behavior, Fin or tail slapping, Blowing, Surfacing	1	0	1	1	1	i	Stationary	2440	1480	1520	Silent	Sparker Only	No	0	None	N/A	N/A	15	On Watch
56	1083	*Brooks McCall*	HRG	uiz Villanueva, Arturo; Dalton, Tav	2023-06-11	Visual	17:38	40.54910	-73.67038	160	Humpback whale - *Megaptera novaeangliae*	Definite	Large, dark whale with long pectoral fins	Breaching/Jumping/Acrobatic behavior	1	0	1	1	1	i	Stationary	2000	2090	2000	Full Power	Sparker Only	No	0	None	N/A	N/A	15	On Watch
57	1084	*Brooks McCall*	HRG	Cardenas, Ana	2023-06-19	Visual	11:45	40.54540	-73.54660	283	Humpback whale - *Megaptera novaeangliae*	Definite	Dark color, flukes broad with irregular trailing edge, blow broad and bushy, to 3 m high.	Blowing, Diving with flukes	1	0	1	1	1	180	Moderate	700	690	650	Full Power	Sparker Only	No	0	None	N/A	N/A	13	On Watch
58	1085	*Brooks McCall*	HRG	Ortega Arana, Jimena	2023-06-19	Visual	21:09	40.53332	-73.50750	92	Humpback whale - *Megaptera novaeangliae*	Definite	Body mostly dark gray with white on throat and belly; very white on flippers. Dorsal fin humped. Blow bushy approximately 3 m high.	Blowing, Breaching/Jumping/Acrobatic behavior, Fin or tail slapping, Diving with flukes	2	0	3	1	2	var	Moderate	1530	670	580	Full Power	Sparker Only	No	0	None	N/A	N/A	20	On Watch
59	1086	*Brooks McCall*	HRG	Steinbeisser, Myka; Cardenas, Ana	2023-06-24	Visual	10:13	40.55708	-73.77747	83	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall, falcate dorsal fin located mid-back, short thick defined beak, blue gray coloration	Surfacing, Swimming at the surface	5	0	8	3	5	30	Sedate	150	N/A, source not deployed	80	Standby	None	No	0	None	N/A	N/A	15	On Watch
60	1087	*Brooks McCall*	HRG	Steinbeisser, Myka; Cardenas, Ana	2023-06-24	Visual	10:58	40.55553	-73.76272	87	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall, falcate dorsal fin located mid-back, short thick defined beak, blue gray coloration	Surfacing, Swimming at the surface	2	0	5	1	2	180	Sedate	150	N/A, source not deployed	60	Standby	None	No	0	None	N/A	N/A	15	On Watch
61	1088	*Brooks McCall*	HRG	Dalton, Tavis	2023-06-25	Visual	19:55	40.54278	-73.52192	198	Bottlenose dolphin - *Tursiops truncatus*	Definite	Tall, falcate dorsal fin located mid-back, short thick defined beak, blue gray coloration	Swimming at the surface, Surfacing	10	2	20	10	12	270	Moderate	566	160	80	Full Power	Sparker Only	No	0	None	N/A	N/A	16	On Watch
62	1089	*Brooks McCall*	HRG	Ortega Arana, Jimena	2023-06-26	Visual	17:37	40.51463	-73.54163	27	Bottlenose dolphin - *Tursiops truncatus*	Definite	Slender body, light gray color with falcate dorsal fin	Fast travel, Swimming at the surface	4	0	6	3	4	210	Vigorous	1200	1150	1200	Silent	None	No	0	None	N/A	N/A	17	On Watch
63	1090	*Brooks McCall*	*HRG*	Ortega Arana, Jimena	2023-07-03	Visual	13:18	40.54325	-73.49515	152	Bottlenose dolphin - *Tursiops truncatus*	Definite	Slender body color light gray with a prominent recurved dorsal fin with a slightly hooked tip.	Swimming at the surface, Fast travel	2	0	3	1	2	300	Moderate	250	250	200	Full Power	Sparker Only	No	0	None	N/A	N/A	5	On Watch
64	1091	*Brooks McCall*	*HRG*	Cardenas, Ana; Dalton, Tavis	2023-07-06	Visual	02:54	40.50640	-73.93222	275	Humpback whale - *Megaptera novaeangliae*	Definite	Robust body shape, head broad and rounded, small bushy blow	Fast travel, Breaching/Jumping/Acrobatic behavior, Blowing	1	0	1	1	1	140	Moderate	250	250	250	Full Power	None	No	0	None	N/A	N/A	10	On Watch
65	1092	*Brooks McCall*	*HRG*	Steinbeisser, Myka	2023-07-07	Visual	09:40	40.43633	-73.39378	144	Humpback whale - *Megaptera novaeangliae*	Definite	Partial amount of white on underside of flukes and both sides of flippers, raised hump in front of dorsal fin, broad flukes with bumpy trailing edge	Surfacing, Diving with flukes, Breaching/Jumping/Acrobatic behavior	2	0	4	1	2	70	Vigorous	1200	840	750	Full Power	Sparker Only	No	0	None	N/A	N/A	28	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees)		Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition		Estimated Total Number of Animals			Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
								Latitude	Longitude						# Adults (Visual sightings only)	# Juveniles (Visual sightings only)	High	Low	Best (Total # observed)														
66	1093	*Brooks McCall*	*HRG*	Steinbeisser, Myka	2023-07-07	Visual	09:52	40.43093	-73.38715	147	Bottlenose dolphin - *Tursiops truncatus*	Definite	Short thick beak, robust head, no distinctive color pattern, tall falcate dorsal fin with broad base	Swimming at the surface, Surfacing	3	0	6	1	3	160	Sedate	500	470	400	Silent	Sparker Only	No	0	None	N/A	N/A	27	On Watch
67	1094	*Brooks McCall*	*HRG*	Steinbeisser, Myka	2023-07-09	Visual	14:30	40.31938	-73.19060	119	Unidentified whale - Cetacea spp.	Definite	Bushy, tall blow	Blowing	1	0	0	0	1	u	Sedate	3000	2990	2900	Full Power	Sparker Only	No	0	None	N/A	N/A	36	On Watch
68	1095	*Brooks McCall*	*HRG*	Cardenas, Ana	2023-07-09	Visual	19:00	40.30563	-73.16282	228	Unidentified whale - Cetacea spp.	Definite	Blackish body, bushy blow, tall dorsal fin	Blowing, Swimming at the surface, Breaching/Jumping/Acrobatic behavior	1	0	1	1	1	80	Vigorous	2000	2040	2000	Full Power	Sparker Only	No	0	None	N/A	N/A	38	On Watch
69	1096	*Brooks McCall*	*HRG*	Ortega Arana, Jimena	2023-07-10	Visual	21:20	40.31390	-73.10992	284	North Atlantic right whale - *Eubalaena glacialis*	Definite	Bushy and strong V-shape blow. Robust body dark grey with absent of dorsal fin and hump.	Blowing, Swimming at the surface	1	0	3	1	1	180	Moderate	2300	1800	1800	Full Power	Sparker Only	No	0	None	N/A	N/A	34	On Watch
70	1097	*Brooks McCall*	*HRG*	Ortega Arana, Jimena	2023-07-10	Visual	21:30	40.31390	-73.10992	284	Fin whale - *Balaenoptera physalus*	Possible	Tall and slender blow, large body color light grey with falcate dorsal fin.	Blowing, Swimming at the surface	1	0	2	1	1	180	Moderate	1800	1800	1800	Full Power	Sparker Only	No	0	None	N/A	N/A	34	On Watch
71	1098	*Brooks McCall*	*HRG*	Cardenas, Ana	2023-07-12	Visual	15:02	40.29705	-73.04568	301	Minke whale - *Balaenoptera acutorostrata*	Possible	Blow not visible, dorsal fin tall and sickle-shaped, dark gray color, about 6-8 m long	Swimming at the surface, Diving	1	0	1	1	1	180	Sedate	140	100	140	Silent	Sparker Only	No	0	Delay	N/A	N/A	40	On Watch
72	1099	*Brooks McCall*	*HRG*	Cardenas, Ana	2023-07-21	Visual	18:52	40.53665	-73.59938	119	Bottlenose dolphin - *Tursiops truncatus*	Definite	beak moderately long; mouthline curved; dorsal fin tall and pointed, gray color, about 6-12 ft.	Swimming at the surface, Porpoising, Diving	7	2	12	4	9	320	Vigorous	350	245	200	Full Power	Sparker Only	No	0	None	N/A	N/A	16	On Watch
73	1100	*Brooks McCall*	*HRG*	Ortega Arana, Jimena; Steinbeisser, Myka	2023-07-23	Visual	13:50	40.53760	-73.61382	120	Bottlenose dolphin - *Tursiops truncatus*	Definite	Robust body, color light gray with white belly; tall and pointed dorsal fin	Breaching/Jumping/Acrobatic behavior, Feeding, Milling, Swimming at the surface	20	2	25	18	22	200	Vigorous	1500	1150	1200	Full Power	Sparker Only	No	0	None	N/A	N/A	14	On Watch
1	1101	*Bella Marie*	HRG	Figueroa, Lorena	2023-06-26	Visual	09:20	40.58705	-73.57247	226	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing	3	0	3	2	3	180	Sedate	150	N/A, source not deployed	150	Transit	None	No	0	None	N/A	N/A	6	On Watch
2	1102	*Bella Marie*	HRG	Reid, Connor	2023-06-26	Visual	09:38	40.58072	-73.53860	172	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing	10	2	16	10	12	100	Sedate	100	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	7	On Watch
3	1103	*Bella Marie*	*HRG*	Reid, Connor	2023-07-01	Visual	09:28	40.56238	-73.58767	274	Unidentified dolphin - Delphinidae spp.	Definite	Torpedo like body shape, falcate dorsal fin	Surfacing	4	0	6	3	4	0	Moderate	500	N/A, source not deployed	500	Transit	None	No	0	None	N/A	N/A	10	On Watch
4	1104	*Bella Marie*	*HRG*	Reid, Connor	2023-07-01	Visual	17:24	40.56992	-73.68178	193	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing	8	0	10	6	8	90	Moderate	200	200	75	Full Power	Sparker Only	No	0	None	N/A	N/A	10	On Watch
6	1105	*Bella Marie*	*HRG*	Reid, Connor	2023-07-03	Visual	10:24	40.56762	-73.58653	172	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Porpoising	4	0	6	3	4	320	Moderate	30	N/A, source not deployed	30	Transit	None	No	0	None	N/A	N/A	11	On Watch
7	1106	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-04	Visual	15:45	40.58032	-73.73928	24	Unidentified dolphin - Delphinidae spp.	Probable	Carcass 2 to 3 meters in length, light grey color and a large white patch where skin came off. Heavy decomposed, bloated with intestines exposed. Pectoral fin squarish and broad. Unknown marks below fin.	Deceased	1	0	1	1	1	i	Stationary	700	200	180	Full Power	Sparker Only	No	0	None	N/A	N/A	7	On Watch
8	1107	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-05	Visual	12:22	40.58327	-73.53223	81	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing, Milling	3	3	8	5	6	180	Sedate	400	250	250	Full Power	Sparker Only	No	0	None	N/A	N/A	6	On Watch
9	1108	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-06	Visual	09:37	40.58083	-73.52855	46	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing	3	0	5	2	3	225	Sedate	640	N/A, source not deployed	200	Transit	None	No	0	None	N/A	N/A	8	On Watch
10	1109	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-06	Visual	09:52	40.58845	-73.51683	97	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Milling, Surfacing, Feeding	4	0	6	3	4	var	Sedate	250	N/A, source not deployed	160	Deploying/Retrieving	None	No	0	None	N/A	N/A	5	On Watch
11	1110	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-08	Visual	13:03	40.58740	-73.77935	88	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Milling, Surfacing, Swimming below the surface	5	0	6	5	5	var	Sedate	250	50	50	Full Power	Sparker Only	Yes	4	None	N/A	N/A	5	On Watch

Vessel Sighting ID #	General ID #	Vessel Name	Vessel Type (HRG, Geotechnical, UXO, Environmental)	Observer's Name (Last, First)	Date (YYYY-MM-DD)	Sighting Type (Acoustic, Visual, Both)	First Time of Sighting (UTC; HH:MM)	Sighting Location (Decimal Degrees) Latitude	Sighting Location (Decimal Degrees) Longitude	Vessel Heading (Degrees)	Species or Species Group (Common - (Scientific))	Species ID Certainty (Possible, Probable, Definite)	Animal Description (Include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow; etc.)	Animal Behavior (Behaviors and behavioral changes observed in sequential order, noted using behavior codes)	Group Composition # Adults (Visual sightings only)	Group Composition # Juveniles (Visual sightings only)	Estimated Total Number of Animals High	Estimated Total Number of Animals Low	Estimated Total Number of Animals Best (Total # observed)	Animal's Initial Direction of Travel (Degrees, i=stationary, u=unknown, var=variable; relative to vessel)	Animal Pace (Stationary, Sedate, Moderate, Vigorous)	Distance at Initial Sighting (m)	Closest Point of Approach to Source (Reticle distance in m)	Closest Point of Approach to Vessel (Reticle distance in m)	Vessel Activity at First Sighting (Transit, Soft Start, Testing, Reduced Power, Full Power, Deploying/Retrieving, Coring, Sampling, Silent, Standby)	Equipment Operating During Sighting (Non-Parametric SBP (SBP) Only, SBP & Boomer, SBP & Sparker, Sparker Only, Boomer Only, None)	Animal Within 141m of Active Survey Equipment (Yes/No)	Number of Animals Within 141m of Active Survey Equipment (Number)	Source Mitigation Action (Delay, Shutdown, None)	Time Shutdown Called For (UTC; HH:MM)	Time Equipment was Shutdown (UTC; HH:MM)	Water Depth (m)	Watch Status: (On Watch, Off Watch=Incidental Sighting)
12	1111	*Bella Marie*	*HRG*	Reid, Connor	2023-07-09	Visual	09:44	40.57987	-73.66263	297	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Porpoising, Diving	2	1	5	2	3	20	Moderate	10	N/A, source not deployed	10	Transit	None	No	0	None	N/A	N/A	5	On Watch
13	1112	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-09	Visual	12:06	40.58097	-73.67635	177	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Milling, Surfacing	7	1	10	6	8	var	Moderate	180	80	80	Full Power	Sparker Only	Yes	5	None	N/A	N/A	5	On Watch
14	1113	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-11	Visual	13:03	40.58263	-73.78378	22	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Surfacing, Porpoising, Milling, Fast travel	15	0	20	12	15	270	Moderate	400	90	70	Full Power	Sparker Only	Yes	5	Shutdown	13:11	13:11	7	On Watch
15	1114	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-12	Visual	11:23	40.57220	-73.78402	336	Unidentified whale - Cetacea spp.	Definite	Only blow visible: bushy, 3-5 meters tall.	Blowing	1	0	1	1	1	u	Sedate	1000	1000	1000	Silent	None	No	0	None	N/A	N/A	10	On Watch
16	1115	*Bella Marie*	*HRG*	Figueroa, Lorena	2023-07-12	Visual	15:58	40.57627	-73.77827	204	Bottlenose dolphin - *Tursiops truncatus*	Definite	Stocky body of a dark gray color; tall, falcate dorsal fin.	Fin or tail slapping, Milling, Feeding, Fast travel	20	0	30	15	20	var	Vigorous	500	230	200	Full Power	Sparker Only	No	0	None	N/A	N/A	10	On Watch

Appendix H: Photographs of Identified Protected Species Visually Detected During the Survey

GO DISCOVERY

PHOTOGRAPHS OF IDENTIFIED PROTECTED SPECIES VISUALLY DETECTED DURING VW 522

GO DISCOVERY - VD #141 - COMMON DOLPHIN

MAKING
COMPLEX
EASY

A TETRA TECH COMPANY

GO DISCOVERY - VD #149 - HUMPBACK WHALE

GO DISCOVERY - VD #155 - COMMON DOLPHIN

GO DISCOVERY - VD #157 - HUMPBACK WHALE

GO DISCOVERY - VD #169 - FIN WHALE

GO DISCOVERY - VD #177 - HUMPBACK WHALE

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GO DISCOVERY - VD #186 - FIN WHALE

GO DISCOVERY - VD #188 - COMMON DOLPHIN

GO DISCOVERY - VD #218 - COMMON MINKE WHALE

GO DISCOVERY - VD #226 - COMMON MINKE WHALE

GO DISCOVERY - VD #230 - COMMON MINKE WHALE

GO DISCOVERY - VD #231 - COMMON MINKE WHALE

GO DISCOVERY - VD #236 - UID WHALE

GO DISCOVERY - VD #237 - COMMON BOTTLENOSE DOLPHINS

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GO DISCOVERY - VD #268 - LOGGERHEAD SEA TURTLE

GO DISCOVERY

PHOTOGRAPHS OF IDENTIFIED PROTECTED SPECIES VISUALLY DETECTED

VD#004. UID baleen whale 20220805

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VD#005. Fin whale 20220805

VD#007. Common dolphins 20220806

VD#011 Minke whale 20220808

VD #013 Atlantic Spotted Dolphins 20220814

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VD #014 Common Bottlenose Dolphin 20220814

VD#016 Minke whale 20220815

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VD #017 Minke whale 20220815

VD#024 Loggerhead Sea turtle 20220820

VD#025 Fin whales 20220821

VD#026 Common dolphins 20220801

VD#027. Common Dolphins 20220821

VD#042 Fin whale 20220823

VD#049 Loggerhead Sea turtle 20220825

VD#65 Leatherback Sea turtle 20220829

VD#70 Kemp's Ridley Sea turtle 20220831

VD#076 Common dolphins 20220902

VD#084 Common dolphins 20220904

VD#085 Loggerhead Sea turtle 20220904

VD#090 Loggerhead Sea turtle 20220905

VD#093 Bottlenose dolphin 20220907

VD#094 Leatherback Sea turtle 20220911

VD#095_Loggerhead Sea turtle 20220911

#VD096 Kemps Ridley Sea turtle 20220911

VD#099. Common dolphins 20220911

VD#100. Common dolphins 20220911

VD#107. Loggerhead sea turtle 20220917

VD#109. Humpback whale 20220918

VD#115. Loggerhead sea turtle 20220920

VD#116. Humpback whale 20220920

VD#117. Common dolphins 20220921

VD#118. Common dolphins 20220921

VD#124. Common dolphins 20220928

VD#125. Common dolphins 20220930

GO EXPLORER
PHOTOGRAPHS OF IDENTIFIED PROTECTED SPECIES VISUALLY DETECTED

Figure 1. Visual Detection 04 – Humpback whale

Figure 2. Visual Detection 05 – Gray seal

Figure 3. Visual Detection 06 – Gray seal

Figure 4. Visual Detection 07 – UID dolphin

Figure 5. Visual Detection 08 – North Atlantic Right whale


Figure 6. Visual Detection 09 – North Atlantic Right whale


Figure 7. Visual Detection 11 – Humpback whale


Figure 8. Visual Detection 12 – Gray seal

Figure 9. Visual Detection 13 – Humpback whale

Figure 10. Visual Detection 15 – Humpback whale


Figure 11. Visual Detection 16 – Gray seal


Figure 12. Visual Detection 17 – Gray seal

Figure 13. Visual Detection 18 – Gray seal

Figure 14. Visual Detection 19 – Grey seal

Figure 15. Visual Detection 26 – Gray seal

Figure 16. Visual Detection 27 – Gray seal

Figure 17. Visual Detection 28 – Gray seal

Figure 18. Visual Detection 31 – Pilot whales

Figure 19. Visual Detection 32 – Common bottlenose dolphins


Figure 20. Visual Detection 69 – Common minke whale

Figure 21. Visual Detection 71 – Common minke whale

Figure 22. Visual Detection 72 – Common dolphin

Figure 23. Visual Detection 73 – Bottlenose dolphins

Figure 24. Visual Detection 93 – Common minke whale. Photo: Arturo Ruiz

Figure 25. Visual Detection 94 – Humpback whale Photo: Arturo Ruiz

Figure 26. Visual Detection 95 – Humpback whales

Figure 27. Visual Detection 96 – Unidentified whales

Figure 28.Visual Detection 98 – Humpback whale

Figure 29. Visual Detection 99 – Sei whale Photo: Arturo Ruiz

Figure 30. Visual Detection 100 – Humpback whale

Figure 31. Visual Detection 101 – Sei whale.

Figure 32. Visual Detection 103 – Sei whale.

Figure 33. Visual Detection 104 – Humpback whales


Figure 34. Visual Detection 105 – Humpback whale Photo: Edgar Alvarado


Figure 35. Visual Detection 109 – Sei whale

Figure 36. Visual Detection 111 – Dead humpback whale. Photo: Arturo Ruiz

Figure 37. Visual Detection 112 – Humpback whale

Figure 38. Visual Detection 113 – Sei whale

Figure 39. Visual Detection 115 – Humpback whale

Figure 40. Visual Detection 116 – Fin whale. Photo: Arturo Ruiz.

Figure 41. Visual Detection 117 – Sei whale

Figure 42. Visual Detection 118 – Common dolphins, Photo: Jimena Ortega

Figure 43. Visual Detection 120 – Sei whale

Figure 44. Visual Detection 121 – Humpback whale

Figure 45. Visual Detection 124 – Humpback whale

Figure 46. Visual Detection 127 – Common minke whale


Figure 47. Visual Detection 128 – Common minke whale


Figure 48. Visual Detection 129 – Fin whale

Figure 49. Visual Detection 130 – Common minke whale

Figure 50. Visual Detection 131 – Fin whale


Figure 51. Visual Detection 132 – Common minke whale. Photo: Arturo Ruiz.


Figure 52. Visual Detection 136 – Humpback whale.

Figure 53. Visual Detection 137 – Common minke whale

Figure 54. Visual Detection 139 – Common minke whale, Photo: Jimena Ortega

Figure 55. Visual Detection 140 – Humpback whale


Figure 56. Visual Detection 142 – Common minke whale


Figure 57. Visual Detection 143 – Common minke whale


Figure 58. Visual Detection 145 – Fin whale

Figure 59. Visual Detection 146 – Common dolphins

Figure 60. Visual Detection 147 – Humpback whale. Photo: Edgar Alvarado.


Figure 61. Visual Detection 148 – Common dolphins. Photo: Arturo Ruiz


Figure 62. Visual Detection 150 – Sei whale


Figure 63. Visual Detection 151 – Common bottlenose dolphins

Figure 64. Visual Detection 152 – Humpback whale. Photo: Edgar Alvarado.

Figure 65. Visual Detection 153 – Common dolphins

Figure 66. Visual Detection 156 – Common dolphin


Figure 67. Visual Detection 157 – Humpback whale.


Figure 68. Visual Detection 158 – Sei whale


Figure 69. Visual Detection 159 – Fin whale

Figure 70. Visual Detection 162 – Sei whale

Figure 71. Visual Detection 163 – Common bottlenose dolphins. Photo: Edgar Alvarado.


Figure 72. Visual Detection 164 – Sei whale. Photo: Arturo Ruiz.


Figure 73. Visual Detection 166 – Common dolphins. Photo: Arturo Ruiz.


Figure 74. Visual Detection 167 – Fin whale. Photo: Arturo Ruiz.


Figure 75. Visual Detection 168 – Common Minke whale

Figure 76. Visual Detection 169 – Common dolphins. Photo: Arturo Ruiz.

Figure 77. Visual Detection 170 – Sei whale

Figure 78. Visual Detection 171 – Sei whale. Photo: Arturo Ruiz.

Figure 79. Visual Detection 172 – Sei whale

Figure 80. Visual Detection 173 – Sei whale

Figure 81. Visual Detection 175 – Sei whale

Figure 82. Visual Detection 177 – Fin whale

Figure 83. Visual Detection 178 – Humpback whale. Photo: Arturo Ruiz.

Figure 84. Visual Detection 179 – Unidentifiable whale

Figure 85. Visual Detection 181 – Common dolphins. Photo: Arturo Ruiz.

Figure 86. Visual Detection 183 – Sei whale. Photo: Tavis Dalton.

Figure 87. Visual Detection 184 – Common dolphins. Photo: Tavis Dalton.

Figure 88. Visual Detection 185 – Common Minke whale. Photo: Arturo Ruiz.

Figure 89. Visual Detection 186 – Common dolphins. Photo: Arturo Ruiz.

Figure 90. Visual Detection 187 – Common dolphins. Photo: Esmeralda Bravo.

Figure 91. Visual Detection 188 – Common bottlenose dolphins. Photo: Esmeralda Bravo.

Figure 92. Visual Detection 189 – Sei whale. Photo: Edgar Alvarado.

Figure 93. Visual Detection 192 – Fin whale. Photo: Tavis Dalton.


Figure 94. Visual Detection 193 – Common dolphins. Photo: Arturo Ruiz.


Figure 95. Visual Detection 194 – Humpback whale. Photo: Arturo Ruiz.


Figure 96. Visual Detection 195 – Common bottlenose dolphins. Photo: Tavis Dalton.

Figure 97. Visual Detection 196 – Humpback whale. Photo: Edgar Alvarado.

Figure 98. Visual Detection 197 – Common dolphins. Photo: Arturo Ruiz.

Figure 99. Visual Detection 198 – Common dolphins. Photo: Arturo Ruiz.

Figure 100. Visual Detection 200 – Humpback whale Photo: Arturo Ruiz.

Figure 101. Visual Detection 201 – Common dolphins, Photo: Ravindra Mohandeo

Figure 102. Visual Detection 205 – Common Bottlenose dolphins

Figure 103. Visual Detection 206 – Common dolphins, Photo: Edgar Alvarado

Figure 104. Visual Detection 207 – Common bottlenose dolphins, Photo: Edgar Alvarado


Figure 105. Visual Detection 208 – Loggerhead turtle, Photo: Esmeralda Bravo


Figure 106. Visual Detection 211 – Common Dolphins, Photo: Ravindra Mohandeo


Figure 107. Visual Detection 212 – Loggerhead turtle, Photo: Esmeralda Bravo


Figure 108. Visual Detection 213 – Common dolphins, Photo: Daniela Gutierrez
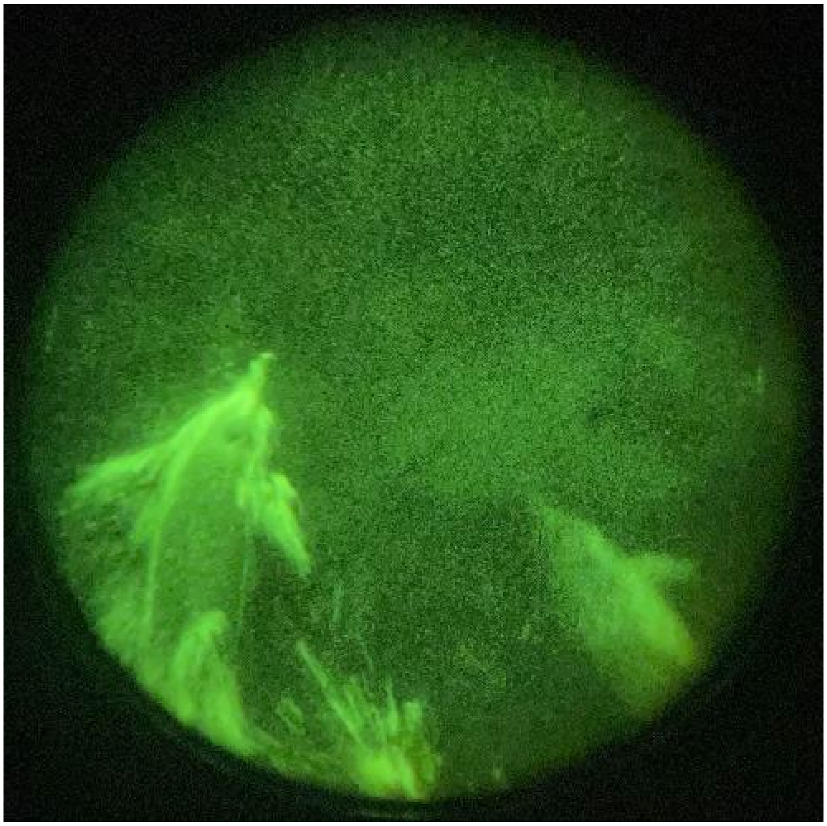
Figure 109. Visual Detection 215 – Common dolphins, Photo: Ravindra Mohandeo

Figure 110. Visual Detection 216 – Common dolphins, Photo: Ravindra Mohandeo

Figure 111. Visual Detection 217 – Common dolphins, Photo: Ravindra Mohandeo

Figure 112. Visual Detection 218 – Common bottlenose dolphins, Photo: Esmeralda Bravo

Figure 113. Visual Detection 221 – Common dolphins, Photo: Ravindra Mohandeo


Figure 114. Visual Detection 226 – Common dolphins, Photo: Ravindra Mohandeo


Figure 115. Visual Detection 227 – Common dolphin, Photo: Ravindra Mohandeo

Figure 116. Visual Detection 229 - Humpback whale

Figure 117. Visual Detection 230 – Common dolphins

Figure 118. Visual Detection 231 – Common dolphins

Figure 119. Visual Detection 236 – Common bottlenose dolphin


Figure 120. Visual Detection 240 – Fin whale


Figure 121. Visual Detection 241 – Loggerhead Turtle


Figure 122. Visual Detection 243 – Common bottlenose dolphins


Figure 123. Visual Detection 245 – Humpback whale


Figure 124. Visual Detection 246 – Humpback whale


Figure 125. Visual Detection 247 – Humpback Whale


Figure 126. Visual Detection 253 – Common bottle nose dolphin

Figure 127. Visual Detection 256 – Common dolphins

Figure 128. Visual Detection 257 – Humpback whale

Figure 129. Visual Detection 259 – Kemp's Ridley Turtle

Figure 130. Visual Detection 261 – Common Dolphin

Figure 131. Visual Detection 269 – Common Dolphin

Figure 132. Visual Detection 280 – Common Dolphin

Figure 133. Visual Detection 291 – Minke whale

Figure 134. Visual Detection 292 – Humpback whale

Figure 135. Visual Detection 301 – Humpback whales

Figure 136. Visual Detection 302 – Common dolphins

Figure 137. Visual Detection 303 – Fin whale

Figure 138. Visual Detection 305 – Humpback whales

Figure 139. Visual Detection 306 – Humpback whales

Figure 140. Visual Detection 307 – Fin Whale

Figure 141. Visual Detection 308 – Humpback whale

Figure 142. Visual Detection 310 – Humpback Whale

Figure 143. Visual Detection 311– Fin Whale

Figure 144. Visual Detection 313 – Fin Whale

Figure 145. Visual Detection 325 – Humpback Whale

Figure 146. Visual Detection 335 – Humpback whales

Figure 147. Visual Detection 352 – Common dolphins

Figure 148. Visual Detection 359 – Common dolphins

Figure 149. Visual Detection 368 – Common dolphins

Figure 150. Visual Detection 369 – Humpback whale

Figure 151. Visual Detection 395 – Common dolphins

Figure 152. Visual Detection 396 – Common dolphins

Figure 153. Visual Detection 420 – Common dolphin

Figure 154. Visual Detection 597 – Common dolphin, Photo: Jimena Ortega

Figure 155. Visual Detection *600* – Common dolphins, Photo: Edgar Alvarado

Figure 156. Visual Detection *601* – Common dolphins, Photo: Jimena Ortega

Figure 157. Visual Detection 602 – Common dolphins, Photo: Edgar Alvarado

Figure 158. Visual Detection 603 – Common dolphin, Photo: Edgar Alvarado

Figure 159. Visual Detection 608 – Common dolphin, Photo: Edgar Alvarado

Figure 160. Visual Detection 612 – North Atlantic Right Whale, Photo: Edgar Alvarado

Figure 161. Visual Detection 620 – North Atlantic Right Whale, Photo: Alejandra Minguer

Figure 162. Visual Detection 625 – Common dolphin, Photo: Edgar Alvarado

Figure 163. Visual Detection 652 – Common dolphin

BROOKS MCCALL

PHOTOGRAPHS OF IDENTIFIED PROTECTED SPECIES VISUALLY DETECTED


Figure 1. Visual Detection #3. Humpback whale
Photo: Leonardo Mario de la Rosa.


Figure 2. Visual Detection #4. Humpback whale
Photo: Ana Betsabé Salomón Hernández.

Figure 3. Visual Detection #5. Common bottlenose dolphins
Photo: Valeria Peña Mendoza.

Figure 4. Visual Detection #7. Common bottlenose dolphins
Photo: Arturo Ruiz Villanueva.

Figure 5. Visual Detection #8. Common bottlenose dolphins
Photo: Arturo Ruiz Villanueva.

Figure 6. Visual Detection #10. Humpback whale
Photo: Tavis Dalton.

Figure 7. Visual Detection #12. Humpback whale
Photo: Leonardo Mario de la Rosa.

Figure 8. Visual Detection #18. Unidentified dolphins.
Photo: Valeria Peña Mendoza.

Figure 9. Visual Detection #20. Humpback whale
Photo: Arturo Ruiz Villanueva.

Figure 10. Visual Detection #22. Humpback whale
Photo: Arturo Ruiz Villanueva.

Figure 11. Visual Detection #24. Common bottlenose dolphins
Photo: Arturo Ruiz.

Figure 12. Visual Detection #25. Common bottlenose dolphins
Photo: Ana Betsabé Salomón Hernández.

Figure 13. Visual Detection #26. Common bottlenose dolphins
Photo: Valeria Peña Mendoza.

Figure 14. Visual Detection #27. Common bottlenose dolphins
Photo: Tavis Dalton.

Figure 15. Visual Detection #29. Humpback whale
Photo: Tavis Dalton.

Figure 16. Visual Detection #33. North Atlantic right whale
Photo: Arturo Ruiz Villanueva.

Figure 17. Visual Detection #34. Fin whale
Photo: Ana Betsabé Salomón Hernández.

Figure 18. Visual Detection #35. Bottlenose dolphin
Photo: Tavis Dalton.

Figure 19. Visual Detection #38. Bottlenose dolphin
Photo: Arturo Ruiz Villanueva.

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Figure 20. Visual Detection #40. Humpback whale
Photo: Tavis Dalton.

Figure 21. Visual Detection #41. Humpback whale
Photo: Valeria Peña Mendoza.

Figure 22. Visual Detection #42. Humpback whale
Photo: Tavis Dalton.

Figure 23. Visual Detection #43. Bottlenose dolphin
Photo: Arturo Ruiz Villanueva.

Figure 24. Visual Detection #44. Humpback whale
Photo: Arturo Ruiz Villanueva.

Figure 25. Visual Detection #45. Humpback whale
Photo: Arturo Ruiz Villanueva.

Figure 26. Visual Detection #46. Humpback whale
Photo: Tavis Dalton.

Figure 27. Visual Detection #47. Humpback whale
Photo: Leonardo Mario de la Rosa.

Figure 28. Visual Detection #49. Bottlenose dolphin
Photo: Arturo Ruiz Villanueva.

Figure 29. Visual Detection #50. Bottlenose dolphin
Photo: Arturo Ruiz Villanueva.

Figure 30. Visual Detection #53. Humpback whale
Photo: Arturo Ruiz Villanueva.

Figure 31. Visual Detection #54. Bottlenose dolphin
Photo: Tavis Dalton.

Figure 32. Visual Detection #55. Humpback whale
Photo: Valeria Peña Mendoza.

Figure 33. Visual Detection #57. Humpback whale
Photo: Ana Cárdenas

Figure 34. Visual Detection #58. Humpback whale
Photo: Jimena Ortega

Figure 35. Visual Detection #59. Bottlenose dolphin
Photo: Myka Steinbeisser

Figure 36.Visual Detection #59. Bottlenose dolphin
Photo: Tavis Dalton

Figure 37. Visual Detection #63. Bottlenose dolphin
Photo: Jimena Ortega

Figure 38. Visual Detection #64. Humpback whale
Photo: Myka Steinbeisser

Figure 39. Visual Detection #68. Unidentifiable whale
Photo: Jimena Ortega

Figure 40. Visual Detection #69. North Atlantic right whale

Photo: Jimena Ortega

Figure 41.Visual Detection #70. Possible fin whale
Photo: Jimena Ortega

Figure 42. Visual Detection #72. Bottlenose dolphin
Photo: Ana Cardenas

Figure 43. Visual Detection #73. Bottlenose dolphin
Photo: Jimena Ortega

Appendix I: Dead or Injured Animal Reports

GENERAL SIGHTING INFORMATION

General Sighting Information	
Observer Names	Lorena Figueroa
Observer Affiliation	RPS
Vessel Name	M/V Bella Marie
Sighting Coordinates (decimal degrees)	40.58032, -73.73928
Species Identification	Unidentifiable dolphin
Confidence of Identification (Sure / Unsure / Best Guess)	Best guess
Date of Observation	07-04-2023
Time of Observation (UTC)	15:45 UTC
Vessel Speed During and Leading Up to the Incident (knots)	3.67 kts
Vessel Heading	24 degrees
Vessel Operations Being Conducted	HRG survey lines
Status of Sound Sources (if applicable)	Active
Vessel Strike Avoidance Measures Implemented	None, unrequired
Water Temperature (°C)	22°C
Water Depth (m)	7.2 m
Beaufort Sea State	B1
Wind Speed (kts) / Wind Direction (compass)	6 kts / SW
Ocean Current Speed (kts) / Direction (compass)	Unknown speed / E
Cloud Cover (%)	50 %
Visibility (km)	> 5 km
Animal Collected? (Yes/No)	No
If collected – Date and Time	N/A
Photograph or Video Taken? (Yes/No)	Yes
If Vessel Strike, Size and Length of animal that was struck	N/A

Location of Animal & Relevant Events within 24 hours (As detailed as possible)
The Bella Marie departed the Guy Lombardo Marina at 09:54 UTC, arriving on site (Atlantic Beach) at 10:45 UTC. Operations started at 11:22 UTC, consisting of High-Resolution Geophysical acquisition lines. The vessel was at survey speed of 3.67 knots, while in acquisition. At 15:45 UTC, an unknown object was observed floating stationary approx. 700 meters off the vessel's starboard bow. At first sight, only a white object could be seen, and one bird standing on top of it. Upon coming closer as the survey line progressed, approx. 200 meters from the object, it became apparent that it was a dead animal, possibly a dead dolphin.

** Describe location (where on board or general direction and distance from the vessel if overboard) of animal and events 24 hours leading up to, including and after, the incident (incl. vessel speeds, vessel activity, and status of all sound source use)*

PROTECTED SPECIES DETAILS

Full Sighting Narrative (As detailed as possible)
At 15:45 UTC, an unknown object was observed floating stationary approx. 700 meters off the vessel's starboard bow. At first sight, only a white object could be seen, and one bird next to it. The vessel was approaching as the survey line progressed, approx. 200 meters from the object. It then became apparent that it was a dead animal, possibly a dead dolphin in an advanced state of decomposition. The vessel's initial heading was 26 degrees. The carcass was surrounded by three seagulls. It had a light grey coloration and a large white patch that seemed to be where portions of the skin had come off. The carcass looked bloated and the intestines were exposed, still attached to the body and floating. Something that appeared to be a fin, was also visible on the top side. The carcass was left behind as the vessel moved ahead during the survey line, the closest distance to the animal being 180 meters off the starboard bow. The animal was still floating when the vessel turned around in the opposite heading for the next survey line; being observed last at 16:07 UTC, 500 meters off the starboard stern. When the vessel returned in the initial heading for another survey line, the carcass was no longer found.

**Describes HOW the sighting occurred, various timing of observations, and timing of reporting.*

Animal Description / Identification Characteristics & Condition (As detailed as possible)
The carcass was between 2 to 3 meters in length, had a light grey coloration, and a large white patch that seemed to be where portions of the skin had come off. The carcass looked bloated and the intestines were exposed, still attached to the body and also floating. The carcass presented an advanced state of decomposition. Something that appeared to be a fin, was also visible on the top side. Based on the position of the fin and the intestines, it seemed like the animal was floating on one side, with its head towards the right side (as shown in the photographs). There were no visible signs of entanglement. Nevertheless, upon close view of the photographs, there were three or four marks below the fin, but it was not possible to determine what caused them. One seagull was observed floating by the carcass as if feeding on it.

**Describes the animal itself, and any identifying characteristics observed. Do not include general species characteristics that are not actually observed. Note tar, oil, gear or debris entanglement, wounds, or mutilations, propeller damage, papilloma's, old tag locations etc.*

Marine Mammal Description	
Length (cm/m/in/ft)	2 to 3 m
Weight (if possible, kg or lbs)	Unknown
Sex (M/F) – *if possible*	Unknown
How sex was determined	N/A
Confidence of Identification (Sure / Unsure / Best Guess)	Best guess
Genetic Sample Collected? (Yes/No)	No
If So – Sample transmitted to	N/A
Sample transmission date	N/A
Description of Injuries Observed	None
Fate of animal	Dead

Photographs

Figure 1.

Figure 2.

Figure 3.

Figure 4.

REPORTING TO AGENCIES: OFFICE-USE ONLY

Date Transmitted	
Time Transmitted	
Transmittal Person	

Document Control OFFICE-USE ONLY		
Revision	**Author**	**Date**
Grammar and Spelling	Sara Davis	4 July 2023